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Inflation and Joblessness in a Vector Error Correction Framework

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Abstract

Over a twenty-seven-year period, we used the vector error correction methodology to analyze the dynamics of unemployment and inflation in Nigeria. Throughout the study period, the Nigerian economy shows signs of stagflation, according to the report. As the jobless rate has skyrocketed, the Nigerian economy is actually juggling a startling rate of inflation with a deep recession. As a result, the Nigerian economy finds itself at a turning point. These results suggest that the excessive contraction of the monetary policy rate appears to have become counterproductive recently, and the Central Bank of Nigeria should continue its policy of gradually lowering the benchmark inflation rate to a single digit. If the CBN could boost lending to the real sector of the economy and raise GDP growth beyond the money supply, a single-digit inflation rate may be attained.

Keywords:
Inflation, Unemployment, Monetary policy, Stagflation, Nigeria

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Background to the Study

Macroeconomic policy has two main goals: reaching full employment and stabilizing prices through low inflation. These objectives are sought to keep costs associated with inflation and unemployment to a minimum. Thus, just as in every other economy on the planet, Nigeria's monetary policy is primarily focused on maintaining price stability. Nigeria has suffered greatly from inflation, to the point where its occurrence is no longer noteworthy. Targeting inflation, the Central Bank of Nigeria (CBN) is the organization in charge of conducting and carrying out monetary policy (CBN, 2006). Even if this might be the case, changes in the labour market—specifically, the amount of unemployment in the economy—remain crucial to the way Nigeria's monetary policy is carried out. Millions of Nigerian students graduate from all levels of school each year. The nation's labour force often increases as a result of this annual turnout. But not every member of the labour force is able to find work, at least not immediately, and this contributes to the system's unemployment rate. One of the biggest issues the Nigerian economy is dealing with is a high unemployment rate. Every nation faces a barrier to economic development and progress: unemployment. In addition to being a significant waste of the nation's excess labour force and consequently its human resources, unemployment results in welfare losses due to decreased output and, consequently, decreased national income (Ugbaka & Awujola, 2018).

There is a disagreement among macroeconomists regarding the empirical basis of the contentious argument over the relationship between inflation and unemployment. In fact, macroeconomic policy theory began to center on the link between inflation and unemployment after Phillips' (1958) discoveries. The majority of attention has been focused on determining whether there is a short-term negative association and what policy implications this would have. The natural rate of unemployment (NAIRU), developed by Friedman in 1968, gave rise to the theory that the Phillips curve is perfectly vertical over the long term and that the unemployment rate is unaffected by monetary policy and inflation. Thus, once again, the focus of the macroeconomic policy analysis was on the nature of the short-run relationship and whether or not it constitutes a useful policy trade-off (Lucas, 1972). Given these, the goal of the study is to investigate how Nigerian unemployment and inflation are related. The paper is organized as follows: Section 2 provides review of the empirical literature. In part three, the theoretical background and model specification are covered. The approach and estimating process are covered in detail in Section 4. In section 5, the vector error correction findings are examined. The sixth section comes to an end.

Literature Review

Ugbaka and Awujola (2018) use an empirical approach, drawing on the model developed by Asta and Zaneta (2010), to examine the impact of capacity utilization on unemployment in Nigeria between 1981 and 2016. The study applies two-stage least square regression methods on time series secondary data. The paper's annual data were regressed using version 9 of the E-views econometric tool. The 2SLS analysis's findings showed that capacity utilization and unemployment in Nigeria are positively correlated.

At the 5% level, the positive correlation is statistically significant ($P>0.05$). This result defies the economic theory that supports the perception that there is a negative correlation between capacity utilization and unemployment.

The findings indicate that an increase in capacity utilization of 100% results in a 3.4% gain in unemployment. The study indicates that in order to slow down the rate of unemployment and underemployment in the nation, the government should implement policies that promote productive employment. Furthermore, rather than giant corporations, the government should spend most of its attention on micro, small, and medium-sized businesses because they are the main sources of employment creation in Nigeria.

Using standard econometrics estimation techniques, Mohammed, Okoroafor, and Omoniyi (2015) found a negative correlation between unemployment and economic growth in Nigeria and a positive correlation between inflation and economic growth in their study of the relationship between unemployment, inflation, and economic growth. In a similar spirit, Ekpeyong (2023) estimated the impact of inflation using econometrics analysis. In Nigeria, the relationship between unemployment and economic growth and the decrease of poverty is shown to be both positive and negative; nonetheless, the population has a major influence on poverty.

Additionally, Hjazeen et al. (2021) found a negative association between economic growth and unemployment in a study on the relationship between the two variables using the ARDL estimating technique. Lyuboslav (2017) conducted a study examining how economic growth affects inflation and unemployment in Bulgaria. The study used standard econometrics to measure the impact of the explanatory variables on unemployment and discovered that while growth has a positive effect on unemployment, it also has a negative effect on unemployment.

Anidiobu, Okolie, and Oleka (2018) investigate how Nigeria's economic growth was affected by inflation between 1986 and 2015. Information was taken from the Central Bank of Nigeria (CBN) website. The variables were estimated using descriptive statistics and the Ordinary Least Square (OLS) estimation approach. The inflation rate, exchange rate, and interest rate were the independent variables, while the real gross domestic product (RGDP) served as a stand-in for economic growth. Contrary to Idris and Suleiman's conclusions, the results showed that the rate of inflation in Nigeria had a positive and negligible impact on economic growth (2019).

Idris and Suleiman (2019) use a vector error correction approach to investigate how inflation affects Nigeria's economic growth. The GDP, exchange rate, inflation rate, and interest rate are the variables that were employed in the research. The 1980–2017 study's conclusion was that interest rates and inflation have a negative correlation with economic growth over the long term and are statistically significant. The results of a different study by Dodo & Idris (2022) using a nonlinear ARDL estimate approach on the effect of inflation on unemployment in Nigeria for the years 1985–2019 show that inflation has a negative impact on unemployment.

Adaramola and Dada (2020) look at how inflation affected economic expansion between 1980 and 2018. For the study, time series data on the rate of inflation, government consumption spending, exchange rate, money supply, rate of interest, degree of openness, and real GDP were used. The ARDL model, the normalcy test, the cumulative sum test, the heteroscedasticity test, and the serial correlation LM test were all used in the investigation. The findings showed that whereas exchange rates and inflation have an inverse association with economic growth, interest rates and the money supply have a direct relationship with it.

Theoretical Framework and Model Specification

Framework

The trade-off framework of monetary policy has traditionally been used to model the relationship between inflation and unemployment. A schematic explanation of the transmission mechanisms of the monetary policy-induced inflation-unemployment trade-off effects is as follows:

Money Supply ↑→ Aggregate Demand ↑→ Production↑→ Unemployment↓→Inflation↑ (1)

Money Supply ↓→ Aggregate Demand ↓→ Production↓→Unemployment↑→Inflation↓ (2)

The main idea behind the transmission mechanisms is that monetary policy that is either expansionary or contractionary raises or decreases aggregate demand. Consequently, there is an increase (reduction) in production, a decrease (rise) in unemployment, and an increase (lower) in inflation. The CBN raises the amount of money in circulation when it implements an expansionary monetary policy. Increased money supply leads to a fall in interest rates, which reduces the incentives for economic agents to save. Instead of saving, consumers would opt to increase their consumption. Large-scale investment projects are also encouraged by decreasing borrowing costs for investors. Increased aggregate demand is the result of both increased investment spending and increased consumption. Increased aggregate demand is the result of both increased investment spending and increased consumption. A positive externality effect for employment results from an increase in aggregate demand, which raises the economy's productive capacity. Put another way, as output rises, so does the demand for labour, lowering the nation's unemployment rate. But as the economy gets closer to reaching equilibrium for full employment, rising employment and aggregate demand push wages and prices higher, which eventually raises inflation and vice versa. The trade-off is explained by Chatterjee (2002) in terms of policy regimes like the independence of the central bank. As a result, a contractionary monetary shock causes unemployment to rise and causes inflation to decline gradually over time. Real wages will increase whenever the central bank reduces the money supply since nominal wages adjust slowly. This will force businesses to lay off employees, creating a short-term trade-off. Therefore, theoretically, it follows that monetary policy adjustments drive the variables of unemployment and inflation in opposite ways (Mankiw, 2000). This gives the justification for government intervention because the trade-off theory suggests that the government can choose, through the use of suitable policy tools, between high inflation and low unemployment and low inflation and high unemployment.

The Model

We use the vector error correction model (VECM) to examine the relationship between Nigeria's unemployment rate and inflation rate. The VAR model is a branch of the VECM. From this perspective, the details of the p^{th} order autoregressive VAR process that the z^{th} endogenous vector adheres to is as follows:

$$Z_t = \beta \Im_1 Z_{t-1} + \Im_2 Z_{t-2} + \cdots + \Im_p Z_{t-p} + \mu_t \quad (3)$$

The distribution function and the model *iid* perturbation are identical μ_t N [0, Ω]. Z_t is the [n x 1] inherent variable vector at a given time t. There are pn^2 parameters in the $\Im$ matrices. Employing the lag operator L, we rephrase equation (3) as follows:

$$\Im[L] Z_t = \beta + \mu_t \quad (4)$$

$$\Im[L] = \Im_0 L^0 - \Im_1 L^1 - \cdots - \Im_p L^p$$

Based on the fact that $[\Im_0 = 1]$, the degree of stationarity is calculated for the roots of $\Im[L]$, which are located outside the unit circle. The restriction that $[\Im_0 = 1]$ suggests that the VAR model does not currently contain any endogenous variables. According to technique, the error covariance matrix Ω, which is reliably estimated as follows, has off-diagonal elements that connect the equations in the VAR model as:

$$\Omega = \frac{1}{T}\left(\sum_{t=1}^{T} e_t e'_t\right) \quad (5)$$

Where;

$\sum = E[e_t e'_t] = D^{-1} G \Omega G' D^{-1}$

e_t *is the* $[n\, x 1]$ vector of OLS residual

The variance decomposition and impulse response functions are helpful instruments for assessing the efficacy of policy shock in VAR estimation in light of policy inference. Taking into account that Z is a k-dimensional vector series produced by;

$$Z_t = B_1 Z_{1-t} + \cdots + B_p Z_{1-p} + e^{\cdot}_t \qquad (6)$$
$$= \theta(S) e^{\cdot}_t = \sum_{t=0}^{\infty} \theta_t \, e^{\cdot}_t$$
$$1 = [1 - B_1 S - B_2 S - \cdots - B_p S^p]\theta(S)$$

The moving average (MA) coefficient, denoted as θ_{jkj}, quantifies the impulse-response of a variable, j, to a unit impulse in variable k that happened at the i[th] period. One cannot shock one variable while holding the other variables fixed because the matrix $\sum$ is non-diagonal, or a positive definite matrix. In fact, this called for a change known as the Cholseky decomposition (Sims, 1980). Equation (6) can therefore be rewritten as follows if P stands for a lower triangular matrix:

$$Z_t = \sum_{t=0}^{\infty} \emptyset_t \, \varepsilon_{t-1} \qquad (7)$$

$$[\, \emptyset_i = \theta_i p, \varepsilon_t = P^{-1} e_t, E(\mathcal{E}_t \mathcal{E}_t) = I, \sum = PP' \,]$$

The vector error correction model (VECM) is frequently used to depict the co-integration of the VAR model. The general VECM procedure is described as follows:

$$\Delta Y_t = \Pi Y_{t-1} + \sum_{j=1}^{p-1} \Gamma \, ,\Delta Y_{t-j} + \mathcal{E}_t \qquad (8)$$

Where Π and Γ are (n x n) matrices with unknown parameters, and are white noise errors with zero mean and non-singular covariance matrix that are independently and identically distributed. The short term dynamics of the VECM process are represented by the sum on the right side of equation (8). The VECM can be defined as follows using the study's relevant variables:

$$Ln(U_t) = \theta_0 + \sum_{t=1}^{p} \Delta\theta_t \, Ln(W_t) + \sum_{t=1}^{p} \Delta\delta_t \, Ln(I_t) + \theta_1 ECM_{(t-1)} + e_{1t}$$

(9)

$$Ln(I_t) = \vartheta_0 + \sum_{t=1}^{p} \Delta\vartheta_t \, Ln(Z_t) + \sum_{t=1}^{p} \Delta\omega_t \, Ln(U_t) + \theta_2 ECM_{(t-1)} + e_{2t}$$

Where W_t is a vector of regressors that impacts unemployment and these variables include labor force participation rate (LRt), capacity utilization ($C^U t$), lagged unemployment rate (U_{t-1}), national income (YNt), and current inflation rate (Nt). Zt is an additional regressor vector that is used to calculate Nigeria's inflation rate. These factors include the lagged inflation rate and the money supply growth rate (MSt). I^E_{t-1} is the adaptive expectation measure of inflation, while ERt denotes the Naira-US$ exchange rate. DFt represents the budget deficit, and RRt is the nominal interest rate. From the co-integration equations, ECT t−1 'S' represent the delayed stationary residuals, and e s' represent the stochastic regression residuals.

Methodology and Estimation

Engle-Granger Test

The main drawback with time series data at the level of estimate has been non-stationarity. By using the Engle Granger (1987) approach of taking the first difference, the spurious inference problem presented by the unit root is resolved. Thus, the study used the PP and ADF[3] tests to test for non-stationarity, and the calculated test equation has the following format:

$$\Delta Q_t = \alpha_{11} + \alpha_{22} + \alpha_{33} Q_{t-1} + \alpha_{44} t + \sum_{i=1}^{M} \alpha \Delta Q_{t-1} + e_{3t} \quad (10)$$

Where e s' are the stochastic white noise residual terms, M is the number of lags, and Q is the time series variable. Stationary errors are ensured by the time series variable's enhanced lagged difference.

Johansen Maximum Likelihood Test

To investigate the co-integration between unemployment and inflation, the study uses a multivariate Co-integration approach of Johansen, Johansen Maximum Likelihood (JML) method. Consequently, the long-run equilibrium relationship between variables is examined by the co-integration test. The ability of the JML to estimate several co-integration connections at once is the rationale behind its selection. The maximum eigenvalue statistic and the trace statistic, which are provided as follows, are used in the JML approach.

$$LR_{trace}(r) = -1 \sum_{j=r+1}^{n} Log\left(1 - \lambda_j\right) \quad (11)$$

$$LR_{max}(r) = -TLog(1 - \lambda_{r+1}) \quad (12)$$

The hypothesis under test maintains that the rank of Π, represented by r, is equal to the number of linearly independent co-integrating relations of the variables. As a result, the following is the formulation of the hypothesis that the study tests:

$$H\,(rank): rk(\Pi) = r \; vs. \; H(\,rank): rk(\Pi) > r \quad (13)$$

$$H\,(rank): rk(\Pi) = r \; vs. \; H(\,r+1): rk(\Pi) = r+1 \quad (14)$$

Equation (13) contains the trace tests for hypotheses, whereas equation (14) contains the maximum eigenvalue tests. The matrix Π in the VECM can be formally stated as a product with an additional definition of the co-integrating limitations, provided that H (r) is true.

$$\Pi \delta \theta$$

Where rank $\Pi = r$, and δ and φ are matrices of complete rank r. The impact matrix is denoted by Π, the adjustment coefficient vector by δ, and the co-integrating relations vector by φ. The null hypothesis can be expressed as follows in effect: 'H (r): $\Pi = \delta\varphi$ such that rk (δ) = rk (φ) = r'. Therefore, it follows that there exits (n x r) matrices [δ| Θ_1] of rank r such that Π=δθ+δ_1 δ_1 if by replacement, rk (Π) =r>r^*.

VECM Estimation

The vector error correction model (VECM) is frequently used to depict the co-integration of the VAR model. In a model, the short run dynamics between the explained and the explanatory variables are carried out via the error-correction mechanism (ECM). There could be momentary disequilibrium even in cases where there is a long-term link between the variables. In order to eliminate this divergence from the long-run equilibrium, the error correction equation is applied. The variables in a model are found to be co-integrated if a linear combination of the variables exists, or if the variables are stationary. Since the co-integrating relations between the variables in the VECM model establish the error correction representation, determining the co-integrating relations comes first, followed by estimating the VECM for potential short-run dynamics between the variables in the model. Estimates of impulse response functions (IRF) derived from ECM exhibit consistency. As a result, the steps involved in computing an impulse response function for a cointegrated VECM system are as follows: estimating the co-integration rank, converting the ECM model back to a VAR model, and performing the IRF using the resultant VAR model. Instead of finding the autoregressive coefficients, the VECM has the advantage of identifying the system errors, which are understood as linear combinations of exogenous shocks. The International Monetary Fund's (IMF) International Financial Statistics (IFS) served as the primary source of the annual data used in this study. The information covers the sample period from 1996 to 2022.

Empirical Results

Appendix 1 contains the results of the stationarity tests. At the five percent (one percent) levels, the ADF and PP test statistics are greater than the critical values, which are provided by -3.536 (-3.968) and -4.352 (-4.586), respectively. The findings showed that none of the study's variables were level or stationary. In a sense, all of the study's variables are first-difference stationary.

Table 1: Unit Root Test Results

Block A: Augmented Dickey-Fuller Stationary Test Results @ 5 (1) Percent			
Variables	*ADF Test Statistic*	*Critical Values(CV)*	*Statistical Inference*
Ut	*-5.899*	*-3.536(-3.968)*	*Difference Stationary*
E tR	*-7.645*	*-3.536(-3.968)*	*Difference Stationary*
Y tN	*-6.588*	*-3.536(-3.968)*	*Difference Stationary*
R tR	*-6.666*	*-3.536(-3.968)*	*Difference Stationary*
C tU	*-8.276*	*-3.536(-3.968)*	*Difference Stationary*
L R_t	*-5.525*	*-3.536(-3.968)*	*Difference Stationary*
It	*-5.655*	*-3.536(-3.968)*	*Difference Stationary*
M_tS	*-6.649*	*-3.536(-3.968)*	*Difference Stationary*
D tF	*-9.553*	*-3.536(-3.968)*	*Difference Stationary*
Block B: Phillips-Peron Stationary Test Results @ 5 (1) Percent			
Variables	*PP Test Statistic*	*Critical Values(CV)*	*Statistical Inference*
Ut	*-5.952*	*-4.352(-4.586)*	*Difference Stationary*
E tR	*-17.859*	*-4.352(-4.586)*	*Difference Stationary*
Y tN	*-9.582*	*-4.352(-4.586)*	*Difference Stationary*
R tR	*-5.642*	*-4.352(-4.586)*	*Difference Stationary*
C tU	*-11.276*	*-4.352(-4.586)*	*Difference Stationary*
L R_t	*-13.522*	*-4.352(-4.586)*	*Difference Stationary*
It	*-15.352*	*-4.352(-4.586)*	*Difference Stationary*
M_tS	*-9.956*	*-4.352(-4.586)*	*Difference Stationary*
D tF	*-27.956*	*-4.352(-4.586)*	*Difference Stationary*
Note: Test equations include a constant and a trend			

Table 2 contains the multivariate co-integration test findings. The findings demonstrate that, at the five percent (one percent) statistical levels of significance, respectively, the trace and the max eigen statistics surpass the critical values. Since unemployment and inflation are effectively cointegrated and their linear combination is stationary, a long-term link is shown. Any short-run dis-equilibrating force naturally settles at the equilibrium level.

Table 2: Johansen Co-integration Test Results

Hypothesized No. of CE	*Eigenvalue*	*Trace*	*Max-eigen*	*5% (1%) CV*	*Statistical Inference*
*None***	*0.327*	*52.559*	*48.259*	*27.25(39.23)*	*Co-integrated**
At most 1	*0.595*	*49.462*	*33.239*	*23.22(25.64)*	*Co-integrated**
At most 2	*0.769*	*35.255*	*23.225*	*18.42(23.26)*	*Co-integrated**
** denotes that Trace and Max-eigenvalue tests indicate one co-integrating equation @ both 1% and 5% levels*					

The VAR estimate that comes before the Johansen's co-integration test was performed using an optimal lag length of two (Table 3). We estimated the vector error correction model (VECM) after determining the co-integration and stationarity of the study's variables.

Table 3: Lag length Selection

Lag	*LogL*	*LR*	*FPE*	*AIC*	*SC*	*HQ*
0	*525.6*	*NA*	*3.25*	*-11.36*	*-11.23*	*-14.33*
1	*629.2*	*7.362**	*2.65**	*-11.22*	*-12.23*	*-11.23**
2	*876.5*	*6.538**	*2.36**	*-11.76**	*-11.95**	*-12.25**
3	*335.9*	*12.267**	*2.29*	*-23.23*	*-11.26*	*-12.23*
4	*753.6*	*6.239*	*3.55*	*-14.82*	*-15.54*	*-12.26*
5	*589.5*	*9.263**	*5.52*	*-15.63*	*-15.23**	*-12.25**
** indicates lag order selected by the criterion, LR: sequential modified LR test statistic, FPE: Final Prediction Error, AIC: Akaike Information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion*						

Table 4: Error Correction Results

Variables	*VECM Estimates*	
	$\Delta LnU(_t)$	$\Delta Ln(I_t)$
Constant	*1.257* (5.522)***	*-1.328* (-13.262)***
$\Delta Ln(EtR-1)$		*-1.035* (-2.293)***
$\Delta Ln(Y_t^N)$	*-1.322* (-2.356)***	
$\Delta Ln(RtR-1)$		*0.508* (5.437)***
$\Delta LnU(_t)$		*1.085* (1.437)
$\Delta Ln(DtF-1)$		*1.238* (3.536)***
$\Delta LnU(_{t-1})$	*0.026* (3.592)***	
$\Delta Ln(C_t^U)$	*1.063* (3.897)***	
$\Delta Ln(L^R_t)$	*0.526* (1.300)	
$\Delta Ln(I_{t-1})$		*2.295* (-11.762)***
$\Delta Ln(I_t)$	*1.029* (9.562)***	
$\Delta Ln(M_t^S)$		*1.732* (-6.559)***
$\Delta Ln(MtS-2)$		*1.983* (2.576)**
$ECM(t-1)$	*-0.753* (-5.537)***	*-0.928* (-2.956)***
Statistical Fitness of Estimat es		
R^2 , Adjusted R^2, F-statistic	*0.773,0.695, 59.238*	*0.699,0.655, 25.228*
SSR/SEE	*0.035/1.006*	*0.055/1.009*
Diagnostic Checkings		
Jacque-Berra/Ramsey-Reset	*0.009/0.0226*	*0.223/0.0209*
$LM_{(SC)}$ Breusch Godfrey	*0.062*	*0.362*
ARCH/White Test Statistic	*0.262/0.255*	*0.262/0.338*
*Note: ***, ** denotes statistical significance at the 1% and 5% levels. Figures in ( ) are t values*		

Table 4 displays the VECM estimates for unemployment and inflation. In their respective equations, the coefficients for inflation and unemployment rates deviate from theoretical predictions. The unemployment rate and inflation coefficients are both positive. The inflation rate will rise by 1.08 percent for every percent increase in the unemployment rate; this result defies the assumptions made by the short-run Phillips curve. Conversely, a one percent increase in inflation will result in a corresponding 1.02 percent increase in unemployment.

Therefore, workers would eventually expect nominal salaries to reflect inflation if it were to increase steadily over a number of years. This also deviates from the short-term Phillips curve's theoretical postulation. The Nigerian economy is experiencing stagflation, which is evidenced by these variables' inability to report the inverse sign expectation. This suggests that the Phillips curve relation does not exist in Nigeria. The adaptive expectation variable exhibits the expected positive coefficient and passes the significance test at the one percent level. This does, in fact, imply that economic actors' expectations become retrograde when they base them on a weighted average of historical inflation rates, incorporating past errors into projections for the future. Workers consistently underestimate the rate of inflation when it is rising. They consistently overestimate inflation when it is declining. As anticipated, the present inflation rate can be largely explained by the growth rates of broad money, interest rates, and exchange rates.

The findings indicate that a ten percent rise in the money supply and interest rate growth rate will result in a 17.3 percent increase in GDP and a 5.08 percent increase in the inflation rate. The findings show that, as predicted, the growth rates of the money supply, GDP, interest rates, and inflation rate lag by one year all have a positive impact on inflation. The following is an explanation for how interest rates positively impact inflation rates: Higher borrowing costs deter potential investors, which has the effect of crowding out investment. This increase in borrowing costs also raises prices, which puts inflationary pressure on the economy as a whole. The Naira-US dollar exchange rate and the fiscal imbalance had a negative and substantial impact on Nigeria's inflation rate. The exchange rate's negative sign means that inflation will keep rising as the exchange rate declines. In other words, a ten percent decline in the value of the naira against the US dollar will result in a 10.3 percent increase. Nigeria's present unemployment rate is significantly impeded by both capacity utilization and national income. In particular, the findings indicate that a ten percent rise in GDP growth rate and capacity utilization causes the unemployment rate in Nigeria to rise by 10.6 percent and fall by 13.2 percent, respectively. Both the inflation and unemployment equations' F statistics are very significant. These suggest that the systematic changes in Nigeria's unemployment and inflation rates can be satisfactorily explained by the general vector error correction model. The B-G statistic demonstrates that the unemployment and inflation equations do not contain serial correlation. The computed equations for unemployment and inflation have adjustment coefficients of -0.753 and -0.928, respectively. There is statistical significance to these negative coefficients. This indicates that the inflation equation adjusts more quickly than the unemployment equation. Therefore, in Nigeria, 75% of the total adjustment in the unemployment level is covered annually, whereas over 92% of the adjustment in the inflation rate is covered within a year.

Conclusion

Over a twenty-seven-year period, we looked at the relationship between unemployment and inflation for the Nigerian economy. The study's empirical conclusion is that there is a positive correlation between unemployment and inflation. Since 1996, growing unemployment has essentially led to increased inflation and vice versa. Specifically, our analysis has demonstrated that the Nigerian economy is experiencing stagflation. In Nigeria, this refutes the Phillips curve theory. The adoption of inflation targeting (CBN, 2006), which encourages inflation expectations, global market globalization-induced international competition, and the presence of labor surplus in the Nigerian economy—which has led to rigidities in the labor market and the nation's wage structure—are some of the potential causes of the stagflation in Nigeria. Another important conclusion is that the unemployment rate does not significantly explain inflation, even while inflation is crucial in explaining Nigeria's level of unemployment.

These findings have policy implications since they suggest that rising unemployment won't cause significant swings in the inflation rate, and that increasing employment variability would be necessary to bring the inflation rate down to the target level if it is now over target. We advise the CBN to stick to its policy of gradually bringing the benchmark inflation rate down to zero percent in the face of inflationary threats, since it appears that the recent extreme contraction of the monetary policy rate has been ineffective. If the CBN could boost lending to the real sector of the economy and GDP growth above the money supply, a single-digit inflation rate may be attained. We believe that the CBN's overreliance on interest rates as a key instrument for adjustment is risky. Therefore, in order to promote economic growth, the CBN will need to soften its current stance on policy and allow interest rates to drop while still maintaining control over the expansion of money. Additionally, the government has to develop strong manufacturing sectors, particularly because 70% of the workforce in the nation is currently employed in agriculture.

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