UNEMPLOYMENT IN NIGERIA: IMPLICATION ON THE GROSS DOMESTIC PRODUCT (GDP) OVER THE YEARS

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ABSTRACT
This paper examines the role played by unemployment on the making of the Nigerian Gross Domestic Product (GDP) for a period of nine years (2000 - 2008). The objectives of the study are to examine the effects of unemployment on the Nigerian GDP for the selected years, to observe the kind of association that existing between the unemployment and the makings of the Nigerian GDP
Data was collected and analyzed using the regression analysis. Findings showed that unemployment has an enormous effect (over 65%) on the making of the Nigerian GDP and there exist an inverse relationship between the model (unemployment) and the GDP - increase in the model leads to decrease on the GDP and vice versa
Recommendations were proffered based on the study that unemployment can be combated through the Public Sector Reforms. Public Sector Reforms in Nigeria should be taken more serious to drive the human resource development process and to form an effective resource utilization policy. The government should enhance a proper man management system among others
Key Words: GDP, ICT, Nigeria, Public Sector Reforms

1. Introduction

Being without a job is indeed an enforced idleness of wage earners who are able and enthusiastic to work but cannot find jobs. In societies in which most people can earn a living only by working for others, being unable to find a job is a serious problem. Because of its human costs in deprivation and a feeling of rejection and personal failure, the extent of unemployment is widely used as a measure of workers' welfare. The proportion of workers unemployed also shows how well a nation's human resources are used and serves as an index of economic movement (positive or negative).

Unemployment has call for a greater concern in the Nigeria economy. It has continued to be the major macroeconomic objectives of the government. Unemployment constitutes a series of serious developmental problems and is increasingly more serious all over Nigeria. The major policy of the government and the international agencies is targeted at reducing the rate of unemployment. Since the population explosion begun, the developing nations have been characterized by unemployment.

The Library of Congress Country Studies and the CIA World Factbook (1991), reported that, measures taken under the Structural Adjustment Program (SAP) in Nigeria has resulted to instability in the unemployment rate - the national unemployment rate, estimated by the Office of Statistics as 4.3 percent of the labor force in 1985, increased to 5.3 percent in 1986 and 7.0 percent in 1987, before falling to 5.1 percent in 1988. Most of the unemployed were city dwellers, as indicated by urban jobless rates of 8.7 percent in 1985, 9.1 percent in 1986, 9.8 percent in 1987, and 7.3 percent in 1988. Underemployed farm labor, often referred to as disguised unemployed, continued to be supported by the family or village, and therefore rural unemployment figures were less accurate than those for urban unemployment. Among the openly unemployed rural population, almost two-thirds were secondary-school graduates. The largest proportions of the unemployed (consistently 35 to 50 percent) were secondary-school graduates. There was also a 40- percent unemployment rate among urban youth aged twenty to twenty-four, and a 31-percent rate among those aged fifteen to nineteen. Two-thirds of the

urban unemployed were fifteen to twenty-four years old. Moreover, the educated unemployed tended to be young males with few dependents. There were relatively few secondary-school graduates and the lowered job expectations of primary-school graduates in the urban formal sector kept the urban unemployment rate for these groups to 3 to 6 percent in the 1980s.

Alanana, (2003) opines that unemployment is potentially dangerous as it sends disturbing signal to all segments of the Nigerian Society. The rate of youth unemployment in Nigeria is high, even at the period of economic normalcy i.e. the oil boom of the 1970s (6.2%); 1980s (9.8%) and the 1990s (11.5%).

Economywatch, (2005) report that unemployment in Nigeria is one of the most critical problems the country is facing. The years of corruption, civil war, military rule, and mismanagement have hindered economic growth of the country. Nigeria is endowed with diverse and infinite resources, both human and material. However, years of negligence and adverse policies have led to the under-utilization of these resources. These resources have not been effectively utilized in order to yield maximum economic benefits. This is one of the primary causes of unemployment in Nigeria.

As per the report of the World Bank, (2005) the GDP at purchasing power parity of Nigeria was $170.7 billion. Unemployment in Nigeria is a major problem both economically and socially. Unemployment in Nigeria has resulted in more and more people who do not have purchasing power. Less consumption has led to lower production and economic growth has been hampered. Unemployment also has social consequences as it increases the rate of crime. The secondary-school graduates consist of the principal fraction of the unemployed accounting for nearly 35% to 50%. The rate of unemployment within the age group of 20 to 24 years is 40 % and between 15 to 19 years it is 31 %.

This paper will examine unemployment within the scope of the Nigerian economy and its implication on the economic growth – the GDP to be precise for some selected years. How far has this unemployment issues have been hindering the positive movement of the Nigerian economic growth. To what extent has unemployment have an effect on the makings of the GDP over the years?

2. Research objectives

The primary objective of this paper is to examine the effects of unemployment on the Nigerian GDP for some selected years. Other objectives are:

- To observe the kind association that existing between the unemployment and the makings of the Nigerian GDP.
- To determine the role of unemployment in the production of the GDP.

3. Literature Review

This section bothers much on the review of some related literatures and to present relevant theories to this study.

William Phillips, (1958) in his paper "*The Relationship between Unemployment and the Rate of Change of Money Wages in the United Kingdom 1861–1957*", Phillips describes how he observed an inverse relationship between money wage changes and unemployment in the British economy over the period examined. Phillips in his work he made an explicit the link between unemployment and inflation: when unemployment was high, inflation was low, and vice-versa. Samuelson, P. (2008) noted the same phenomena as he took Phillips' work and made explicit the link between inflation and unemployment: when inflation was high, unemployment was low, and vice-versa. In the 1920s an American economist in his work (Irving Fisher, 1973) noted this kind of Phillips curve relationship. However, Phillips' original curve described the behavior of

money wages A simple curve (Phillips curve) was developed to demonstrate the relationship between the rate of unemployment and inflation. The relationship on the curve shows that as unemployment rate decreases the inflation rate climbs. When the unemployment rate increases, the inflation rate drops. What does this mean? Well essentially, when unemployment decreases more people are employed and output is higher than normal. Higher output and employment leads to an increase in the price level because firms have to pay their workers more. Workers have to pay more because unemployment is low and it is easier for workers to find other jobs and it is difficult for firms to hire new workers; there aren't many people unemployed, i.e. looking for work.

Take a look at the math behind this Phillips Curve. Consider the following equation:

$\pi_t = \mathrm{V} - \alpha\left(U_t\right)$ Where:

- π_t is inflation in year t
- V is a variable denoting exogenous economic shocks
- α is a constant
- U_t is the unemployment rate in year t

Unemployment, U_t, goes up the whole right side of the equation, $\mathrm{V} - \alpha\left(U_t\right)$ decreases because $-\alpha\left(U_t\right)$ becomes bigger. That is, more can be subtracted from V so the whole thing becomes much smaller.

Or, conversely, as U_t gets smaller, i.e. unemployment goes down, the whole right side of the equation, $\mathrm{V} - \alpha\left(U_t\right)$, increases because $-\alpha\left(U_t\right)$ becomes smaller. That is, less can be subtracted from V so the whole thing becomes much larger. This explains how inflation behaves: when U_t is HIGH, π_t is low.when U_t is LOW, π_t is high.

Not much attention was paid to the fact that Phillips curve was not stable over time. Despite that Phillip's (1958) and Lipsey's (1960) studies found that the relationship shifted over time as indicated by differences in the estimated coefficients for different periods. All the studies carried out in the 1960s tend to show a significant non-linear relation between wage inflation and unemployment. Phillips' work has generated many more empirical studies of the relation between the rate of change of money wages, inflation and unemployment. Other studies have incorporated other variables as explanatory variables for wage or price inflation. Some studies found unemployment to be insignificant in explaining wage inflation. Many more empirical studies have used price inflation instead of wage inflation. According to Levacic and Rebmann (1982) "one can move from a relationship between the rate of change of money wages and unemployment to one between the rate of change of price level and unemployment by allowing for lung-run changes in the productivity of labour ".

Many countries (In the 1970s) experienced high levels of both inflation and unemployment also known as ***stagflation***. Theories based on the Phillips curve suggested that this could not happen, and the curve came under concerted attack from a group of economists headed by Milton Friedman argued that the demonstrable failure of the relationship demanded a return to non-interventionist, free market policies. The idea that there was one simple, predictable, and persistent relationship between inflation and unemployment was, at least, questioned. The Phillips Curve doesn't quite fit the facts perfectly. Remember this curve very accurately depicted the data available in the 1960s, but it actually fell apart and had to be revised thereafter.

3.1 New classical version of the Phillips curve

New theories, such as rational expectations and the NAIRU (non-accelerating inflation rate of unemployment) arose to explain

how stagflation could occur. The latter theory, also known as the "natural rate of unemployment", distinguished between the "short-term" Phillips curve and the "long-term" one. The short-term Phillips Curve looked like a normal Phillips Curve, but shifted in the long run as expectations changed. In the long run, only a single rate of unemployment (the NAIRU or "natural" rate) was consistent with a stable inflation rate. The long-run Phillips Curve was thus vertical, so there was no trade-off between inflation and unemployment. Edmund Phelps won the Nobel Prize in Economics in 2006 for this.

The Phillips curve equation can be derived from the (short-run) Lucas aggregate supply function. The Lucas approach is very different from that the traditional view. Instead of

starting with empirical data, he started with a classical economic model following very simple economic principles.

Start with the aggregate supply function:

$$Y = Y_n + a(P - P_e)$$

Where:

- $\boldsymbol{Y}$ is the log value of the actual output
- $\boldsymbol{Y_n}$ is the log value of the "natural" level of output
- $\boldsymbol{a}$ is a positive constant
- $\boldsymbol{P}$ is the log value of the actual price level
- $\boldsymbol{P_e}$ is the log value of the expected price level.

Lucas assumes that $\mathbf{Y_n}$ has a unique value. The equation indicates that when expectations of future inflation (or, more correctly, the future price level) are *totally accurate*, the last term drops out, so that actual output equals the so-called "natural" level of real GDP. This means that in the Lucas aggregate supply curve, the *only* reason why actual real GDP should deviate from potential—and the actual unemployment rate should deviate from the "natural" rate—is because of *incorrect expectations* of what is going to happen with prices in the future. This differs from other views of the Phillips curve, in which the failure to attain the "natural" level of output can be due to the imperfection or incompleteness of markets, the stickiness of prices, and the like. In the non-Lucas view, incorrect expectations can contribute to aggregate demand failure, but they are not the only cause. To the "new Classical" followers of Lucas, markets are presumed to be perfect and always attain equilibrium (given inflationary expectations).

Most economists no longer use the Phillips curve in its original form because it was shown to be too simplistic. This can be seen in a cursory analysis of US inflation and unemployment data 1953-92. There is no single curve that will fit the data, but there are three rough aggregations—1955-71, 1974-84, and 1985-92—each of which shows a general, downwards slope, but at three very different levels with the shifts occurring abruptly. The data for 1953-54 and 1972-73 do not group easily, and a more formal analysis posits up to five groups/curves over the period.

According to two influential papers that incorporate a New Keynesian Phillips curve are Clarida, Galí, and Gertler (1999) and Blanchard and Galí (2007). An equation like the expectations-augmented Phillips curve also appears in many recent New Keynesian dynamic stochastic general equilibrium models. In these macroeconomic models with sticky prices, there is a positive relation between the rate of inflation and the level of demand, and therefore a negative relation between the rate of inflation and the rate of unemployment. This relationship is often called the "***New Keynesian Phillips curve***." Like the expectations-augmented Phillips curve, the New Keynesian Phillips curve implies that increased inflation can lower unemployment temporarily, but cannot lower it permanently.

4. Data and method of analysis

The major focus of this paper is to examine the effects and the relationship existing between the unemployment and the GDP (at current prices). As such the GDP data corresponding to that of the

unemployment was collected for the period of nine years (2000 – 2008) for the study as follows:

S/N	YEAR	Y GDP ($)	X Unemployment
1	2000	110500000	34534590.16
2	2001	117000000	35457975.28
3	2002	105900000	33744170.04
4	2003	113500000	37486876.84
5	2004	114800000	38430877.24
6	2005	125700000	36056156.64
7	2006	175500000	4060102.718
8	2007	191400000	7831807.512
9	2008	294800000	8588118

Source: National Bureau of Statistics, Population Reference Bureau & UNAIDS, CBN, http://www.answers.com/topic/nigeria, CIA World Fact book.

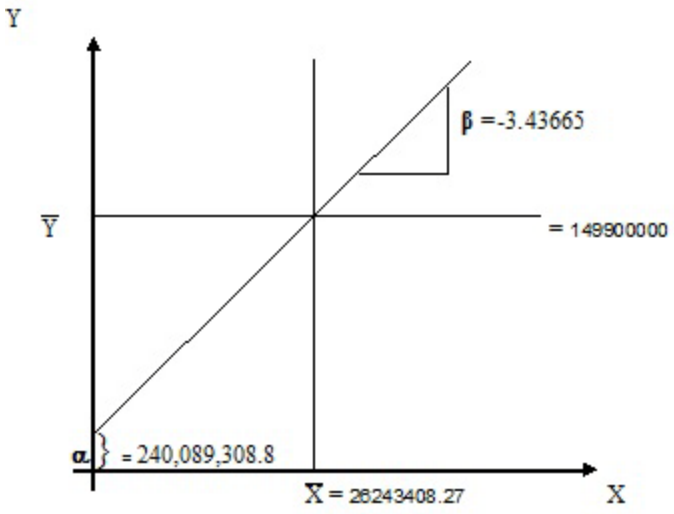
In other to get the better, objectives and findings of this paper the econometrics (simple linear regression) method of analysis would be used on the data collected.

5. Findings

The results of the analysis presented below shows the effects, contribution and the relationship linking the unemployment and the making of the GDP for the years under study.

Coefficient of determination	Coefficients	
R^2	α	β
0.655	240,089,308.8	-3.43665

Thus, the result is graphically represented below as:



Notes:

Alpha (α): Constant of the GDP as the model (unemployment) tends to zero.

Beta (β): Slope of the model. Change on the GDP as a result of the corresponding changes on the unemployment.

The results have shown that 65.5% variation of the GDP is explained by the model (unemployment). Similarly, as the unemployment tends to zero the GDP tends to $240,089,308.8. Increase in the unemployment will lead to decrease in the GDP figures by $3.436646181205 and vice versa. This has shown an inverse relationship between the model and the GDP for the said period (200-2008).

6. Conclusion

Unemployment has shown an enormous effect (over 65%) on the making of the Nigerian GDP (that is depending on whether unemployment increase or decrease) for the years under study (2000 - 2008). Increase on the unemployment rate has drastically diminished the making of the Nigerian GDP over the years. Unemployment has a pivotal role to play as increase in its figures will lead to economic drawback and vice-versa. There *is indeed an inverse relationship between*

the unemployment and the GDP for the period under study.

This study has revealed that external dept, exchange rate and capacity utilization among others are significant explanatory variables of unemployment in Nigeria. Corruption, poor and inconsistence macroeconomic policies have contributed significantly in escalating the rate of unemployment in Nigeria.

7 Recommendations

Unemployment can be combated through the Public Sector Reforms. Public Sector Reforms in Nigeria should be taken more serious to drive the human resource development process and to form an effective resource utilization policy. The government should enhance a proper man management system. The development of any country very much depends on the caliber and organization of the human resources. So, the government of Nigeria should set on ground a public sector reform that is strong and dependable.

The people should be ready to engage themselves in one work or the other as over dependence on the government work will not be the right idea. People should try to be self employed.

To curb unemployment problems in Nigeria, the government must provide power (electricity) and security as this will give an enable grounds for the foreign investors to invest in the economy.

8. References

Alanana, O. O. (2003). Youth unemployment in Nigeria: some implications for the third Millennium. Global Journal of Social Sciences: 2 (1): 21-26

Anyanwu J. C. (1993): *Monetary Economics*: Theory, policy and institutions, Onitsha Hybrid Publishers ltd.

Bello R. A. (1999). The Determinants of Inflation in Nigeria (1970 - 1996): Illorin Journal of Business and Social Sciences. 1(6) No. 1.

Blanchard, Olivier (2000). *Macroeconomics* (Second ed.). Prentice Hall. ISBN 013013306X.

Blanchard, Olivier, Galí & Jordi (2007). "Real Wage Rigidities and the New Keynesian Model". *Journal of Money, Credit, and Banking* 39 (1): 35–65.

CIA World Fact book (1991), (https://www.cia.gov/liberary/publications/the-world-factbook/): January 1, 2008.

CIA World Fact book (2008), (https://www.cia.gov/liberary/publications/the-world-factbook/): January 1, 2008.

Federal Reserve Bank of Boston (June, 2008). "Understanding Inflation and the Implications for Monetary Policy: A Phillips Curve Retrospective", Conference Series Chatham, Massachusetts.

Fisher, Irving (1973). "I discovered the Phillips curve: 'A statistical relation between unemployment and price changes'". *Journal of Political Economy* 81 (2): 496–502.

Lavacic and Rebmann A. (1982). Macroeconomics, London and Babingstoke, Macmillan publishers

Oluleye, F. A. (2006). "Unemployment and inflation: An empirical investigation of validity of Phillips relation in Nigeria": Benson Idahosa University: Nigeria.

Phillips, A. W. (1958). "The Relationship between Unemployment and the Rate of Change of Money Wages in the United Kingdom 1861-1957". *Economica* 25 (100): 283–299.

Samuelson, Paul (June 3, 2008), "Thoughts about the Phillips Curve". Chatham, Massachusetts.

http://www.economywatch.com/unemployment/countries/nigeria.html

http://www.photius.com/countries/nigeria/economy/nigeria_economy_unemployment.html