THE IMPACT OF UNEMPLOYMENT ON ECONOMIC GROWTH IN NIGERIA

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CERTIFICATION

We, the undersigned, confirm that ENDURANCE RIDER ENOMHONBOR with Matriculation Number SSC1909354 conducted this research, that it is adequate in scope and quality, and that it is hereby approved for partial fulfillment of the award of Bachelor of Science (B.Sc.) Degree in Economics at the University of Benin, Benin City.

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DEDICATION

This work is dedicated to the Almighty God and to my wonderful parents who have made this dream a reality.

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ABSTRACT

This study examines the impact of unemployment on economic growth in Nigeria. The study adopted The study adopted the expo facto research design to source aggregate data from Central Bank of Nigeria CBN statistical bulletin from 1995 to 2022. The data was analysed using the Johansen co-integration test, serial correlation tests, Ramsey test, Unit Root Test ADF, and the Error Correction Mechanism ECM. The result showed that unemployment has positive impact on economic growth. The study recommended that deliberate and conscious effort should be given to the planning process through which the nation's expenditure will be carried out through. Therefore, planning and budgeting should be done on time and handled by professionals. It's also advised that some key sectors like the health sector, education sector and industrial sector. This will help the economy in becoming diversified and boost economic growth and development. Corruption had also been a major hindrance to efficient employment practices like government expenditure. Therefore, any possible means to ameliorate corruption should be taken.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The effect of unemployment for many young families in Nigeria is its harsh poverty. When a man has no job, to meet has daily basic needs and responsibility lacks the usually commitment to the immediate family and the society which eventually affects the overall economy of the nation for these families resides. The importance of poverty has been reflected in the first sustainable development goal (SDG) that seeks to end poverty in all forms by 2030. However, poverty is a multidimensional and multifaceted phenomenon emanating from unemployment which has been one of the major problems of development (Ogunniyi, Oluseyi, Adeyemi, Kabir & Philips, 2017; Oluwatayo, 2014). Omobowale (2014) described poverty as a state where the people are deprived of good things of life and the ability to achieve the desired state of wellbeing and socially acceptable standard of living. Incidentally, the poverty prevalence is generally intense in rural areas, close to 80% or huge proportion of the population lives below the poverty line, with constricted social and infrastructural amenities (Ogundipe, Ogunniyi, Olagunju & Asaleye, 2019; Aderounmu, 2018).

Poverty and unemployment remain major developmental challenges in Nigeria. Unemployment that is usually used to be describing a situation of no job for employable

people in the economy is an epidemic touching many countries especially the developing nations. Unemployment rate in Nigeria has gone to a level of alarming and still increasing in the last ten years as a result of the number of graduates produced every year and the incapability of Nigerian labour market to provide gainful employment. This unemployment situation has a consequent of political, socio-economic and moral disproportion on the economy. Unemployment replicates the inability to make effective and efficient use of factors of production. Hence, the low returns on capital and labour together with the state of unemployment points to poverty.

Unemployment and poverty which are regarded as social phenomenon have remained major progressive issues in Nigeria over a long period of time. Unemployment has been recognized as critical in the 1980s and has ever since been on the rise in Nigeria. The figure of 20% unemployed from the nation's work force in 2011 was up from 15% in 2008, and the people facing this challenge are the youth of Nigeria who up till date constituted the highest unemployment rate (Dada & Fanowopo, 2020). Between the ages of 18 and 45 years old constitute about 40% to 60% unemployed in Nigeria (Akwara, et al, 2013) while Akanda and Okuwa (2009) locates the ages as between 15 to 25 years.

1.2 Statement of the Problem

Various indicators suggest that poverty and unemployment is a major obstacle to Nigeria's socio-economic development. Poverty has persisted and several interventions

have failed to yield significant improvement in Nigeria's Human Development Index even in periods of economic growth. Plagued with the challenges of unemployment crises, climate change, conflict, fragility and violence, Nigeria (the most populous country in Africa) stands at a grave risk if poverty is not tackled (Danaan, 2018).

The challenges of poverty and unemployment in Nigeria have attracted the attention of successive administrations. However, it remains a paradox-poverty in the midst of plenty and rising in periods of economic growth (Omoyibo, 2013). This may be true to the extent that Nigeria is endowed with human and natural resources and has had an increasing national income; yet, a larger section of her population languishes in poverty due uneven distribution and allocation of income and wealth (Osabohien, Matthew, Gershon, Ogunbiyi & Nwosu, 2019).

The 2020 HDI puts Nigeria at 161st position out of 189 countries. The World Bank ranked Nigeria the 7th worst country in its 2020 Human Capital Index. Nigeria was 136th out of 163 countries in the 2020 Social Progress Index and 144th out of 167 countries in the 2020 Legatum Prosperity Index and unemployment rate in Nigeria is estimated to reach 32.5 percent in 2020, also according to Nigerian National Bureau of Statistics poverty rate 40% or 83 million Nigerians living in poverty. These alarming records of poverty and rate of unemployment is very critical to the development of Nigerian economy. Poverty and unemployment are key drivers as to whether the

economy is doing well, but in the case of Nigeria unemployment leads to poverty and they both constitute threat to national economy.

1.3 Objectives of the Study

The objectives that will guide this study are as follows:

i. To examine the impact of unemployment on economic growth in Nigeria.

ii. To ascertain the nature of causality between unemployment and economic growth in Nigeria.

1.4 Research Questions

From the above discussion the research questions as follows:

1) Has unemployment had any impact on Nigeria Economy?

2) What is the nature or relationship between unemployment and economic growth in Nigeria?

1.5 Hypotheses of the Study

The hypotheses that would guide the study are as follows:

H01: Unemployment has no significant impact on economic growth in Nigeria.

H02: There is no dimensional causality between unemployment and economic growth in Nigeria.

1.6 Scope of the Study

The scope covers the impact of unemployment on economic growth in Nigeria for the period of 1995-2022. This study dealt mainly with the implications of government expenditure on economic growth in Nigeria and it seeks to know the effectiveness of government expenditure to economic growth.

This study is focuses on unemployment and Nigeria economy, with evident that employment will only increase if GDP is rising faster than productivity. Other things being equal, the greater the amount of goods and services produced, the greater the labor required for production; because economic growth and employment go hand in hand.

1.7 Significance of the Study

The study is very importance exposure of unemployment which is reflected in the fact that it is the first sustainable development goal that seeks to eradicate poverty in Nigeria. The study shows that unemployment causes poverty is a multidimensional and multifaceted phenomenon and one of the major problems against development.

The study also enlightens that unemployment has far reaching consequences on the Nigerian economy. From our study, employment generation has been seen as a means of alleviating poverty, increasing the level of economic activities which translate into economic growth. The situation of unemployment in Nigeria has been on the increase which has resulted in increase in social vices, human capacity under-utilization; increased

poverty amongst the citizenry, social alienation and weak purchasing power among other negativity. The finding result of the study will be relevant to potential and existing scholars in the field or related field of studies

1.8 Organization of the Study

This chapter is comprised of five chapters. The chapter provides a general introduction to the study. The second chapter provides a literature analysis of related to the works on unemployment and economic growth in Nigeria. It also outlines the theoretical background for the investigation. Chapter three focuses the research approach. Chapter four presents results and discussion, quantitatively analyzes the unemployment and economic growth in Nigeria; the findings are also explained in this chapter. Chapter five presents the study's summary, conclusion, and recommendations.

1.9 Limitation of the Study

1. This study has data collection challenges. Primarily, obtaining the necessary information for the study limited to annual data from CBN.

2. The time frame is a limit to this study as a project.

3. The research is limited to unemployment metrics, fiscal expenditures and growth opportunities. The analysis has been restricted to tax indices and GDP.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This is the review of various economic theories to ensure advancement; this chapter enlightens the effect of various fiscal expenditure in the economy with respect to unemployment. In the view of this it is divided into two parts; the theoretical literature and the empirical literature. The theoretical literature which is concentrated with economics theories as regards the fiscal expenditure on economic growth, why empirical literature which identify the elements of fiscal expenditure that bears significant association with economic growth.

There have been numbers of published studies that have tried to find the relationship between fiscal expenditure such as unemployment and economic growth in developing and developed countries. These studies have used different theories in specifying the model as well as different research at methods, and the result showed that the effect of fiscal expenditure on economic growth can run either negative or positive ways, similar to the economic theories which show two different positions of fiscal expenditure on economic development.

2.1.1 Review of Conceptual Framework

2.1.2 Concept of Economic Growth

Economic growth is defined as an increase in a country's productive capacity, as measured by comparing Gross National Product (GNP) in a year with the GNP in the previous year. Increase in the capital stock, advances in technology, and improvement in the quality and level of literacy are considered to be the principal causes of economic growth (business dictionary).

Economic growth is a mere increase in general output of a nation. It may be measured in terms of its GDP, GNP or even GDP per capita (Michael P. Todaro). Economic growth is what usually transcends to economic development but not in all cases. We may have an economy experience economic growth but not economic development. However, economic development cannot occur without economic growth. Economic growth is hence a prerequisite for development.

Economic growth goes a long way in determining the performance of employment growth rate of a nation and also, one variable which has been found to be significant in explaining variations in the rate of poverty reduction is the employment intensity of any economic growth (Islam, 2006).

As an economy’s output increases, it is expected that the purchasing power of the country increases as well. However this is not always the case because of the possibility

of rising inflation alongside the economic growth. Inflation is a situation where there is a continuous increase in the general price level. Also, there is the issue of total population. When the population of an economy is brought to view, economic output is now measured per capita, that is GDP per capita or GDP per labour force. This is a better way of computing the output of a nation, especially when comparison is to be made between or among nations of the world. (Michael P. Todaro). Thus we may conclude that economic growth by itself is not a sufficient condition even though it is a necessary one.

A simple definition of economic growth rate given by Investopedia is thus; A measure of economic growth from one period to another in percentage term. Growth is an important objective of economic policy particularly in Nigeria because it is the key to high standards of living; it brings about more revenue which means more and better schools, hospitals, and other social services (Olutola, 2013) as well as increased employment. The economic growth rate in Nigeria has been quite remarkable recently. With a GDP of 262.6 billion dollars (World Bank Data) and a growth rate of 6.75%, the nation is surely making progress. Although, the economic growth of Nigeria is yet to culminate into development as the nation is still experiencing gross poverty, high unemployment, etc. and with the given rising population of the country, Nigeria as a nation is tasked with duty of ensuring the proper wellbeing of its citizens in terms of health, education, and provision of other basic social amenities.

2.1.3 Characteristics of Economic Growth

Economic growth is a long term rise in capacity to supply increasingly diverse economic goods to its population, the growing capacity based on advancing technology and the institutional and ideological adjustments that it demands (Professor Simon Kuznets, 1971). The Nobel Prize Winner in economics in 1971 in the person of Professor Simon Kuznets mentioned six characteristic features manifested in economic growth process of almost every developing country.

The characteristics are enlisted below

(i) High rates of growth per capita output and population

(ii) High rates of increase in total factor productivity, especially labour productivity

(iii) High rates of structural transformation of the economy

(iv) High rates of social and ideological transformation

(v) The propensity of economically developed countries to reach out to the rest of the world for markets and raw materials. In other words, growth of trend, specifically import of raw materials and export of manufactures.

(vi) Limited spread of development to only a third of the world's population

The first two characteristics are aggregate economic variables, (iii) and (iv) are structural transformation variables, and (v) and (vi) affect the international spread of growth.

2.1.4 PATTERNS OF ECONOMIC GROWTH

Under this study, there are basically two patterns of economic growth that will be paid attention. They are; (i) Jobless Growth; (ii) Inclusive Growth

Jobless Growth

Jobless Growth may be referred to as employment growth lagging substantially behind output growth (United Nations Development Programme, 1993). Also, it is said to be a condition of low employment growth relative to output growth (United Nations Development Programme, 1996). Both definitions given by the UNDP are quite correct, however, there is a problem of specifying a quantitative indicator of how far employment has to lag behind output growth in order for growth to be called 'jobless'. This has led tests of Jobless growth producing the following results;

(i) Positive economic growth associated with zero or negative employment growth

(ii)Positive economic growth associated with employment growth lagging behind labour force growth and hence rising unemployment

(iii)Positive output growth associated with employment growth below a satisfactory level. (Bhorat and Oosthuizen, 2006)

Many times, Nigeria has been called a 'growing' economy. The figures that appear on the country's data are quite impressive but the situation within may cause doubts. There is high unemployment, poverty, inequality etc. in the country and yet it is a

growing economy. None the less, Nigeria definitely falls under the category of having an economy that is experiencing a 'jobless growth' based on the second result gotten by Bhorat and Oosthuizen i.e. positive economic growth associated with employment growth lagging behind labour force growth and hence rising unemployment.

The recent experience with economic growth in many developing countries shows that high rate of output growth may be associated with different rates of employment growth. Therefore, it is important to identify the factors that constrain employment growth when output is growing even at a reasonable rate (Islam, 2010). The key elements identified reveals the following as having influence on employment outcome associated with economic growth; growth of output; labour market policies and institutions; sector and subsector composition of output; technology used. Hence, for the nation to experience positive employment outcome without any setbacks involved with the key elements afore mentioned, it must go beyond experiencing mere growth recognised only in its generated figures.

Inclusive Growth

Inclusive growth is defined as growth that is sustained over several years, is broad based among economic sectors, and creates productive employment opportunities for the majority of the country's population (Victor and Rodrigo, 2011). Below are the elements of inclusive growth;

1. High growth rates for several years
2. Sustained growth accelerations
3. Avoids growth collapses
4. Structural transformation:
5. Output and export diversification
6. Broad-based productive employment
7. Significant reduction in poverty
8. Propitious business environment
9. Efficient natural resource management
10. Equality of opportunity through basic education, health and infrastructure

The main focus of this study is centered on a broad based productive employment as an element of inclusive growth. Employment lies at the center of the concept of inclusive growth. The methodological framework constructed around the idea of inclusiveness in economic growth patterns focuses on the concept of productive employment and thus differs from other conceptual settings where concepts based on direct income redistribution lie in the centre of the paradigm (Ianchovichina & Lundstrom, 2009). The inclusive pattern of growth is characterized by the following qualities;

(i) Equality- inclusive growth is a form of output growth that is beneficiary to majority of the population. Inclusive growth just as the name implies includes not only the rich but also the poor in the society. Growth needs to be inclusive if it is to improve human welfare and ensure increasing social and political stability (Mckinsey Global Institute). This form of growth ensures equality socially, politically and other wise, as there is an even distribution of income which is derived from the output produced by the economy.

(ii) Development of all sectors- inclusive growth in an economy ensures the development of all the sectors within that economy. There is wide spread development, where all sectors of the economy are productive and contribute to the national output. This also enhances the welfare and living standard of those living within the economy by spreading the gains of growth.

(iii) High Employment Rate- since all the sectors within the environment are active and productive, this will cause an increase in the employment of labour and even other resources. The economy will be producing at its full capacity. There will be so much productivity in all the sectors which lead to high output and income in return. This will also cause a high rate in demand and producers will keep producing and employing more resources (labour inclusive) in order to meet the high demand.

Inclusive growth moves the focus of analysis away from the pace to the pattern of economic growth. High growth rates alone may not be a sufficient condition to reduce poverty, since for growth to be sustainable it needs to be broad-based across sectors and inclusive of a large part of the labour force (Ianchovichina & Lundstrom, 2009).

Nigeria is faced with challenges in reducing unemployment, poverty and inequality, reason arising mainly from the dominance of oil and gas in the economy and also, the crowding out of productive activities in other sectors therefore impeding diversification and development (Njoku and Ihugba, 2011). The concept of inclusive growth will cause a huge influence in the activities of these sectors of the economy by boosting employment, value added production and incomes. The non-oil sectors in Nigeria are pivotal for jobs, poverty alleviation, better resource management, elimination of corruption and sustained economic development.

Inclusiveness seeks a fairer distribution of value as well as a smarter use of resources; those who are excluded also have value to add (UNDP, Facility for Inclusive Markets). With the necessary infrastructures such as education, health facilities, power etc., put in place and made easily accessibly within the country, these marginalized individuals will have the opportunity to contribute to the national productivity and output. There is no way this will not bring about a reasonable increase in the employment rate.

With an understanding that the poor and near poor represent a vast and largely untapped market for goods and services and a potential source of entrepreneurial initiative and productive capacity, inclusive growth pattern works in such a way that the marginalized are not only seen as consumers but also as producers and suppliers. Within this paradigm, productive employment appears as the main instrument to reach inclusive growth. Productive employment, in turn, is thought of as subsuming employment growth as well as productivity growth, and thus causing increases not only employment opportunities for currently unemployed individuals but also wages and income from the (self) employed (Ianchovichina & Lundstrom, 2009). Hence productive employment has the potential to increase the income of excluded groups permanently and is thus understood as the main instrument to reduce poverty.

2.2 The Concept of Unemployment

Simply put, unemployment is defined as a situation in which the community does not use the work force fully. It is a negative phenomenon in any human society as it adversely affects in different dimensions and directions. In addition, it refers to an economic defect affecting the community structure. (Mahmoud and Mohammed, 2012) Unemployment includes all persons who during a specified period (e.g. one week) were: (i) without work, i.e. were not in paid employments or self- employment; (ii) currently available for work, i.e. were available for paid employment or self- employment during

the reference period; and (iii) seeking work, i.e. had taken specific steps (registration at a public or private employment exchange; application to employers; checking at worksites, farms, factory gates, markets or other assembly places; placing or answering newspaper advertisements; seeking assistance or friends or relatives; looking for land, building machinery or equipment to establish an own enterprise; arranging for financial resources; applying for permits and licenses; etc.) in a specified recent period (e.g. the last four weeks) to seek paid employment or self-employment. (UNDP)

Who then is the unemployed? These are persons without work and currently available for work, who had already made arrangements to take up paid employments or undertake self-employment activity at a date subsequent to the reference period, irrespective of whether or not they continued seeking work. (UNDP). It may also be defined as the percentage of the work force that is unemployed at any given date. The unemployment rate, therefore is defined as the ratio of unemployed persons (numerator) to the economically active population or labour force (denominator), expressed as a percentage.

The issue of unemployment in a community arises when the workforce is not being utilised at its full capacity. What this situation further leads to is productivity and output that is below the capacity of the nation, or community as it were. In other words, the nation is performing less than it could or should. It is also important to note that, it is

possible for the nation to have an ‘increase’ in its present output (that is an increasing rate of output), however this does not imply that it is making maximum use of the resources available to her. However, for the purpose of this study, attention is being paid to labour as a factor of production or resource. Unemployment in this context refers to the situation prevailing ‘only’ in the labour force.

2.2.1 Fiscal Expenditure

Fiscal expenditure, also known as government spending, refers to the resources a government allocates to achieve its strategic objectives and satisfy the needs of the members of the nation. Governments spend money on health care, education, Social Security benefits, infrastructure and defense activities. Annual government budgets specify the breakdown of funds for a fiscal year. Total government expenditure includes federal government expenditure, as well as state and local government expenditure.

Fiscal expenditure relates to the objectives of a government, such as price stability, financial control and economic growth. Governments spend to maintain bridges, roads, harbors and canals, on defense activities, to protect trade, to generate coinage, to provide Social Security and other entitlements and to facilitate education.

Economists classify government expenditure into two main types: transfer payments and purchase of services and goods. Transfer payments are those in which one group -- the government in this case -- transfers an asset, service or good to another group

without receiving anything in return. Examples include unemployment benefits, provident fund, pensions and other Social Security benefits. Governments invest in social services, such as Social Security, welfare, health and housing, defense, law and order, transport, housing and the environment. They also spend on consumption goods and investment goods. Consumption goods include items and commodities such as vehicles, household equipment, furniture and food items that are directly consumed or used. Investment goods refer to raw materials or intermediate goods that help in the production of consumption goods. Construction material is an investment good.

2.2.2 Recurrent Expenditure

Recurrent expenditure on goods and services is expenditure, which does not result in the creation or acquisition of fixed assets (new or second-hand), all payments other than for capital assets, including on goods and services, (wages and salaries, employer contributions), interest payments, subsidies and transfers.

2.2.3 Capital Expenditure

Capital expenditure, or CapEx, are funds by used to acquire, upgrade, and maintain physical assets such as property, industrial buildings, or equipment. They are payments for acquisition of fixed capital assets, stock, land or intangible assets. A good example would be building of schools, hospitals or roads. However, it is important to note that much donor-funded “capital” expenditure, though referring to projects, includes

spending on non-capital payments. CapEx is often used to undertake new projects or investments by government. It is also called capital spending.

2.3 Review of Theoretical Literature

Some economic policies point out the relationship between unemployment and economic growth while others don't agree. Adam Smith's Classical school does not agree with government intervention on the affairs of the economy, saying that there should be Laissez-faire and that the private individuals should carry out the economic activities for total growth of the economy, while some other economic authorities believe that fiscal expenditure has a great impact on the economy.

With respect to the relationship between unemployment and economic growth, Wagner's law of increasing state activities is instructive. Propounded by a German economist, Adolph Wagner (1835-1917), this law states that there are inherent tendencies for activities of different layers of governments to increase both intensively and extensively. According to this position, there exists a functional relationship between growth of an economy and growth of government activities in which the government sector grows faster than the economy. The emphasis is on long-term forces rather than short-term changes in public expenditure (Wagner, 1911). Empirical evidence has also confirmed that all kinds of governments, irrespective of their levels, have same tendency of increasing their expenditures-with pace of increase being different for different

branches of government (Usman et al., 2011).Wagner's law is applicable to modern progressive governments that are interested in expanding public sector of the economy and undertaking other activities for general benefits.

However, it does not provide any precise quantitative relationship as to extent to which public expenditure would increase and time this would take. This may be because his study was based on historical experience. That over time public expenditure has been increasing is hardly sufficient grounds for predicting extent to which public expenditure would change in future. There is the developmental state model which sees the state as the main catalyst in developing "late developer" economies. It assigns the role of shifting the frontier of industrialization rests solely on the state, the state leadership being expected to guarantee the guided control of the economy. According to this theory, overcoming barriers to economic growth requires an authoritarian state that is interested in economic development, since it is only the state that can create the necessary level playing ground for local industries to be competitive (Odusola, 2006)

Public expenditures are divided into capital and recurrent expenditures (Modebe, Regina, Onwumere, & Imo, 2012). Capital expenditures are those expenditures used in providing capital goods and services to the populace for example building of railway, dam, etc. Recurrent expenditures are those incurred on either day to day basis, or weekly,

monthly, or even yearly basis and they include administration, internal security expenses, wages and salaries of public workers.

Peacock-Wiseman (1961) is another thesis put forth by Peacock and Wiseman in their study of public expenditure in the UK. It explained the reason of increasing public expenditure from the social-political perspective. It argues that Government expenditure will increase as income increases but because the leaders want re-election into political offices, additional infrastructures must be provided in order to convince the electorate that their interests are being catered for by the people voted into power. However, the citizens of the country are less willing to pay tax. The resistance of the care of the government in form of increased spending to avoid social crises in the economy. The resistance to pay tax by the people will make the state to have low revenue hence the cost of proving more facilities is borne by the government, making government expenditure to increase rapidly.

Peden and Bradley (1989) examined the effect of the size of government on economic output and productivity using U.S. data for 1949 to 1985. They concluded that the "level of government activity in the economy has a negative effect on both the economic base (GDP) and the economic growth rate (GDP growth)" (p. 239). Peden and Bradley concluded that the size of government, "beyond the optimal point" (p. 243),

resulted in lower GDP, lower rates of GDP growth, and significant deterioration in productivity.

Public debt impacts on the allocation of the public budget to the extent that it favors government spending in some sec-tors and not others. As suggested by Alesina and Tabellini (1990), debt accumulation is very instrumental in the alloca-tion of the public budget. This is supported in the literature by Mahdavi (2004), who found that external debt has an important role to play in the allocation of the public budget. He found that external debt impacts the structure of the public budget by increasing some shares of the public budget while starving other sectors. This relationship, as argued in the literature (Mahdavi, 2004), reflects a greater role for the government as the economy becomes more complex and the demand for public goods and social programs rises. On this basis therefore, we may infer certain changes in the composition of public spending as the role of the public sector changes in the process of development. At the early stages of a nation's development, the government gets involved in almost everything in the economy. But as the economy begins to develop and private sector expands, the government usually divests from some sectors and concentrates on the provision of pure public goods

The relationship between public capital spending and private investment has become an important topic of discussion and study in economic literature. Several

researches on this topic have produced ambivalent and controversial results: Some support the idea that public capital spending crowds in private investment, while others support the crowding-out theory. Studies have shown that public investment spending and private investment are complementary rather than sub-stitutable (Lynde & Richmond, 1992). According to them, the categories of public capital spending, which include expenditure on research, roads and transport, water and power projects, education and health, increase productivity of the private sector and automatically spur the growth and development of an economy. A study carried out by Foye (2014) investigating the determinants of public capital spending in Nigeria, using Error Correction Model, found that real GDP, government debt, trade openness, private investment, and foreign direct investment are among the macroeconomic determinants of public capital spending. It is necessary to note that public expenditure on education and health improves the productivity of labor and hence of the economy. Therefore, rising private investment is a signal to policy makers to increase in public expenditure on public development (capital) expenditure.

According to Isedu (2002), one way capital expenditure impacts economic growth is the creation of employment. The multi-hydra problem of unemployment in the economy is reduced to the barest minimum. Another way it causes economic growth is the re-allocation of resources to every sector of the economy. Resources are moved from

the surplus areas to the deficit areas where they are needed with, thus opening up vast opportunities which will improve the citizens of the country.

According to Musgrave (1959), the demand for public services tend to be low in developing countries due to low per capita income as all income will be devoted to satisfying primary needs (food, clothing, and shelter). As per capita income increases, the demand for public goods increases too thus spanning the government to spend. Finally, at high level of per capita income in developed countries, the rate of public sector growth tends to fall as the more basic wants are satisfied. The assumption that natural forces can cause the changes is phantasmagorical, as giving the same natural factors to two different countries, one might develop and the other might not. This is known as the Musgrave theory.

Pigou (1928), in his legendary book Public Finance noted that in every developed society there is some form of government organization. The governing authority, whether central or local is endowed endowed with functions and duties, the detailed nature of which varies in different places. These issues involve expenditure and, consequently, required also the raising of revenue. Though Pigou's perception about what government and its accompanying responsibility was, had undergone tremendous transformation, both in size and complexities overtime, the underlying concept of public expenditure as a veritable instrument through which government policy choices are carried out remains

intrinsically unaltered in today's economies. Thus, the continuous postulations of several theories as well as identification of various variables that purport to explain the growth in a relative size. Some of these dominant streams of thoughts are reviewed here.

2.4 Empirical Review

Yasin (2000) examined the relationship of government spending and economic growth in 26 sub-Saharan Africa countries. He developed the model on the basis of neoclassical production function. By using panel data from 1987 to 1997 period and employing both the fixed effect and random effect techniques, he found a different result with Ghura (1995) which suggest that the government spending on capital formation has the expected positive and significant effect on economic growth. He concluded the study with suggestion for these countries to increase government spending on capital formation and create favorable economic environment.

Nurudeen and Usman (2010) studied about government expenditure and economic growth in Nigeria. Using the co-integration and error correction methods and employing time-series data for the period 1979 – 2007, they developed their model based on Keynesian and endogenous growth model and they found that total capital expenditure, total recurrent expenditures, and government expenditure on education have negative effect on economic growth. On the contrary, rising government expenditure on transport and communication results to an increase in economic growth.

Talking about developing countries, Attari and Javed (2013) explored the relationship among the rate of inflation, economic growth and government expenditure in one of developing countries in Asia, i.e. Pakistan. In their study, they disaggregated government expenditure in to the government current expenditure and the government development expenditure. The investigation was made by using the time series data during the period 1980-2010 and employing various econometric techniques. The result showed that the coefficient of government current expenditure is statistically insignificant, but the coefficient of government development expenditure is statistically significant. It shows that the government expenditures yield positive externalities and linkages. In the short run, the rate of inflation does not affect the economic growth but government expenditures do so. At the end, they argued that a lot of issues faced by the government of the developing countries, like utilization and the miss-allocation of resources, and if the government expenditures are utilized in the excess amount, the excessive capital expenditures become unproductive at the margin

Okafor and Eiya (2011) studied the determinants of growth of government expenditure in Nigeria using ordinary least squares (OLS) and found that population, public debt, total government revenue, and inflation were all sta-tistically significant at 5% level, while inflation was not. Edame (2014) studied the determinants of public infrastructure spending in Nigeria, using ECM. He found that rate of urbanization,

government revenue, population density, external reserves, and type of government jointly or individually influence public expenditure on infrastructure in Nigeria. Aregbeyen and Akpan (2013) studied the long-term determinants of government expenditure in Nigeria, using a disaggregated analysis. In their analysis, they found that foreign aid is significantly and positively affecting recurrent expenditure at the expense of capital expenditure; that revenue is also positively affecting government expenditure; that trade openness is negatively influencing government expenditure; that debt service obligation reduces all components of government expenditures in the long run; that the higher the size of the urban population, the higher would be government recurrent expenditure on economic services; strong evidence that Federal government expenditure is biased toward recurrent expenditure, which increases significantly during an election period than would otherwise be the case. Similarly, Adebayo et al (2014) investigated the impact of public expenditure on industrial growth of Nigeria via co-integration and causality and found that government expenditure on administration, economic services, and transfers maintained a negative long-run relationship with industrial growth in Nigeria while government expenditure on social services maintained a positive long-run relationship. They concluded therefore that there is no crowding-out effect. From these studies reviewed, there is evidence that all the studies combined economic, social, and political determinants of government expenditure in Nigeria.

By using a worldwide sample, Wahab (2011) studied the effects of aggregate and disaggregate government spending on economic growth. For the aggregate government spending, he used data from 97 developing and developed countries for the period 1960 – 2004, while for the disaggregate government spending, he used data from 1980 to 2000 for 32 countries only. By using symmetric and asymmetric model specifications, they found that aggregate government spending has positive output growth effects particularly in periods of its below-trend growth. Furthermore, he found that government consumption spending has no significant output growth effects, but government investment spending has positive output growth effects particularly when its growth falls below its trend-growth; this favorable effect turns negative when government investment spending growth exceeds its trend-growth.

Wu et al. (2010), which is a published study with the largest sample and longest period of time, re-examine the causal relationship between government expenditure and economic growth by conducting the panel Granger causality test and utilizing a panel data set which includes 182 countries that cover the period from 1950 to 2004. They found that the result strongly supported both Wagner's law and the hypothesis that government spending is helpful to the economic growth regardless of how the government size/spending and economic growth is measured. In the case of Malaysia, Tang (2001) applied Johansen's multivariate co-integration tests and he found no co-

integration between national income and government expenditure, while a short-run causality was observed from national income to government expenditure, supporting the Wagner's law over the period 1960- 1998.

Tang (2009) in another study stated that the government spending on education and defense are co-integrated with the national income, respectively, while it is not the case for government spending on health. A uni-directional causality pattern is identified from national income to the three major components of government spending, namely education, defense, and health, which also support the Wagner's law.

Among all these, Adolph Wagner's theory of public expenditure was the earliest. He was one of the leading German economists of his time who in 1883 propounded an interesting development thesis, which loosely held that as a nation develops its public sector and consequently public spending will grow in importance. Although not expressed in rigorous or objective terms, Wagner's law suggested that, an increase in the relative size of the public sector arise because of rising per capita income, which would induce greater spending(Hartle:1976). But because Wagner never indicated whether his findings were either in absolute or relative terms, Musgrave (1989) chose to interpret Wagner's law in relative terms as an expression of the growth of the relative size of the public sector. This suggested that as per capita income in an economy grows, the public sector size would also grow in tandem.

Iyoha (2002:217) in which he postulated five stages of expenditure growth; “traditional society, preconditions for take-off, the takeoff; the drive to maturity and the eye of high mass consumption.” What determines the accepted expenditure growth depends critically on the assumption of the type of economy, i.e. whether it is a free market economy, a mixed economy or a command economy

Economic theory has shown how government spending may either be beneficial or detrimental to economic growth. In traditional Keynesian macroeconomics, many kinds of public expenditures, can contribute positively to economic growth through multiplier effects on aggregate demand. On the other hand, government consumption may crowd out private investment, dampen economic stimulus in the short run and LP capital accumulation in the long run.

Ighodaro and Okiakhi (2010) examine government expenditure using on general administration, community and social services in Nigeria. They applied the Granger causality test and used time series data for 46 years ending2007. The results showed that government expenditure has negative impact of on economic growth. Moreover, Akpan (2005) also used the components of government expenditure and opined that no significant relationship exists among some government components and economic growth in Nigeria.

Onakoya and Somoye (2013) used the three stage least squares and the macro-econometric model of simultaneous equations to look at the impact of public capital expenditure on different sectors of the Nigerian economy. They concluded that public capital expenditure impacts positively on the Nigerian economy. Muritala and Taiwo (2011) used the Ordinary Least Squares (OLS) technique to see how public expenditure causes growth in the real GDP. The result also proves a positive relationship between real GDP and recurrent and capital expenditure which is consistent with the Keynesian theory.Also, Nurudeen and Usman (2010) used time series data from 1977 to 2008 to analyze the impact of government expenditure on economic growth in Nigeria. They concluded that government total capital expenditure has negative effect on economic growth.

Sattar (1993) uses a simple growth modeling framework and time series data, however, finds evidence of differential impacts of public spending on the growth performance of developed and developing economies –"favorable for the latter and inconsequential for the former. His study also finds support for the hypothesis that an effective role for the state was directly linked with the state of backwardness of the economy: the more backward, the more critical the role of the state. According to him, since the LDCs suffer many of the "backwardness" syndromes, they seem to require more of the crutches of government support than their developed counterparts. Kelly

(1997) explores the effect of public expenditure on economic growth in a cross-section study of 73 nations covering the period 1970-1989. Based on an econometric model of the relationship between economic growths, public investment generally and particularly public social expenditures, he finds that social expenditures enhance growth by fostering welfare and productivity improvements. His result contradicts a strand of the literature which continues to be dominated by the view that social expenditure is unproductive consumption expenditure which inhibits growth and emphasizes, rather, the importance of the complementarities of public and private actions, especially in developing countries.

Factors as severe income disparity; asset concentration, the disparate nature of production in the agricultural and industrial sectors, and fragmented financial markets, which characterize many developing countries may warrant substantial public investment programmes, which, he stresses, may be decisive for successful private sector activity and, hence economic growth. Studies by Aschauer (2000) tests new classical growth models' predictions of the complementarity between public and private capital, and find public expenditure to have a positive and statistically significant impact on economic growth. Sectorally, they find that investments in transport and communications and in education have the largest impacts on growth, while the effects of investments in agriculture, health, housing, and industry were statistically insignificant

In support of Peacock and Wiseman hypothesis, according to (Rapu et al,2012 cited Ricardo,1820; Barro,1974; Gupta et al,1967) posited that the growth of an economy would certainly be accompanied by the rising share of public expenditure in GDP. But this is not to say that the relationship between government income (Revenue) and government spending (Expenditure) to bring about growth are not contentious, as some studies reveals that increase in government spending will be fuelling inflation (Emmanuel et al,2012) and government spending may either be beneficial or detrimental to economic growth (Kapunda and Topera,2013). Also recent event like the fiscal crisis in Greece and the protracted budget concern in the U.S. attest to the prime place of government expenditure in the economy (Dogo et al, 2013). From the ongoing it shows however that, there is no consensus in the theoretical literature on the impact of public expenditure on growth (Paternostro et al, 2007 in Usman). And empirically there are conflicting results of this impact as some studies reflect significant relationship between Government expenditure and Economic Growth others proved otherwise.

Examining the growth impact of recurrent, capital and sectoral expenditures over the period 1970 – 1993, Ogiogio (1995) in his study observed the existence of a long-run relationship between economic growth and government expenditure. Contemporaneous government expenditures, however, had more significant effect than the capital expenditures But technically economic growth is the product of the quality of output and

output is determined by the quality of input. In traditional production theory resources used for the production of a product are known as factors of production, factors of production are now termed as inputs which means the use of the services of land, labour, capital and organization in the process of production. The term output refers to the commodity produced by the various inputs (Jhingan, 2004). Economic growth is the rate of change of real output of which it's input are capital (human and physical capital), labour, raw materials, and technical knowledge (Begg, 2000). Therefore, the quality and efficiency of these input lies in government spending on items like education, training, research, skill acquisition and technical knowledge which will improve labour productivity and economic growth in general. Efficiency on its own according to Adam Smith, cited in (Koutsoyiannis, 2006) is a necessary prerequisite for economic growth and He believed that economic growth resulted in the increase of social welfare because growth increases employment and goods available for consumption to the community.

Based on these literatures, we conclude that the effect of government spending on economic growth can be positive or negative. The relationship between government spending and economic growth is far from clear. All of the literatures either support the Keynesian hypothesis or the Wagner's law. In the case of Malaysia, the literatures support the Wagner's law in Malaysia, which indicate that there is no effect of government expenditure on economic theory.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Theoretical Framework

There are important and well known theories of fiscal expenditure and economic growth. The theory explained below is the Solow Swan theory.

3.1.1 The Solow Swan Theory

The Solow neo-classical growth model (1957) considers the output of the macro economy as a direct function of its capital and labour (and technological level) in a given period. The augmented neoclassical growth theories developed by Mankiw, Romer and Weil (1992) posits that education increases human capital inherent in labour force, which will increase labour productivity and thus cause transitional growth toward a higher equilibrium level of output.

The standard methodology of growth studies begins with the neoclassical (Solow) production function of the form.

$$Yt = At\ f(Kt, Lt) \qquad (1)$$

Where Y is aggregate real output, K is the capital stock, L is labour, A is the efficiency factor and t is the time dimension. However, the capital stock K takes account of the energy consumed in the economy. Expressed in growth form, equation (1) becomes

$$Gy = GA + \beta k + Gk + BL\ GL \quad (2)$$

Within the growth accounting framework and given the fact that capital stock data is generally not available (unless computed using inventory method), equation (2) is usually estimated in the form:

$$Gy = Ga + \beta k\ (I/Y) + BL\ GL \quad (3)$$

Where *I/Y* is the investment aggregate output (income) ratio.

The emergence of endogenous growth theory and models (e.g., Romer 1986 and Barro 1999) suggests that other endogenous factors such as government policies as well as political stability, market distortions, human capital development and so on largely influence economic growth. In other words, it is impossible for economic growth to occur without exogenous factors such as changes in technology or population. Accordingly, several studies (see those reviewed by Renelt 1991) have attempted to integrate exogenous forces with endogenous factors in explaining economic growth across countries. In these studies, the augmented Solow neoclassical production function was used.

In particular, the formulation adopted by Mankiw et al (1992) and Grammy and Assane (1996) can be modified and expressed as:

$$Yt = A\ (t)\ Ka1\ La2\ Ha3\ E\ a4\ a1 > 0,\ a2 > 0\ ,\ a3 > 0,\ a4 > 0 \quad (4)$$

Where H is human capital, E is the total energy consumed and a1 + a2 + a3 + a4 = 1 (assuming constant returns to scale); other variable are as defined earlier. Taking the natural logarithm of both sides of the equation produces a linear equation in levels of the form.

$$LnY = a + a1\ 1n\ K + a2InL + a3\ In\ H + a4\ In\ E \quad (5)$$

The linear in log levels specification can also be expressed in rates of growth thus.

$$y = a + a1\ k + a2l + a3h + a4e \quad (6)$$

Where *y, k, I, h* and e are the percentage growth rates of real output, physical capital, labour, and human capital respectively. In this formulation, 'a' is the growth accounting residual.

In summary, endogenous growth model proponents believe that improvement in productivity can be linked to foster the pace of innovation and extra investment in human capital as well as a vibrant energy sector. Thus, the theory predicts positive externalities and spill-over effects from development of a high value-added energy economy which is able to develop and maintain a competitive advantage in growth industries in the global economy. In addition, the theory emphasizes that private investment in Research and development (R and D) is the central source of technical progress.

3.2 Model Specification

As defined by Ojameruaye and Oaicheman (2001), model specification involves the definition of the variables to be included in the model, the determination of the mathematical form of the model, and the statement of the theoretical expectation about the parameters of the model. Thus, in examining the impact of fiscal expenditure on economic growth in Nigeria we capture and include some macroeconomic variables in model to enable us model out the relationship between fiscal expenditure and economic growth. Given these factors, the model for this study is formulated and specified as follows:

GDP = f(UEMP, CEXP, REXP, INF)

The linear equation model is specified as follows:

$GDP = \beta_0+\beta_1 UEMP + \beta_2 REXP + \beta_3 INF + \beta_4 CEXP + \mu$

Where:

Dependent Variable;

GDP= economic growth

Independent Variables;

UEMP=Unemployment Rate.

CEXP= Capital Expenditure

REXP= Recurrent Expenditure;

INF = Inflation Rate;

β_0 = the intercept of the model

β_1 = the coefficient of CEXP

β_2 = the coefficient of REXP

β_3 = the coefficient of INF

β_4 = the coefficient of UEMP

μ = stochastic error term

The estimated model above can also be expressed in a log linear form as;

LOG RGDP= $\beta_0+\beta_1$ log UEMP + β_2 log REXP +β_3 log INF +β_4 log CEXP + μ

The a priori expectations about the signs of the coefficients of the parameter estimates are as follow.

$\beta_0>0$, $\beta_1>0$, $\beta_2>0$, $\beta_3>0$, $\beta_4<0$, μ= Error Term.

LogGDP = $\beta_0 + \beta_1$logUEMP + $\beta_2$logREXP + $\beta_3$logINF + $\beta_4$log CEXP+ lECM_{t-1} + U_t

Where: ECM_{t-1} = Error correction variable

3.3 Analysis of Variables

Unemployment: This occurs when a person who is actively searching for employment is unable to find work.

Capital expenditure: This is the money a spent to buy, maintain, or improve its fixed assets, such as buildings, vehicles, equipment, or land.

Recurrent expenditure: This all payments other than for capital assets, including on goods and services, (wages and salaries, employer contributions), interest payments, subsidies and transfers. Capital expenditure – payments for acquisition of fixed capital assets, stock, land or intangible assets.

Inflation: This is the rate at which the general level of prices for goods and services is rising and, consequently, the purchasing power of currency is falling.

3.4 Source of Data Collection

Secondary time series data were used in this study. The relevant data for this study have been obtained from the:

CBN Statistical bulletin

IMF report.

National Bureau of Statistics

3.5 Method of Data Analysis

This study empirically investigates the impact of unemployment on economic growth in Nigeria using Error Correction Methodology (ECM).The Error-correction methodology (ECM) enable us to integrate both short-run dynamic and long-run equilibrium models in a unified system while at the same time ensuring theoretical rigor and data coherence and consistency (Nwachukwu & Odigie, 2009). In applying this

error-correction mechanism the lag length of all the variables is set at one, to allow for sufficient degrees of freedom. The sample data of the analysis is a period of 1981 -2016.

3.6 Estimation Techniques and Result Evaluation

To examine the relationship between unemployment and economic growth in Nigeria, capital expenditure and recurrent expenditure is taken as the main independent variables while taking into cognizance the relevance of other explanatory variables. This study utilized the Co-integration and Error Correction Methodology (ECM). On the other hand, most economic variables are observed to be non-stationary (that is, the mean and variances of these economic variables are not constant). Therefore, for valid estimation and inference, a set of non-stationary variables must be co-integrated, that is, a linear combination of these variables that is stationary must exist (Wood, 1995; Nwachukwu and Odigie, 2009). On the other hand, the Error-correction methodology (ECM) enable us to integrate both short-run dynamic and long-run equilibrium models in a unified system while at the same time ensuring theoretical rigor and data coherence and consistency (Nwachukwu & Odigie, 2009). In applying this error-correction mechanism the lag length of all the variables is set at one, to allow for sufficient degrees of freedom. The empirical result of the specified model above is analyzed using the following three criteria.

3.6.1 Economic Criterion

Economic a priori expectation will evaluate the coefficients of the parameters that our model conforms to the relevant economic theory. In other words, it has to do with determining whether the estimates conform to the stated expected signs and magnitude of the parameters as provided by economic theory. For instance, Statistical Criteria (first order-test). This will be used in the study to ascertain the prediction power of the models; whether the parameters used in the model are statistically significant and to test for the significance of the overall model. Theoretically the relationship between fiscal expenditure and economic growth in Nigeria is expected to be positive.

3.6.2 The Statistical Criterion

Statistical test are done to evaluate the reliability of the estimated parameter in accordance with statistical theory and expectation. The measures used for the statistical test of the model include:

Trend Analysis:

Trend analysis involves the collection of information from multiple time periods and plotting the information on a horizontal line for further review. In this regard collection of GDP, Capital expenditure, Recurrent expenditure, Inflation and Unemployment rate from multiple time periods and plotting the information on a

horizontal line for further review. The intent of this analysis is to spot actionable patterns in the presented information (S.P Gupta, 1969)

T- Statistics:

This is used to decide significantly different from zero and vice versa, at a given level of significance before rejecting or accepting the null hypothesis (HO).

Coefficient of Determination:

This comprises of R-Squared and Adjusted R-Squared. They are used to measure the goodness of fit of the estimated model. They measure the proportion of the total variation in the dependent variables that is explained by variations in the explanatory variables.

F- Statistics:

This is a test for the existence of a significant linear relationship between the independent variables taken together with the dependent variable. The ratio is used to test the overall statistical significance of the estimated model. The F-test will be carried out to ascertain whether;

An individual regression coefficient is statically significant

All partial slope coefficient are zero

Two or more coefficient are statically equal

There is structural stability of the regression model

Coefficient satisfies some restrictions

Standard Error Test:

The estimate obtained from a given set of a sample observation is not free from sampling error. It is therefore necessary to measure the size of the error and subsequently determine the degree of confidence in the stability of the obtained estimate (Koutsoyiannis, 1997). The test helps us to know if our estimate is statistically significant or whether the sample from which we made estimates might have come from a population whose true parameter value are zero (Koutsoyiannis, 1977-80).

3.6.3 Econometric Criterion

This has to do with the appropriation of the estimating techniques or estimation of a given model, the available empirical data present and discusses the interpretation of the coefficients and discusses the acceptability of the parameter estimates. The econometric or second order tests of the estimated model are aimed at detecting the possibility on the validity of some of the assumption on which the particular econometric method is based. Among the econometric test are:

Maximum Likely Hood (MLH):

Maximum likelihood estimation is a method of estimating the parameters of a statistical model, given observations MLE attempts to find the parameter values that maximize the likelihood function, given the observations.

Error Correction Model (ECM) Technique:

Error-correction methodology (ECM) enable us to integrate both short-run dynamic and long-run equilibrium models in a unified system while at the same time ensuring theoretical rigor and data coherence and consistency (Nwachukwu & Odigie, 2009).

Unit Root Test

In this regard, the annual time series data of all the variables in the model are tested for stationarity. A variable is stationary if its mean and variance do not change systematically overtime. The reason for this test is that the regression of two non-stationary series on each other will produce spurious results in our analysis. The usual standard approach adopted to investigate the stationarity of time-series data is the Unit Root Test. The most commonly used method for this test which will also be used in the study is the Augmented Dickey-Fuller (ADF) test proposed by Dickey and Fuller (1981).

Test for Autocorrelation: The Durbin-Watson test is a widely used method of testing for autocorrelation. The first-order Durbin-Watson statistic is printed by default. This statistic can be used to test for first-order autocorrelation.

Test for Multicollinearity: Multicollinearity generally occurs when there are high correlations between two or more predictor variables. In other words, one predictor

variable can be used to predict the other. This creates redundant information, skewing the results in the regression model.

Test for Heteroskedasticity: It is used to test for heteroskedasticity in a linear regression model and assumes that the error terms are normally distributed. It tests whether the variance of the errors from a regression is dependent on the values of the independent variables.

Some of this test will be conducted in this work.

CHAPTER FOUR

ANALYSIS OF ESTIMATION RESULTS

4.1 Descriptive Statistics

The summary statistics of all the variables used in this exercise are presented and discussed in Table 1 below. Specifically, the mean, median, minimum and maximum values, standard deviation, the skewness and kurtosis, Jarque-Bera values and their corresponding probability values are also stated. The mean of each of the variables indicates the average of the respective variables used in the study. The standard deviation further reveals how dispersed the variable is from the average; thus it shows the explosiveness of the variables. Furthermore, the skewness and kurtosis values indicate asymmetry and peakedness of the distribution respectively, while the normality test was carried out using the Jarque-Bera statistics. The Jarque-Bera statistics and the respective probability values are further stated.

Table 1: Summary Statistics Results

	GDPGR	UN	CEXP	REXP	INFL
Mean	3.671135	10.52571	360.5231	974.0415	19.56657
Median	4.279277	7.000000	241.6883	178.0978	29.63000
Maximum	33.73578	27.40000	1152.796	3831.978	180.1500
Minimum	-13.12788	1.800000	4.100100	4.750800	1.030000
Std. Dev.	7.671722	7.843219	374.9018	1260.780	52.96540
Skewness	1.179047	0.756078	0.710889	1.100574	1.046296
Kurtosis	8.588489	2.294577	2.111846	2.711928	2.930915
Jarque-Bera	53.65472	4.060343	4.098313	7.186727	6.392921
Probability	0.000000	0.131313	0.128844	0.027506	0.040907
Sum	128.4897	368.4000	12618.31	34091.45	1742.880
Sum Sq. Dev.	2001.081	2091.547	4778745.	54045275	95381.34
Observations	35	35	35	35	35

Source: Author's computation using E-views 8

As shown in table 1, the mean value for Nigeria's gross domestic product (GDP) growth rate is 3.67%, federal government capital expenses is N360.52 billion, her recurrent expenses is N974.04 billion, unemployment rate is 10.52% while her inflation rate maintained 19.6%. The variables are normally distributed except unemployment rate. The table also reveals that all the variables used in this study are positively skewed.

The Jarque-Bera statistics as well as their respective probability values jointly validate the alternative hypothesis of normality at 5% significance level with an exception of current expenditure and unemployment rate.

4.2 Econometric Analysis

This section presents the regression results, as well as their interpretation. The study has attempted to empirically determine the relationship between economic growth and government expenditure in Nigeria.

One of the problems with some empirical investigations is that the data used in estimation is not appropriately tested. When dealing with time series data, it is important to estimate whether the series of data are stationary or not because the regression of non-stationary series may yield spurious results which may be dangerous.

The standard method is used in identifying stationary time series is Unit Root test. The most commonly used Unit Root test is the Augmented Dickey Fuller (ADF) test which was used in this study.

4.2.1 Unit Root Test

Following the practice used in most econometric applications, we concentrate our analysis on the logarithms of the variables.

Table 2: Augmented Dickey Fuller Test Results at Level

VARIABLES	TEST STATISTIC	CRITICAL VALUES			REMARKS
		1%	5%	10%	
LNGDPGR	-3.983689	-3.639407	-2.951125	-2.614300	**STATIONARY*** **
LNCEXP	-1.081432	-3.639407	-2.951125	-2.614300	**NON-STATIONARY**
LNREXP	-1.364236	-3.646342	-2.954021	-2.615817	**NON-STATIONARY**
LNINFL	-1.802510	-3.639407	-2.951125	-2.614300	**NON-**
LNUN	-0.516833	-3.639407	-2.951125	-2.951125	**NON-STATIONARY**

*NB: ***Significant at 1%.*
Source: Author's Computation using E-views 8

Table 3: Augmented Dickey Fuller Test Results at First Difference

VARIABLES	TEST STATISTIC	CRITICAL VALUES			REMARKS
		1%	5%	10%	
DLNGDPGR	-6.601798	-3.653730	-2.957110	-2.617434	**STATIONARY*** **
DLNCEXP	-5.930525	-3.646342	-2.954021	-2.615817	
DLNREXP	-7.803735	-3.646342	-2.954021	-2.615817	**STATIONARY*** **
DLNINFL	-5.119157	-3.646342	-2.954021	-2.615817	**STATIONARY***
DLNUN	-4.968325	-3.646342	-2.954021	-2.615817	**STATIONARY*** **

*NB: ***Significant at 1%.*
Source: Author's Computation using E-views 8

Table 4: Augmented Dickey Fuller Test Results at Second Difference

VARIABLES	TEST STATISTIC	CRITICAL VALUES			REMARKS
		1%	5%	10%	
D(DLNGDPGR)	-6.380090	-3.670170	-2.963972	-2.621007	STATIONARY***
D(DLNCEXP)	-6.043280	-3.737853	-2.991878	-2.635542	STATIONARY***
D(DLNREXP)	-4.681946	-3.699871	-2.976263	-2.627420	STATIONARY***
D(DLNINFL)	-9.951713	-3.653730	-2.957110	-2.617434	STATIONARY
D(DLNUN)	-7.072101	-3.661661	-2.960411	-2.619160	STATIONARY***

*NB: ***Significant at 1%.*
Source: Author's Computation using E-views 8

From the Augmented Dickey Fuller (ADF) stationarity test results in Table 2, 3 and 4, all the series were found to be stationary at first difference and second difference. Thus, the variable entering our model are in line with the prescription of Blundell and Bond (1998) that elements of the equation must be at least in their first difference.

All the variables in the model are integrated variables which attained stationarity at 1% level of significance after first difference.

4.2.2 Co-integration Test

Early studies employed OLS estimation under the erroneous presupposition of stationarity of all the series. This led to the problem of spurious regression which was first identified by Yule. Over the past decade, this has changed as some considerable attention has been paid in empirical economics to testing for the existence of

relationships in levels between variables. In this main, this analysis has been based on the use of co-integration techniques.

Co-integration analysis is predicated on the precondition to check for the existence of a long run relationship between two or more variables that are stationary. The Engle-Granger technique will be adopted for testing for the possible existence of a long run relationship among variables in this study.

Table 5: Engle-Granger Co-integration Test Results

Variables	**tau-statistic**	**P-values**
D(DLNGDPGR)	-4.961911	0.0475**
D(DLNCEXP)	-7.880558	0.0001***
D(DLNREXP)	-6.416529	0.0021***
D(DLNINFL)	-6.555085	0.0015***
D(DLNUN)	-8.123764	0.0000***

*NB: **Significant at 5% and ***Significant at 1%.*
Source: Author's Computation using E-views 8

The Engle-Granger co-integration results is presented in table 5, it can be seen that Capital expenditure, Recurrent Expenditure, Inflation Rate and Unemployment rate are co-integrated at 1% level of significance while Real gross domestic product (GDP) growth rate is co-integrated at 5% level of significance. Thus, a long run relationship exists among the variables in the study.

4.2.3 Error Correction Model (ECM)

The error correction model is an extension and generalization of the traditional approach to modelling short run dynamics and long run disequilibrium.

The error correction results selected is presented below;

Table 6: Error Correction Model (ECM) Results

Dependent Variable: D(DLNRGDPGR)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.169522	0.389852	-0.434836	0.6695
D(DLNCEXP)	-2.219662	0.423026	-5.247100	0.0001***
D(DLNREXP)	-1.246212	0.619338	-2.012169	0.0614*
D(DLNINFL)	-4.432275	1.366190	-3.244259	0.0051***
D(DLNUN)	2.059914	1.338408	1.539077	0.1433
ECM (-1)	-0.604274	0.198035	-3.051348	0.0076***
AR(11)	-0.203475	0.115125	-1.767429	0.0962*
MA(3)	0.934722	0.043553	21.46181	0.0000***
R-squared	0.693621	Mean dependent var		0.070011
Adjusted R-squared	0.559580	S.D. dependent var		1.814946
F-statistic	5.174691	Schwarz criterion		3.863849
Prob(F-statistic)	0.003124***	Durbin-Watson stat		1.884980

*NB: ***Significant at 1% and *Significant at 10%.*
Source: Author's Computation using E-views 8

The coefficient of determination in table 6 is 0.69. The adjusted R-squared is 0.56. This means that 56 percent of the variations in gross domestic product (GDP) growth rate can be explained by all the explanatory variables; CEXP, REXP, INFL and UN. This is a

fairly good fit as only about 45 percent of the systematic variation is left unexplained. We attribute this unexplained variation to variables not explicitly included in the model and measurement errors both of which effects are captured by the random error term.

The F-test is a test of the overall significance of the model. It tests the hypothesis that all the variables taken together are not significantly different from zero; i.e

Ho: $\beta 1 = \beta 2 = \beta 3 = \beta 4 = 0$

The value of the F-statistic is 5.175. The probability value of the F-statistic is 0.003. This is less than 0.05. Thus, the F-statistic shows that the model is statistically significant at the 5% level of significance. The null hypothesis is rejected and the hypothesis that the slope coefficients are simultaneously and significantly different from zero is accepted. This implies that the overall model is significant in explaining the variations in gross domestic product (GDP) growth rate.

The Durbin- Watson Statistic of 1.88 reveals the absence of autocorrelation in the short run. Given the soundness of goodness of fit as analyzed above, we can therefore rely on the estimated parameters of the variables.

The D(DLNCEXP) is statistically significant at 1% level of significance as its p-value which was 0.0001 is less than 0.01. Capital expenditure also has a negative relationship with gross domestic product (GDP) growth rate, this result does not support apriori expectation but it reveals the state of the nation's economy within the period of

the study, where government capital expenditure has been made in the wrong areas and sectors of the economy and this has led to an adverse effect on the economy.

The D(DLNREXP) is statistically significant at 10% level of significance since its p-value which was 0.0614 is less than 0.10. Recurrent expenditure has a negative relationship with gross domestic product (GDP) growth rate, this result does not also support apriori expectation, but it brings to manifestation the decaying state of country's economy between the periods of the study. It shows that the growth of the economy has been on a decline which is a consequence of the government recurrent expenses on the economy.

Furthermore, the D(DLNINFL) is statistically significant at 1% level of significance as its p-value which was 0.0051 is less than 0.01. Inflation rate and gross domestic product (GDP) growth rate has an inverse relationship, this result support apriori expectation and reveals that continuous increase in the price of goods and services exhibit a deleterious effect on GDP growth rate.

The D(DLNUN) is not statistically significant as its p-value which was 0.1433 is greater than 0.05. Unemployment rate has a positive relationship with gross domestic product (GDP) growth rate, this result is counterintuitive and does not support apriori expectation.

The coefficient of the error correction term ECM is -0.60427. This is negative, as expected and it is statistically significant at 1% level of significance. Thus, we can conclude that it can successfully perform the function of correcting the short run dynamics and the long run equilibrium.

Granger Causality Test

4.2.4 Granger Causality Test

Pairwise Granger Causality Tests
Date: 04/15/19 Time: 23:48
Sample: 1981 2024
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LUN does not Granger Cause LRGDP	36	2.15036	0.1335
LINFL does not Granger Cause LRGDP		0.42091	0.6601
LUN does not Granger Cause LRGDP	36	2.33233	0.1139
LRGDP does not Granger Cause LNEXP		0.04566	0.9554
L RGDP does not Granger Cause LCEXP	36	0.20785	0.8135
LCEXP does not Granger Cause LRGDP		0.99145	0.3825

Source: Author's computation on *Eviews*

The above granger causality test implies that there is a bidirectional relationship between UN and RGDP as well as between RGDP and REXP. The two broad unemployment components tested no granger causality.

4.2.5 Multicollinearity Test

Multicollinearity means the existence of high linear association among the explanatory variables of a regression model. The decision rule states that, if the correlation coefficient is greater than 0.8, we conclude that there is multicollinearity. When otherwise, there is no multicollinearity among the explanatory variables in the model.

Table 7: Multicollinearity Test Results

	D(DLNGDPGR)	**D(DLNCEXP)**	**D(DLNREXP)**	**D(DLNINFL)**	**D(DLNUN)**
D(DLNGDPGR)	1.0000	-0.31551	0.03772	0.00976	-0.02313
D(DLNCEXP)	-0.31551	1.0000	0.13659	-0.10769	-0.07714
D(DLNREXP)	0.03772	0.13659	1.0000	-0.47149	0.25503
D(DLNINFL)	0.00976	-0.10769	-0.47149	1.0000	-2.21134
D(DLNUN)	-0.02313	-0.07714	0.25503	-2.21134	1.00000

Source: Author's Computation using E-views 8

The result shown above shows that no correlation coefficient is above 0.8, this reveals that multicollinearity is absent among the explanatory variables.

4.2.6 Heteroscedasticity Test

To test for heteroscedasticity, ARCH tests and Harvey tests will be employed, the test results are shown below;

Table 8: Heteroscedasticity Test Results

TESTS	F-statistic	Prob. F	Obs*R-squared	Prob. Chi-Square
ARCH	0.378738	0.5449	0.407460	0.5233
Harvey	1.436551	0.2590	6.845402	0.2324

Source: Author's Computation using E-views 8

The F-statistic for each of these tests is shown in table 8 above alongside their associated probability. The results shows that the probability of the ARCH tests and Harvey tests are greater than 0.05. Thus, it can be concluded that there is no problem of heteroscedasticity in the model. In other words, the variance of the residuals of the model is constant or homoscedatic.

CHAPTER FIVE

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 Summary

In this study an attempts to investigate and examine the impact of unemployment on economic growth in Nigeria was made. The method of analysis was the Error Correction Model (ECM) for the period of 1995-2022. Many Researchers have attempted to investigate the impact of unemployment on economic growth with different conclusions. It is therefore important to reinvestigate and re-examine the impact of unemployment on economic growth specifically Nigeria economy. From this study we can also conclude that, government expenditure impacts significantly the growth rate of GDP based on the research analysis. This means that, government expenditure is a true parameter for measuring economic growth. Therefore, the study has shown that government expenditure is the main driver of economic growth. The other variables such as interest rate, exchange rate and inflation rate also have impact on economic growth because of their right signs. Based on the findings, for the government expenditure, interest rate, inflation rate and exchange rate to have positive impact on economy.

5.2 Recommendations

1. From the findings, government investment has been made in unproductive sectors of the nation's economy. It's therefore advice that government expenditure be channelled into viral and productive sectors like agriculture, entertainment, tourism, solid minerals etc.

2. It's also advised that capital expenditure should be made in some key sectors like the health sector, education sector and industrial sector. This will help the economy in becoming diversified and boost economic growth and development.

3. Any of the possible best tax practices should also be adopted in the tax process of the nation's economy. Since taxation has proven to be one of the best means of generating revenue and creating employment.

5.3 Conclusion

The empirical studies conducted on the impact of unemployment on economic growth which was reviewed. The main results indicated that economic growth significantly has a positive effect on economic growth. The empirical literature review shows that the relationship between unemployment and economic growth differs in methodology used, and the dimension of unemployment in Nigeria.

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APPENDIX

Results

Dependent Variable: GDPGR
Method: Least Squares
Date: 10/5/24 Time: 16:05
Sample (adjusted): 1995 2022
Included observations: 24 after adjustments
Convergence achieved after 35 iterations
MA Backcast: 1989 1991

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.169522	0.389852	-0.434836	0.6695
CEXP	-2.219662	0.423026	-5.247100	0.0001
REXP	-1.246212	0.619338	-2.012169	0.0614
INFL	-4.432275	1.366190	-3.244259	0.0051
UN	2.059914	1.338408	1.539077	0.1433
ECM__1_	-0.604274	0.198035	-3.051348	0.0076
AR(11)	-0.203475	0.115125	-1.767429	0.0962
MA(3)	0.934722	0.043553	21.46181	0.0000

R-squared	0.693621	Mean dependent var	0.070011
Adjusted R-squared	0.559580	S.D. dependent var	1.814946
S.E. of regression	1.204474	Akaike info criterion	3.471164
Sum squared resid	23.21212	Schwarz criterion	3.863849
Log likelihood	-33.65397	Hannan-Quinn criter.	3.575344
F-statistic	5.174691	Durbin-Watson stat	1.884980
Prob(F-statistic)	0.003124		

Inverted AR Roots	.83+.24i	.83-.24i	.57+.65i	.57-.65i
	.12-.86i	.12+.86i	-.36-.79i	-.36+.79i
	-.73+.47i	-.73-.47i	-.87	
Inverted MA Roots	.49+.85i	.49-.85i	-.98	

Date: 10/5/24 Time: 02:02

Sample: 1995 2022
Included observations: 35
Null hypothesis: Series are not cointegrated
Cointegrating equation deterministics: C
Automatic lags specification based on Schwarz criterion (maxlag=8)

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
GDPGR	-4.961911	0.0475	13.78266	1.0000
CEXP	-7.880558	0.0001	-137.2912	0.0000
REXP	-6.416529	0.0021	225.3537	1.0000
INFL	-6.555085	0.0015	229.3116	1.0000
UN	-8.123764	0.0000	-127.9762	0.0000

*MacKinnon (1996) p-values.

Intermediate Results:

	GDPGR	CEXP	REXP	INFL	UN
Rho – 1	-7.958668	-2.220904	-2.312270	-2.167125	-1.929924
Rho S.E.	1.603952	0.281821	0.360361	0.330602	0.237565
Residual variance	1.234797	0.117391	0.091311	0.027106	0.076427
Long-run residual variance	0.004724	0.411940	0.846981	0.296378	0.308600
Number of lags	6	1	2	2	1
Number of observations	28	33	32	32	33
Number of stochastic trends**	5	5	5	5	5

**Number of stochastic trends in asymptotic distribution

	GDPGR	CEXP	REXP	INFL	UN
GDPGR	1	-0.3155171021320696	0.03772296069132202	0.009766046661988116	-0.02313359274185904
CEXP	-0.3155171021320696	1	0.1365971947642209	-0.1076917354224285	-0.07714537504741066
REXP	0.03772296069132202	0.1365971947642209	1	-0.4714952124666479	0.2550314615880406
INFL	0.009766046661988116	-0.1076917354224285	-0.4714952124666479	1	-2.211340586542748e-07
UN	-0.02313359274185904	-0.07714537504741066	0.2550314615880406	-2.211340586542748e-07	1

Heteroskedasticity Test: ARCH

F-statistic	0.378738	Prob. F(1,21)	0.5449
Obs*R-squared	0.407460	Prob. Chi-Square(1)	0.5233

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 10/5/24 Time: 08:27
Sample (adjusted): 1995 2022
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.857496	0.400519	2.140960	0.0442
RESID^2(-1)	0.133033	0.216167	0.615417	0.5449

R-squared	0.017716	Mean dependent var	0.988681
Adjusted R-squared	-0.029060	S.D. dependent var	1.603051
S.E. of regression	1.626177	Akaike info criterion	3.893282
Sum squared resid	55.53347	Schwarz criterion	3.992020
Log likelihood	-42.77274	Hannan-Quinn criter.	3.918114
F-statistic	0.378738	Durbin-Watson stat	1.931340
Prob(F-statistic)	0.544892		

Heteroskedasticity Test: Harvey

F-statistic	1.436551	Prob. F(5,18)	0.2590
Obs*R-squared	6.845402	Prob. Chi-Square(5)	0.2324
Scaled explained SS	7.139180	Prob. Chi-Square(5)	0.2105

Test Equation:
Dependent Variable: LRESID2
Method: Least Squares
Date: 10/5/24 Time: 08:28
Sample: 1995 2022
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.349312	0.452243	-2.983598	0.0080
CEXP	-0.236643	0.974147	-0.242924	0.8108
REXP	-2.463555	1.158392	-2.126702	0.0475
INFL	-2.475662	2.400086	-1.031489	0.3160
UN	0.328722	1.416888	0.232003	0.8192
ECM__1_	0.464504	0.328569	1.413720	0.1745

R-squared	0.285225	Mean dependent var	-1.335960
Adjusted R-squared	0.086676	S.D. dependent var	2.317401
S.E. of regression	2.214693	Akaike info criterion	4.640423
Sum squared resid	88.28759	Schwarz criterion	4.934936
Log likelihood	-49.68507	Hannan-Quinn criter.	4.718557
F-statistic	1.436551	Durbin-Watson stat	2.145476
Prob(F-statistic)	0.258964		

	GDPGR	UN	CEXP	REXP	INFL
Mean	3.671135	10.52571	360.5231	974.0415	49.79657
Median	4.279277	7.000000	241.6883	178.0978	29.63000
Maximum	33.73578	27.40000	1152.796	3831.978	180.1500
Minimum	-13.12788	1.800000	4.100100	4.750800	1.030000
Std. Dev.	7.671722	7.843219	374.9018	1260.780	52.96540
Skewness	1.179047	0.756078	0.710889	1.100574	1.046296
Kurtosis	8.588489	2.294577	2.111846	2.711928	2.930915
Jarque-Bera	53.65472	4.060343	4.098313	7.186727	6.392921
Probability	0.000000	0.131313	0.128844	0.027506	0.040907
Sum	128.4897	368.4000	12618.31	34091.45	1742.880
Sum Sq. Dev.	2001.081	2091.547	4778745.	54045275	95381.34
Observations	35	35	35	35	35

Null Hypothesis: D(GDPGR,2) has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.380090	0.0000
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDPGR,3)
Method: Least Squares
Date: 10/26/18 Time: 08:35
Sample (adjusted): 1986 2015
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDPGR(-1),2)	-3.273058	0.513011	-6.380090	0.0000
D(GDPGR(-1),3)	1.194650	0.372902	3.203655	0.0036
D(GDPGR(-2),3)	0.369096	0.177958	2.074067	0.0481
C	-0.558045	1.947199	-0.286588	0.7767

R-squared	0.870827	Mean dependent var	-0.396259
Adjusted R-squared	0.855922	S.D. dependent var	28.08510
S.E. of regression	10.66043	Akaike info criterion	7.694520
Sum squared resid	2954.762	Schwarz criterion	7.881346
Log likelihood	-111.4178	Hannan-Quinn criter.	7.754287
F-statistic	58.42670	Durbin-Watson stat	2.011889
Prob(F-statistic)	0.000000		

Null Hypothesis: D(CEXP,2) has a unit root
Exogenous: Constant
Lag Length: 8 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.043280	0.0000
Test critical values:	1% level	-3.737853	
	5% level	-2.991878	
	10% level	-2.635542	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CEXP,3)
Method: Least Squares
Date: 10/26/18 Time: 08:36
Sample (adjusted): 1992 2015
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CEXP(-1),2)	-22.65146	3.748207	-6.043280	0.0000
D(CEXP(-1),3)	19.75429	3.570860	5.532082	0.0001
D(CEXP(-2),3)	17.13404	3.185571	5.378639	0.0001
D(CEXP(-3),3)	14.67285	2.769571	5.297880	0.0001
D(CEXP(-4),3)	13.16662	2.454898	5.363408	0.0001
D(CEXP(-5),3)	11.87538	2.229367	5.326793	0.0001
D(CEXP(-6),3)	9.258860	1.819915	5.087524	0.0002
D(CEXP(-7),3)	5.123059	1.126338	4.548419	0.0005
D(CEXP(-8),3)	1.563890	0.405143	3.860093	0.0017
C	71.34158	26.74649	2.667325	0.0184

R-squared	0.965289	Mean dependent var	15.21760
Adjusted R-squared	0.942975	S.D. dependent var	454.0923
S.E. of regression	108.4371	Akaike info criterion	12.50456
Sum squared resid	164620.6	Schwarz criterion	12.99541
Log likelihood	-140.0547	Hannan-Quinn criter.	12.63478
F-statistic	43.25885	Durbin-Watson stat	1.757074
Prob(F-statistic)	0.000000		

Null Hypothesis: D(REXP,2) has a unit root
Exogenous: Constant
Lag Length: 5 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.681946	0.0009
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	

10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(REXP,3)
Method: Least Squares
Date: 10/26/18 Time: 08:37
Sample (adjusted): 1989 2015
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(REXP(-1),2)	-9.036293	1.930029	-4.681946	0.0001
D(REXP(-1),3)	6.889351	1.811658	3.802788	0.0011
D(REXP(-2),3)	5.874290	1.634358	3.594249	0.0018
D(REXP(-3),3)	4.661147	1.407688	3.311207	0.0035
D(REXP(-4),3)	2.989269	1.026037	2.913413	0.0086
D(REXP(-5),3)	1.156716	0.518928	2.229047	0.0374
C	99.50539	46.60252	2.135193	0.0453

R-squared	0.890931	Mean dependent var	7.305080
Adjusted R-squared	0.858210	S.D. dependent var	536.9143
S.E. of regression	202.1748	Akaike info criterion	13.67456
Sum squared resid	817493.0	Schwarz criterion	14.01051
Log likelihood	-177.6065	Hannan-Quinn criter.	13.77445
F-statistic	27.22840	Durbin-Watson stat	2.036806
Prob(F-statistic)	0.000000		

Null Hypothesis: D(INFL,2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*

Augmented Dickey-Fuller test statistic		-9.951713	0.0000
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFL,3)
Method: Least Squares
Date: 10/5/24 Time: 08:37
Sample (adjusted): 1995 2022
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INFL(-1),2)	-1.540884	0.154836	-9.951713	0.0000
C	0.681684	0.791876	0.860846	0.3962

R-squared	0.767508	Mean dependent var	0.100000
Adjusted R-squared	0.759758	S.D. dependent var	9.114266
S.E. of regression	4.467310	Akaike info criterion	5.891912
Sum squared resid	598.7058	Schwarz criterion	5.983520
Log likelihood	-92.27058	Hannan-Quinn criter.	5.922277
F-statistic	99.03660	Durbin-Watson stat	2.352374
Prob(F-statistic)	0.000000		

Null Hypothesis: D(UN,2) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-7.072101	0.0000

Test critical values:	1% level	-3.661661
	5% level	-2.960411
	10% level	-2.619160

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(UN,3)
Method: Least Squares
Date: 10/5/24 Time: 08:38
Sample (adjusted): 1995 2022
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(UN(-1),2)	-1.908998	0.269934	-7.072101	0.0000
D(UN(-1),3)	0.418827	0.168354	2.487776	0.0191
C	-0.123368	0.383528	-0.321666	0.7501

R-squared	0.742868	Mean dependent var	-0.151613
Adjusted R-squared	0.724501	S.D. dependent var	4.068159
S.E. of regression	2.135294	Akaike info criterion	4.446852
Sum squared resid	127.6655	Schwarz criterion	4.585625
Log likelihood	-65.92620	Hannan-Quinn criter.	4.492088
F-statistic	40.44669	Durbin-Watson stat	1.807776
Prob(F-statistic)	0.000000		

LEVEL

Null Hypothesis: GDPGR has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*

Augmented Dickey-Fuller test statistic		-3.983689	0.0042
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDPGR)
Method: Least Squares
Date: 11/04/18 Time: 16:53
Sample (adjusted): 1982 2015
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPGR(-1)	-0.644121	0.161690	-3.983689	0.0004
C	0.772408	0.250313	3.085768	0.0042

R-squared	0.331520	Mean dependent var	0.028693
Adjusted R-squared	0.310630	S.D. dependent var	1.171016
S.E. of regression	0.972275	Akaike info criterion	2.838666
Sum squared resid	30.25020	Schwarz criterion	2.928452
Log likelihood	-46.25733	Hannan-Quinn criter.	2.869286
F-statistic	15.86978	Durbin-Watson stat	2.070695
Prob(F-statistic)	0.000367		

Null Hypothesis: CEXP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.081432	0.7117
Test critical values:	1% level	-3.639407	

5% level	-2.951125
10% level	-2.614300

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CEXP)
Method: Least Squares
Date: 10/05/24 Time: 16:54
Sample (adjusted): 1995 2022
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEXP(-1)	-0.030865	0.028541	-1.081432	0.2876
C	0.286516	0.144741	1.979512	0.0564

R-squared	0.035258	Mean dependent var	0.141919
Adjusted R-squared	0.005110	S.D. dependent var	0.323998
S.E. of regression	0.323169	Akaike info criterion	0.635738
Sum squared resid	3.342018	Schwarz criterion	0.725524
Log likelihood	-8.807553	Hannan-Quinn criter.	0.666358
F-statistic	1.169495	Durbin-Watson stat	2.120346
Prob(F-statistic)	0.287588		

Null Hypothesis: REXP has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.364236	0.5875

Test critical values:	1% level	-3.646342
	5% level	-2.954021
	10% level	-2.615817

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(REXP)
Method: Least Squares
Date: 10/05/24 Time: 16:54
Sample (adjusted): 1995 2022
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
REXP(-1)	-0.027914	0.020461	-1.364236	0.1826
D(REXP(-1))	-0.339620	0.167894	-2.022829	0.0521
C	0.414109	0.123858	3.343422	0.0022

R-squared	0.158299	Mean dependent var	0.198342
Adjusted R-squared	0.102186	S.D. dependent var	0.270007
S.E. of regression	0.255840	Akaike info criterion	0.197980
Sum squared resid	1.963625	Schwarz criterion	0.334026
Log likelihood	-0.266670	Hannan-Quinn criter.	0.243755
F-statistic	2.821066	Durbin-Watson stat	1.965497
Prob(F-statistic)	0.075399		

Null Hypothesis: INFL has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*

Augmented Dickey-Fuller test statistic		-1.802510	0.3730
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFL)
Method: Least Squares
Date: 10/05/18 Time: 16:55
Sample (adjusted): 1995 2022
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFL(-1)	-0.031213	0.017317	-1.802510	0.0809
C	0.244354	0.058145	4.202485	0.0002

R-squared	0.092174	Mean dependent var	0.151889
Adjusted R-squared	0.063804	S.D. dependent var	0.164973
S.E. of regression	0.159623	Akaike info criterion	-0.774983
Sum squared resid	0.815342	Schwarz criterion	-0.685198
Log likelihood	15.17472	Hannan-Quinn criter.	-0.744364
F-statistic	3.249042	Durbin-Watson stat	1.940186
Prob(F-statistic)	0.080891		

Null Hypothesis: UN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*

Augmented Dickey-Fuller test statistic		-0.516833	0.8757
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(UN)
Method: Least Squares
Date: 10/05/24 Time: 16:55
Sample (adjusted): 1995 2022
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
UN(-1)	-0.031505	0.060957	-0.516833	0.6088
C	0.101440	0.132410	0.766107	0.4492

R-squared	0.008278	Mean dependent var	0.037675
Adjusted R-squared	-0.022713	S.D. dependent var	0.277142
S.E. of regression	0.280272	Akaike info criterion	0.350909
Sum squared resid	2.513675	Schwarz criterion	0.440695
Log likelihood	-3.965460	Hannan-Quinn criter.	0.381529
F-statistic	0.267116	Durbin-Watson stat	1.549630
Prob(F-statistic)	0.608827		

1ST DIFFERENCE

Null Hypothesis: D(GDPGR) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*

Augmented Dickey-Fuller test statistic		-6.601798	0.0000
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDPGR,2)
Method: Least Squares
Date: 10/05/24 Time: 16:56
Sample (adjusted): 1995 2022
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDPGR(-1))	-1.896243	0.287231	-6.601798	0.0000
D(GDPGR(-1),2)	0.382794	0.173543	2.205762	0.0355
C	0.080204	0.190622	0.420751	0.6770

R-squared	0.727112	Mean dependent var	-0.027079
Adjusted R-squared	0.708292	S.D. dependent var	1.989620
S.E. of regression	1.074594	Akaike info criterion	3.070823
Sum squared resid	33.48782	Schwarz criterion	3.208236
Log likelihood	-46.13317	Hannan-Quinn criter.	3.116371
F-statistic	38.63527	Durbin-Watson stat	2.103330
Prob(F-statistic)	0.000000		

Null Hypothesis: D(CEXP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.930525	0.0000

Test critical values:	1% level	-3.646342
	5% level	-2.954021
	10% level	-2.615817

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CEXP,2)
Method: Least Squares
Date: 10/05/24 Time: 16:57
Sample (adjusted): 1995 2022
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CEXP(-1))	-1.060399	0.178804	-5.930525	0.0000
C	0.155669	0.063385	2.455934	0.0199

R-squared	0.531518	Mean dependent var	0.002033
Adjusted R-squared	0.516405	S.D. dependent var	0.477875
S.E. of regression	0.332319	Akaike info criterion	0.693248
Sum squared resid	3.423508	Schwarz criterion	0.783945
Log likelihood	-9.438584	Hannan-Quinn criter.	0.723764
F-statistic	35.17113	Durbin-Watson stat	1.974093
Prob(F-statistic)	0.000001		

Null Hypothesis: D(REXP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.803735	0.0000
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(REXP,2)
Method: Least Squares
Date: 10/05/24 Time: 16:57
Sample (adjusted): 1995 2022
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(REXP(-1))	-1.325877	0.169903	-7.803735	0.0000
C	0.263134	0.056389	4.666437	0.0001

R-squared	0.662670	Mean dependent var	-0.000480
Adjusted R-squared	0.651789	S.D. dependent var	0.439539
S.E. of regression	0.259369	Akaike info criterion	0.197564
Sum squared resid	2.085445	Schwarz criterion	0.288261
Log likelihood	-1.259801	Hannan-Quinn criter.	0.228081
F-statistic	60.89827	Durbin-Watson stat	1.931363
Prob(F-statistic)	0.000000		

Null Hypothesis: D(INFL) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.119157	0.0002
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFL,2)
Method: Least Squares
Date: 10/05/24 Time: 16:57
Sample (adjusted): 1995 2022
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INFL(-1))	-0.914033	0.178551	-5.119157	0.0000
C	0.141284	0.040217	3.513046	0.0014

R-squared	0.458097	Mean dependent var	0.000773
Adjusted R-squared	0.440616	S.D. dependent var	0.225766
S.E. of regression	0.168855	Akaike info criterion	-0.660861
Sum squared resid	0.883872	Schwarz criterion	-0.570164
Log likelihood	12.90421	Hannan-Quinn criter.	-0.630344
F-statistic	26.20577	Durbin-Watson stat	1.903964
Prob(F-statistic)	0.000015		

Null Hypothesis: D(UN) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.968325	0.0003
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(UN,2)
Method: Least Squares

Date: 10/05/24 Time: 16:58
Sample (adjusted): 1995 2022
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(UN(-1))	-0.840613	0.169194	-4.968325	0.0000
C	0.045525	0.047290	0.962665	0.3432

R-squared	0.443290	Mean dependent var	0.011109
Adjusted R-squared	0.425331	S.D. dependent var	0.354494
S.E. of regression	0.268731	Akaike info criterion	0.268478
Sum squared resid	2.238703	Schwarz criterion	0.359176
Log likelihood	-2.429892	Hannan-Quinn criter.	0.298995
F-statistic	24.68425	Durbin-Watson stat	1.941642
Prob(F-statistic)	0.000024		

Granger Causality Test

Pairwise Granger Causality Tests
Date: 04/15/19 Time: 23:48
Sample: 1995 2022
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LCEXP does not Granger Cause LRGDP	36	2.15036	0.1335
LRGDP does not Granger Cause LCEXP		0.42091	0.6601
LNEXP does not Granger Cause LRGDP	36	2.33233	0.1139
LRGDP does not Granger Cause LNEXP		0.04566	0.9554
LNEXP does not Granger Cause LCEXP	36	0.20785	0.8135
LCEXP does not Granger Cause LNEXP		0.99145	0.3825

Source: Author’s computation on *Eviews*