INFLATION AND UNEMPLOYMENT IN NIGERIA

(1979-2018)

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CERTIFICATION

I certify that this research project was conducted under my supervision by ADEBOYEJO OLAMIDE (16020301006) at the Department of Economics, Mountain Top University, Ogun State, Nigeria.

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DEDICATION

I dedicate this work to the KING OF KINGS, THE ALMIGHTY GOD, and also to my loving parents MR and MRS ADEBOYEJO for all their support during my academic race.

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ABSTRACT

This study examines the relationship between inflation and unemployment rate in Nigeria for the study period 1979 to 2018. Employing various techniques of econometric analysis, using macro-economic variables such as unemp, int, inf, lngdp and exc. Time series data were sourced from central bank statistical bulletin and world development index. The study employed ARDL. The results revealed that among the four independent variables which includes, unemp, int, lngdp were found to have significant impact on unemployment rate, while inflation is expected to have a positive and substantial effect on unemployment rate. The gross domestic product (GDP) which is a proxy of economic growth was also revealed by the estimation to have a positive and significant impact on unemployment rate, investment in Nigeria. Lastly, the study recommends that the diversification of the economy will enable the country to cushion the effect of risk which will increase the attractiveness of the economy to investors in the secondary and tertiary institution and openness to trade.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

It has been a similar narrative on several platforms on how several policies have failed to bring the long-waited-for solution to the high level of joblessness and persistent fall in value of money in Nigeria. The rise in consumer goods prices and the increase in the number of young people without well paid jobs have been a major cause for concern among other macro-economic issues that fraught the Nigerian economy. A major objective of a typical economy is to attain full employment level and simultaneously minimize price instability which in most cases are hardly achievable simultaneously (Vermeulen, 2017). The inflation and unemployment nexus has attracted hot debate among policymakers, economists and ordinary citizens over the last decade as to how they can both be tacked concurrently. The adverse impact on economic growth of unemployment and inflation alike has attracted the attention of government and researchers around the world thus, resorting into different conclusions. One major challenge of policy makers is how to maintain low and stable unemployment level as well as relatively stable prices so as to achieve high economic growth.

Unemployment is a situation in which there are no jobs for people who are physically fit, qualified, skilled and ready to work at any time. One of a nation's macro-economic challenges is the issue of unemployment. At present, the issue of unemployment in developing countries has been growing and becoming more devastating as a result of the various economic problems facing countries. The approach taken by this government to tackle unemployment may further complicate issues and cause inflation rate to increase while the rate of employment is affected only by little. The social impacts of unemployment are less prevalent in economies that are able to support unemployed class with subsidies and social

security allowances. Udabah (1999) noted that "the relatively insufficient and wasteful use of labour compared to industrialized nations is the key reason for low living standards in underdeveloped countries". Osinubi (2006) argued that "unemployment is due to the inability to efficiently grow and use the manpower resources of nations, especially in the rural sector".

Interestingly, each government regime has its own policy for increasing economic development, but none has been able to accomplish the desired target. Since the continuous increase in population begun, developing nations have been characterized by unemployment. The issue of unemployment brought about some social and economic consequences such as; increase in crime rate, loss of respect and identity, reduction in purchasing power, psychological injuries, corruption among others. Muhammad, Inuwa, and Oye (2011) submitted that "unemployment constitutes a series of serious development problems and is increasingly more serious all over Nigeria". Alanana (2003) argued that "unemployment is potentially dangerous as it sends disturbing signals to all segment of the economy".

On the other hand, inflation has over the years, been a major problem in the region. In many market-orientated economies, inflation is a household word. While a lot of individuals, suppliers, clients, professionals, non-professionals, trade unionists, employees and the like always speak about inflation, particularly if the situation has taken on a persistent character, only a few have decided to know or even bother to know about the mechanics and effects of inflation.

Unemployment and inflation are problems which are fundamental to the country's social and economic existence. Unemployment and inflation are referred to in established literature as constituting a vicious cycle which explains the endemic existence of poverty in developing countries. And it has been argued that constant efficiency growth, resulting in a proper supply of goods and services, is the best way to escape the vicious cycle. The Nigerian experience of

the unemployment and inflation crises was postponed until the crash of oil prices, on which the economy had been dangerously dependent, in the early - and mid-80s. Previous documents shows before the 1980s that the Nigerian economy was able to provide its rising workforce with employment and was able to consume significant foreign labor in the science sectors.

Compared to international standards, the wage rate was favorable, the inflation rate was moderate, and in most sub-groups of industry, there was relative industrial peace. In the 1970s, the oil boom led to the mass migration of youth to the metropolitan world, trying to get a job. Since the stagnation of the 1980s, however the available data showed that the issue of unemployment began to manifest, precipitating the launch of the Structural Adjustment Program (SAP), the gradual deterioration of the naira exchange rate and the failure of most factories to procure the raw materials needed to retain their production levels. The sharp increase in the general price level (inflation) was a significant consequence of the gradual weakening of the naira, contributing to a major decrease in real incomes. In fact, the low wages fuelled a deterioration of wage earners' buying power and a fall in aggregate demand. Consequently, industries started to accumulate unintended inventories and, as a rational economic agent, the manufacturing firms started to rationalize their market prices. With the simultaneous rapid expansion in the educational sector, new entrants into the labour market increased beyond absorptive capacity of the economy.

1.2 Statement of Research Problem

In the mid-1970s, when there was an oil boom, the presence of inflation in Nigeria emerged, the inflation rate manifest on the suddenly since the military government did not assist the situation with the inflation policy through the fiscal and monetary policies. During General Yakubu Gowon, Udoji awards came into being as the Head of State of Nigeria between 1974

and the award was created by the Gowon administrations' decision to raise the salaries of civil servants. This has caused more money to be received by civil servants. The Buhari regime aimed to reduce the inflation rate due to civil administration (Shagari) excesses. The structural adjustment program was initiated by Babangida and it was a very successful idea because of the possible gains that contributed to the heavily sabotaged macro-economic climate.

The structure of economic democracy (1999) makes the rate of inflation even higher than the more crippling attempts by the government to lay off certain staff, which makes Nigeria macro-economic stability. The 1999-2007 Obasanjo debt relief policies did not help to minimize the rise in inflation in Nigeria and during his rule the corruption and death of infrastructure severely sabotaged the attempts of some of his cabinet members to restore macro-economic stability. The Jonathan regime's failure was its failure to preserve fiscal stability and to reduce the current rise in national debt.

The year budget is large in the history of Nigeria because most of the revenue financing came through borrowing which further contribute pressure on the inflation. Ibn Khaldun (2012) reported that the 2012-year budget of the Jonathan regime looks like a budget of a nation that is undergoing a war because what people saw during the Second World War when European governments implemented Keynesian explanatory policies that make inflation uncontrollable. There was a motion in (2012) in the National Assembly aimed at declining the Central Bank's powers to decrease its independence, but the alert from the IMF and former CBN Governor (Charles Soludo) indicates that if they do so it will impair the capacity of the bank to fulfill its monetary functions and seriously affect the efficiency of the Nigerian economy. CBN pledged at the onset (2011) that the inflation rate would be lowered to a single digit by 2012. Despite the CBN's many promises to accomplish this goal within a special period of time,

attempts to put Nigeria's inflation rate into a single digit are seen to be in vain. In addition, numerous reasons can be illustrated, such as the collapse of such measures, such as increased petrol costs, increased liquidity injections by the Nigerian federal government into the economy, etc. As one looks at the Nigerian numbers, he or she finds that both unemployment and inflation statistics have major variations. For instance, inflation soared to 15.4 percent due to the devaluation of the currency in Nigeria in 1973, and the prices of manufactured commodities increased and The rate of unemployment was 4.3percent in 1977.For instance, inflation soared to 15.4 percent due to the devaluation of the currency in Nigeria in 1973, and the prices of manufactured commodities increased and the unemployment rate was 4.3 percent in 1977.

The inflation figure in 1983 was about 23.2% but rose to 39% in 1984 and to 40.9 in 1989. It became worse in 1993, 1994 and 1995 when inflation rate rose to 57.2%, 57.0%, and 72.8% respectively. The Second-tier Foreign Exchange Market (SFEM) was founded in 1986, which generates the inflation rate decline in 1996 to 29.3% and in 2013, the inflation rate was 8%. In many cases, inflation and unemployment have been controlled by successive governments but it has not yet been eliminated. Thus, one wonders if these variations in inflation and unemployment are tried together in a Phillips Curve.

On the other hand, the rise in unemployment in Nigeria has led to a decline in demand, leading to the low income received by people, resulting in a low level of production: the failure of businesses to export their products causes them to reduce their output. This has prompted the nation's economic development to fall. Unemployment also has social implications as the incidence of crime rises. In addition, being in Nigeria without a job is as good as losing your self-respect and self-esteem among the people of your age group. The proportion of unemployed workers demonstrates how well the human resources of a nation are used and serves as an economic movement index (positive or negative). The

unemployment rate was 17.5 percent in 1999, although the unemployment rate was slightly lowered to 12.7 percent at the end of President Olusegun Obasanjo's presidency in 2007. The unemployment rate averaged 13.1 percent from 1999 to 2007, which is still very high, as 5 percent is considered as the agreed rate. The unemployment rate was about 14.9 percent in 2008 and rose sharply to about 23.9 percent in 2011. From 1980 to 2011, the unemployment rate has increased. A new prediction suggests that the trend will continue to grow until 2020.

1.3 Research Questions

The research work will be driven by the following question, in the light of the above study:

i.   What is the causal relationship between unemployment rate on inflation?

ii.   Is there a significant short-run relationship between unemployment rate and inflation rate?

iii. What is the impact of inflation rate on unemployment rate on unemployemnt rate in Nigeria.?

1.4 Research Objectives

The broad objective of this study is to empirically examine the relationship between inflation and unemployment rate in nigeria. The specific objectives are to;

i.   Determine the nature of causal relationship between unemployment rate on inflation in Nigeria

ii.   Examine the short-run relationship between unemployment rate and inflation rate in Nigeria?

iii. Examine the impact of inflation rate onunemployment rate on unemployment rate in Nigeria.

1.6 Significance of the Study

For a while now, Nigeria has struggled economically and the root of these issues have not been identified explicitly. Most times however, fingers point to the post-SAP era which marked the inception of deregulation and privatization of Nigerian economy from which the country hasn't gotten out of the economic problems that it created. Although the subject area of this study is saturated with research works both theoretically and empirically, the findings of these past studies are contradictory (Onoja, 2015). Recently, the Nigerian borders were shut with no specified timeline for reopening to all movement of commodities in order to end the rampant smuggling and dumping that has eaten up the viability of the economy. It is expedient at this period to evaluate the relationship between inflation and unemployment rate and how their relationship affects economic growth.

Bulk of indigenous attempts have also been made to unravel the impact of inflation rate and unemployment rate on certain sectorial output. David, Umeh and Ameh, (2010); Imoughele and Ismaila, (2014) sought to evaluate the impact of inflation rate fluctuation on manufacturing sector and couple of other sectors. This study delimits agricultural sector which has been a subject of concern especially at this period when the forex earnings from the oil sector have been unstable. Further, findings of this study will be relevant to the government and its agencies in coming about solutions to the problems of price dynamics and job creation.Also, to those who would like to carry out further research on this topic, it would be of valuable help in the course of their research.

1.7   Scope of the study

The focus of this study is on inflation and unemployment nexus and the causal relationship that exists between inflation and unemployment. Some other auxiliary variables that were covered empirically includes Gross Domestic Product to proxy economic growth, interest rate to represent credit facilitation and exchange rate to measure the impact of currency price instability on national output in Nigeria. The study however, is limited to Nigeria and adopted

a time series data that covers a 40-year period between 1979-2018. The choice of this period is basically to concentrate on the post-Structural Adjustment Programme (SAP) era when attempts were made to restructure the economy.

1.8   Plan of the Study

This study is arranged in five sections. Chapter one is an introduction to the work which includes background to the study, research problems, research questions, study goals, and study significance, scope. Inflation and unemployment rates were analyzed in chapter two. The methodology is covered in chapter three. Chapter four focuses on data analysis and the work is concluded in chapter five.

CHAPTER TWO

LITERATURE REVIEW

2.1   Conceptual Review

This study employs the augmented and traditional Phillips curves to investigate the relationship between the inflation and unemployment in Nigeria. Phillips curve indicates an adverse links between increase in price and unemployment. A policy tool to adjust one or the other variables (that is, inflation and the unemployment) is referred as Phillips curve. It is an important concept in the macroeconomic issues because of the economic significance of the unemployment and inflation. In this section, we first present theories and studies related to inflation and unemployment, and then present the principles related to Phillips curve.

2.1.1   Definition of Unemployment and How It Is Measured

Unemployment is a situation in which persons of working age, able and willing to work are unable to find paid employment. It also means when people, who are qualified by age to work cannot find a job. The unemployment rate can be calculated or measured as unemployment divided by total labor force multiply by 100. That is, Unemployment = ((Number of Unemployed)/ (Labor Force) x 100). Where labor is the mixture of people who are skilled by age and willing to work in the country, employed and unemployed. That is, the people who are ready and capable of working are the labour force. In assessing the rate of unemployment, the composition of the labour force is used. The unemployment rate is known as the percentage of unemployed people in the labour force.

2.1.2 Types of Unemployment

A. The natural rate of unemployment (NRU, NAIRU):

NRU is the rate of unemployed people in a country, when the economy operates at its potential or natural level of GDP. NRU combines the features of both structural and frictional unemployment. Structural unemployment occurs as a result of changes in distinct goods. Structural unemployment by implication leads to the reduction in output and also workforce in general. Frictional unemployment is the type of unemployment which deals with the business cycle. It is when a worker leaves their present work and search for another, and this could be technological advancement, the level of education, etc. There are many factors that affecting/contribute to NRU such as: The speed of separation from and for finding jobs that are called frictional unemployment. Every day there is different in the methods of manufacturing products due to progress in technology. Therefore, machines are initiated in manufacturing of the products which tends to substitute for labor. This leads to lay-off of employee. Some workers quit their jobs voluntary, and some unemployed workers are employed. So, the time in between separation from job and finding jobs is referred to as one of the factors that contribute to NRU. Unemployment benefits/reservation wages only means that when some people decided not to work since they are receiving unemployment benefits from the government contribute to NRU.

It is a social security paid by the government to unemployed people purposely for their recreation benefit, well-being etc. The minimum wage laws are when government causes wages rigidity by trying to prevent wages from falling to the equilibrium level. Also, labor alliance serves as bargain "agency" in the organizations to make a mutual harmony in accordance in of their agreement that applicable to their members and lasts for a period of

time. If the labor market is competitive, unions will raise wages and unemployment will also increase. Another factor that contributes to NRU is efficiency wage theories (i.e. motivation).

These theories hold that high wages make workers more productive. The low wages due to the abundance supply of labor influences the workers efficiency and it may explain the failure of the firms. Moreover, the theory holds that laborers should be encouraged by increasing some remunerations or reduce reliefs for the workers to work in an effectively and efficiently manner purposely to increase the level of production. Monopolies: Monopolies are interested in increasing prices by reduction of production to expand revenue. Low demand leads to industries workforce reduction in the companies, this eventually results in the retrenchment of some workers because the little labor for production is required. This factor contributes to NRU.

B. Cyclical Unemployment (when the economics has no business cycle):

This is the type of unemployment which affect numberless jobs or professions and companies at exactly changeless of time. In other words, quite often it is as a result of decrease or fall in the number of goods demanded. The industries are so pretentious that they need to undertake on lay-off of workers which result to unemployment. It refers to as mass unemployment.

2.1.2 Causes of Unemployment

The causes of unemployment in Nigeria are as follows: Lack of industrial growth because Nigeria does not have enough industries that are capable of employing enough workers that lead to unemployment. The lack of social amenities occurs as a result of inadequate social facilities like piped born water, electricity, solid road in a particular place and labor tends to be unavailable in such area. It contributes to unemployment in Nigeria. Before someone can get a good job in Nigeria, the person must have attained sound educational qualifications, and

the cost of education is too high. As a result of this, many people find it difficult to go to school. So, they end up with blue paper qualification, which may not permit them to get real employment. The use of automated machines in some companies decline the demand for countless workers. It leads to unemployment. There are weak development plans in Nigeria because Nigeria government does not put in place development plans that can create more job opportunities for youth since they prefer spending trillions of Naira on politics. It can lead to unemployment.

Deficiency in demand causes unemployment because companies may retrench workers due to overall fall in demand for goods. Over-population is another cause of unemployment. It happens if the country's population is too numerous which brings about producing many labors and such people may not get jobs to do. The geographical mobility of labor causes unemployment because when a worker finds it difficult to move from one place to another due to some situations, it leads to unemployment.

2.1.3 Social and Economic Cost of Unemployment

According to Cole, (1998), the unemployment rate in Nigeria is alarming. The following societal issues are the aftermath of unemployment among which are: Crime rate increases due to a large number of unemployed persons. If the number of unemployed youths increases, it leads to increasing in crime rate like aggravated assault, robbery, prostitute, forcible rape, larceny-theft, suicide, arson, etc. purposely to make ends meet. If there is an increasing in the number of unemployed persons, it results to threat the peace and stability. High level of unemployment rate results to the reduction in investment and also, unemployment usually led to youths and adults moving out of the country to look for jobs in other countries. Unemployment rate wastes human resources because the money, energy and time spent in

acquiring degrees and certificates will be drained, and labor would be made idle. The consequences of an unemployment rate in Nigeria is the high rate of dependency.

2.1.4   Definition of Inflation

Let us first start with inflation, a percentage increase in the price of products and services throughout a year is regarded as inflation. Often, it is assumed that Inflation is when big current of medium of exchange (that is, money) is pursuing too few goods. However, this is incomplete story. In fact, there are several types of inflation with its causation. For example;

A. Demand – drag Inflation: Inflation occurs as a result of greater in the demand for products and services than its supply. Therefore, inflation occurs as real GDP increases and unemployment decreases. That is, the state of a country is moving through the direction on the Phillips curve since there is a continuous increase in the prices of the products and services that result from high demand. Due to this, large amount of 7 current medium of exchange pursuing few products. Moreover, money exhausted on the products causes inflation. The factors responsible for this is due to population increase, increase in workers' salaries and wages, or a sudden change in taste.

B. Cost – Push Inflation: This occurs as a result of the rise in the price of inputs (E.g., the cost of production) such as labor, raw materials, etc. Cost push inflation arises as a result of an increase in the factors of production (e.g. Land, Labor, Capital, and Entrepreneur) which leads to a drop in the provision of the products.

C. Hyper increase in the Price: it refers to as dash or run-away inflation. It occurs when the usefulness of the current medium of exchange continue decreasing quickly as a result of unstoppable in a constant increase in the price. The medium of exchange fails to its

usefulness to purchase a product as a result of high speed of increasing in the price of the products. The primary causes are war, persistent budget deficits, financial crises, etc.

D. Persistent or Creeping Inflation: Creeping inflation is the circumstances in which a country's price of goods and services rises over time steadily but repetitively and thereby dramatically decreases the value of a currency. This applies to long-standing price hikes. If there is a low velocity and steady trading power and a decrease in the availability of goods, hyper-inflation materializes.

2.2 Theories of Unemployment and Inflation

2.2.1 The Classical Theory of Unemployment

The core idea of classical theory is that it is self-regulating for the economy. The classicists presume the life without inflation of full jobs. There are automatic factors in the economic system that aim to sustain maximum employment and deliver production at that level, provided wage-price stability. In the classical model, wages and work in equilibrium are primarily decided in the labor market. Many jobs would be working at lower pay rates. That is why the market curve for labor is sloping downwards. The classicists still believe that full employment is always available, so that the presence of migrant workers is a rational fallacy. Any unemployment that occurred at the balance pay rate was due to competitive frictions or restrictive practices. Complete employment is thus considered a natural condition by classicists, whereas unemployment is uncommon.

2.2.2 Keynesian Theory of Unemployment:

Keynes was credited with demolishing the ideas of economists of the 19th century who had taught that capitalism would still tend towards full employment if left to its own devices, and of its own accord. Keynes taught that at any degree of unemployment, the economy could

settle into equilibrium. This meant that classical non-intervention approaches would not work. It is claimed in his theory (Keynes) that "employment depends on efficient demand, that efficient demand results in input, that output produces income, and that income provides employment". Thus, as a feature of revenue, he considers work. Successful demand often relies on the aggregate role of supply and demand. Since Keynes assumed that aggregate supply was stable, he concentrated on the aggregate demand to fight depression and unemployment. According to him by increasing consumption and/or spending, jobs may be improved. Consumption relies on revenue C(Y) and consumption often increases as revenue grows, but not as much as profits. As investigated by Thirlwal (1979), Grill and Zanalda (1995) and Hussian and Nadol (1997), the Keynesian system postulates that "job creation, capital stock and technical transition are essentially endogenous". Job growth is thus dictated by demand, and the basic determinants of long-term production growth therefore affect employment growth.

2.2.3   Theories of Inflation

(a) Demand-Pull Inflation: The typical and most popular form of inflation is demand-pull inflation. It happens as overall demand increases while the availability of products available declines. There are two principal theories about the demand-pull, that of the monetarists and the Keynesians. The monetarists stress the role of money in the demand-pull inflation. They state that when the money supply is increased in order to increase production and employment, it creates an inflationary situation with an economy. Friedman (a monetarist) argued that "inflation is a monetary phenomenon everywhere and everywhere that emerges from a faster expansion in the volume of capital than in total production". According to Keynes, "an increase in general price levels or inflation is created by an increase in the aggregate demand which is over and above the increase in aggregate supply". If a given economy is at its full employment output level, an increase in government expenditure (G),

private consumption (C) and private investment (I) will create an increase in aggregate demand; leading towards an increase in general price.

 (b) **Cost-Push Inflation:** Cost-push inflation simply means that the price of each of the four output inputs has been "pushed up" by cost increases (labour, capital, land or entrepreneur), when the companies are already running at full production capacity. The increase in cash wages more quickly than labour productivity is the underlying cause of cost-push inflation. Cost-push inflation steams out from the demand for an increase in real wages by trade unions. When wages are increased, firms tend to raise the price of their goods in order to cover the increase in the cost of production. Therefore, increases in price will lead to cost-push inflation.

(c) **Structural Inflation:** The structuralist theory of inflation, otherwise known as mixed inflation is believed to be a combination of demand-pull and cost-push inflation theories. The structuralists emphasize rigidities in supply as the salient force in the theory. The argument is that, as the economy develops, rigidities arise, which lead to structural inflation. They hold that inflation will persist as long as the structural limitations are not eliminated. The obstacles are of production, institutional, social and cultural dimensions.

2.2.4 Theory of Labour Demand

Labour demand can be defined as "a set of decisions that the employers must take in relation to their workers in terms of hiring, wages, accents and training" (Hamermesh, 1993). According to economic theory, one of the most important factors influencing labor demand is the price of labour or the average minimum wage. The demand for labor is logically believed to be negatively related to actual incomes and positively related to productivity. The dependent variable is usually total employment or hours worked while independent variables are either real wages, or some other measure such as real unit labour costs, and real gross

domestic product. In practice however, most studies take employment to be equal to the demand for labour. Thus, employment, measured in term of total employment or hours worked, is regressed on a number of variables including real wages, output and time. The relation is referred to as an employment equation and demand for labour.

Traditional microeconomic theory assumes perfect competition in all product market as well as in the labour market. Under these circumstances, the demand for labour like the demand for any other input, by each profit maximizing firm depends on

i)   the price of the input, that is, the wage rate that it must pay;

ii)   the marginal contribution on physical terms of each unit of input to the firm's total output; and

iii)   the price at which that output can be sold. The firm's demand for labour depends on the real wage it must pay, a function derived from the firm's production function.

 The more labour the company hires, the more production it receives. This is also the labor marginal value (MPL). That is the extra volume of production from one additional unit of labour that the company receives. In other words, if the organization employs an extra hour of work, its revenue is increased by the marginal output of labour units. Most production functions have the property of diminishing marginal product; holding the amount of capital fixed the marginal product of labour decreases as the amount of labour increases.

The theory of labour demand is the theory that best suites this research study. According to the theory, there are various exogenous factors that determine the demand for labour. Real wage, which is the price of labour, is the most important variables affecting the demand for labour.

Other exogenous variables affecting the demand for labour includes real prices of other factors of production, the capital stock, output, technical progress etc. This study seeks to access how foreign direct investment affects the demand for labour in Nigeria.

2.2.4 Theory of the Eclectic Paradigm of Dunning

Theory of the Eclectic Paradigm was created by a British financial analyst named Professor John Dunning (1973). The concept of the eclectic paradigm was to provide a proper context in which the key factors affecting and influencing both the original act of foreign exchange production by companies and the development of such production can be defined and evaluated. The term eclectic was selected by Dunning (1973) as an optimistic and deliberate one because it was intended to express the notion that a variety of strands of economic theory ought to be used to thoroughly understand the transnational practices of corporations and that foreign direct investment theory is one of the many possible channels by which international economic involvement can be improved and this can be determined by some common factors. The hypothesis has a blend of three (3) distinct speculations of foreign direct investment. It is known as the O-L-I frame work. O stands for Ownership, L stands for Location and I mean Internalization.

Ownership: The ownership advantages addresses like why some organizations go abroad and why others remain in their nation. The ownership advantages suggest that a successful Multinational Enterprise (MNE) has some specific advantages which allows it overcome costs of operating in a foreign nation. Multinational organizations normally confront extra costs of working when entering a remote market. Dunning (1973) stated that these preferences are the key factors that would increase the achievement of a firm in a foreign market. He then bunches every one of these points into three (3);

  i)   Economies of vast size.

  ii)   Technology focal points, knowledge capital and advancement.

iii)   Monopoly points of interest and access to the business sectors because of licenses, trademarks, assets and so on and so forth.

Location: The location advantages simply answer the question on the area and location where multination organizations and enterprises decide to operate or work in a

foreign country. This is a favourable circumstance that a firm determines through its exercises in a specific area (Kurtishi-Kartrati, 2013). There are important focal points of every nation based on their location and it is classified into three (3) (Denisia, 2010). These classifications are as follows;

i)   Political preferences: Different government strategies and their Impact on foreign direct investment.

ii)   Financial preferences: This involves all quantitative and financial elements in a location. This looks at the transportation costs, cost of working, communication costs and so on and so forth.

iii)   Social Preferences: Social preferences includes various social factors that separate host and home countries.

Internalization: The internalization is the third and the most important of all three stands of Dunning's classification. Internalization advantages influences how a firm chooses to operate in a foreign country because of the flaws of the global markets and because the cost of operating in a foreign country is extremely expensive for multinational corporations. A main feature of this approach is that focuses mainly on the incentives individual firms faces. This is now a major international trade theory; it was not always so in the 1970s because foreign direct investment was basically seen through a Heckscher-Ohlin lens as an international movement of capital in search for increased returns.

2.2.5 Theories of Absorptive Capacity

Foreign direct investment can bring important benefits to a destination, such as money, advanced technology and enhanced management skills.. However, those benefits do not automatically convert to be host nations spill overs. This process requires the host country has sufficient capacities referred to absorption. Many developing countries try to attract more and more foreign direct investment but do not recognize that they need to have initial conditions to absorb the benefits (Nguyen, Duysters, Patterson and Sander, 2009). Researchers have defined two levels that the host country absorbs the benefits of foreign direct investment. One is micro level proxies by domestic firms and one is macro level indicates by human capital and technological level. Doing direct investment abroad, investors can establish either economic organizations in the form of one hundred percent capital of foreign investors or joint venture economic organizations with domestic firms. Therefore, domestic firm is not only the main channel for transferring foreign direct investment benefits, but also a bridge for connecting foreign investors and host country. In the co-operation with foreign enterprises, if domestic firms have at least initial development in technology, qualified of workers, and managerial skills, domestic firms can learn and easily absorb the advanced technology and business skills from foreign companies. For these benefits to be reaped, domestic companies are required to have initial technological level to assimilate or image the advanced technology from foreign direct investment. The theory states that the absorption process depends on the skills and capabilities of local firms. Foreign direct investment can also transfer its benefits to host country through labour force. Labour is another channel for transferring and receiving the benefits of foreign direct investment. The transfer of benefits of foreign direct investment to labour goes through training, learning by doing, accumulating experience. Then, labour is the force to implement the know-how conveyed. Better educated and skilled labour is better knowhow received, and better performance achieved. Borensztein, De Gregorio and Lee (1998) express that foreign direct

investment gives positive spill overs only in a country which has a minimum threshold stock of human capital with a sufficiently qualified labour force.

Technology is another way in which a host country can benefit from foreign direct investment. However, the benefit transfer much depends on the host country capacity of technology. The technology gap between the investor's country and host country determines the host country absorptive capacity. Borensztein, Gregorio and Lee (1998) found that foreign direct investment only contributes to economic growth when there is adequate absorptive potential in the host economy for advanced technologies. A combination of advanced management expertise and more modern technologies will result in a higher productivity of foreign direct investment. De Mello (1997) states that "the larger the technological gap between the host and the home country, the smaller the expected impact of foreign direct investment on economic growth is". The aim of host country while calling for foreign direct investment is to utilize the advanced technology of foreign direct investment to enhance the economy. This means the host country has to have an initial development in technology to assimilate this benefit.

2.2.6 Unemployment-Inflation Trade-Off

Unemployment is painful for those who do not have a source of income, reducing unemployment is not expensive.In the short run, unemployment can be reduced at the expense of higher inflation especially if the economy is close to full capacity, where resources are almost fully employed.There are two possible explanations of this relationship-one in the short-run and another in the long-run. In the short-run, there is an inverse correlation between the unemployment rate and inflation (Phillips curve), while it has been observed by economists that in the long-run the concepts of unemployment and inflation are not related.

2.2.7 The Phillips Curve:

Phillips Curve was named after the British economist A.W. Phillips, who first examined the "relationship between the rate of unemployment and the rate of money wage changes". Historical studies, Phillips (1958), studies "the wages inflation and unemployment" in the UK from 1861 to 1958. In 1958, "an adverse relationship between unemployment and inflation in a graphical or equation formed" discovered by William Phillips in a Britain. He found an unvarying negative relationship between the inflation and unemployment. In other words, Phillips Curve shows that when there is a high rate of inflation that leads to lower unemployment (E.g., a tradeoff between inflation and unemployment). Failure after 1970s, a number of countries encountered high levels of both inflation and unemployment that is known as stag inflation. He shows that this would not be occurred since inflation and unemployment cannot increase at the same time. Original form of Phillips curve is no longer in use by most academician since there is no zero inflation because of a flexible exchange rate, increase in oil prices and it was shown to be too simplistic.

Today, Phillips curve theory goes under names called augmented Phillips curve. Augmented Phillips Curve equation: $INF_t = \beta_0 + \beta_1 UNMP_t + INF_{exp} + U_t$…………(2) In the short-run, augmented Phillips curve moves up when the expected inflation rises and the Unemployment cannot be influenced by monetary policy because, it changes back to its natural rate of unemployment in the long-run. Moreover, the long-run disagrees with monetary policy since it does not permit shortrun fluctuations. The potential of the monetary authority is to decrease unemployment for a limited period of time by increasing the price rate forever (Prasanna and Gopakumar, 2009).

2.3   Empirical Review

The review of the relationship between inflation and unemployment are exceedingly significant and pertinent subject matter in the literature to meet human development goals. However, previous literature and actual discovering's on inflation and unemployment is used to comprehend proper existing apprehension. Nigeria economy has witnessed a dramatic rise in inflation and unemployment over the past 50 years. Little information exists on the relationship between inflation and unemployment. Aforementioned creates an important and interesting question in my minds, how to examine the relationship between inflation and unemployment in Nigeria economy. Inflation needs efficient government policy to curb/reduce the rate of inflation in Nigeria.

This study is all about the Phillips curve whether it would work for Nigeria. This study used an unemployment and inflation rate for Nigeria for the period 1979-2018. Before we present our model, this work we give some literature on Phillips curve for non-identical countries in the world. A strong and significant relationship between the rise in price and unemployment, implying the existence of Phillips curve. Considering the recent inflation and unemployment in the Nigeria economy, a growing wish to evaluate the correlation between inflation and unemployment has been inveterate in the empirically studied. Mohammed and Girijasankar (2014) examines the interdependence among three macroeconomic phenomena such as Output-Inflation, Output-Unemployment, and Unemployment-inflation trade off in Libya for the period 1962-2009. By employing unit roots test, Cointegration and Vector Error Correction Mechanism (VECM) techniques, and his empirical findings support an adverse relationship between inflation gap and the unemployment gap.

Prasanna and Gopakumar (2009) using Unit Root, Cointegration, and Error Correction Model methods to find the relation between the inflation, economic growth, and unemployment.

Their empirical findings suggested that inflation negatively caused unemployment in the long-run in India for the period 1973-2008. Aminu and Zubairu (2012) investigates the "empirical scrutinize of the relation between unemployment and the inflation". They used Unit Root, Granger Causality, and Cointegration Tests to demonstrate that inflation impacted negatively on unemployment in Nigeria for the period 1977-2009. Richard, Ching-Fan and Margie (1996) investigate the inflation by using the "fractionally integrated ARIMA-GARCH Model for ten countries such as Japan, etc." for the period 1960-1992. They also, employing panel data approach and they found that inflation has a positive impact on unemployment. They also, argue further that inflation should have a unit root and also Co-integrated with the nominal interest rate in ten different developed countries such as US, Japan, etc. Funmitaka (2007) analyzes the "relation between the inflation and unemployment rate" by investigating that "Does the Phillips Curve exist?". She employs ARDL technique, and her outcome supported the Phillips curve existence in Malaysia for the period 1975-2004. The result was carried-out by using Unit Roots Test, Johannes Cointegration Test, Vector Error Correction Mechanism (VECM) and Granger Causality Test. Josef, Marketa and Jindrich (2014) used ADL and Cointegration model for analyzing the validity of the Phillips curve in the Czech Republic for the period 1995-2012. Their empirical findings demonstrate the evidence of the negative relationship between the inflation and unemployment.

Kitov and Dolinskaya (2007), examine the relation between the inflation, unemployment and labor force variation rate in France. Their empirical results for 1971-2004 supported the long run Phillips curve by using Engle-Grangers, Johansen Co-integration, and Vector Error Correction (VEC). Joel and Johannes (2010) used Co-integration, Unit Root Test, and Error Correction Method to test the determinants of unemployment for the period 1971-2007 in Namibia. They found that Phillips curve holds in Namibia. They stated further that it is essential to reduce unemployment by increasing aggregate demand. Kirandeep (2014)

demonstrates the relationship among the inflation, unemployment, Exchange rate and growth in India for the period 1990-2013. He uses OLS Method, Simple Linear Regression Model and ANOVA techniques to prove that inflation and the exchange rates are significantly affects the unemployment rate in India. Hussein (2014) used the Unit Root, Cointegration, VECM, and Granger causality tests to examine the trade-off between "unemployment and inflation in Jordan for the period 1984-2011".There is no trade-off between unemployment and inflation, his analysis found. In addition, he also found that no evidence of Granger causality occurs in both directions. That is, Inflation does not cause Unemployment, conversely.

Muhammed, Munawar, Rizwan, Seemab (2014) examines the determinant factors that influence the employment level for the period 1983-2010. Their studies selected four independents variables as determinants such as GDP, inflation, FDI and population growth rates in Pakistan. By using Cointegration Method, Vector Error Correction Model to reveal that inflation has no significant relationship with the unemployment. But, FDI and population rate have a significant and negative relationship with unemployment. Thayaparan (2014) investigates the "impact of inflation on unemployment in Sri Lanka for 1990- 2012". She proves that only inflation was significant effect unemployment through the use of Augmented Dickey-Fuller for Unit Root, Cointegration, and Granger Causality Tests. Funmitaka (2007), proof the theory that supported the existence of the Phillips curve in Malaysia. Josef, Marketa and Jindrich (2004) established the augmented Phillips curve in the Czech Republic. Whereas, Kitov and Dolinskaya (2012), shows the longrun relationship between the Phillips curve variables in France. The equation of the supplemented Phillips Curve become noticeable in recent New Keynesian dynamic stochastic overall equilibrium models with sticky prices. This connection refers to as the "New Keynesian Phillips Curve". The augmented Phillips curve and the New Keynesian Phillips curve says that "increase in

inflation leads to lower unemployment for a limited period of time and it cannot drop forever". Four papers that incorporated with augmented Phillips curve are Kirandeep (2014), Joel and Johannes (2010), and Kitov and Dolinskaya (2012). The graphical form shows that short-run Phillips curve is L-shaped

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter establishes a theoretical standpoint as it pertains to examine the impact of inflation rate on unemployment in Nigeria and the methodological approach employed to carry out the data analysis. Also, explained here are the model specified, a priori specification, and technique of estimation, data sources and description as well as other methodological issues.

3.1 Theoretical Framework

The framework for understanding the relationship between inflation and unemployment is deeply rooted in the theory of non-accelerating unemployment rate inflation (NAIRU). It was developed as an improvement over the traditional models that established the inflationary impact of unemployment in the long run. It also negates the popular Phillip curve idea that the relationship that exist between unemployment and inflation rate is inverted.

A mathematical derivation of Phillips curve can be used to explain the non-accelerating inflation rate of unemployment holding constant some economic variables.

Money wage determination is an important component of the mathematical derivation of inflation-unemployment nexus.

$$gW = gW^T - f(U) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.1$$

Equation 3.1 proposes that actual wages gW grows as the trend rate of money wages gW^T increases while rise in unemployment rate (U) would cause actual wage to fall. The

theory was faulted as not incorporating the role of inflationary expectations. An augmented model termed as the expectations-augmented wage Phillip cure was formulated.

$$gW = gW^T - f(U) + \lambda^* gP^{ex} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots3.2$$

The incorporation of the inflationary expectations into the model (3.2) implies that inflation is caused by feed-back inflationary expectation from certain factors such as price wage spiral and the resulting actual wage is a compound variable that is made of the inflationary expectation impact and the non-inflationary impact of other dependent variables.

Equation 3.2 was further remodified to develop the nonaccelerating inflation rate of unemployment (NAIRU) which is sometimes referred to as inflation-threshold unemployment rate

$$gW = gW^T - f(U-U^*) + \lambda. gP^{ex} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots3.3$$

The U* is the NAIRU. The model proposes that when U < U* which implies that the level of unemployment is less than the full employment unemployment rate that ranges normally between 4 to 6.4 percent and inflation rate is likely to increase giving that the workers would expect rise in inflation and would demand a higher actual wage vice versa.

An argument for this theory is its appropriateness in explaining the influence of growth rate of money wages trend, unemployment rate compared with the full employment rate of unemployment and expected inflation rate would have on actual money wages in the long run. The traditional Phillip curve also has a relationship with the aggregate demand and supply curve that explains how the relationship between aggregate output and price level affects the movement along the Phillip curve. Thus, this theoretical framework endogenized efficient control variables such as inflation rate, interest rate, real gross domestic product, consumer price index and.

3.2   Methodological Approach

This subsection will reveal the methodological approach employed by the study as it pertains to the model specified, and the estimation techniques and procedures employed in this research to evaluate the relationship between inflation rate and unemployment rate in Nigeria.

3.2.1 Model Specification

A VAR model is specified given that the core objective of this study is to estimate the causal relationship between inflation rate and unemployment rate given that all other variables are constant. The justification behind this model is the empirical doubt as to which of inflation and unemployment is really exogenous and both have to be treated symmetrically.

$$y_t = \beta_1 + \beta_2 x_t + {}_{\gamma 1} y_{t-1} + {}_{\gamma 2} x_{t-1} + \mu y_t \dots\dots\dots\dots\dots\dots\dots 3.4$$
$$x_t = \beta_{11} + \beta_{12} y_t + {}_{\gamma 12} y_{t-1} + {}_{\gamma 2} x_{t-1} + \mu x_t \dots\dots\dots\dots\dots\dots 3.5$$

Both yt and xt are stationary while μy_t and μx_t are the respective uncorrelated white-noise error terms. The Sims causality test would be employed to actualize objective One following the proposition from Sims (1980) as cited by Asteriou and Hall (2015) that it is not possible for the present to be caused by a future event.

$$yt = a_1 + \sum_{i*1}^{n} \beta \, ixt + \sum_{j=1}^{m} {}_\gamma yt - j + \sum_{p=1}^{k} \text{?}\dot\rho xt + \dot\rho + e_{1t} \dots\dots\dots\dots\dots 3.6$$

$$xt = a_2 + \sum_{i*1}^{n} \Theta \, ixt + \sum_{j=1}^{m} \delta yt - j + \sum_{p=1}^{k} \epsilon\dot\rho yt + \dot\rho + e_{2t} \dots\dots\dots\dots\dots 3.7$$

In these equations 3.5 and 3.6 specified incorporated the leading values of the variables being tested for causality and so if one variable is revealed to cause another, it is expected that the variable causing the order would have a relationship with the leading value of the other variable. The F statistics is obtained in the model to decide on the causal interrelationship of the variables.

The model specification to round up the empirical process of the study is guided by the work of (Orji, A., Orji-Anthony, I., & Okafor, J. (2015).) that regressed Consumer Price Index on Unemployment and other independent variables

$$CPI = \beta_1 + \beta_2 UNEMP + \beta_3 GRM + \beta_4 BD + \beta_5 RGDP + \beta_6 INTR.$$

This study however, remodified the model by expunging CPI and replacing it with a more direct proxy for inflation which is the inflation rate that combines all the indices of prices in the economy. Unemployment is retained as an endogenous along with other independent variables which include real gross domestic product, interest rate and exchange rate.

$$INF = \beta_1 + \beta_2 UNEMP + \beta_3 RGDP + \beta_4 INTR + \beta_5 EXR + \mu_1 \dots\dots\dots\dots\dots\dots 3.8$$

$$UNEMP = \beta_{11} + \beta_{12} INF + \beta_{13} RGDP + \beta_{14} INTR + \beta_{15} EXR + \mu_2. \dots\dots\dots\dots\dots\dots 3.9$$

INF = Inflation rate

UNEMP = Unemployment rate

RGDP = Real Gross Domestic Product

INTR = Interest rate

EXR = Exchange rate

β_{1-5} are the coefficients of the equation.

μ_1 and μ_2 are the uncorrelated error terms of the models 3.8 and 3.9 specified for inflation rate and unemployment rate as the dependent variables respectively.

3.2.2 Estimation Technique

The techniques employed in this study include the Phillip-Perron unit root test. Then, ARDL Bound co-integration test was conducted in order to identify the long-run relationship in the variables. If there is evidence of one or more co-integrating relationships, then a long-run is estimated. Granger causality was used to examine the direction of causality between the variables of interest, followed with an assessment of the long run sign, size and significance of the explanatory variables using Vector Autoregressive Model.

3.2.3   Estimation Procedure

Unit Root Test: The worry that most macroeconomic time series are trended and most likely non-stationary and regression of model with non-stationary variables will result into a spurious regression. The unit root test approach employed in the case of this study is the Phillip-Perron unit root test which makes a fairly mild assumption on error distribution, an improvement over the conventional ADF which as a rigid assumption that the error terms statistically independent and have a constant variance.

Co integration test

To test whether the variables are co-integrated or not, one of the well-known tests is the ARDL Bound co integration test. The ARDL Bound co integration is used to test for the existence of co integration and is based on the estimation of the ECM by the maximum likelihood, under various assumptions about the trend or intercepting parameters, and the number K of co integrating vectors, and then conducting likelihood ratio test.

Granger Causality Test

According to Granger, causality can be further sub-divided into long-run and short-run causality. Long-causality is determined by the error correction term, whereby if it is significant, then it indicates evidence of long-run causality from the explanatory variables to the dependent variables. However with a test on the joint significance of the lagged explanatory variables using a Wald test, short-run causality is calculated.

3.3   Sources and Measurement of Data

Table 3.2: Definition and sources of data

Variable	Identifier	Definition and Source	
INFL	Inflation Rate	An economic indicator of the change in the general price level over a period of time. An average index is usually computed yearly from several price indices CBN Statistical Bulletin	
UNEMP	Unemployment Rate	Unemployment rate is a macro-economic indication of the no of youths with capability and interest to work that are unable to find job. CBN Statistical Bulletin	
RGDP	Real Gross Domestic Product	The market value of all goods and serviced produced domestically in an economy, it sums up all industrial outputs and doesn't take into consideration the effect of inflation. It is the actual volume of output CBN Statistical Bulletin	
INTR	Interest Rate	This is the price paid or received on borrowings or lending transaction in an economy expressed as rate. World Development Index-Nigeria Data.	
EXR	Exchange Rtae	The value of one currency in terms of a basis currency usually, the US Dollars. World Development Index-Nigeria Data.	

Source: Researcher's Compilation (2020).

CHAPTER FOUR

PRESENTATION AND ANALYSIS

4.1   Preamble

This chapter reveals the descriptive summary of the variables of interest, correlation matrix, unit root test result and co integration relationship of the variables, empirical testing and integration of findings from the model put forward as well as testing of the research hypothesis. The method of analysis employed the Phillip-Perron unit root test, Granger Causality TestARDL Bound Co integration test and the ARDL Estimation method of analysis.

4.2   Presentation of Results

This section deals with the presentation of the findings of the data analysis carried out in the study to determine the relationship between Nigeria's inflation rate and unemployment.

4.2.1   Descriptive Analysis

This sub-section presents a descriptive analysis of the variable used. These descriptive statistics reveals the trend and average values of the variables used in this research work.

Table 4.1: Descriptive Summary

	UNEMP	INF	INT	LNGDP	EXC
Mean	28.97790	19.04750	23.44969	25.10723	109.3905
Median	28.62672	18.06625	11.38547	24.68152	91.30532
Maximum	29.98921	31.65000	113.0764	27.06627	269.2031
Minimum	28.21802	9.959167	-5.665685	23.48258	48.96753
Std. Dev.	0.626154	3.930196	28.75153	1.203638	56.55538
Skewness	0.541386	0.901843	1.792336	0.384012	1.708733
Kurtosis	1.635686	5.202232	5.712886	1.608835	5.024056
Jarque-Bera	4.044995	10.80415	26.94616	3.366935	21.03450
Probability	0.132325	0.004507	0.000001	0.185729	0.000027
Sum	927.2927	609.5200	750.3901	803.4313	3500.496
Sum Sq. Dev.	12.15415	478.8396	25626.17	44.91108	99153.83
Observations	32	32	32	32	32

Source: Author's computation using E-views 10

Table 4.1 above shows the summary of the various descriptive statistics of all the variables used for the current study.

4.2.1.1 Mean*: The mean is used to measure the average value of a distribution or what you expect to happen the next time you conduct a similar statistical experiment. The average value of unemployment rate, inflation rate, interest rate, gross domestic product, and exchange rate are 28.98; 19.05; 23.45; 25.11 and 109.39 respectively.

4.2.1.2 Standard Deviation: Standard deviation measures the dispersion of the data set from the mean. It can be thought of as a measure of variability or risk. The larger values of standard deviation imply greater variability in the data. The standard deviation as revealed in table 4.1 above of UNEMP is 0.63; INFR is 3.93; INF is 28.75; LNGDP is 1.02; and lastly EXC has a standard deviation value of 56.56.

4.2.1.3 Skewness: Skewness is the measure of asymmetry in a distribution. When the distribution is mound-shaped symmetrical, the values for the mean, median and mode are the same or almost the same. For skewed-left distributions, the mean is less than the median and the median is less than the mode. For skewed-right distributions, the mode is the smallest value, the mean is the next largest and the mean is the largest. UNEMP and LNGDP with skewness of 0.541 and 0.384 shows that the distributions are positively skewed and normally distributed since its value is approximately zero; INFR with skewness of 0.902 shows that the distribution is positively skewed and normally distributed; EXC with skewness of 1.709 indicates that the distribution is also skewed to the right and not normally distributed; INF also has a positive distribution and normally distributed with skewness 1.79.

4.2.1.4 Kurtosis: This measures heaviness or lightness in the tails of the data distribution of the variables. The standard normal distribution has a kurtosis of 3.A positive value tells you that you have heavy tails (a lot of information in your tails), while a negative value indicates

that you have light tails (a small amount of information in your tails). With the kurtosis value for INFR, INF and EXC with kurtosis values of 5.20, 5.71 and 5.02 respectively which indicates that the data sets distributions are all leptokurtic with excess positive kurtosis which implies that series are above the sample mean and have fat tail, while UNEMP and LNGDP which respectively have kurtosis values of 1.63; and 1.61 have a platykurtic distribution with thin tailed distribution.

4.2.1.5 Jacque Bera: The JB statistics is an indication of your distributions deviation of 0 (skewness and kurtosis if it was truly a normal distribution). With the p-value greater than level of significance indicates that the null hypothesis should not be accepted. Since the p-values of the variables are not significantly greater than the level of significance of 5%. We reject the null hypothesis of normality for all the variables.

4.2.2 Correlation Matrix

Table 4.2 Correlation Matrix

	UNEMP	INFR	INF	LNGDP	EXC
UNEMP	1				
INT	-0.3222	1			
INF	-0.27093	0.15073	1		
LNGDP	0.939563	-0.40777	-0.25517	1	
EXC	-0.04753	-0.46463	-0.1407	-0.057791	1

Source: Authors   Computations   using   E-views   10

The correlation table reveals the degree or strength of linear relationship between two variables on a scatterplot**.** From the values of the correlation coefficients presented above it can be concluded that UNEMP is weakly correlated with EXC and INF with the negative correlation coefficients of -4% and --27.9%, while moderately correlated with INF, negatively with 66% correlation coefficient, but positively and strongly correlated with LNGDP with correlation

coefficients of 93%. The table 4.2 further reveals that the INFR is also weakly correlated with the other variables with correlation coefficients of 15% and as related with INF; while negatively correlated with LNGDP and EXC.

4.2.3 Unit Root Test

Empirical work based on time series assumes that the underlying time series is stationary. This subsection reveals the nature of stationarity of the variables as concluded using the T-statistics of and P-value of Phillip-Perron unit root test.

	Unit Root Test at level				Unit root test at first difference				
Variables	**T-statistics**	**Crit. Value (α = 0.05)**	**P-value**	**Decision**	**T Statistics**	**Crit. Value (α = 0.05)**	**P-value**	**Decision**	**Order of Integration**
UNEMP	-0.314448	-2.960411	0.9116	Non-Stationary	-6.129946	-2.963972	0.0000	Stationary	I(1)
INFR	-3.380855	-2.960411	0.0195	Stationary	-6.357964	-2.963972	0.0000	Stationary	I(0)
INF	-5.472141	-2.960411	0.0001	Stationary	-30.087366	-2.963972	0.0001	Stationary	I(0)
LNGDP		-2.960411			-5.49232	-2.963972	0.0001	Stationary	I (1)
EXC	-4.013560	-2.96041	0.0042	Stationary	-6.94820	-2.96397	0.0000	Stationary	I(0)

		1			7	2			

Table 4.3: Stationarity Test using Phillip-Perron
Source:Author's computation using E-views 10

The unit root test result shown above is generated using Phillip-Perron unit root test statistic and P-value respectively. A variable is said to be integrated of order d, (I(d)) if it is stationary after differencing d times (Engle and Granger, 1987). The result shows that only two variables which include logged gross capital formation and logged gross domestic product are stationary after first difference while inflation, interest rate and exchange rate are stationary at level. The decision rule when using P-value is that the null hypothesis of unit root is rejected when the P-value is less than the level of significance. The implication of this result for the further analysis is that, the variables now being stationary are now fit to be used for the policy inference and forecasting.

4.2.4 Co integration Test

Table: 4.4   ARDL Bound Co integration Test

F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	3.510273	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Authors' computation using E-views 10

The result of the bound test for co integration in table 4.4. above helps to test the null hypothesis of no long-run relationship between the variable under investigation. This leads to the testing of our second hypothesis. When the computed F-statistic is greater than the upper

bound critical value, then the H_{01} of the second question is rejected. This means that the variables are cointegrated and there exists a long run relationship between the variables. From The result of the bound test for co integration in table 4.4 above, the F-statistic value of 3.510273 is greater than the I (0) Bound and I (1) Bound critical values at both 5% and 10% level of significance. Based on the foregoing, we therefore fail to accept the null hypothesis of no long-run relationships at 5% level of significance and conclude that there exist a significant and stable long-run relationship among unemployment rate, Interest rate, inflation rate, gross domestic product and exchange rate.

4.2.5: Estimation using Autoregressive Distributed Lag Model

The summary of ARDL estimation result presented in Table 4.5 reveals that all the variables which include the lag value of gross fixed capital formation, interest rate and gross domestic variables are statistically significant at 5 percent since their individual p-value is less to 0.05 but interest rate and exchange rate are statistically insignificant. Also, all the significant explanatory variables confirmed with their expected sign

Table 4.5: Estimation of Coefficients
ARDL Long Run Form and Bounds Test
Dependent Variable: D(UNEMP)
Selected Model: ARDL(1, 0, 0, 0, 0)
Case 2: Restricted Constant and No Trend

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.718005	2.290762	2.496115	0.0195
UNEMP (-1) *	0.428889	0.127553	-3.362438	0.0025
INFR**	0.020354	0.010811	1.882672	0.0414
INT**	-0.000978	0.001089	-0.898514	0.3775
LNGDP**	0.253208	0.070411	3.596121	0.0014
EXC**	4.62E-05	0.000650	0.071015	0.9440

Specifically, 1 percentage increase in one lag period unemployment rate induces 0.429 percent rise in unemployment rate in the long run significantly as revealed by the P. value of 0.0025, a value less than 5% which we have specified as commonly used in social sciences as the level of significance. The gross domestic product on the other hand has been revealed to have a significant positive impact on unemployment rate. This result is in line with the a priori expectation that an increase in economic output which is represented by gross domestic product in this analysis will have a positive impact on unemployment rate. The real exchange rate was also revealed to have an insignificant impact on unemployment rate. The empirical analysis concludes that a one percent rise in real exchange rate will cause the domestic investment to rise by 0.000046 percent. This is a very minimal effect, but it also agrees with a priori expectation that exchange rate when increasing will cause the unemployment rate in the economy to rise in the long run. Finally, the ARDL Long run form estimation revealed that inflation will have a negative impact on the level of employment. This means that when inflation rises by one percent, then it will result into a 0.428889percent fall in the unemployment rate.

4.2.6   Granger Causality Test

This sub-section delineates the causal relationship that exist between each of the following macroeconomic variables INT, INF, GDP, EXC and UNEMP. The granger causality test is a statistical hypothesis test for determining whether one-time series is useful in forecasting another. It uses empirical data sets to find patterns of correlation.

The result presents the Pair-wise granger causality test to examine the causal relationship between each of interest rate, inflation rate, gross domestic product and gross domestic product with gross fixed capital formation at 5% level of significance. From the result obtained, it can be concluded that there exists only one unidirectional causality that flows

from gross domestic product and unemployment rate and there does not exist any bidirectional causal relationship among any two of the variables.

Table 4.5:   Granger Causality Test
Pairwise Granger Causality Tests
Sample: 1986 2017
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INT does not Granger Cause UNEMP	30	2.35846	0.1153
UNEMP does not Granger Cause INT		3.20410	0.0577
INF does not Granger Cause UNEMP	30	0.55007	0.5837
UNEMP does not Granger Cause INF		0.81923	0.4523
LNGDP does not Granger Cause UNEMP	30	7.51548	0.0028
UNEMP does not Granger Cause LNGDP		0.06502	0.9372
EXC does not Granger Cause UNEMP	30	0.10268	0.9028
UNEMP does not Granger Cause EXC		0.07339	0.9294

Source: Author's computation using E-views 10

4.3   Discussion of results

The study deploys Phillip- Perron test to examine the stationarity of the time series and test the null hypothesis of unit root. It is expected that the series do not contain unit root in order to find the relationship among the variables in the long-run. The test was carried out at level and first difference using 1%, 5% and 10% Mackinnon critical value.

The variables of unemployment rate (UNEMP) interest rate (INT), logged gross domestic product (LNGDP), real effective exchange rate (EXC) and inflation rate (INF) were tested. The level of statistics of the test are reported in table 4.3 and the Phillip Perron test reported only UNEMP and GDP are stationary at the first difference. These findings imply that there is no unit root; hence, their seasonal variation has been corrected, making them fit for regression.

Given that all variables were stationary at different orders, this conclusion allowed us to go with the use of ARDL Bound co integration test instead of Johansen Co integration test which could have been employed if the variables were stationary after first difference. The ARDL Bound test however, revealed that there exists long run relationship among all the variables of interest. Following the revelation that there exist a strong long run relationship among the variables and all the variables are integrated at different orders the ARDL Error Correction Model (ECM) was employed to estimate the short run relationship. The long run relationship between each explanatory variable and the dependent variable was also carried out using the fully modified ordinary least square which takes care of the endogeneity problem of estimation. The estimation test reveals that among the four independent variables which include UNEMP (-1), INT, INF, LNGDP and EXC, the UNEMP (-1), INT and LNGDP were found to have significant impact on unemployment rate. This means that a rise in the previous unemployment rate would lead to a decrease in the unemployment rate, while inflation is also expected to have a positive and substantial effect on the unemployment rate. Interest, on the other hand, has been shown to have a substantial negative effect on the unemployment rate in Nigeria. The gross domestic product (GDP) which is a proxy of economic growth was also revealed by the estimation to have a positive and significant impact on unemployment rate. investment in Nigeria.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1   Summary of Major Finding

The major objective of this study is to evaluate the the relationship between inflation and unemployment rate in Nigeria. The scope of the study covers the period of 1986 to 2017. The model incorporates gross fixed capital formation as the proxy for investment and the independent variables employed to explain investment include interest rate, gross domestic product, real effective exchange rate, and inflation rate in Nigeria. The data used in this study were all obtained from the National Bureau of Statistics and World Development Index. The specific objectives of this study include to determine the nature of causal relationship between unemployment rate on inflation in Nigeria, to examine the short-run relationship between unemployment rate and inflation rate in Nigeria and finally to establish the impact of inflation rate on unemployment rate on unemployment rate in Nigeria..

The theoretical foundation of this study is the non-accelerating inflation rate of unemployment rate of unemployment (NAIRU) theory. It was developed as an improvement over the traditional models that established the inflationary impact of unemployment in the long run. It also negates the popular Phillip curve idea that the relationship that exist between unemployment and inflation rate is inverted. The study however adopted the model of OrjiOrji-Anthony& Okafor, (2015).) and specified unemployment rate as the dependent variable. The fourth chapter of the study focuses on the presentation and analysis of the study, as it reveals the descriptive summary of the variables on interest in the study, correlation among the variables, stationarity test and co-integration relationship among the variables. The descriptive summary of each variable presented in subsection 4.2.1 reveals the mean of employment rate to be 28.97; Interest rate, Inflation rate, Gross Domestic Product, and Exchange rate to be 19.05; 23.45; 25.11 and 109.39 respectively. other statistics revealed

are median, extreme values, standard deviation, skewness and kurtosis of the variables. Correlation matrix was also computed and as revealed in table 4.2 unemployment is correlated with GDP is weakly correlated with EXC and INF with the negative correlation coefficients of -4% and -27.9%, while moderately correlated with INF, negatively with 66% correlation coefficient, but positively and strongly correlated with LNGDP with correlation coefficients of 93%. The study also attempted to find out the stationarity of each variable using the Phillip Perron unit root test and the test revealed that only two of the variables are integrated at first order. The result that the variables are all integrated at first order guided the use of ARDL Bound co-integration test for the estimation of the long run relationship between each explanatory variable and investment.

5.2   Conclusion

From the findings of the study, conclusions can be made based on the result of the test and other estimation carried out in the research. The ARDL Bound co-integration test was carried out to establish if a long run relationship exists among the variables of interest and the F statistics is revealed to be greater than the upper bound critical value which implies that a long run relationship exists. The granger causality test was also carried out to establish the cause and effect relationship among the variables. The result of the granger causality test reveals that there exists only one unidirectional causality that flows from gross domestic product and unemployment and there does not exist any bidirectional causal relationship among any two of the variable

Majorly, the conclusion of the study can be made from the result of the Autoregressive Distributed Lag Estimation that was employed to estimate the coefficients of the variables studied in order to understand the investigate the impact of the explanatory variables on gross fixed capital formation that was employed as the depended variable. This assertion is expected since investment in capital formation will cause output to increase and an increase

in investment will aid further capital formation. Another important conclusion is the impact and direction of gross domestic product on unemployment rate in Nigeria. The estimation result revealed that a one unit rise in gross domestic product will significantly cause unemployment level to rise. The real effective exchange rate is also concluded to have a positive but insignificant impact on unemployment rate. Finally, the inflation rate in the economy is revealed to have a negative and insignificant impact on unemployment rate.

5.3   Recommendations

Based on the findings of the research, the following recommendations are proposed;

Based on the foregoing findings and conclusions emanating from this study, the following recommendations were made:

(i)   Diversification of the economy will enable the country to cushion the effects of risk which will increase the attractiveness of the economy to investors in the secondary and tertiary sectors.

(ii)   Openness to trade would signal adherence to external, market-oriented policies and increase trading opportunities, thus attracting the intention of domestic investors to take advantage of the new trading opportunities.

(iii)   Sector-specific policies, enhanced market mechanism, import substitution development strategy incentives to existing investors and potential overseas investors so as to enhance the development of the country.

APPENDICES

Description Analysis

Correlation Matrix

	UNEMP	INFR	INF	LNGDP	EXC
UNEMP	1				
INT	-0.3222	1			
INF	-0.27093	0.15073	1		
LNGDP	0.939563	-0.40777	-0.25517	1	
EXC	-0.04753	-0.46463	-0.1407	-0.057791	1

Stationary Test

	Unit Root Test at level				Unit root test at first difference				
Variables	T-statistics	Crit. Value (α = 0.05)	P-value	Decision	T Statistics	Crit. Value (α = 0.05)	P-value	Decision	Order of Integration
UNEMP	-0.314448	-2.960411	0.9116	Non-Stationary	-6.129946	-2.963972	0.0000	Stationary	I(1)
INFR	-3.380855	-2.960411	0.0195	Stationary	-6.357964	-2.963972	0.0000	Stationary	I(0)
INF	-5.472141	-2.960411	0.0001	Stationary	-30.08736	-2.963972	0.0001	Stationary	I(0)
LNGDP		-2.960411			-5.49232	-2.963972	0.0001	Stationary	I (1)
EXC	-4.013560	-2.960411	0.0042	Stationary	-6.948207	-2.963972	0.0000	Stationary	I(0)

ARDL Bound test

F-Bounds Test   Null Hypothesis: No levels relationship

Test Statistic   Value   Signif.   I(0)   I(1)

                                     Asymptotic:
                                     n=1000

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F-statistic	3.510273	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

ARDL Long Run Form and Bounds Test
Dependent Variable: D(UNEMP)
Selected Model: ARDL(1, 0, 0, 0, 0)
Case 2: Restricted Constant and No Trend

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.718005	2.290762	2.496115	0.0195
UNEMP (-1) *	0.428889	0.127553	-3.362438	0.0025
INFR**	0.020354	0.010811	1.882672	0.0414
INT**	-0.000978	0.001089	-0.898514	0.3775
LNGDP**	0.253208	0.070411	3.596121	0.0014
EXC**	4.62E-05	0.000650	0.071015	0.9440

Pairwise Granger Causality Tests
Sample: 1986 2017
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INT does not Granger Cause UNEMP	30	2.35846	0.1153
UNEMP does not Granger Cause INT		3.20410	0.0577
INF does not Granger Cause UNEMP	30	0.55007	0.5837
UNEMP does not Granger Cause INF		0.81923	0.4523
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UNEMP does not Granger Cause LNGDP		0.06502	0.9372
EXC does not Granger Cause UNEMP	30	0.10268	0.9028
UNEMP does not Granger Cause EXC		0.07339	0.9294