

**INFLATION, UNEMPLOYMENT AND ECONOMIC
GROWTH IN NIGERIA (1980-2020)**

By

BABATUNDE Emmanuel Oladapo

MARIC NO: 18020301013

DEPARTMENT OF ECONOMICS

**COLLEGE OF HUMANITIES, MANAGEMENT AND
SOCIAL SCIENCES**

**MOUNTAIN TOP UNIVERSITY, OGUN STATE,
NIGERIA**

**BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF
ECONOMICS, COLLEGE OF HUMANITIES AND
MANAGEMENT SCIENCES, MONTAIN TOP UNIVERSITY IN
PARTIAL FUFILMENT FOR THE REQUIREMENTS FOR THE
DEGREE OF BACHELOR OF SCIENCE (B.Sc. Hons)**

AUGUST, 2022

CERTIFICATION

I certify that this work titled “INFLATION, UNEMPLOYMENT AND ECONOMIC GROWTH IN NIGERIA” was submitted by Babatunde Emmanuel with the matriculation number 18020301013 under my supervision to the Department of Economics, Mountain Top University, Ogun State, Nigeria.

Name of supervisor: DR OLOGUNDUDU, MOJEED M.

Signature & Date _____

Head of Department: DR OLOGUNDUDU, MOJEED M.

Signature & Date _____

DEDICATION

This project is dedicated to God almighty who has made it possible for me to complete this work and also to my family members who always believed in me.

ACKNOWLEDGEMENTS

I give glory to God almighty who has made the completion of this project possible because without him this project will not have been accomplished, I say may his name be forever glorified. My sincere appreciation goes to my lovely parents Mr and Mrs Babatunde for their love and support. I also deeply appreciate my H.O.D who is also my project supervisor Dr Ologundudu, Mojeed M. for his massive support, his time, guidance and advice towards the successful completion of this project. I appreciate my lecturers Mr Oluyomi, Dr Motunrayo and Dr Ademola Young for assisting me in various ways to ensure I complete this work successfully. Also, to my wonderful colleagues and friends who have contributed to my work, I say a big thank you.

Babatunde Emmanuel

AUGUST 2022

TABLE OF CONTENTS

CONTENTS	PAGES
Title Page	
Certification	i
Dedication	ii
Acknowledgement	iii
Table of Contents	iv
List of figures	vii
List of Tables	vii
Abstract	viii
CHAPTER ONE: INTRODUCTION	
1.1. Background to the study	1
1.2. Statement of research problem	3
1.3. Research Questions	4
1.4. Research Objectives	5
1.5. Research Hypothesis	5
1.6. Significance to the study	6
1.7. Scope and Justification of the study	6
1.8. Study Plan	7
2.0 CHAPTER TWO: LITERATURE REVIEW	9
2.1 Introduction	9
2.2 Conceptual Framework	9
2.2.1 Inflation rate	9
2.2.2 Unemployment rate	12
2.2.3 Economic growth	15
2.2.4 Inflation and Unemployment trend in Nigeria	16

2.3. Theoretical Framework	19
2.3.1 Theories of Unemployment	19
2.3.1.1 Classical theory of Unemployment	20
2.3.1.2 Keynesian Theory of Unemployment	21
2.3.1.3 Okun's Law	22
2.3.2 Theories of Inflation	24
2.3.3 Efficient Wage Theory	26
2.3.4 Philips curve	27
2.3.4.1 The long run Philips curve	29
2.3.4.2 Stagflation (Positive sloped Philips curve)	30
2.3.5. Growth Theories	31
2.3.5.1 The Harrod-Domar growth model	31
2.3.5.2 The Lewis Theory of growth	33
2.3.5.3 Main Theory for this Study	34
2.4. Empirical Review	34
2.5 Limitation of previous Studies	37
3.0 CHAPTER THREE: RESEARCH METHODOLOGY	38
3.1 Introduction	38
3.2 Research design	38
3.3 Model specifications	38
3.4 Techniques of Estimation and result valuation	40
3.4.1 The economic criteria	40
3.4.2 The statistical criteria	40
3.4.3 Econometrics test	41
3.5 Nature and sources of data	42
CHAPTER FOUR	43
4.1 Introduction	43
4.2 Presentation of Results	43
4.3 Result Interpretation	45
4.3.1. Analysis of Result based on Economic Criteria	45
4.3.1.2 Analysis based on the A priori Criteria	47
4.3.2 Analysis based on statistical Criteria	48

4.3.2.1 The Coefficient of multiple Determination	48
4.3.2.2 The t-test Statistics	49
4.3.2.3 The f-statistics Test	50
4.3.3 Analysis based on Econometric Criteria	52
4.3.3.1 Autocorrelation Test	52
4.3.3.2 Normality Test	54
4.3.3.3 Heteroscedasticity Test	55
4.3.3.4 Multicollinearity Test	56
4.4 Evaluation of Research Hypothesis	57
4.5 Conclusion	57
CHAPTER FIVE	59
5.1 Introduction	59
5.2 Summary of Findings	59
5.3 Conclusion	60
5.4 Policy Recommendation	61
REFERENCES	62

LIST OF FIGURES

FIGURE 1.1: Inflation and Unemployment trend in Nigeria	18
FIGURE 1.2 The Philips curve	28
FIGURE 1.3 Expected-Adjusted Philips Curve	30

LIST OF TABLES

Table 4.2.1: Regression test table (Model 1)	43
Table 4.2.2: Regression test table (Model 2)	44
Table 4.2.3:Regression test table (model 3)	44
Table 4.3.1.2.1: A priori table (Model 1)	47
Table 4.3.1.2.2: A priori table (Model 2)	48
Table 4.3.1.2.3: A priori table (Model 3)	48
Table 4.3.2.2.1: T-test (Model 1)	50
Table 4.3.2.2.2: T-test (Model 2)	50
Table 4.3.2.2.3: T-test (Model 3)	50
Table 4.3.2.3.1: F- test (Model 1)	51
Table 4.3.2.3.2: F-test (Model 2)	51
Table 4.3.2.3.3: F- test (Model 3)	52
Table 4.3.3.4.1: Multicollinearity Test	56

ABSTRACT

The major macroeconomic goals pursued by every developing country, including Nigeria, have been Low inflation rate, sustainable growth, and a low unemployment rate. As a result, the purpose of this research is to examine the relationship between inflation, economic growth, and unemployment in Nigeria using time series data from 1980 to 2020. The ordinary least squares (OLS) estimation technique was used to investigate this relationship, as well as the multicollinearity test to look for any linear relationship between the explanatory variables. The study discovered that, while inflation had a negative relationship with unemployment, it had no significant impact on the level of unemployment. Real GDP, on the other hand, was found to have a positive relationship with unemployment and to be significant in explaining unemployment in Nigeria. According to the Multicollinearity test, there is no linear relationship between inflation and unemployment, nor between economic growth and inflation. The study concludes that, despite increased economic growth (in terms of real GDP) over the years, unemployment in Nigeria has not decreased. This can be attributed to Nigeria's over-reliance on revenue generated by the oil sector, which has resulted in a neglect of the economy's real sectors. As a result, the study recommends that the real sector of the economy be developed in order to reduce unemployment as the economy's real gross domestic product rises.

KEYWORDS: *inflation rate, unemployment rate, Philips curve, Okuns law, Economic growth.*

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Unemployment is a typical occurrence in today's world economy. It is a key impediment to emerging economies achieving economic progress. Unemployment affects developed economies as well, but to a lesser extent. Unemployment develops as a result of job shortages that do not keep pace with population growth. Those who are employed may acquire a fear of being laid off as a result of job instability and employee retrenchment owing to low labour demand, particularly during a recession. Unemployment is divided into two types: voluntary and involuntary. When there are available jobs, voluntary unemployment refers to a scenario in which an individual chooses not to work either because he has the means of support or he aspires to a better job with greater pay. Involuntary unemployment, on the other hand, occurs when people who are able and willing to work at the current wage rate are unable to find suitable employment. Unemployment has long been considered as an economic monster that negatively influences a country's social and economic growth. Unemployment is a waste of a country's human resources. The growing rate of unemployment in Nigeria has been major concern of successive Nigerian governments. Unemployment is a multifaceted problem that promotes political instability, and its danger has been identified as a critical developmental barrier for the country. In almost all emerging nations, unemployment has been identified as a serious impediment to long-term growth. Unemployment decreases the total productivity of an economy and represents lack of utilization of manpower resources. The objective of decreasing unemployment rate has been one of the main policy targets of developing countries.

Inflation, on the other hand, is harmful to economic growth. Inflation is not a new phenomenon in Nigeria; it has been a serious concern for the country for the previous three

decades. Inflation is defined as a sustained increase in the general price level of goods and services in a nation over a lengthy period of time.

Unemployment and inflation are two challenges that affect any country's social and economic life. Unemployment and inflation, according to current research, form a vicious spiral that explains the endemic character of poverty in emerging nations. And it's been suggested that the surest way to break the vicious loop is to keep improving productivity, which leads to an adequate supply of products and services.

The decline of oil prices, on which Nigeria's economy had grown dangerously reliant, delayed the country's experience of unemployment and inflation until the early and mid-1980s.

Prior to the 1980s, data revealed that the Nigerian economy was capable of providing jobs for its growing population, as well as absorbing significant amounts of foreign labour in the scientific areas. The wage rate was competitive with worldwide standards, inflation was mild, and most industry sub-groups had relative industrial calm.

The oil boom of the 1970s prompted a major movement of young people into cities in search of jobs. However, following the recession of the 1980s, available data revealed that the problem of unemployment began to emerge, prompting the implementation of the Structural Adjustment Programme (SAP), the rapid depreciation of the naira exchange rate, and the inability of most industries to import the raw materials needed to maintain output levels.

The sudden devaluation of the naira resulted in a dramatic rise in the general price level (inflation), resulting in a large drop in real wages. Low wages, in turn, fuelled wage workers' declining buying power and a drop in aggregate demand. As a result, industries began to acquire unwanted inventories, and manufacturing companies began to rationalize their market pricing as a rational economic agent. With the fast development of the educational

sector, the number of new entrants into the labour market surpassed the economy's absorption capacity. As a result, the government's macroeconomic goal of "full employment" was not met.

1.2 STATEMENT OF RESEARCH PROBLEM

The increase in the unemployment rate suggests that the policies put in place by previous and present governments are not yielding desired outcomes. It's very absurd to see Nigerian graduates who are educated, competent, and eager to work unable to find employment. As unemployment continues to climb at an alarming rate, the situation is becoming more pathetic. According to the National Bureau of Statistics (2018), almost four million individuals lost their Jobs between 2015 and 2017. In recent years, the incidence of unemployment in Nigeria has become deeper and more pitiful, impacting people of all ages, educational levels, and geographical dispersion. Aside from the economic repercussions of reduced national production, increasing rural-urban migration, labour waste, a high dependence ratio, poverty, insecurity, sadness, and dissatisfaction are also social effects, as well as an increase in criminal activities such as drug abuse, armed robbery, kidnapping, prostitution, drug trafficking, and cybercrime. According to the International Labour Organization (ILO) (2012), unemployment is one of the most serious threats to many nations' economic and social stability Nigeria inclusive. Nigeria's unemployment rate is higher than that of other African nations such as an increase in criminal activities such as drug abuse, armed robbery, kidnapping, prostitution, drug trafficking, and cybercrime. According to the International Labour Organization (ILO) (2012), unemployment is one of the most serious threats to many nations' economic and social stability Nigeria inclusive. Nigeria's unemployment rate is higher than that of other African nations such as Ghana and South Africa. As pointed out by Subair (2013), South Africa's unemployment averaged 25.2% over the decade, Ghana 14%, while Nigeria is around 37%. Recent Statistics of

World Bank (2022) shows that Nigeria's unemployment rate is 33%, with young unemployment reaching 38%. According to the International Labour Organization (2012), the age group of 15-35 years accounts for approximately 60% of Nigeria's population and 30% of the labour force. The situation is hindered by the lack of credible data on unemployment in Nigeria. yet, no organization has produced unemployment data in Nigeria. The World Bank and the National Bureau of Statistics frequently contradict each other. The mismatch in employment Statistics, according to Raheem (2009), is due to the fact that official Statistics only acknowledge open unemployment. As a result, the government must design measures to address unemployment, as no economy can flourish with a high unemployment rate.

Macroeconomic price stability, is universally agreed to be favourably associated to economic growth. Nigeria, on the other hand, has failed to attain price stability due to its relatively high inflation rate. Money loses value during inflation, and individuals are disincentive to save, which could affect the volume of money in the Money Market as well as Investment, and thus contributes to overall economic development. In Nigeria, the successive administrations have implemented a variety of policies, the most important of which are Fiscal and Monetary Policies. Despite the increased implementation of these policies and strategies throughout time, inflation continues to be a major danger to Nigeria economy which has further aggravated unemployment situation in the country. Why have unemployment and inflation risen despite a significant growth in the country's GDP? Is it because successive administrations have ignored the issue of unemployment and inflation, or has the duo defied all economic theories? These are urgent problems, because unemployment and inflation are contemporary issues that are impacting our country and are being addressed by both specialists and laypeople alike.

1.3 RESEARCH QUESTIONS

The following questions will be addressed by this study:

- How does inflation affect Economy growth in Nigeria?
- How does unemployment affect Economic growth in Nigeria?
- What is the relationship among unemployment, inflation and Economic growth in Nigeria?

1.4 RESEARCH OBJECTIVES

This study's main goal is to look at the effects of unemployment and inflation on Nigeria's economy. However, the following are the specific goals:

- To investigate the effect of inflation on Economic growth in Nigeria.
- To investigate the effect of unemployment on Economic growth in Nigeria.
- To investigate the relationship between inflation, unemployment and Economic growth in Nigeria.

1.5 RESEARCH HYPOTHESIS

The following are the Null and Alternative hypothesis that guide this research:

Hypothesis one:

H0: There are no effects of inflation on Economic growth in Nigeria.

H1: There are effects of inflation on Economic growth in Nigeria.

Hypothesis Two:

H0: There are no effects of unemployment on Economic growth in Nigeria.

H1: There are effects of unemployment on Economic growth in Nigeria

Hypothesis Three:

H0 There are no relationships between inflation, unemployment and economic growth in Nigeria

H1: There are relationships between inflation, unemployment and economic growth in Nigeria.

1.6 SIGNIFICANCE OF THE STUDY

This research is undertaken to help:

- Economic decision-makers, because it will provide them with the information and skills necessary to address our country's serious issues of unemployment and inflation.
- It would also be of great assistance to people who wish to conduct additional study on this issue.
- United Nations (UN), World Bank, G7, and G20, the International Labour Organization (ILO), the International Monetary Fund (IMF), the Organization for African Unity (AU), and other organizations combating unemployment and inflation in the country.

1.7 SCOPE AND JUSTIFICATION OF THE STUDY

The research spans a 40-year period between 1980 and 2020. Because the study intended to look at the topic matter in recent times, this time frame has been selected.

The necessity for this study was spurred by the seemingly growing rates of unemployment and inflation, their negative influence on the country, and their catastrophic impact on the economy. The empirical research on the influence of unemployment on economic growth in Nigeria has been inconsistent. For example, researches such as Alike, A.A (1986), Umaru,

A., & Zubairu, A. A. (2012), and Stephen. B.A (2012) stated that unemployment has positive Effects on the Nigerian Economy. On the other hand, Aminu, u and Anono, A.Z (2012) investigated and brought into conclusion that unemployment has a negative impact on economic growth in Nigeria. This shows that there is some uncertainty about the actual economic impact of unemployment on the Nigerian economy. Also, studies such as Abachi, P. (1998), and Anono A.Z (2012) concluded that inflation rate has positive effect on the growth of the economy. However, their conclusions are disputed because it is common knowledge that inflation rates beyond a particular threshold (5%) have a negative impact on the economy. Furthermore, almost all prior research focused on the economic implications of unemployment and inflation, i.e., their impact on economic development, while ignoring the social and political consequences. It's worth noting that the consequences of unemployment and inflation aren't just economic. The social and political implications of unemployment and inflation on the Nigerian economy were examined in this research, which added to the literature. As a result of the inconclusiveness of previous studies' conclusions, this study was prompted by the necessity to re-evaluate the economic impact of unemployment and inflation, as well as to investigate the political and social ramifications of unemployment and inflation on the Nigerian economy.

1.8 STUDY PLAN

This research work is divided into five chapters. Chapter one is the introduction, containing the background, statement of research problem, the objectives of the study, the research questions, hypothesis, justification and scope of the study, plan of the study. Chapter two give in details the concept of Inflation, unemployment and economic growth, the literature review and empirical review. Chapter three is the methodology. Chapter four focuses on the analysis of data and chapter five entails the conclusion of the research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

This chapter is broken down into four parts. Section 2.2 presents the conceptual reviews for this research. Section 2.3 provides some appropriate theoretical reviews for the Relationship between unemployment, inflation and economic growth; Chapter 2.4 focuses on the empirical literature on unemployment, inflation and economic growth Finally, chapter 2.5 of the fourth segment shows the research gap.

2.2 CONCEPTUAL FRAMEWORK

2.2.1 INFLATION RATE

Inflation can be defined as the persistent and consistent rise in the general price level of goods and services during a particular period of time. Inflation occurs when money supply is more than the available goods and services. An economy's price stability is evaluated using the rate of inflation. Inflation can be split into two sides; the supply side and the demand side. Inflation comes from national variables and factors from overseas for nations with open economy. Inflation is often defined as "too much cash purses too few products". Hamilton (2001) inflation has been widely described as an economic situation when the increase in money supply is faster than the new production of goods and services in the same economy. Piana (2001) economists usually try to distinguish inflation from an economic phenomenon of a onetime increase in prices or when there are price increases in a narrow group of economic goods or services.

According to Dwivedi (2005). To answer the question of what is significant or perceptible, Dwivedi (2005) goes on to say that a "substantial" rate of inflation is acceptable and desired

for three reasons: maintaining an optimistic economic outlook, mobilizing resources, and a growing trend in the overall price level.

Inflation is not as bad for the economy as it sounds. However, it must be effectively controlled by the country's macroeconomic management in order to remain in the single digits. According to Ndoricimpa, (2017), the link between inflation and economic growth is linear; inflation's influence can be neutral, positive, or negative depending on whether money is a super-neutral substitute for capital or complimentary to capital.

According to Ndoricimpa (2017), excessive inflation has a negative impact on economic growth due to the unwanted re-distributional and welfare consequences on the overall price level in the economy. This is why inflation, especially in its actual form, is crucial and reasonably necessary to gauge economic development. Importantly, inflation is good for the economy because it stimulates growth and greases the wheels. Low inflation fosters economic growth by encouraging investment and supporting the effective use of productive resources.

At this stage, at least one question must be addressed: when can we conclude that the inflation rate is low, moderate, or high enough to be considered bad? In other words, at what level should relevant government bodies set or rather forecast inflation in order to avoid its negative influence on growth? These issues may undoubtedly be answered by investigating the relationship and empirical connections between inflation and growth.

Nigeria's inability to provide answers to the problem of inflation over time demonstrates a lack of flexibility to it, condemning individuals to increasing economic misery. During an inflationary period, currency value loses its strength locally and internationally, making it difficult for it to perform its primary role as a medium of exchange and a store of value without negatively affecting the country's output, income distribution, and employment level.

Because the current political administration was unable to handle the economy appropriately, the country entered an economic recession in 2016. According to the Ministry of Budget and National Planning's Economic Recovery and Growth Plan (2017), the government intends to reduce the inflation rate from 18.55 % to 9.9 % by 2020, with a number of macroeconomic factors remaining to be addressed without further delay. The interest rate is the rate at which the monetary authorities lend or discount eligible paper for deposit money banks. Interest rate policy has not been moderate enough to support massive investment borrowing required to maintain current inflation levels.

Dwivedi (2005) reiterates the traditional economics' stance that the rate of investment is a function of the interest rate. That is, as interest rates fall, demand for investible money rises, and vice versa.

Since the liberalization of the interest regime to self-regulation, a recurring concern has been the persistence of high interest rates for borrowers and low rates for depositors (huge spread between lending and deposit rates). The 2016 Nigerian economic recession exacerbated the country's interest rate, limiting the country's ability to invest and expand economically. Most investors in small and medium-sized businesses rely on commercial bank financing in addition to their own funds. The Nigerian government accepted the concept of Micro Finance Institutions (MFIs) to enhance the amount of business lending to enterprises that do not have all they need, particularly in terms of collateral, to obtain cash from banks. According to Adebisi and Obasa (2004), the business climate is frequently dangerous and full of outcome uncertainties, making debt servicing challenging for enterprises, sponsors, and their owners. Furthermore, the legal system suffers from material inefficiency, making it difficult for banks and other financial organizations to enforce agreements and contracts.

This might be one of the factors contributing to Nigeria's low position among other countries. According to the Schwab, K. (2017) in the Global Competitiveness Report Nigeria ranks 130th out of 137 nations in terms of ease of access to loans.

As a result, banks and other financial institutions charge high interest rates, require high-value collateral as security, and provide few loans with terms longer than a year. At the same time, a high rate of interest in the financial system reflects a lack of infrastructure and an inefficient institutional framework necessary to significantly reduce the risk associated with supporting a very distressed business environment and economy.

Unlike in China and other parts of the world where interest rates are extremely low or near zero, loan rates have ranged from 6% in 1975 to an all-time high of 37.8 % in 1993 and 17.08 % as of May, 2018. Central Bank of Nigeria, (2018). According to the IMF annual report (2017, p.46), "the IMF has two categories of financing loans issued at non concessional interest rates and loans granted to poorer nations on concessional conditions, with interest rates that are low or in some cases nil." If some other nations and international organisations have interest rates that are 0 or close to zero. It is also projected that the average interest rate in Nigeria will be approaching zero by now.

2.2.2 UNEMPLOYMENT RATE

Unemployment is defined by the classical economists as the excess supply of labour over the demand for labour which is influenced by adjustment in real wage rate. The Classical or real-wage unemployment occurs when real wages for job are set above the equilibrium level, causing number of job-seekers to exceed the number of vacancies.

Unemployment, as defined by the International Labour Organization (2009), is a condition of joblessness in which individuals are unemployed, have no other source of income and were actively looking for jobs within the past four weeks. "More than two hundred million people

are out of work globally, a high record," Business Week said in 2011, "as over two-thirds of advanced nations and half of emerging economies see a slowdown in job growth."

Unemployment, according to Jhingan (2003), is defined as the number of persons who are jobless in a particular economy, commonly expressed as a proportion of the labour force. Unemployment is also described as the number of persons who are willing and able to work, as well as make themselves available for work at the current salary, but cannot find job.

The literature has recognized several sorts of unemployment. According to Soylu O.B., Camak, I., & Okur, F. (2018), they are cyclical, structural, frictional, seasonal, hidden, under unemployment, voluntary, involuntary and technological unemployment. Workers lose their jobs owing to business cycle changes in production, i.e. the typical up and down movements in the economy as it cycles through times of boom and bust. It may also be described as unemployment that occurs when an economy's overall demand for goods and services is insufficient to maintain full employment. It happens during periods of weak economic development or economic decline.

Structural unemployment refers to a type of unemployment caused by a mismatch between the abilities that employees can give and the skills that businesses want of workers. It is frequently caused by technical breakthroughs that render today's workers' abilities outdated. Frictional unemployment occurs between the moment a worker quits his job and begins looking for a new one. It results from the inevitability of the time required to discover a new work opportunity in a capitalist market system. It is also known as search unemployment since it refers to the time spent looking for a new work. Seasonal unemployment occurs in an economic time scenario when there is less or no requirement for a specific type of job to be performed at a specific point in time throughout the year. It is the form of unemployment that happens during particular seasons of the year because to a lack of demand. Hidden

unemployment, on the other hand, is a circumstance in which jobless persons are not counted in the unemployment figures issued by the government authority. This category arises because official unemployment statistics only cover persons who are out of work but actively looking for work.

Under Unemployment is a condition in which a person's contribution to production or marginal efficiency is considered to be lower than what he is really able to produce. Under Unemployment is often known as hidden unemployment or disguised unemployment. In the same line, underemployment is defined as a circumstance in which a worker is obliged to accept a job that is lower than or not commensurate with his skills and experience due to worsening unemployment.

Voluntary unemployment, which is also frequent, occurs when a person is unemployed not because there is no work available, but because he or she is unable to find suitable employment or just does not want to work. Unemployment can also be involuntary, meaning that a person who is willing, competent, and ready to work is unable to find job.

Technological unemployment is the effect of using robots, equipment, and machinery instead of physical labour. This sort of unemployment occurs as a result of technical development being driven by company innovation and technology research for industrial objectives.

According to Patterson and Okafor (2006), service workers in emerging nations account for almost two-thirds of total unemployment. Members of the public and the government in Nigeria have yet to pay close attention to registering jobless persons, owing to the absence of unemployment compensation and job loss benefits, as in some other advanced nations across the world. Where there is registration, it is quite low because individuals have lost faith in different government initiatives to provide desired jobs.

As a result, the bulk of the jobless turn to the informal sector of the economy, where unfavourable employment circumstances take the shape of increasing underemployment, casual employment, contract employment, or informal self-employment, all of which are seldom recorded. As a result, figures on employment or unemployment are woefully inadequate Patterson and Okafor, (2006).

2.2.3 ECONOMIC GROWTH

According to M. L Jhingan (2003), economic growth is the process by which a nation's real per capita income rises over time, and is measured by the increase in the number of products and services produced in that country. In each subsequent time period, an expanding economy creates more commodities and services. In a broader sense, it entails boosting people's living standards and lowering economic disparity.

Economic growth, according to Zhattau (2013), is the basis of increased prosperity and stems from the accumulation of more capital and innovations that lead to technical progress, a concept similar to Solow's (2002) growth model, which views economic growth as an increase in total GDP due to population growth, technological progress, and investment.

Classical economists define growth as an increase in the rate of investment. In other words, growth is proportional to the profit share of national revenue. In the long run, a greater profit rate and a higher rate of growth have a favourable association.

The Nigerian economy has grown steadily for over a decade, with yearly real GDP growing by roughly 7%; it was 6.3 percent in 2014. The non-oil sector has been the primary engine of growth, accounting for around 57% of total growth, while manufacturing and agriculture contributed approximately 9% and 21%, respectively. As a result, the economy is diversifying and becoming increasingly service-oriented, particularly in retail and wholesale commerce, real estate, information and communication (NBS 2018 quarter 1 report).

Due to the vulnerability to a gradual worldwide economic recovery, oil price volatility, and global financial events, the 2015 prediction was based on balanced growth of 5%. The low oil price will result in a significant decrease in income creation. Nonetheless, the overall impact on non-oil sector GDP will be minor. As a result, the sector is expected to maintain its position as the primary driver of growth over the medium term, and in light of recent macroeconomic challenges, the government has adopted a fine-tuning policy aimed at tightening government expenditure and raising non-oil revenue bars to compensate for declining oil revenues.

According to the NBS (2018) quarter 1 report, Nigeria's GDP increased by 1.95 percent year on year in real terms. According to the report, the aggregate GDP was at N28,464,322.01 million in nominal terms. This performance is better than the first quarter of 2017, when the nominal GDP aggregate was N26,028,356.03 million, resulting in a positive year on year nominal growth rate of 9.36 percent.

2.2.4 INFLATION AND UNEMPLOYMENT TREND IN NIGERIA

According to the available data in Nigeria, the problem of unemployment occurred after the recession of the 1980s when crude oil prices fell below \$10 per barrel. According to Okafo, i.g., Ezeaku, H. C., & Ugwuebe, S. U (2016), the economy's downturn made the government execute restrictive policies such as exports, allowing most manufacturing enterprises to be import independent, making these firms operate below potential capacity. As a result, many industries were forced to close down, while those that did survive were forced to lay off a major section of their staff, according to the authors. It was also becoming increasingly difficult for the government to fund its budget at the time. As a result, SAP was implemented in 1986 in order to address the country's fiscal imbalance. SAP's goals were achieving economic diversification, promoting noninflationary economic growth, lowering inflation by 9% annually, and implementing policies to enhance the economy's supply base and encourage

manufacturing. These were expected to put the Nigerian economy back on track for long-term prosperity. Nigeria's pre-SAP unemployment rate was 4.3% in 1970, according to the Central Bank of Nigeria (1970).

In 1980, however, this figure jumped to 6.4%. The depreciation of the Nigerian naira was a crucial policy implication of the SAP policy. The naira's depreciation increased the cost of importation, making it more expensive for indigenous enterprises to import inputs needed in the manufacturing process. Inflation spiralled as a result of the SAP policy and the naira's depreciation. The real salary has fallen as a result of growing inflation. A decrease in the real salary implies a decrease in the worker's purchasing power. The decline in real income had an impact on aggregate demand since people could no longer buy as much as they used to. As a result, businesses began to build unnecessary inventory. Manufacturing companies began to rationalize their market pricing, and the manufacturing industry began to sag Orji, A., Orji, O. I. A., & Okafor, J. C. (2015). Regardless, the situation remained very volatile. The concept of devaluation rendered the policy goal of lowering inflation unattainable. This was due to a lack of implementation of programs aimed at increasing production and reducing import dependency.

Despite the high expense of importing raw materials and equipment, firms continued to do so, which was reflected in production and pricing. Nigeria's unemployment and inflation rates are currently in double digits,

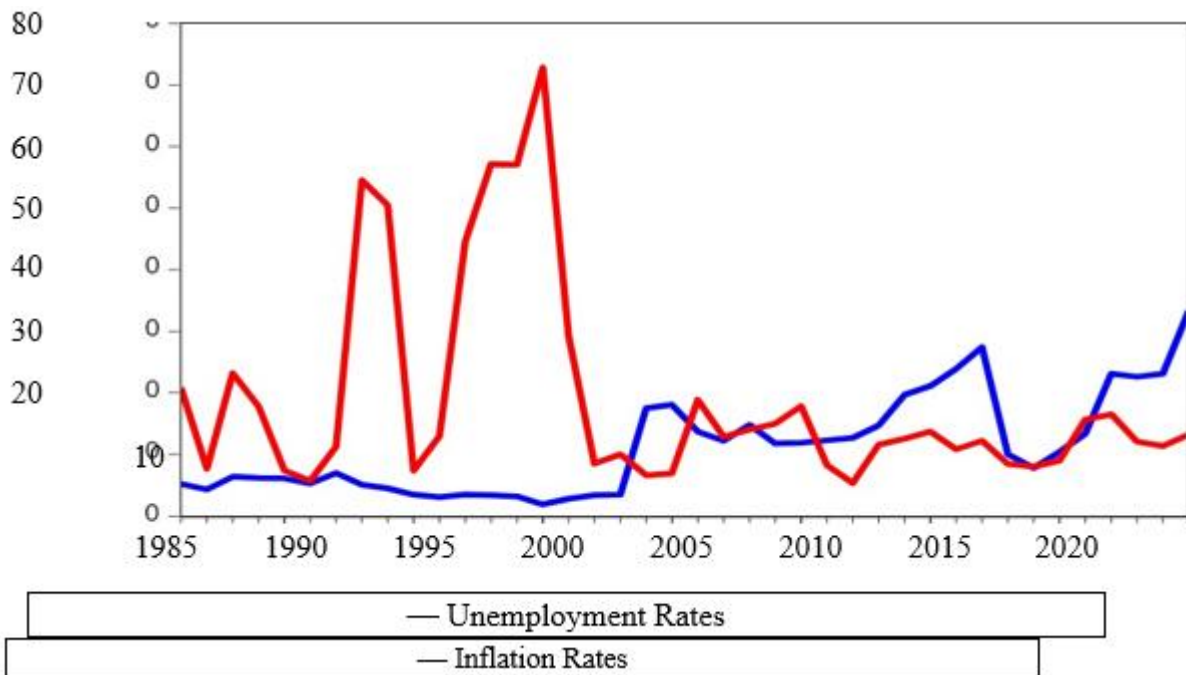


FIG1.1: Inflation and Unemployment trend in Nigeria

Sources: *Nigeria statistical bulletin (2020)*

according to current figures. Between 1981 and 2000, the unemployment and inflation rates averaged 5.70 % and 25.61 %, respectively. Nigeria's unemployment rate was 13.6 % in 2001, but it jumped to 14.8 % in 2003, owing to a lack of graduates supplied by educational institutions. These graduates could not be accepted since sectors were already reeling from the effects of the recession. As a result, there was an increase in unemployment. As a result, the government's goal of price stability and full employment was not met. The oil boom in the economy was accompanied by high inflation rates in the middle 1970s, and there were no meaningful steps to curb inflation. Instead, Udoji's reward was an inflationary strategy that put money in the wallets of government officials who didn't need it. During the SAP era, inflation was exacerbated in an attempt to ease fiscal policy. The inflation rate soared from 16% in 1987 to 55 % in 1988, then dropped to 7% in 1990 before rising to 50% in 1992.

Though the implementation of SAP appeared to be feasible, it did not affect the macroeconomic climate until 2009, when the rate jumped to 19.7%. Nigeria's inflation rate,

on the other hand, was 20.81 % in 1981; by 1985, it had reduced to 7.4 %; by 1995, it had soared to 72.8 %; and by 1998, it had fallen to 10%. Inflation rates in 2001 and 2005 were 18.9 % and 17.9 %, respectively. In 2007, it was at 5.4 %, but within two years, it had risen to 13.72 %. It was 8% in 2014, then 9% in 2015, before skyrocketing to 15.7 % in 2016 and 16.3 % in 2017. Inflation rates in 2018 and 2019 were 11.03 % and 11.4 %, respectively. According to central Bank statistical bulletin (2020) the inflation rate has risen to 18.12 %, up from 17.93 % previously and 17.75% in April, May and June, 2021. Looking at the graph above, it's clear that Philip's curve has existed in Nigeria throughout its history. There have also been times when inflation and unemployment have coincided, as well as times when both variables have moved in the same direction. However, beginning in 2013, both variables began to trend in the same direction. Based on these multiple-insight scenarios and the consequences of inflation and unemployment in the country, experimentally unravelling the link between these two macroeconomic variables in Nigeria is a major motivator for this research. As a result, it's critical to take a quick look at some thoughts on both notions.

2.3 THEORETICAL FRAMEWORK

Several theories have long been developed to explain the relationship between inflation and unemployment. Some of these theories explain inflation and unemployment separately, while others, like the Philips curve, harmonize both concepts. Below is a review of some of these theories.

2.3.1 THEORIES OF UNEMPLOYMENT

The classical theorist thought unemployment unnatural and unattainable under the premise of full employment. They expected that the market could be cleared via the interaction of supply and demand, and that there would be no overproduction or unemployment as a result. When irregularities such as overproduction or unemployment occur, they only last a short time. They say that automatic forces in the economic system tend to preserve full employment and

create production at that level, based on a flexible wage structure. This set of theorists' assumptions and postulates were heavily questioned, especially after the Great Depression of the 1920s. Keynesian Economics is a key critic of these theorists. Observing the market's incapacity to establish equilibrium, Keynes developed a critique of classical ideology, beginning with the notion that the economy was always at full employment. Underemployment, rather than full employment, existed according to Keynes. During a recession, people and companies hoard cash and delay investment, according to Keynes' book *General Theory on Employment, Interest, and Money*. He also noted the potential of savings, implying that things created may not be fully cleared, casting doubt on the classical school's stance. Employment, according to Keynesian economics, is determined by effective demand. Effective demand generates output, which generates revenue, which generates employment. Employment was considered as a function of income in Keynesian theory. In addition, the aggregate supply and demand function influences effective demand. Keynes focused more on the demand side of the economy, claiming that supply was steady. The solution to the issues of depression and unemployment was to enhance aggregate demand. According to him, boosting consumption and/or investment, which forms aggregate demand, can increase employment. To alleviate the problem of unemployment, Keynes pushed for government action. Grill, E., & Zanalda, G. (1995) and Hussain, M., & Nado, C. (1997) Support the Keynesian hypothesis that growth in employment, capital stock, and technological development are mostly caused by endogenous factors. As a result, employment growth is influenced by demand, and the primary influencer of long-term output growth also influences employment growth.

2.3.1.1 CLASSICAL THEORY OF UNEMPLOYMENT

The classical theory's central tenet is that the economy is self-regulating. Classicists think that full employment exists without inflation. There are automatic mechanisms in the economic

system that tend to preserve full employment and create production at that level, given wage-price flexibility.

The equilibrium income and employment in the classical model are primarily governed by the labour market. More people will be employed at a lower salary rate. That is why the labour demand curve is slanted downward.

Classicists also believe that full employment exists at all times, making the idea of jobless employees a logical impossibility. Any unemployment that persisted at the equilibrium wage rate was caused by frictions in the economy or restrictive policies. Thus, full employment is regarded by the classicists as a normal situation, while unemployment is abnormal.

2.3.1.2 KEYNESIAN THEORY OF UNEMPLOYMENT

Keynes was credited with demolishing the views of 19th century economists who claimed that if capitalism were allowed to its own devices, it would always and automatically gravitate to full employment. At whatever degree of unemployment, Keynes maintained, the economy might settle into equilibrium. This meant that traditional non-interventionist strategies would fail.

According to his theory (Keynes), employment is dependent on effective demand, which leads to output, which leads to revenue, which leads to employment. As a result, he considers employment to be a consequence of earnings. In addition, the aggregate supply and demand function influences effective demand. Keynes focused on aggregate demand to combat depression and unemployment because he thought aggregate supply was steady.

According to him, boosting consumption and/or investment can boost employment. Consumption is a function of income $C(Y)$, and as income grows, so does consumption, although not as much as income.

2.3.1.3 OKUNS LAW

The first economist to study the empirical link between unemployment and economic growth was Arthur Okun (1962). He calculated that a 1% rise in the growth rate over the trend rate would only result in a 0.3 percent reduction in unemployment. If the causality is reversed, a 1% rise in unemployment will result in a loss of nearly 3% in GDP growth. This equation means that, in order to keep the unemployment rate constant, GDP growth must be equal to its potential growth. As a result, the rate of GDP growth must be higher than the rate of potential production growth to eliminate unemployment Tatom, (1978). Okun's law is a general economic theory that may be used to explain the link between growth and unemployment. Okun's law is a mathematical formula that describes the link between unemployment and economic growth. Other factors, such as labour market regulation, labour unions, and so on, could influence the coefficient. Because of the substantial social job protection in Japan, for example, unemployment rates tend to vary less for a given gross domestic product (GDP). Because the link between unemployment and production growth is influenced by laws, technology, tastes, social conventions, and demography, Okun coefficients can alter over time. In order to calculate Okun's coefficient, two approaches were proposed; Okun's Law may be represented as follows:

The initial form of the Okun’s law can be written as the Gap method

$$U - U_t^* = b(y_t - y_t^*) \text{-----(1)}$$

Where:

y_t = the real output (GDP)

y_t^* = potential output

U_t = The natural level of unemployment

U_t^* = the potential unemployment

b = the Okun's coefficient

This means that the change in unemployment (unemployment in year t minus unemployment in year $(t-1)$) equals a negative parameter (less than one), indicating that unemployment is sensitive to output, multiplied by the difference between output growth in year t and the usual growth rate of production. The parameter is negative because it states that if output growth exceeds the typical rate, unemployment will decrease. Unemployment will rise if production growth falls below the typical pace. That is to say, if output grows at a regular rate, unemployment will remain steady.

The second method is the use of Okun's first-difference method: This method helps to indicate the sensitivity of output to unemployment changes.

Given:

$$\Delta U = a - b\left(\frac{\Delta y}{y}\right) \text{-----} (2)$$

Then,

$$b\Delta U_t = a - \left(\frac{\Delta y}{y}\right) \text{-----} (3)$$

This research focuses on the well-known difference variant, which emphasizes that the growth rate of real GDP drives changes in unemployment rates. This is predicated on the notion that as output rises, more factor input is required, resulting in a decreased jobless rate. The difference version is given by, which is expressed as a linear regression model.

$$U_t - U_{t-1} = a + b(y_t - y_{t-1}) + \varepsilon_t \text{-----} (4)$$

Where U_t is the unemployment rate in t, y_t denotes the real GDP level, and ε_t denotes the error term, all of which meet the standard properties. The parameter b is called the Okun's coefficient and is expected to have a negative sign.

As a result, the estimated relationship between output growth and unemployment rates is negative.

2.3.2 THEORIES OF INFLATION

The quantity theory of money, established by American economist Irving Fisher in 1911, was one of the first efforts to explain inflation. The idea anticipated that output would be constant, meaning that output would be at maximum capacity. Furthermore, the velocity of money is assumed to remain constant, i.e. the number of times money changes hands. According to these assumptions, the money supply has a direct impact on price levels. As a result, increasing the money supply will raise prices in proportion to the rise in the money supply. The mathematical formula is as follows:

$$MV=PQ, \tag{1}$$

where M represents money supply or money stock; V is the velocity of money in circulation; P is the average price level; Q represents output.

$$p = \frac{mv}{q} \tag{2}$$

This shows a direct link between price and money supply, given a constant V.

The model was further expanded upon by neoclassical economists. The Cambridge school, for example, claims that inflation is generated by a rise in money demand. Their model is as follows:

$$MD = KPQ, \quad (3)$$

where MD presents money demand; P is the general price level; Q is actual output; the constant proportion of total income that people want to hold in the form of money is presented by K

$$p = \frac{md}{pq'} \quad (4)$$

where K and Q are held constant.

According to the equation, the overall price level rises in proportion to the rise in money demand. Given K and Q, there is a clear relationship between general prices and money demand.

If K and Q change, the rate of inflation will be determined by the difference between the rise in money demand and the total of the rates of change in K and Q. As a result of the low K and Q levels, inflation will be greater.

This reasoning may be valid for Q because if output rises in tandem with money demand, the overall price level will remain relatively steady. Even yet, if the percentage of total income that individuals wish to keep in the form of money rises in tandem with the demand for money, the overall consequence should be more inflation.

Keynes was against a direct or proportionate relationship between the quantity of money and the general level of prices. Instead, he claims that these two factors have an indirect or non-proportional relationship. The interest rate, for example, is a crucial element in the Keynesian money-price mechanism. When the money supply expands, the interest rate falls, encouraging investment and aggregate demand and raising production and employment without creating inflation. Keynes argued against full employment, claiming that as long as there is

unemployment in the economy, production and employment will fluctuate in the same proportion as money. Even so, there will be no price change.

The Keynesian postulates were heavily questioned by the monetary economist. The advocacy of monetary economists is based on classical theory. Milton Friedman, a professor at Chicago University, was the forerunner of monetary theory. Friedman looked at the link between money supply and prices and came to the conclusion that inflation is "always and everywhere a monetary event." The classical notion of causation moving from the left hand of the equation (M^s) to the right hand was maintained by the monetary economist (PQ). Inflation, according to monetarists, is harmful to the economy because it increases uncertainty. They argued that the money supply should be kept under strict control and only grew at a consistent yearly pace connected to the potential growth of GDP represented as a percentage.

2.3.3 EFFICIENT WAGE THEORY

This is a macroeconomic explanation for unemployment. The theory's argument is as follows: Assume that employees differ in terms of quality, not only talents, but also the likelihood of shirking; in other words, some individuals are lazier than others and so less inclined to work harder. The effort is proportional to the expense of monitoring, i.e. if you are being closely observed, the effort is more than if you are not. An employer is concerned about the expense of labour (the wage rate). However, the cost is determined by worker productivity. As a result, the goal is to reduce pay divided by productivity (wage per unit produced). There are at least two ways to accomplish this: To begin, boosting salaries can boost productivity. The reason for this is that when salaries rise, the cost of shirking rises since if detected, you are fired and lose your pay, and the greater the wage, the more you lose by getting fired. A greater income requires you to work harder since it is more vital for you not to get fired.

As a result, there is a link between worker quality and wage rate. The greater the pay, the more expensive it is to be dismissed, and the less likely the workforce will shrink. Another argument based on the same reasoning is that turnover is costly (firing, recruiting, and training), and hence the company would prefer to pay higher salaries to keep high-quality employees. This theory explains unemployment in the sense that it has been demonstrated that it is advantageous for a single manufacturer to pay higher wages than the market equilibrium. However, the factory is not alone in reaping the benefits of rising relative earnings.

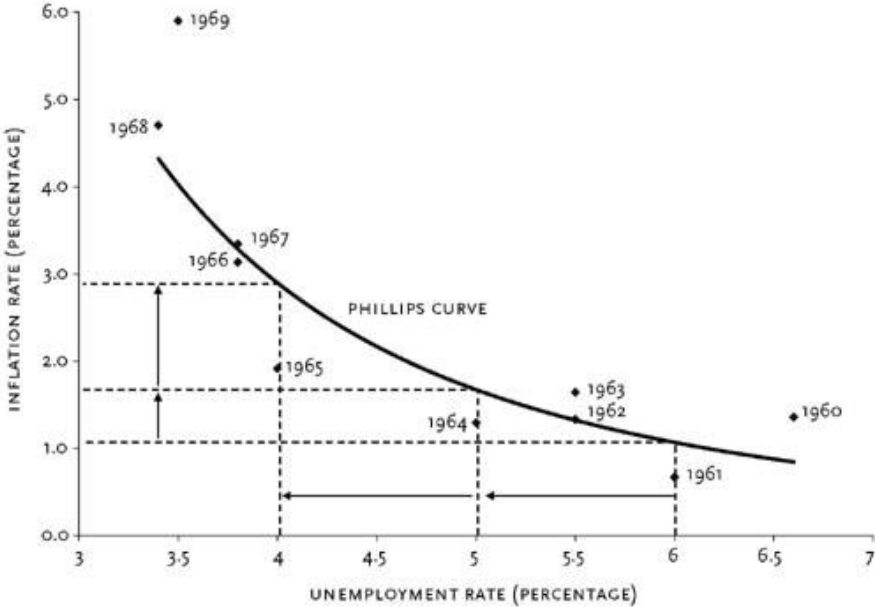
The solution to this dilemma is to create a permanent group of unemployed people. The high level of real pay produces an excess supply of labour. The extra supply has no effect on pay levels since enterprises understand that some unemployment is required to give incentives for employed employees not to shrink. The incentive is created by raising the cost of being jobless, which is shown in a high unemployment rate.

Wage serves two purposes in this context: one as remuneration for the use of a resource and the other as an incentive not to shrink. Unemployment becomes a permanent equilibrium phenomenon as a result of the second role of wage.

2.3.4 PHILIPS CURVE

Low inflation and low unemployment are two fundamental objectives for economic policymakers, although they frequently clash. Monetary and/or fiscal policy drives the economy along the short-run aggregate supply curve to a point where prices are higher. Higher output leads to decrease unemployment since businesses require more people when they create more, and vice versa. The Phillips curve describes the trade-off between inflation and unemployment. Phillips (1958) made an empirical discovery, demonstrating an inverse link between wage and unemployment rates using data from the United Kingdom from 1862 to 1957. The discovery is bolstered by the fact that fluctuations in money earnings may be

explained by unemployment levels and changes. The extension that proves a link between prices and unemployment is an argument in favour of the Phillips curve. This rests on the assumption that wages and prices move in the same direction. The Phillips curve's strength is that it represents a statistically significant and empirically dependable link between inflation and unemployment.



Sources:www.investopedia.com

FIG 1.2 The Phillips curve

Figure 1.1 shows a typical Philips curve in which data was drawn from the United Kingdom inflation rate and unemployment rate from 1960-1969 The slope is convex to the origin, indicating that a percentage change in money earnings increases as the unemployment rate decreases. If the government, for example, stimulates the economy and reduces unemployment from 6% to 5%, the chart above shows that the cost will be greater inflation, which would rise from 1% to 1.7 %. As a result, the rate of change in the money salary and the rate of unemployment are in competition. The Phillips curve idea appeared to be solid and reliable. The trade-off between unemployment and inflation was reasonably effectively

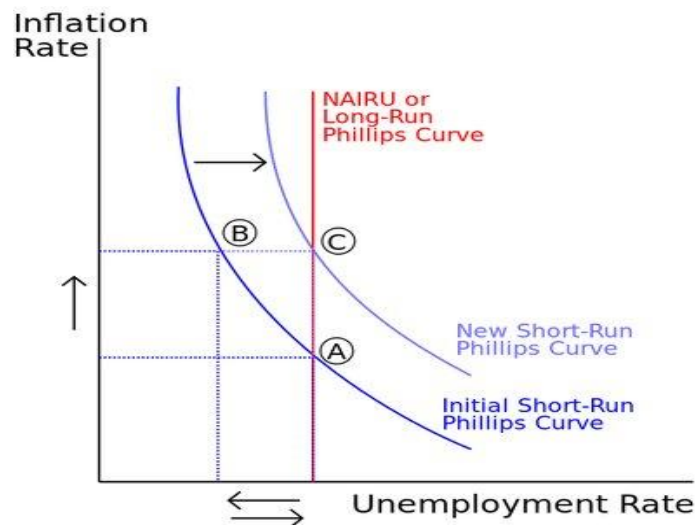
approximated using data from the 1960s. The Phillips curve predicted possible economic policy outcomes: fiscal and monetary policy might be employed to promote full employment at the expense of higher prices, or to reduce inflation at the expense of reduced employment. The Phillips curve, on the other hand, came apart when governments tried to utilize it to regulate unemployment and inflation. The data from the 1970s onward did not follow the conventional Phillips curve pattern. For several years, both inflation and unemployment rates were greater than the Phillips curve projected, resulting in a situation known as "stagflation." Finally, the Phillips curve was found to be unstable and so unsuitable for policymaking.

2.3.8 THE LONG RUN PHILIPS CURVE

The Phillips curve, on the other hand, was met with fierce hostility by the monetarist school, which included American economists Milton Friedman and Edmund S. Phelps.

Friedman acknowledged that the Phillips curve existed in the short run, but that the Phillips curve is vertical in the long run (i.e., a period long enough for participants in the economy to become fully aware of aggregate prices and inflation), and that there was no trade-off between unemployment and inflation. He maintained that the real wage, rather than the nominal pay, determined both labour demand and supply.

Because the predicted and real price levels are equal in equilibrium, there is only one feasible level of employment and output. The associated unemployment rate was named the "natural rate of unemployment" by Friedman. The natural rate of unemployment is the point at which the actual rate of inflation and the predicted rate of inflation are equal. As a result of this argument, the long-run Phillips curve is vertical line at the natural rate of unemployment.



Sources:www.investopedia.com

FIG 1.3 EXPECTED-ADJUSTED PHILIPS CURVE

In contrast to Friedman, Tobin (1971) argued that the Phillips curve had boundaries. However, as the economy and employment increase, the curve becomes increasingly stiff and fades until it reaches a crucial low rate of unemployment, at which point it becomes vertical. As a result, Tobin's Phillips curve is kinked, with a portion that looks like a conventional Phillips curve and the remainder that is vertical.

Similarly, like Tobin, Robert Solow did not think that the Phillips curve is vertical at all inflation rates. According to him, when inflation is positive, the curve is vertical, and when inflation is negative, the curve is horizontal.

2.3.9 STAGFLATION (POSITIVE SLOPED PHILIPS CURVE)

Stagflation, sometimes known as recession-inflation, is a condition in which inflation is high, economic growth slows, and unemployment is consistently high. It creates a conundrum for policymakers, because efforts aimed at lowering inflation may aggravate unemployment.

Peter Morici said and I quote

“Stagflation is rearing its ugly head, ... Slower consumer spending and disappointing business investment are causing slower growth, high unemployment and wages that lag inflation.”

The aggregate supply constraint has been one of the key causes of stagflation. When the aggregate supply is lowered, output and employment diminish, and the price level rises. It's possible that the decrease in aggregate supply is due to a labour shortage.

The labour supply constraint might be attributed to a spike in money wages as a result of strong unions. Firms are obliged to cut production and employment when wages rise. As a result, real income and consumer spending have decreased. Due to the fact that the drop in consumption will be smaller than the drop in real income, there will be excess demand in the commodities market, pushing up prices.

2.3.5 GROWTH THEORIES

Here various growth theories are being reviewed

2.3.5.1 THE HARROD-DOMAR GROWTH MODEL

According to the model, saving is a set percentage of national income, while net investment is defined as the change in capital stock (K). The model also assumes a direct link between the amount of the capital stock (K) and total GNP (Y). As a result, any increase in the capital stock in the form of new investment will result in an increase in the flow of national production. In economics, this connection is known as the capital-output ratio. If we define the capital-output ratio as K, and further assume that the national savings ratio (s) is a fixed proportion of national output (e.g., 6%), and that total new investment is governed by the amount of total savings, we may create the following basic model of economic growth.

Savings (S) equals some proportion, s, of national income (Y), yielding the simple equation

$$S = sY \text{ -----(2.1)}$$

Net investment (I) is defined as the change in capital stock, K, and is symbolized by the ΔK

Such that $I = \Delta K$ -----(2.2)

However, because total capital stock (K) is proportional to total national revenue or production (Y), as defined by the capital-output ratio, k, it follows that

$$\frac{K}{Y} = k \text{ ----- (2.3)}$$

OR $\frac{\Delta K}{\Delta Y} = k$ -----(2.4)

Therefore $\Delta K = k\Delta Y$ -----(2.5)

Finally, we can write this because net national savings, S, must equal net national investment, I.

$$S=I \text{-----}(2.6)$$

But because we know from equation (2.1) that $S = sY$ and from equations (2.2) and (2.3) that $I = \Delta K = k\Delta Y$ we can write the identity of savings equal to investment shown in equation (2.6) as

$$S = sY = k\Delta Y = \Delta K = I \text{-----}(2.7)$$

Which can further be simplified as

$$sY = k\Delta Y \text{-----}(2.8)$$

Dividing both sides of the equation (2.8) first by Y and then by k, we obtain the following expression:

$$\frac{\Delta Y}{Y} = \frac{S}{K} \text{-----}(2.9)$$

The rate of change or rate of increase of GNP is represented by the left-hand side of equation (2.9), $(\frac{\Delta Y}{Y})$. (i.e. it is the percentage change in GNP). Equation (2.9) is a simplified version of the renowned Harrod-Domar equation for economic growth; it simply says that the rate of increase of GNP $(\frac{\Delta Y}{Y})$ is governed jointly by the national savings ratio (s) and the national capital-output ratio (k). As a result, in order to thrive, economies must

save and invest a percentage of their GDP. The greater an economy's ability to save and invest, the faster it can grow.

2.3.5.2 THE LEWIS THEORY OF GROWTH/DEVELOPMENT

Todaro and Stephen (2011) developed one of the most well-known early theoretical models of development that focused on the structural transformation of a primarily subsistence economy, which was formulated in the mid-1950s by Nobel laureate W. Arthur Lewis and later modified, formalized, and extended by John Fei and Gustav Ranis in 1997. During the majority of the 1960s and early 1970s, the Lewis two-sector model became the general theory of the development process in surplus-labour emerging countries, and it is currently used to evaluate recent growth experiences in China and labour markets in other developing countries. According to the Lewis model, the underdeveloped economy is divided into two sectors: a traditional, overpopulated rural subsistence sector with zero marginal labour productivity—a situation that allows Lewis to classify this as surplus labour in the sense that it can be withdrawn from the traditional agricultural sector without causing output loss—and a high-productivity modern urban industrial sector into which labour from the subsistence sector is gradually transferred. The model's major focus is on both the process of labour transfer and the rise of production and employment in modern industries. (Although contemporary agriculture might be included in the modern sector, we shall refer to it as "industrial" as a shortcut.) Output expansion in that sector causes both labour transfer and modern-sector employment growth.

The pace of industrial investment and capital accumulation in the contemporary sector determines the rate of expansion. Such investment is enabled by the surplus of modern-sector earnings over wages, assuming that capitalists reinvest all gains.

Finally, Lewis assumed that the pay level in the urban industrial sector remained constant, defined as a certain premium above a fixed average subsistence wage level in the conventional rural sector. The supply curve of rural labour to the modern sector is thought to be completely elastic at a constant urban pay Todaro and Stephen, (2011).

2.3.5.3 MAIN THEORY FOR THIS STUDY

The main theories used in this research will be the Okuns law and the Philips curve theories. Because the Okuns law theory covers the aspect of unemployment and economic growth and also Philips curve covers the aspect of inflation and unemployment Therefore, the Two theories will be needed in this research.

2.4 EMPIRICAL REVIEW

The empirical literature on the link between economic growth, unemployment, and inflation is presented in this portion of the research. As previously stated, several scientists have used the Phillips Curve model to investigate the link between unemployment and economic growth, as well as the relationship between unemployment and inflation. Stock and Watson (1999), for example, utilized the traditional Phillips curve (unemployment rate) to look at 12-month inflation estimates in the United States. These authors concentrated on three issues.

First, has the Phillips curve in the United States remained stable? If not, what are the consequences of the unpredictability for future inflation forecasting? Second, would an alternative Phillips curve produce better inflation projections than the Phillips curve based on unemployment rate? Third, how do Phillips curve-based inflation projections compare to time series estimates based on interest rates, money, and other variables? They discovered that inflation estimates based on the Phillips curve were typically more accurate than forecasts based on other macroeconomic factors such as interest rates, money, and commodity prices, but that depending on it exclusively was a mistake. Forecasting relationships based on various

measures of aggregate activity might perform as well as or better than forecasting relationships based on unemployment, and combining these forecasts would result in optimum forecasts.

Williams and Adedeji (2004) investigated pricing dynamics in the Dominican Republic by looking at the combined impact of money and traded-goods market distortions on inflation while controlling for other possible factors.

From 1991 to 2002, they documented the amazing macroeconomic stability and development. They discovered that changes in monetary aggregates, real production, foreign inflation, and the exchange rate were the key causes of inflation using a simple and empirically reliable error-correction model.

However, depreciation from the currency rate did not fully flow through to inflation. They also established a long-run link in the money and traded-goods markets, noticing that only disequilibrium in the money market caused inflation.

Popovic (2009) investigated inflation and unemployment in the EU, conducting a comparative analysis of Phillips regularity through correlation analysis of unemployment and inflation in the EU for the years 1998-2007, and discovering that the simple linear correlation coefficient between them is negative.

Umar and Zubairu (2012) investigated the impact of inflation on the growth and development of the Nigerian economy, concluding that inflation has a negative impact on economic growth.

Umaru, A., & Zubairu, A. A. (2012) also explored the impact of inflation on Nigerian economic growth and development. They used OLS, ADF, and Granger causality and discovered that there is a positive correlation between inflation and economic growth in Nigeria, even though the coefficient of inflation is not statistically significant. Causation runs from GDP to inflation, implying that inflation does not Granger cause GDP but GDP does.

Stephen, B. A. (2012). performed research on Nigeria's stabilization strategy, unemployment crises, and economic growth. He utilized OLS to discover a negative relationship between inflation, unemployment, and economic growth in Nigeria.

Sanusi, A. R. (2012) investigated the link between output and unemployment dynamics in Nigeria, employing the OLS and Threshold models to discover a negative nonlinear association between output and unemployment.

Orji, A., Anthony-Orji, O.I., & Okafor, J. C.(2015) used ARDL in their research on the inflation-unemployment nexus in Nigeria; another test of the Philips curve was used in examining data from 1970 to 2011 in Nigeria.

Because there is a positive association between inflation and the unemployment rate in Nigeria, their findings suggest that unemployment is an important predictor of inflation. They come to the conclusion that the Philips curve does not apply to the situation in Nigeria.

Aminu and Manu (2014) used the OLS technique to analyse unemployed resources and inflation in Nigeria from 1986 to 2010. They discovered that both unemployed human resources, rate of natural resource production (i.e. rate of tapped resources), and total inflation have a positive impact on Nigeria's rate of economic growth.

Shahid, M (2014) investigates the impact of inflation and unemployment on economic development in Pakistan and discovers that the two have an inverse connection. According to the examined literature, the link and influence of unemployment and inflation on economic growth is still equivocal, necessitating additional research, which is why this study was created.

According to Keller and Nabil (2002), economic development in the MENA area has been insufficient in comparison to the region's labour force, and rapid growth does not ensure positive labour market outcomes. According to the Bank, W. (2007), high unemployment is

considered as a manifestation of structural and frictional unemployment difficulties in MENA nations. According to the World Bank Report, Okun's coefficient is low or insignificant in MENA nations.

Freeman (2001) tests Okun's Law for a panel of 10 industrial nations, finding that Okun's original estimate for the United States of three points for each one percent drop in the unemployment rate now averages slightly under two points of real GDP growth for the sample countries. Estimates for Europe as a whole are lower than estimates for the rest of the sample. According to Freeman, the legislation may still be used to prove estimates of the impact of unemployment on GDP.

Knotek (2007) estimated Okun's law using its difference, gap, and dynamic versions, calculating effects on unemployment rate by current output, past output level, and past unemployment rate and analysing that a slowdown in the economy is not always accompanied by an increase in the unemployment rate in both the short and long run.

For the Nigerian economy, this is a theory. M2 appears to have a significant cause-and-effect relationship with actual production and prices. The connection between unemployment and inflation was investigated by Umaru, A., & Zubairu, A. A. (2012). They employed techniques such as OLS, ADF for unit root, Granger causality, Johansen cointegration, ARCH, and GARCH. The study discovered a negative relationship between unemployment and inflation, as well as no causality between the two events in Nigeria, while they did discover a long-term relationship between the two phenomena.

Still on the subject of the unemployment-inflation relationship, Umaru, A., & Zubairu, A. A. (2012) used the Augmented Dickey Fuller approach to show that there is no causality between unemployment and inflation, but that the two have a long-term association. In addition, the

study found a negative association between unemployment and inflation, as well as the limited application of several unemployment and inflation theories in Nigeria.

A number of studies have been undertaken in Nigeria to determine the influence of economic growth and inflation on unemployment.

Onwioduokit (2006) analysed the link between unemployment and inflation in Nigeria and discovered a negative association with a coefficient of -0.412, validating the Phillips hypotheses; however, the causality test revealed no causation between unemployment and inflation in Nigeria.

2.5 Limitation of previous studies

Although extensive research has been done on unemployment and inflation across the world, little has been done using the Nigerian economy as a case study. When considering the time period, this paper will be one of the most recent study works on the subject.

The majority of researchers believe that a Phillip curve exists in their individual nations, but some disagree. This study contributes to the body of knowledge on unemployment, inflation and how it affects economic growth in Nigeria.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter focuses on the general methodology that was applied in the process of this study. Research methodology is the procedural plan adopted by the researcher to carry out a study. It consists of the research design, model specification, econometric model of inflation and unemployment and economic growth, estimation technique and sources of data collection.

3.2 RESEARCH DESIGN

To assess the model, a multiple regression analysis is used to reflect on the descriptive nature of the variables. Elahi and Dehdashti, (2011) suggest that descriptive studies can answer questions such as “what is” or “what was. Experiments can typically answer “why” or “how.” To check the validity of the model, two major assessment measures were used; the a-priori expectation measure which is based on signs and magnitude of the coefficient of the variables under investigation, and also the statistical theory which in other words is referred to as the First Order Least Square (OLS) which consists of R-square (R²), F-statistical and t-Test. The R-square (R²) involves the overall explanatory power of the regression analysis, F-statistics is used for testing the overall significance of the regression analysis and the t-Test is used for testing the significant impact of the independent and dependent variables.

3.3 MODEL SPECIFICATIONS

A model is a representation of reality that is abstracted from the real world. It is an abstraction from reality since conducting research with all of the variables that present in a

real-life situation is extremely difficult. In economics, model construction is important for simplifying the complexity of actual life.

While attempting to examine any link between variables, it is critical to represent the relationship mathematically, i.e., to establish the model with which the economic phenomena would be experimentally investigated.

To derive objective one, the study takes after the works of Umar and Zubairu (2012) with a few modifications

$$RGP = F(INFL, MS, RIR, GEXP) \text{ -----(1)}$$

The above equation can be defined econometrically as

$$\ln RGP = \beta_0 + \beta_1 \ln INFL + \beta_2 \ln MS + \beta_3 \ln RIR + \beta_4 \ln GEXP + \mu \text{ --(2)}$$

To derive objective two, the study takes after the works of Stephen B.A. (2012) and Sanusi A.R. (2012) with few modifications

$$RGP = F(UNEMP, POP, FDI, GEXP) \text{ -----(3)}$$

The above equation can be defined econometrically as

$$\ln RGP = \beta_0 + \beta_1 \ln UNEMP + \beta_2 \ln POP + \beta_3 \ln FDI + \beta_4 \ln GEXP + \mu \text{ ----(4)}$$

To derive objective three, the study takes after the works of Popovic (2009), Orji et al (2015) and Shahid M (2014) with few modifications

$$UNEMP = F(INFL, GDP) \text{ -----(5)}$$

The above equation can be defined econometrically as:

$$\ln UNEMP = \beta_0 + \beta_1 \ln INFL + \beta_2 \ln RGP + \mu \text{ -----(6)}$$

3.4 TECHNIQUES OF ESTIMATION AND RESULT VALUATION

The OLS estimation approach would be used here. The emphasis would be on determining whether or not the variables are properly behaved. We want to know how statistically significant they are, and if they aren't, the model's output will be assessed using three (3) criteria: economic a priori expectation, statistical test of significance, and econometric test.

3.4.1 The economic criteria

The economic a priori expectation evaluates the parameter in terms of whether it meets the expectations of traditional economic theory.

3.4.2 The Statistical Criteria

Statistical tests are used to assess the estimated parameter's reliability using statistical theory and expectation. The following is a list of the statistical tests that were performed:

A) The T-test, which is used to determine the significance of the regression model's individual parameters. The value of the test statistics from the data is used to decide whether or not to accept the null hypothesis.

B) The F-test is used to determine whether or not an

i. Individual regression co-efficient is statistically significant.

ii. There are no partial slope co-efficient.

iii. Two or more co-efficient have the same statistical significance.

iv. The regression model has structural stability.

v. Co-efficient fulfils some linear constraints.

C) Coefficient of determination (R^2): The square of the correlation co-efficient is used in the goodness of fit test. It displays or explains the proportion of the endogenous variable's

total variation that is explained by changes in the explanatory variables. It assesses the responsiveness of the explanatory variables in determining the regression's explanatory power.

3.4.3 Econometric tests

The test will be run on the regression result in order to assess it using OLS's Classical assumptions.

These tests are briefly mentioned below:

a) Multi-collinearity test: This will be utilized to determine the Linear collinearity among explanatory variables, and a correction matrix will be used in this test.

b) Auto-correlation test: This is used to determine if the errors corresponding to distinct observations are uncorrelated, as well as the error term's unpredictability. For this test, the Durbin-Watson (DW) approach would be used, because D.W. produces estimates that have qualities and are more efficient for all samples of all sizes, according to Koutsoyannis (1997).

c) Heteroscedasticity test: This determines if the error terms of the estimated model's explanatory variables have equal variance.

d) Normality test: This will determine if the estimated model's error term is normally distributed.

3.5 NATURE AND SOURCES OF DATA

Secondary data was employed in this study, and it came from the following reports and bulletins:

i. Central bank of Nigeria (CBN).

ii. National Bureau of statistics.

iii. World Bank

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF RESULTS

4.1 INTRODUCTION

This Section talks about the analysis of results and the presentation of the results 4.1 talks about the introduction, 4.2 talks about the presentation of results, 4.3 gives the evaluation of the research hypothesis and 4.4 gives the summary of the interpretation of results.

4.2 PRESENTATION OF RESULTS

Three models were estimated in this research work based on the topic being discussed. The models were estimated using the ordinary least square method (OLS) method. The results of the model are presented in table 4.2.1, table 4.2.2, table 4.2.3:

Model 1

Result presentation

Table 4.2.1: Regression test

Dependent Variable: INRGDP
Method: Least Squares
Date: 08/17/22 Time: 11:03
Sample (adjusted): 1984 2020
Included observations: 25 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INMS	0.125730	0.070554	1.782044	0.0899
ININF	-0.020210	0.084284	-0.239780	0.8129
INRIR	-0.033167	0.036273	-0.914374	0.3714
INGEXP	0.069988	0.060784	1.151417	0.2631
C	25.94020	0.401943	64.53705	0.0000

R-squared	0.955889	Mean dependent var	31.30854
Adjusted R-squared	0.947066	S.D. dependent var	0.535410
S.E. of regression	0.123184	Akaike info criterion	-1.173425
Sum squared resid	0.303484	Schwarz criterion	-0.929650
Log likelihood	19.66782	Hannan-Quinn criter.	-1.105812
F-statistic	108.3493	Durbin-Watson stat	0.268608
Prob(F-statistic)	0.000000		

Sources: Authors compilation of E-views software.

Table 4.2.2: Regression test**MODEL 2**

Dependent Variable: INRGDP
 Method: Least Squares
 Date: 08/17/22 Time: 11:29
 Sample: 1980 2020
 Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INUNEMP	0.126429	0.162762	0.776769	0.4424
INPOP	0.185257	0.572480	0.323605	0.7481
FDI	-0.043918	0.015066	-2.915072	0.0061
INGEXP	0.140246	0.047600	2.946335	0.0056
C	23.92949	9.265539	2.582634	0.0140
R-squared	0.951356	Mean dependent var		31.10115
Adjusted R-squared	0.945951	S.D. dependent var		0.519423
S.E. of regression	0.120758	Akaike info criterion		-1.276203
Sum squared resid	0.524972	Schwarz criterion		-1.067231
Log likelihood	31.16217	Hannan-Quinn criter.		-1.200107
F-statistic	176.0162	Durbin-Watson stat		0.504463
Prob(F-statistic)	0.000000			

Sources: Authors compilation of E-views software.

TABLE 4.2.3: Regression test**MODEL 3**

Dependent Variable: INUNEMP
 Method: Least Squares
 Date: 08/17/22 Time: 11:40
 Sample: 1980 2020
 Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ININF	0.096022	0.053603	1.791367	0.0812
INRGDP	0.467978	0.069952	6.690024	0.0000
C	-13.45053	2.219426	-6.060365	0.0000
R-squared	0.540834	Mean dependent var		1.360492
Adjusted R-squared	0.516667	S.D. dependent var		0.317827
S.E. of regression	0.220960	Akaike info criterion		-0.111313
Sum squared resid	1.855290	Schwarz criterion		0.014071
Log likelihood	5.281910	Hannan-Quinn criter.		-0.065655
F-statistic	22.37937	Durbin-Watson stat		0.268143
Prob(F-statistic)	0.000000			

Sources: Authors compilation of E-views software.

4.3 RESULT INTERPRETION

4.3.1 ANALYSIS OF RESULTS BASED ON ECONOMIC CRITERIA

Model 1

The above result in terms of coefficients of regression can be interpreted as follows:

The intercept of Real Gross Domestic Products when all other explanatory variables are held constant is 25.94020

Inflation Rate (INFL)

Inflation rate has a negative coefficient of -0.020210. This indicates that inflation rate has a negative relationship with RGDP, showing that a unit increase in Inflation rate (INFL) will reduce RGDP by 0.020210.

MONEY SUPPLY (MS)

The coefficient is 0.1257. This indicates a positive relationship between money supply and RGDP, showing that a unit increase in money supply the RGDP will increase by 0.1257.

REAL INTEREST RATE (RIR)

The coefficient has a negative of 0.033167. Which means that there is a negative relationship between real interest rate and RGDP, showing that with a unit increase in real interest rate (RIR) RGDP will decrease by 0.033167.

GOVERNEMENT EXPENDITURE (GEXP)

The coefficient is 0.6998. This shows that there is a positive relationship between Government expenditure and RGDP, showing that a unit increase in GEXP will increase RGDP by 0.6998

MODEL 2

The intercept of Real Gross Domestic Products when all other explanatory variables are held constant is 23.94929

UNEMPLOYMENT RATE

The coefficient is 0.162762. This indicates that there is positive relationship between unemployment and RGDP, showing that with a unit increase in unemployment rate RGDP will increase by 0.162762

POPULATION (POP)

The coefficient is 0.185257. This indicates that there is a positive relationship between population and RGDP, showing that with a unit increase in population RGDP increase by 0.185257

FOREIGN DIRECT INVESTMENT (FDI)

FDI has a negative coefficient of -0.043918. which means that there is a negative relationship between FDI and RGDP, showing that with a unit increase in FDI the RGDP will decrease by 0.043918

GOVERNEMENT EXPENDITURE (GEXP)

The coefficient is 0.140246. This shows that there is a positive relationship between Government expenditure and RGDP, showing that a unit increase in GEXP will increase RGDP by 0.140246.

MODEL 3

The intercept of Unemployment rate when all other explanatory variables are held constant is -13.45053

INFLATION RATE (INFL)

The coefficient is 0.096022. meaning that there is a positive relationship between inflation rate and unemployment rate, showing that with a unit increase in inflation rate the unemployment rate increases by 0.096022

REAL GROSS DOMESTIC PRODUCTS (RGDP)

The coefficient is 0.467978. This indicates a positive relationship between RGDP and unemployment rate, showing that with a unit increase in RGDP, unemployment rate increases by 0.467978

4.3.1.2 ANALYSIS BASED IN THE A PRIORI CRITERIA

This section compares the regression results with the a priori expectations, to see if the results gotten conforms to the economic theory. The test is summarized in table 4.3.1.2.1, table 4.3.2 and table 4.3.3:

Table 4.3.1.2.1

MODEL 1

INDEPENDENT VARIABLES	EXPECTED SIGNS	OBSERVED SIGNS	REMARKS
MS	Positive (+)	Positive (+)	Conforms
INFL	Negative (-)	Negative (-)	Conforms
RIR	Negative (-)	Negative (-)	Conforms
GEXP	Positive (+)	Positive (+)	Conforms

Sources: Authors compilation of E-views software.

Table 4.3.1.2.2 MODEL 2

INDEPENDENT VARIABLES	EXPECTED SIGNS	OBSERVED SIGNS	REMARKS
UEMP	Negative (-)	Positive (+)	Does not Conforms
POP	Positive (+)	Positive (+)	Conforms
FDI	Positive (+)	Negative (-)	Does not Conforms
GEXP	Positive (+)	Positive (+)	Conforms

Sources: Authors compilation of E-views software.

Table 4.3.1.2.3 MODEL 3

INDEPENDENT VARIABLES	EXPECTED SIGNS	OBSERVED SIGNS	REMARKS
RGDP	Negative (-)	Positive (+)	Does not Conforms
INFL	Positive (+)	Positive (+)	Conforms

Sources: Authors compilation of E-views software.

4.3.2 ANALYSIS BASED ON STATISTICAL CRITERIA

4.3.2.1 The R² (coefficient of determination)

In our model, model 1 has R² of 0.955889, which implied that about 95% of the variation in real GDP is explained by the independent variable (money supply, inflation rate. Real interest rate. Government expenditure).

In model 2, R² is 0.951356, which implies that about 95% of the variation in real GDP is explained by the independent variable (unemployment, population, Foreign direct investment, government expenditure).

In model 3, R² is 0.540834, Which implies that about 54% of the variation in unemployment is explained by the independent variable (inflation rate and real gross domestic products).

4.3.2.2 The T-test (Student T test) statistics

The t-test are used to test if the independent variables are statistically significant to the dependent variables. Under n-k degrees of freedom at 5% level of significance,

Test Hypothesis

$H_0: B_1=0$ (The parameter is statistically insignificant)

$H_1: B_1 \neq 0$ (The parameter is statistically significant).

Decision rule

Reject H_0 if $t\text{-cal} > t\text{-tab}$

Accept H_0 if otherwise

From our data $n=41$ and $K =5$

Therefore $d.f = n-k=41-5=36$ for model 1 and 2

For model 3

$N=41$ and $k=3$

Therefore $d.f=n-k=41-3=38$

Critical tabulated at 0.05 significance level is equal to 2.021

The tables below (table 4.3.2.1, table 4.3.2.2, table 4.3.2.3) shows the result of the T-test statistics

Table 4.3.2.2.1**MODEL 1**

Variable	T-calculated	T- tabulated	Decision	Conclusion
MS	1.782044	± 2.021	Accept H ₀	Not Significant
INFL	-0.239780	± 2.021	Accept H ₀	Not Significant
RIR	-0.914374	± 2.021	Accept H ₀	Not Significant
GEXP	1.151417	± 2.021	Accept H ₀	Not Significant

Sources: Authors compilation of E-views software.

Table 4.3.2.2.2**MODEL 2**

Variable	T-calculated	T- tabulated	Decision	Conclusion
UNEMP	0.776769	± 2.021	Accept H ₀	Not Significant
POP	0.323605	± 2.021	Accept H ₀	Not Significant
FDI	-2.915072	± 2.021	Reject H ₀	Significant
GEXP	2.946335	± 2.021	Reject H ₀	Significant

Sources: Authors compilation of E-views software.

Table 4.3.2.2.3**MODEL 3**

Variable	T-calculated	T- tabulated	Decision	Conclusion
INFL	1.791367	± 2.021	Accept H ₀	Not Significant
GDP	6.690024	± 2.021	Reject H ₀	Significant

Sources: Authors compilation of E-views software.

4.3.2.3 The F- statistics Test

The Test is carried out to determine if the independent variables in the model are simultaneously significant or not it has K-1 degree of freedom in the numerator and n-k degree of freedom in the denominator. Hence, the analysis shall be carried out under the hypothesis below and the result will be displayed in the Table 4.3.2.3.1, table 4.3.2.3.2 and table 4.3.2.3.3.

$$H_0: X_1 = X_2 = X_3 = 0 \text{ (The model is insignificant)}$$

$$H_1: X_1 \neq X_2 \neq X_3 \neq 0 \text{ (The model is significant)}$$

Decision Rule

$$\text{Reject } H_0 \text{ if } f\text{-cal} > f\text{-tab otherwise accept } H_0$$

$$V_1 = K - 1 = 5 - 1 = 4 \text{ (numerator)}$$

$$V_2 = n - k = 41 - 5 = 36 \text{ (denominator) (model 1 and 2)}$$

For model 3

$$V_1 = K - 1 = 3 - 1 = 2 \text{ (numerator)}$$

$$V_2 = n - k = 41 - 3 = 38 \text{ (denominator)}$$

Table 4.3.2.3.1

MODEL 1 below analysis the result

F-calculated	F-tabulated	Decision rule
108.3493	2.6060	Reject H_0

Sources: Authors compilation of E-views software.

From the result, since $F\text{-cal} > f\text{-tab}$ (i.e $108.3493 > 2.6060$), We therefore reject the null hypothesis H_0 and accept the alternative hypothesis H_1 and conclude that at 5% level of significance the overall regression is statistically significant.

Table 4.3.2.3.2

MODEL 2 below analysis the result

F-calculated	F-tabulated	Decision rule
176.0162	2.6060	Reject H_0

Sources: Authors compilation of E-views software.

From the result, since $F\text{-cal} > f\text{-tab}$ (i.e $176.0162 > 2.6060$), We therefore reject the null hypothesis H_0 and accept the alternative hypothesis H_1 and conclude that at 5% level of significance the overall regression is statistically significant.

Table: 4.3.2.3.3

MODEL 3 below analysis the result

F-calculated	F-tabulated	Decision rule
22.37937	3.3158	Reject H_0

Sources: Authors compilation of E-views software.

From the result, since $F\text{-cal} > f\text{-tab}$ (i.e $22.37937 > 3.3158$), We therefore reject the null hypothesis H_0 and accept the alternative hypothesis H_1 and conclude that at 5% level of significance the overall regression is statistically significant.

4.3.3 ANALYSIS BASED ON ECONOMETRIC CRITERIA

4.3.3.1 AUTOCORRELATION TEST

(2nd Order Test)

This test is at ascertaining if autocorrelation occurred in the model. To achieve this, we assume that the values of the random variables are temporarily independent by employing the technique of dubin- Watson (d) statistics.

Decision rule

Null Hypothesis (H_0)	Decision	If
No positive autocorrelation	Reject	$0 < d < d_u$
No positive autocorrelation	No decision	$D_L \leq d \leq d_u$
No negative autocorrelation	Reject	$4 - d_L < d \leq 4$
No negative autocorrelation	No decision	$4 - d_u \leq d \leq 4 - d_L$
autocorrelation (positive or negative)	Do not reject	$D_u < d < 4 \leq d_L$

Sources: Authors compilation of E-views software.

Where:

d_L = lower unit

du = upper unit

d = durbin Watson calculated

From Durbin-Watson table

MODEL 1	MODEL 2	MODEL 3
dL= 1.287	dL= 1.287	dL= 1.383
du= 1.776	du= 1.776	du= 1.666
d* = 0.268608	d* = 0.504463	d* = 0.268143

Decision rule

MODEL 1: $0 < d^* < dL$

$0 < 0.268608 < 1.287$

MODEL 2: $0 < d^* < dL$

$0 < 0.504463 < 1.287$

MODEL 3: $0 < d^* < dL$

$0 < 0.268143 < 1.383$

Conclusion

The durbin-Watson test shows that there is no positive autocorrelation in the three models.

Therefore, we reject the null hypothesis for the three models.

4.3.3.2 NORMALITY TEST

This test is carried out to test if the error term follows normal distribution. It is done using the Jarque-Bera statistic which follows chi-square distribution with 4 degrees of freedom at 5% level of significance

Test Hypothesis

Ho: $e_i = 0$ (The error term is normally distributed)

H1: $e_i \neq 0$ (The error term is not normally distributed).

$\alpha = 5\%$ (0.05 significant level)

Decision Rule

Reject Ho if $X^2_{cal} > X^2_{tab}$ otherwise accept Ho

From the result, obtained from Jarque-Bera test of normality, for model 1

$$(JB) = 1.207253$$

$$\text{That is } X^2_{cal} = 1.207253$$

$$X^2_{tab} = 9.488$$

Conclusion: We accept and conclude that the error term is normally distributed since

$$X^2_{cal} < X^2_{tab} \text{ i.e. } (1.207253 < 9.488).$$

From the result, obtained from Jarque-Bera test of normality, for model 2

$$(JB) = 0.137122$$

$$\text{That is } X^2_{cal} = 0.137122$$

$$X^2_{tab} = 9.488$$

Conclusion: We accept and conclude that the error term is normally distributed since

$$X^2 \text{ cal} < X^2 \text{ tab i.e. } (0.137122 < 9.488).$$

From the result, obtained from Jarque-Bera test of normality, for model 3

$$(JB) = 1.262238$$

$$\text{That is } X^2 \text{ cal} = 1.262238$$

$$X^2 \text{ tab} = 9.488$$

Conclusion: We accept and conclude that the error term is normally distributed since

$$X^2 \text{ cal} < X^2 \text{ tab i.e. } (1.262238 < 9.488).$$

4.3.3.3 HETEROSCEDASTICITY TEST

This test is carried out to test if the error term has a constant variance. The test follows chi-square distribution with degrees of freedom equal to the number of regressions in the auxiliary heteroscedasticity regression, excluding the error term.

Test Hypothesis

Ho: Homoscedasticity (The variance is constant)

H1: Heteroscedasticity (the variance is not constant)

Decision rule

Reject Ho if $X^2 \text{ cal} > X^2 \text{ tab}$ otherwise accept Ho.

From the heteroscedasticity test result $X^2 \text{ cal} = 213.586$ and $X^2 \text{ tab} = 55.758$

From the result, $X^2 \text{ cal} > X^2 \text{ tab}$ (i.e., $213.586 > 55.758$)

therefore, reject the null hypothesis of homoscedasticity and accept the alternative hypothesis of heteroscedasticity showing that error term has a constant variance.

4.3.3.4 MULTICOLLINEARITY TEST

Multicollinearity means the existence of a perfect linear relationship among the explanatory variable of a regression model. The table below shows the result of the multicollinearity test.

Table 4.3.3.4.1

	RGDP	INF	MS	POP	RIR	UNEMP	FDI	GEXP
RGDP	1	0.562001	0.857513	0.976854	0.204391	0.944895	0.645521	0.896085
INF	0.562001	1	0.277882	0.663098	-0.31628	0.676416	0.76389	0.284794
MS	0.857513	0.277882	1	0.752763	0.278869	0.787574	0.326954	0.959152
POP	0.976854	0.663098	0.752763	1	0.150016	0.9715	0.726771	0.788351
RIR	0.204391	-0.31628	0.278869	0.150016	1	0.11412	-0.0018	0.307476
UNEMP	0.944895	0.676416	0.787574	0.9715	0.11412	1	0.677833	0.760755
FDI	0.645521	0.76389	0.326954	0.726771	-0.0018	0.677833	1	0.398593
GEXP	0.896085	0.284794	0.959152	0.788351	0.307476	0.760755	0.398593	1

Sources: Authors compilation of E-views software.

Decision Rule

From the rule of thumb, if correlation coefficient is greater than 0.8, we conclude that there is multicollinearity but if the correlation coefficient is less than 0.8, there is no multicollinearity

Conclusion: Multicollinearity exist only between

POP AND RGDP

GEXP AND RGDP

UNEMP AND RGDP

MS AND RGDP

GEXP AND MS

POP AND UMEMP

4.4 EVALUATION OF THE RESEARCH HYPOTHESIS

The research hypothesis stated in chapter one as

Hypothesis one:

H0: There are no effects of inflation on Economic growth in Nigeria.

H1: There are effects of inflation on Economic growth in Nigeria.

Hypothesis Two:

H0: There are no effects of unemployment on Economic growth in Nigeria.

H1: There are effects of unemployment on Economic growth in Nigeria

Hypothesis Three:

H0 There are no relationships between inflation, unemployment and economic growth in Nigeria

H1: There are relationships between inflation, unemployment and economic growth in Nigeria.

4.5 CONCLUSION

From the results and analysis so far, we see that RGDP has a positive impact on unemployment rate. The T- test showed that the impact of RGDP on unemployment rate is significant in model 3 meaning that RGDP has an impact on unemployment rate but unemployment rate does not have a significant impact on RGDP as seen in the t-test of model 2. Also, inflation rate does not have a significant impact on both RGDP and UNEMP

meaning that inflation rate does not have a significant effect on RGDP and also UNEMP based on t-test of model 1 and model 3. Therefore, for hypothesis 1 we accept H_0 which states that inflation has no effect on economic growth in Nigeria, for hypothesis 2 we also accept H_0 which states that unemployment has no impact on economic growth in Nigeria and for hypothesis 3 we reject H_0 and accept H_1 which postulates that there is relationship between economic growth, unemployment and inflation rate.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND POLICY RECOMMENDATION

5.1 INTRODUCTION

This chapter gives the summary of the findings, conclusion and policy recommendations on how inflation, unemployment and economic growth should relate in the economy of Nigeria section 5.1 talks about the introduction, 5.2 gives the summary of findings 5.3 gives the conclusion and 5.4 talks about the policy recommendations.

5.2 SUMMARY OF FINDINGS

The research work is centred on unemployment, inflation and Gross domestic Products in Nigeria. The study investigated empirically on three models.

The first model investigated empirically, the impact of variables such as money supply (MS), inflation rate (INFL), government expenditure (GEXP), real interest rate (RIR) on the GDP of the economy. The second model investigated empirically the impact of variables such as Population (POP), Unemployment (UNEMP), Foreign direct investment (FDI), Government expenditure (GEXP), also on the GDP of the economy. The third model investigated empirically the impact of variables such as inflation rate (INFL) and Real gross domestic products (RGDP) on the unemployment rate (UNEMP) of the economy. All data used are secondary data obtained from the world development indicators (WDI).

From model 1, money supply has a positive impact on GDP, inflation rate has a negative impact on GDP, the real interest rate (RIR) has a negative impact on GDP and the government expenditure has a positive impact on GDP.

From model 2, Unemployment has a positive impact on GDP, Population has a positive impact on GDP, Foreign direct investment has a negative impact on GDP and Government expenditure has a positive impact on GDP.

From model 3, Inflation rate has a positive impact on unemployment rate and also real gross domestic products has a positive impact on unemployment rate.

In autocorrelation, we reject the null hypothesis for both models. The estimator has constant variance and are well specified. Multicollinearity only exists between POP AND RGDP, GEXP AND RGDP UNEMP AND RGDP, MS AND RGDP, GEXP AND MS and POP AND UMEMP.

From the empirical reviewed work, some authors argued that inflation rate and unemployment rate have a positive relationship in Nigeria while some argues that their relationship is inversely or negatively related. Also, some authors reviewed that unemployment has a negative impact on economic growth while some reviewed that it has a negative impact on economic growth in Nigeria. However, from the empirical analysis of the study, it was found out that inflation, unemployment and economic growth have positive relationships in Nigeria.

5.3 CONCLUSION

Having conducted this research in the study of inflation, unemployment and economic growth, thus there is need to change the policy to reduce unemployment and increase economic growth. Using time series data from 1980-2020, I estimated the effect of unemployment and inflation on economic growth in Nigeria, our result showed that economic growth is influenced by unemployment and inflation. Despite the fact that there was no significant impact of inflation on unemployment, and no causal relationship between the variables was discovered. This can be attributed to factors such as the neglect of the real

sectors of the economy and the mining sector accounting for the majority of national revenue. This, however, must be corrected in order to achieve long-term economic growth..

5.4 POLICY RECOMMENDATIONS

Sequel to the findings of the study, I specifically made the following policy recommendations

- 1) The real sector of the Nigerian economy should be developed in order to reduce unemployment as the economy's real gross domestic product rises.
- 2) The government should encourage citizens to work for themselves because it is the most effective way to reduce unemployment in the country.
- 3) The government should work hard to develop the agricultural sector, which has enormous potential for increasing the supply of farm products and other basic necessities. The increased supply will lower prices and increase job creation. To accomplish this, a variety of specific agricultural policy measures should be vigorously promoted and pursued.
- 4) It is also strongly advised that special attention be paid to policy implementation. In this regard, the government should establish a policy implementation body or committee within the presidency to monitor government policies and ensure that they are implemented in accordance with prescriptions.

REFERENCES

- Adebisi, M. A., & Babatope-Obasa, B. (2004, October). Institutional framework, interest rate policy and the financing of the Nigerian manufacturing sub-sector. In Forum on African Development and Poverty Reduction: The macro-micro linkage, held at Lord Charles Hotel, Somerset West, South Africa, from (Vol. 13).
- Alika, A.A. (1986). "A sectoral Analysis of Unemployment and Underemployment Problems in Nigeria."
- Aminu, U., & Manu, D. (2014). The growth effects of unemployed resources and inflation in Nigeria'. *Journal of Economics and Sustainable Development*, 5(2), 108-122.
- Bank, W. (2007). *MENA Economic Developments and Prospect: Job Creation in an Era of High Growth*. Washington DC, 1-11.
- Central Bank of Nigeria. (2020). *Statistical bulletin*. Abuja: Central Bank of Nigeria.
- Central Bank of Nigeria (2018). *Statistical Bulletin*.
- Dwivedi, D. N. (2005). *Macroeconomics: theory and policy*. Tata McGraw-Hill Education.
- Edwards, S. (2012). *The effects of poverty on achievement gap: A quantitative analysis using stratification theory*. NCUR.
- Elahi, M., & Dehdashti, M. (2011, January). Classification of researches and evolving a consolidating typology of management studies. In *Annual Conference on Innovations in Business & Management* (pp. 26-27).
- Freeman, D. G. (2001). Panel tests of Okun's law for ten industrial countries. *Economic Inquiry*, 39(4), 511-523.
- Grilli, E., & Zanalda, G. (1995). *Growth and employment in developing countries: where do we stand?* (No. 86). Queen Elizabeth House.
- Hamilton, A. (2001). *Exploding inflation*. Zeal Intelligence.
- Hussain, N., & Nadol, C. (1997). *Employment, Growth and the Demand-side: The Case of Some African Countries* (No. 28). African Development Bank.
- International Labour Organization, (2009) , *Labour Statistics Yearbook*, Geneva.
- International Monetary Fund (2017). *Promoting Inclusive Growth*.
- Jhingan, M. L.,(2003), *Advanced Macroeconomic Theory* 11h Edition. Delhi: Vrinda Publications (P) LTD.

- Keller, J., & Nabli, M. K. (2002). The macroeconomics of labor market outcomes in MENA over the 1990s: How growth has failed to keep pace with a burgeoning labor market (Vol. 71). Egyptian Center for Economic Studies.
- Kontek, E. S. (2007). How Useful is Okun's Law, Federal Reserve Bank of Kansas City
- Ministry of Budget and National Planning. (2017). Economic Recovery and Growth Plan:2017- 2020.
- National Bureau of Statistics (2018). Labour Force Statistics - Volume I: Unemployment and Underemployment Report. Abuja: NBS
- National Bureau of Statistics. (2018). Labour Force Statistics: Employment and Underunemployment Report, Q4 2017-Q3 2018.
- Ndoricimpa, A. (2017). Threshold effects of inflation on economic growth in Africa: Evidence from a dynamic panel threshold regression approach. African Development Bank Group, Working Paper, 249.
- Okafor, I. G., Chijindu, E. H., & Ugochukwu, U. S. (2016). Responsiveness of unemployment to inflation: Empirical evidence from Nigeria. *International Journal of Scientific Research in Science and Technology*, 2(4), 173-179.
- Okun A. M. (1962), Potential GNP: Its Measurement and Significance, American Statistical Association, Proceedings of the Business and Economics Statistics Section, pp. 98–104.
- Onwioduokit, E. A. (2006, August). Character of Unemployment in Nigeria and its Links with the Macroeconomy. In West African monetary institute, Accra Ghana. The Nigerian economic society, selected papers for annual conference.
- Orji, A., Anthony-Orji, O. I., & Okafor, J. C. (2015). Inflation and unemployment nexus in Nigeria: Another test of the Phillips curve. *Asian Economic and Financial Review*, 5(5), 766-778.
- Paterson, C. E., & Okafor, E. W. (2006). Globalization and Employment Generation: Evaluating the Impact of Trade on Aggregate Employment in Nigeria's Industrial Sector. Selected paper for the 2006 Annual Nigerian Economic Society, 309-340.
- Piana, V. (2001). A Graph Representation of a Basic Macroeconomic Scheme: The Is-Lm Model. *Essays at the Economics Web Institute Paper*, (2)

- Phillips, A. W. (1958). "The Relationship between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957." *Economica*, November 1958, pp. 283-299.
- Popovic, G., & Popovic, J. (2009). Inflation and Unemployment in the EU: Comparative Analysis of Phillips Regularity. UDK 336.748. 12,331.56. In Dynamics in Nigeria: Is there Evidence of Jobless Growth? Paper presented at the 53rd Annual Conference of the Nigerian Economic Society (NES) on "Youth Employment and Poverty Reduction in Nigeria" Nikon Luxury Hotel, Abuja.
- Raheem (2009). "An empirical analysis of the relationship between inflation and unemployment on Nigeria's economic growth 1981 – 2017; *International Journal of Social Sciences and Humanities Reviews* Vol.11 No.1, January 2021 ;p. 1 – 11
- Sanusi, A. R. (2012). Macroeconomic Policy, Output and Unemployment Dynamics in Nigeria: Is There Evidence of Jobless Growth?. *Output and Unemployment Dynamics in Nigeria: Is There Evidence of Jobless Growth*.
- Schwab, K. (2017). The Global Competitiveness Report 2017 and 2018. World Economic Forum.
- Shahid, M. (2014). Effect of inflation and unemployment on economic growth in Pakistan. *Journal of economics and sustainable development*, 5(15), 103-106.
- Soylu, Ö. B., Çakmak, İ., & Okur, F. (2018). Economic growth and unemployment issue: Panel data analysis in Eastern European Countries.
- Stephen, B. A. (2012). Stabilization policy, unemployment crises and economic growth in Nigeria. *Universal Journal of Management and Social Sciences*, 2(4), 55-63.
- Abachi, P. (1998). "Inflation-Unemployment Trade-off in Less Developed Countries (LDCs)." The case study of Nigeria (1970-1995). IZA Discussion Paper No. 1699. November.
- Stephen, B. A. (2012). Stabilization policy, unemployment crises and economic growth in Nigeria. *Universal Journal of Management and Social Sciences*, 2(4), 55-63.
- Stock, J. H., & Watson, M. W. (1999). Forecasting Inflation National Bureau of Economic Research'. NBER Working Paper, 7023.

- Tatom, J. (1978). Economic growth and unemployment: a reappraisal of the conventional view. Review, Federal Reserve Bank of St. Louis, October, 16-22.
- Teal, F., & Dercon, S. (1997). Investment in Africa's manufacturing sector: a four-country panel data analysis (No. WPS/1997-11).
- Tobin, J. (1971). "Inflation, Employment and Stagflation." *Journal of Monetary Economics*. Vol. 4. pp. 193-227.
- Todaro, M. (2011). *Economics for a Developing World*, 2nd Ed. England: Longman Group, U.K. Limited.
- Umaru, A., & Zubairu, A. A. (2012). Effect of inflation on the growth and development of the Nigerian economy (An empirical analysis). *International Journal of Business and Social Science*, 3(10).
- Umaru, A., & Zubairu, A. A. (2012). An empirical analysis of the relationship between unemployment and inflation in Nigeria from 1977-2009. *Economics and Finance Review*, 1(12), 42-61.
- Umaru, A., & Zubairu, A. A. (2012). Effect of inflation on the growth and development of the Nigerian economy (An empirical analysis). *International Journal of Business and Social Science*, 3(10). Omeke, P.C. and C.U. Ugwunyi, 2010, 'Money, Price and Output: A Causality Test for Nigeria', *American Journal of Scientific Research*, 8, pp. 78-87. Euro Journals Publishing, Inc.
- Williams, O. H., & Adedeji, O. (2004). *Inflation dynamics in the Dominican Republic*.
- Zhattau, V. S. (2013). Fiscal policy as an engine of economic growth in Nigeria. *AFREVIJAH: An International Journal of Arts and Humanities*, 2(2), 282-29

