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Unemployment and Inflation: Implication on Poverty Level in Nigeria

By

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Abstract

This study is carried out to empirically examine the implication of unemployment and inflation on poverty level in Nigeria from 1980-2014. Three variables are used in this paper which are Poverty level, Unemployment Rate and Inflation Rate. The variables were subjected to unit root test and they were all stationary at first difference $I(1)$. Using the Johansen test, the variables were found to be co-integrated at 5% level of significance. Vector Auto Regressive (VAR) Model was used to determine the short-run relationship between the variables and the fourth lag was selected based on the lag selection criterion. Forecast Error Variance Decomposition (FEVD) was obtained using the Cholesky decomposition of the VAR residual. The result obtained showed the proportion of the variations in Poverty, inflation and unemployment rate attributed to their respective lag values. Granger causality test was carried out from the VAR model, and the result indicated that there is a bi-causality between inflation and poverty. There is two-way causality between unemployment rate and poverty. There is one-way causality between unemployment rate and inflation rate. From the conclusion, it recommended that since unemployment causes poverty in Nigeria, government should review the education curriculum which will include practical skill acquisition programme in the educational system so as to produce graduates that are employers of labour rather than employment seekers. The government should give incentives to producers to enable them increase domestic production which will bring down price level. Nigerian government should strive to reduce poverty level by formulating and implementing poverty reduction programme like social security which will reduce inflation and unemployment rate and will lead to economic growth.

Keywords: Unemployment, Inflation, Poverty, Vector Auto regressive (VAR) Model

1.0 Introduction

Poverty, unemployment and inflation are dreaded global phenomenon that affects people in various depths and levels at different times and phases of existence. Nigeria is the most populous country in Africa with a population of about 140 million based on 2006 census and having a nominal GDP of \$207 billion in 2006 (UNCTAD, 2006). Its Per capita income is \$1,401 in 2014

and as a result of this it was classified as the largest economy in Africa. Despite having the largest economy in Africa and 26th in the world, unemployment rate has been rising in Nigeria. The Nigerian economy has remained largely underdeveloped despite the huge human and natural resources. Poverty level is high, unemployment and inflation rates are also high with many socio-economic challenges. The economy has continued to witness economic recovery which is immediately followed by economic recession and depression.

The situation in Nigeria is disturbing; the various macroeconomic policies by government have been unable to achieve sustained price stability, reduction in unemployment and sustained growth. The fluctuations in the economy have confirmed the need to manage the economy effectively. The essence of macroeconomic management underlines the rationale of the government as a vital economic agent. However, it appears that government intervention has not been able to cure the ills in the economy. For several decades, economic performance has not been impressive. The continued economic crisis, with the associated problems of high inflationary pressure, high exchange rate, debt overhang, adverse balance of payment and high inflation rates is difficult to explain. Consequently, the full potentials of labour-surplus economy have not been fully exploited.

Since mid-1960s, inflation has been a serious problem in Nigeria. The Udoji committee which doubled the basic minimum wage in the public sector in 1975 represented a climax in inflationary tendencies that led to the widespread strikes and unrest in the private sector on which the Udoji recommendations were not binding. The continued over valuation of the Naira in 1980, even after the collapse of the oil boom caused significant economic distortions in production and consumption as there was a high rate of dependency on import which led to balance of payment deficits. The Nigeria economy has maintained a status of underdeveloped “or developing nation”; and even been classified a ‘poor nation’. The performance of the manufacturing sub-sector, considered as the basis for industrial growth are expected to contribute to the gross domestic product (GDP) as well as generate more employment opportunities. But the reverse is the case in Nigeria; this has led to the increase of poverty in the country. In 2002, about 280 manufacturing industries were closed down creating further scarcity of finished goods and raising the prices of available goods which worsened the state of inflation and poverty in the

country. It is observed that inflation causes low productivity due to high cost of factors of production, low aggregate supply and high cost of living resulting to low standard of living in the nation (Onwe and Okoro, 2015).

Unemployment and inflation are two intricately linked economic concepts. Over the years, economists have tried to investigate the effect of inflation and unemployment on poverty level plus identifying the role of government in controlling unemployment, inflation and poverty. Undoubtedly, parts of the macroeconomic goals which the government strives to achieve are economic growth, stable domestic price level and full-employment. These goals are pursued in order to promote mass welfare. The fluctuation in growth rates that follows price instability and high rate of unemployment is very high.

In the course of the 20th century, Nigeria and the West African region went through a revolution consisting of an explosion in population, the rise of huge cities and the rapid integration of the region into the world economy. Despite this, there exists absolute poverty in the country. Decades after decade the Nigerian government have failed to reduce poverty incidence in the country more or less resolve the peculiar problem of acute unemployment, inflation and fluctuating economic growth of the country. About forty-two (42) percent of Nigerians lives below poverty line of USD \$1 a day in 2014 (IMF, 2014).

The persistent high level of unemployment and inflation in Nigeria is traced down to policy error which is largely caused by the failure of government to modify and fine tune the received macroeconomic doctrine to suite the Nigerian context and complexity. Macroeconomic policies have been rigorously adopted by the Nigerian government such as exchange rate devaluation, trade policy, monetary and fiscal policy but these policies have not yielded desirable results. The IMF conditions for the grant of the 1986 loan to Nigeria and the devaluation of the naira the major cause of Nigeria economic woes creating inflation, unemployment and poverty (Ihonvbere, 1993).

The persistent increase of unemployment and inflation has made poverty reduction and poverty alleviation programs ineffective in Nigeria. Unemployment, inflation and poverty are interrelated

in Nigeria and there is likely to be a causal relationship between these three dreaded economic and social phenomenon. Furthermore, poverty, inflation and unemployment being so pronounced in Nigeria may have certain influence and impact on economic growth and development in the country. The presence of unemployment, inflation and poverty incidence in Nigeria result to low living standards in the region.

This study seeks to investigate the implication of unemployment and inflation on poverty level in Nigeria. To this end, this paper will provide answers to the following questions:

- i. Does inflation rate have significant effect on poverty in Nigeria?
- ii. Does unemployment rate have significant effect on poverty level in Nigeria?
- iii. Is there any significant relationship between inflation and unemployment in Nigeria?

Section I above is the introduction, section II will focus on literature review, while section III will explain the methodology of the paper. Section IV deals with interpretation of results and section V will be the conclusion and policy recommendations.

2.0 Literature Review

An appraisal of literature on unemployment, inflation and poverty rate reveals that several scholars and researchers worldwide have attempted to examine the subject matter with scope ranging from country-specific studies to panel. Some of the empirical literature reviewed are discussed.

Khan and Senhadji (2001) examine the issue of the existence of threshold effects in the relationship between inflation, unemployment and poverty, using SVAR econometric techniques that provide procedures for estimation and inference for 140 developed and developing countries covering 1960-1998. They estimate a threshold level of inflation above which inflation and unemployment significantly increases poverty rate at 1–3 percent for developed countries and 11–12 percent for developing countries. The positive and significant relationship between inflation, unemployment and poverty, for inflation rates above the threshold level, is quite robust with respect to the estimation method, perturbations in the location of the threshold level, the exclusion of high-inflation observations, data frequency, and alternative specifications.

Osterling (2007) adopted a consumption based approach to measure poverty in the West Africa using a random effect model. Analyzing panel data using eight West African countries from 2000 through 2012, she found a robust and relatively large positive relationship between inflation and the consumption poverty rate. Powers argues that inflation affects the poor directly through a decline in their real wages owing to the short-run rigidity of nominal wages.

Yelwa, Okoroafor and Awe (2015) analyzed the relationship between unemployment, inflation and economic growth in Nigeria. The study utilizes secondary data and Ordinary Least Squares (OLS) method was used to analyze the relationship between unemployment, inflation and economic growth. The results show that inflation and unemployment has inverse effects on growth in Nigeria. The possible justification for the inverse effect of inflation on price level is that inflation may not be due to aggregate demand pressure but rather due to hiccups in the supply chain of goods both from the domestic and foreign supply outlets. However, there exists a causal linkage between inflation, unemployment and economic growth in Nigeria. They therefore recommend that the government must as a matter of necessity to improve or continue to fine-tune macroeconomic policy instruments to achieve a sustainable and enable environment that will enhance increase in domestic output.

Olofin, Adejumo and Sanusi (2015) examined the determinants of poverty level in Nigeria, used annual data between 1990 and 2010, and employs Dynamic Ordinary Least Square (DOLS) method. The study measure poverty with poverty index generated from combination of per worker agricultural value added, real per capita income and consumption per capita using principal component analysis and common measurement of poverty (i.e. per capita real income). They remove the trend component of our dependent variables (poverty index), using Butterworth filter and then regressed them on the important variables of interest. The findings show negative relationship between political right in levels and poverty, but positive relationship was found when political right was differenced. The result was not statistically significant. Political terror was found to reduce poverty with statistically significant result in levels when per capita real income was used for poverty, and became positively related with poverty when differenced. The result was statistically significant. They also found that civil liberty was positively related to

poverty, but the result was not statistically significant. Democracy was noted for reducing poverty with statistically significant result, while the increase in population and poverty were positively related with statistically significant result.

Pemberton, Sutton and Fahmy (2013) studied the impact unemployment, poverty and inequality on Gross Domestic Product in developing countries including West African Countries using Population Average estimation technique. They found that regression of the change in poverty on the unanticipated change in GDP produced a small and insignificant coefficient. However, the relationship between the change in unemployment rate and the anticipated change in GDP was significant. The point estimate implies that an anticipated increase in unemployment of one percentage point is associated with a decline in GDP of 0.2 percentage points. According to Romer (1991) unanticipated inflation reduces the real value of nominal assets and liabilities. It therefore causes real capital losses for nominal creditors and real capital gains for nominal debtors. If the poor are net nominal debtors, these effects benefit them.

Talukdar (2012) studied effect of inflation on poverty with a panel dataset comprised of 115 developing countries over the period 1981-2008. The dataset comprises 10 observations for each country as the data is available at 3 year intervals. He used income, external debt, educational attainment, and quality of governance besides inflation as independent variables and poverty as the dependent variable. With the help of regression analysis, He discovered the evidence supporting the view that inflation in general is positively correlated with poverty while income, educational attainment, and quality of governance show negative correlation with poverty in most of the specifications. And apart from the study of all the countries combined, he separately analyzed the effect of inflation on poverty in low income countries, lower middle income countries, and upper middle income countries to see whether the effect of inflation is similar or different in countries with different levels of income. He found that although in most of the cases inflation shows a positive and statistically significant correlation with poverty, however, in the case of low income countries, the relationship between inflation and poverty is negative and statistically insignificant under certain specifications.

Sergii (2011) investigates poverty-growth interaction for Commonwealth of Independent States (CIS) for the period of 2001-2008 using dynamic panel data approach. He found out that this relation is strictly concave with some threshold level of poverty, which is in line with the previous empirical studies based on earlier sample periods.

Ahmed and Mortaza (2011) postulated that moderate and stable inflation rates promote the development process of a country, and hence economic growth and reduction in poverty. Moderate inflation supplements return to savers, enhances investment, and therefore, accelerates economic growth of the country. They explore the present relationship between inflation, poverty and economic growth in the context of Bangladesh. Using annual data set on real GDP, Poverty rate and CPI for the period of 1980 to 2009, an assessment of empirical evidence has been acquired through the co-integration and error correction models. They also explore what the threshold level of inflation should be for the economy. It is established that there exists a statistically significant long-run negative relationship between inflation, poverty rate and economic growth for the country as indicated by a statistically significant long-run negative relationship between CPI, Poverty rate and real GDP. The estimated threshold model suggests 6-percent as the threshold level (i.e., structural break point) of inflation above which inflation adversely affects economic growth and increase poverty incidence.

Quartey (2010) put forward that the aim of the policy of price stability is to provide a stable environment for real sector activities to flourish but the outcome of the policy on real sector activities in Ghana has not been subjected to any empirical investigation. He studied Stagflation and macroeconomic performance in Ghana using time series data. The study finds out that economic performance is higher under low inflation era than when inflation is high. The results are robust and show that the revenue maximizing rate of growth for Ghana is 9.14 per cent using quarterly data over the period 1990-2011 with least square multiple regression analysis. It is also deduced from the study that the single digit inflation target set by the Central Bank Ghana is not growth maximizing.

Oduro and Aryee (2003) examine the role played by unemployment on the making of the Nigerian Gross Domestic Product (GDP) for a period of nine years (2000 - 2008). Using the

regression analysis, findings showed that unemployment has an enormous effect (over 65 percent) 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.

Ibrahim and Umar (2008) assess the determinants of poverty as well the poverty coping strategies among farming households in Nasarawa State, Nigeria. The study employed simple random sampling to select 150 farming households and used Costs of Calorie Method and Discriminant Analysis to determine the incidence of poverty as well as its determinants respectively. The incidence of poverty among the sampled households was found to be high and the major determinants of poverty include household size, number of income sources of the household head, number of household members employed outside agriculture and the number of literate adult males and females in the household. The major poverty coping strategies include skipping of meals, reduction in the quantity of meals served and engaging in wage labour. The study recommends that the farming households should be effectively involved in the formulation of strategies for imparting knowledge on family planning to the farming households.

Berthod and Grundler (2013) examine the determinants of the urban unemployment in Nigeria. The variables for include level of unemployment and demand for labour, supply of labour, population, inflation, capacity utilization, gross capital formation and nominal wage rate. Using time series secondary data and parsimonious error correction mechanism, the study found that the rising nominal wages and the accelerated growth of population which affected the supply side through a high and rapid increase in labour force relative to the absorptive capacity of the economy appear to be the main determinant of high unemployment in Nigeria.

Gordon (2013) examines poverty situation in Nigeria by employing the data of economic growth and Millennium Development Goals (MDGs) expenditure. The methodology employed was panel data analysis consisting of pooled model, fixed-effects, random-effects and weighted least square. The results revealed that, a unit increase in per capita GDP led to 0.6 percent increase in poverty. Similarly, a unit increase in MDG expenditure resulted in 11.56 units increase in

relative poverty in the pooled model. The study concluded that economic growth and MDG spending has not substantially reduced poverty over the sample period.

Although previous arguments and evidence tends to support the view that inflation affects poverty positively, there are counter arguments to this. The UN Report on the World Social Situation, 2010, Rethinking Poverty, raises a number of interesting questions: If inflation reduces real wages, then employment should rise, creating more income-earning opportunities for workers. Therefore, the employment effect of inflation (creating more jobs because of lower labor costs) can outweigh the real-wage effect (lower income) on poverty. This is likely to be the case, as the inflation (real wage) elasticity of poverty is found to be significantly less than the output (employment) elasticity of poverty. Furthermore, most of the poor are net debtors and inflation reduces the real value of their debt. So this way inflation may have a negative correlation with poverty. Thus, the effect of inflation on poverty is not straightforward. Poverty may be positively correlated with inflation or the reverse can also be the case (UN, 2010).

3.0 Methodology

3.1 Theoretical Framework

The human capital theory one of the neo-classical theory of poverty serves as the theoretical framework for this study. The human capital theory can be adequately use to explain the effect of unemployment and inflation rate on poverty. Human capital theory The core of orthodox economic theory relies on the assumptions of perfect competition and market equilibrium entailing a strong relationship between wages and marginal productivity. The demand side of the labour market is thought to determine by a number of characteristics or skills workers can supply. The importance placed on the set of skills workers are equipped with gave rise to the development and spread of human capital theory (originally due to Becker 1964). One strand of neoclassical economics accordingly focuses on individual choices in relation to education, training and mobility (as determinants of human capital) to explain differences in incomes, albeit still with little to no reference to the role played by other factors such as economic institutions and social norms. Lydall (1968) argued that it is the variation in the combination of intelligence, environment and education at the individual level that can account for most of the variation in the distribution of personal earnings. This theory, however, cannot be reconciled with the

observed large wage wedge between men and women or between whites and blacks. Even though he did mention the possible presence of "social prejudice" in his work, he did not incorporate it into his analysis. Meanwhile, Machin (2009) notes that "poor households in many countries tend to 'under-invest' in education".

The policy prescription that stems from this human-capital-oriented view on poverty is that, even though individuals' incomes cannot ultimately be fully equalized due to genetic differences in ability, much can be done by increasing spending on the education of the poor to improve the level of ability they can achieve, which to a great extent determines their earnings potential. Adult education may have an important role to play for those whose skills are in low demand and/or have not benefited from normal schooling (Scott, London and Edin, 2000).). As some authors have noted, at times investing in one's own human capital entails a financial and emotional cost which can be too high for individuals to be willing to incur due to leaving stable but low paid jobs and breaking social relationships. On the other hand, not investing in one's own skills risks perpetuating low pay and, thus poverty, which further raises the aforementioned cost of investing in human capital, and thereby reinforcing the vicious cycle (Pemberton et al, 2013). This policy proposal, which effectively calls for the redistribution of a public resource such as education, thereby flattening out of the distribution of skills among the population., can help prevent such vicious cycles.

3.2 Model Specification

The model based on the neo-classical theory of poverty using Vector Auto Regressive (VAR) is adapted from the work of Granville and Mallick (2006) and restricted to incorporate the effect of unemployment and inflation on poverty incidence in Nigeria.

Conventionally the VAR model is given as:

$$Y_t = \alpha \sum_{j=1}^m Y_{t-j} \phi_j + \mu_t, \quad \mu_t \sim \text{IID}(0, \sigma^2) \quad (3.1)$$

Where,

Y_t = Vector of endogenous variables in the system at time t, the current period

α = vector of constant term

Y_{t-i} = Lagged endogenous variables. This captures the effect of the variables in the system as suggested by Sims.

Φ_i = the matrix of the coefficients of the variables in the system

m = lag length

U_t = the vector of random disturbance error term, which are assume to be independently and identically distributed error term with zero mean and finite variance.

Instructively, this study employs a three variables VAR model comprising of poverty, inflation rate and unemployment.

Thus, the VAR models can be specified below.

$$POV_t = \alpha_0 + \sum_{j=1}^m \alpha_{1j} POV_{t-j} + \sum_{j=1}^m \alpha_{2j} INF_{t-j} + \sum_{j=1}^m \alpha_{3j} UMP_{t-j} + U_{1t} \quad (3.2)$$

$$INF_t = \beta_0 + \sum_{j=1}^m \beta_{1j} POV_{t-j} + \sum_{j=1}^m \beta_{2j} INF_{t-j} + \sum_{j=1}^m \beta_{3j} UMP_{t-j} + U_{2t} \quad (3.3)$$

$$UMP_t = \lambda_0 + \sum_{j=1}^m \lambda_{1j} POV_{t-j} + \sum_{j=1}^m \lambda_{2j} INF_{t-j} + \sum_{j=1}^m \lambda_{3j} UMP_{t-j} + U_{3t} \quad (3.4)$$

Where:

POV represents poverty level, INF stands for inflation rate and UMP is the unemployment rate.

α_0 , β_0 , and λ_0 are constant parameters,

$\alpha_1 - \alpha_3$, $\beta_1 - \beta_3$, $\lambda_1 - \lambda_3$ are coefficients to be estimated,

$U_{1t} - U_{3t}$ are the Gaussian white noise that are independently and identically distributed random variable.

A priori Expectation

Basically the VAR model is used for forecasting as pointed out by Gujarati (2009), Runkle (1987) stated that VAR can be used for testing empirical relationship between macroeconomic variables especially in financial time series analysis. VAR model is atheoretic and is not usually based on theory (Cuthbertson and Gasparro, 1995). Hence we shall allow the data to speak for themselves although it is expected that unemployment and poverty should be positively related and inflation and poverty should also be positively related, this have been established from previous literature and theories Sergii (2011) and Blinder (1979).

a. Stationarity Test

To test for stationarity, the unit root method will be used and will take the form of an Autoregressive model (AR(1) process), with each variable regressed on its own lagged value without an intercept and a deterministic trend. To correct for autocorrelation in the error term, the ADF unit root test will be applied. The model used is:

$$\Delta Y_t = \delta Y_{t-1} + \mu_t \quad (3.5)$$

$$\delta = \rho - 1$$

Where:

Y represents all the variables under consideration.

δ represents the coefficient of the lagged value of Y.

Δ is the first difference operator.

Y_{t-1} represents the lagged terms included

μ_t represents pure white noise error term.

The null hypothesis to be tested is such that the variable possess unit root, and as such is non-stationary.

$H_0 : \delta = 0$ ($\rho = 1$) presence of unit root

$H_0 : \delta \neq 0$ ($\rho < 1$) no unit root

The decision rule will be such that if the absolute ADF statistic is greater than the absolute critical values, the null hypothesis will be rejected.

Co-integration Estimate

This is used to establish the number of co-integrating vectors using Johansen's methodology which have two test statistics which are the trace test statistic and the maximum Eigen-value test statistic. The trace statistic tests the null hypothesis that the number of deviating co-integrating relationships is less than or equal to 'r' alongside the alternative hypothesis of more than 'r' co-integrating relationships, and is defined as:

$$\theta_{trace}(r) = -T \sum_{j=r+1}^P \ln \left(1 - \hat{\theta}_j \right) \quad (3.6)$$

The maximum likelihood ratio or the maximum Eigen-value statistic, for testing the null hypothesis of at most ‘r’ co-integrating vectors alongside the alternative hypothesis of ‘r+1’ co-integrating vectors, is given by:

$$\theta_{\max}(r, r, +1) = -T \ln(1 - \hat{\theta}_{r+1}) \quad \theta_{\text{trace}}(r) = -T \sum_{j=r+1}^P \ln(1 - \hat{\theta}_j) \quad (3.7)$$

Where $\hat{\theta}_j$ = the Eigen values, T = total number of observations. Johansen argues that, trace and statistics have nonstandard distributions under the null hypothesis, and provides approximate critical values for the statistic, generated by Monte Carlo methods (Haug, 1996).

In a condition where Trace and Maximum Eigen value statistics give up dissimilar results, the results of trace test should be favored.

b. Error Variance Decomposition

Forecast error variance decomposition (FEVD) is an econometric tool used by many economists in the vector autoregression (VAR). FEVD is used to aid in the interpretation of a vector autoregression (VAR) model once it has been fitted. The variance decomposition indicates the amount of information each variable contributes to the other variables in the autoregression. It determines how much of the forecast error variance of each of the variables can be explained by exogenous shocks to the other variables.

4.0 Interpretation of Results

The augmented dickey fuller test was used to test for unit root. All the variables were regressed on trend and intercept to determine if they have trend, it was discovered that poverty rate has only intercept without trend, inflation rate has no intercept and trend and unemployment rate has intercept and trend, hence the unit root test was conducted based on the component of each time series. The result is presented below:

Stationarity Result

Table 4.1: Unit Root Result

Time Series	ADF Statistics	Critical Value	Stationary Status
-------------	----------------	----------------	-------------------

POV	-11.03404	-3.64634 (1%) -2.95402 (5%) -2.61582 (10%)	I(1)
INF	-4.783871	-2.63690 (1%) -1.95133 (5%) -1.61075 (10%)	I(1)
UMP	-9.394201	-4.262735 (1%) -3.55297 (5%) -3.20964(10%)	I(1)

Source: Authors Computation

The Three variables (POV, INF, and UMP) underwent unit root test using the Augmented Dickey-Fuller (ADF) test. All three variables were found to be non-stationary at levels but were stationary at first difference I(1).

Co-integration Result

Table 4.2: Johansen's Co-Integration Result

Eigen Value	Trace Statistics	5% Critical Value	P- Value
0.613596	45.86032	29.79707	0.0003
0.305129	17.33419	15.49471	0.0261
0.192472	6.413319	3.841466	0.0113

Source: Author's Computation

Due to the non-stationarity of time series, the co-integration test was carried out using the Johansen test. This became necessary to avoid a spurious regression result. Using the Johansen's test, there were found three co-integrating equations at the 5 per cent level of significance. From table 4. 2 above, the first three equations show the co-integrated equations with their trace statistics of (45.86032, 17.33419 and 6.413319) greater than the 5 per cent critical values (29.79707, 15.49471 and 3.841466). The co-integration result shows that the three variables have long-run equilibrium relationship.

Table 4.3 VAR Lag Order Selection Criteria

Endogenous variables: POV INF UMP
 Exogenous variables: C @TREND
 Date: 11/10/16 Time: 08:38
 Sample: 1980 2014
 Included observations: 31

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-253.3626	NA	3714.417	16.73307	17.01062	16.82354
1	-224.1831	48.94625	1018.474	15.43117	16.12503	15.65735
2	-207.6877	24.47710	645.3381	14.94759	16.05777*	15.30948
3	-201.6403	7.802981	829.8418	15.13809	16.66459	15.63569
4	-182.4543	21.04277*	482.0080*	14.48092*	16.42374	15.11423*

* indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

Source: Author's Computation

To carryout VAR analyses on the variables, the fourth lag will be selected since all the lag selection criteria chose the fourth lag except Schwarz information criterion that which chose the second lag. From the VAR result in Appendix I the following interpretation can be inferred:

From model (3.2), a unit changes in the first lag of poverty, Inflation rate and unemployment will lead to 0.180823, -0.029388 and 0.878557 changes in POV respectively. A unit change in the second lag of Poverty, Inflation rate and unemployment will lead to 0.823546, 0.112612 and -0.582633 change in POV respectively. A unit change in the third lag of poverty, inflation rate and unemployment 0.005195, -0.038382 and -0.014649. A unit change in the fourth lag of poverty, inflation rate and unemployment 0.125332, 1.733526 and -1.323281. The R^2 is given as 0.782317 indicating that 78% variation in Poverty incidence is explained by the independent variables. F-statistics is given as 4.699632 which is greater than the critical value of 4.30 at (22,12) indicating that the equation is significant.

From model (3.3), a unit change in the first lag of poverty, Inflation rate and unemployment will lead to 0.691821, 0.452298 and 2.005848 change in INF respectively. A unit change in the second lag of Poverty, Inflation rate and unemployment will lead to 2.322594, -0.446374 and

7.332685 changes in INF respectively. A unit change in the third lag of poverty, inflation rate and unemployment 0.453722, 0.149259 and 0.112016. A unit change in the fourth lag of poverty, inflation rate and unemployment -1.578392, -0.270286 and -0.117331. The R^2 is given as 0.874804 indicating that 87% variation in Inflation rate incidence is explained by the independent variables. F-statistics is given as 9.137478 which is greater than the critical value of 4.30 at (22,12) indicating that the equation is significant.

From model (3.4), a unit change in the first lag of poverty, Inflation rate and unemployment will lead to 0.080313, -0.009414 and 0.165939 changes in unemployment rate respectively. A unit change in the second lag of Poverty, Inflation rate and unemployment will lead to 0.127255, -0.446374 and 0.168844 changes in Unemployment rate respectively. A unit change in the third lag of poverty, inflation rate and unemployment 0.005595, -0.009999 and 0.112016. A unit change in the fourth lag of poverty, inflation rate and unemployment rate will lead to 0.055215, 0.006202 and -0.117331 unit change in unemployment rate respectively. The R^2 is given as 0.930175 indicating that 93% variation in unemployment rate is explained by the independent variables. F-statistics is given as 17.42042 which is greater than the critical value of 4.30 at (22,12) indicating that the equation is significant.

Table 4.4 Error Variance Decomposition

Variance Decomposition of POV:

Period	S.E.	POV	INF	UMP
1	3.086407	100.0000	0.000000	0.000000
2	3.176038	97.56888	0.164560	2.266557
3	4.512796	91.19246	1.987198	6.820337
4	4.900877	89.82066	1.792864	8.386472

Cholesy
Orderin
g: POV

Variance Decomposition of INF:

Period	S.E.	POV	INF	UMP
1	8.175390	16.44347	83.55653	0.000000

2	10.02070	25.83311	72.98004	1.186855
3	14.54035	51.84272	35.78525	12.37203
4	17.85754	64.85825	23.85674	11.28501

Cholesky Ordering: INF

Variance Decomposition of UMP:

Period	S.E.	POV	INF	UMP
1	0.683284	2.860890	33.69438	63.44473
2	0.728476	12.99846	29.64740	57.35415
3	0.845621	30.64609	24.24095	45.11295
4	0.900727	34.06199	22.40086	43.53715

Cholesky Ordering: UMP

Source: Authors' Computation

From table 4.4, Variation in Poverty incidence for the first period is explained only by poverty incidence. Variation in poverty incidence for the second period is attributed 97.6%, 0.1% and 2.2% variation in Poverty, inflation and unemployment. Variation in poverty incidence for the third period is attributed 91.2%, 1.99% and 6.82% variation in Poverty, inflation and unemployment. Variation in poverty incidence for the fourth period is attributed 89.8%, 1.79% and 8.39% variation in Poverty, inflation and unemployment.

Variation in inflation rate for the first period is explained by 16.4% and 83.6% variation in poverty incidence and inflation. Variation in inflation rate for the second period is attributed 25.8%, 72.99% and 1.19% variation in Poverty, inflation and unemployment. Variation in inflation rate for the third period is attributed 51.8%, 35.8% and 12.4% variation in Poverty, inflation and unemployment. Variation in inflation rate for the fourth period is attributed 64.9%, 23.9% and 11.3% variation in Poverty, inflation and unemployment.

Variation in unemployment rate for the first period is explained by 2.86%, 33.69% and 63.44% variation in poverty incidence, inflation and unemployment. Variation in unemployment rate for the second period is attributed 12.998%, 29.65% and 57.35% variation in Poverty, inflation and unemployment. Variation in inflation rate for the third period is attributed 30.6%, 24.2% and

45.1% variation in Poverty, inflation and unemployment. Variation in inflation rate for the fourth period is attributed 34.1%, 22.4% and 43.5% variation in Poverty, inflation and unemployment.

Table 4.5 Granger Causality Test

Null Hypothesis (H0)	Chi-Square	Probability	Decision
INF does not cause POV	10.51789	0.0917	Reject Ho
POV does not cause INF	13.74877	0.0081	Reject Ho
UMP does not cause POV	14.90053	0.0877	Reject Ho
POV does not cause UMP	10.60593	0.0314	Reject Ho
INF does not cause UMP	4.986681	0.2887	Accept Ho
UMP does not cause INF	10.96944	0.0269	Reject Ho

Source: Authors' Computation

From the table 4.5 above, there is bi-causality between inflation and poverty. This means that inflation rate Granger cause poverty and poverty Granger cause inflation rate. There is two-way causality between unemployment rate and poverty. This means that unemployment rate Granger cause poverty and poverty Granger cause unemployment rate. There is one-way causality between unemployment rate and inflation rate. The causality flows from inflation rate to unemployment. This means that inflation granger cause unemployment rate.

5.0 Conclusion and Recommendations

The evidences from various econometrics analyses from this study revealed that, unemployment and inflation rate have a statistically significant impact on poverty level in Nigeria from 1980-2014. The implication of this is that an increase in unemployment rate and inflation rate will lead to higher poverty level in Nigeria since unemployment and inflation significantly cause poverty in Nigeria. The finding of this study shows that poverty level is high in Nigeria and requires a pragmatic approach to minimize it. Increasing the employment rate is not only the way out of this trap but making sure that the most vulnerable group of the economy is taken care of which would then enhance economic growth and development. It is very axiomatic to state that in contemporary times most developed countries of the world have been able to achieve remarkable feat especially in the areas of high rate of employment opportunities, social security and high

standard of living. This is not only because the citizens are gainfully employed by their governments but also required skill acquired to also employ others.

From the conclusion, we therefore recommend that since unemployment causes poverty in Nigeria, emphasis should be laid on skill acquisition in the educational system so as to produce graduates that are providers of employment of labour rather than seekers of employment. The government should strive to increase supply of output by increasing domestic production which will bring down price level and increase welfare. Incentives should be given to producers to enable them increase production. Also since poverty incidence granger cause inflation and unemployment rate, the Nigerian government should strive to curtail poverty level by formulating and implementing poverty reduction programme like social security in the country as these will provide macroeconomic stability in the country by reducing inflation and unemployment rate which will lead to economic growth.

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Appendix I

Vector Auto Regressive Result

Vector Autoregression Estimates

Date: 11/10/16 Time: 08:37

Sample (adjusted): 1984 2014

Included observations: 31 after adjustments

Standard errors in () & t-statistics in []

	POV	INF	UMP
POV(-1)	0.180823 (0.26978) [0.67026]	0.691821 (0.71461) [0.96811]	0.080313 (0.05973) [1.34470]
POV(-2)	0.823546 (0.25912) [3.17824]	2.322594 (0.68637) [3.38389]	0.127255 (0.05737) [2.21833]
POV(-3)	0.112612 (0.30338) [0.37119]	0.453722 (0.80362) [0.56460]	0.005595 (0.06716) [0.08330]
POV(-4)	-0.582633 (0.30760) [-1.89413]	-1.578392 (0.81478) [-1.93720]	0.055215 (0.06810) [0.81082]
INF(-1)	-0.029388 (0.08818) [-0.33328]	0.452298 (0.23357) [1.93648]	-0.009414 (0.01952) [-0.48227]
INF(-2)	0.005195 (0.09962) [0.05214]	-0.446374 (0.26389) [-1.69153]	-0.021916 (0.02206) [-0.99367]
INF(-3)	-0.038382 (0.09919) [-0.38695]	0.149259 (0.26274) [0.56807]	-0.009999 (0.02196) [-0.45532]
INF(-4)	-0.014649 (0.08542) [-0.17150]	-0.270286 (0.22625) [-1.19463]	0.006202 (0.01891) [0.32797]
UMP(-1)	0.878557 (1.02761) [0.85496]	2.005848 (2.72196) [0.73691]	0.165939 (0.22750) [0.72942]
UMP(-2)	1.733526 (1.04028) [1.66640]	7.332685 (2.75553) [2.66108]	0.168844 (0.23030) [0.73314]
UMP(-3)	0.125332	-2.620472	0.112016

	(0.86020)	(2.27854)	(0.19044)
	[0.14570]	[-1.15007]	[0.58821]
UMP(-4)	-1.323281	-5.136550	-0.117331
	(0.93323)	(2.47197)	(0.20660)
	[-1.41796]	[-2.07792]	[-0.56791]
C	-4.310003	-89.65203	1.755866
	(11.0526)	(29.2764)	(2.44687)
	[-0.38996]	[-3.06226]	[0.71760]
<hr/>			
R-squared	0.782317	0.874804	0.930175
Adj. R-squared	0.615854	0.779066	0.876779
Sum sq. resids	161.9405	1136.229	7.936907
S.E. equation	3.086407	8.175390	0.683284
F-statistic	4.699632	9.137478	17.42042
Log likelihood	-69.61234	-99.81008	-22.86891
Akaike AIC	5.394344	7.342586	2.378639
Schwarz SC	6.041952	7.990193	3.026246
Mean dependent	42.63695	16.57535	13.91935
S.D. dependent	4.979719	17.39311	1.946522
<hr/>			
Determinant resid covariance (dof adj.)		157.5803	
Determinant resid covariance		25.98744	
Log likelihood		-182.4543	
Akaike information criterion		14.48092	
Schwarz criterion		16.42374	
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