Economic Stabilization Policy in Nigeria: Reassessing the Classical-Keynesian Uncertainty Controversy

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Abstract: **The economic theory proposes adjustment in the lending interest rate as a means of attaining macroeconomic stabilization through inflation targeting. The inability of policymakers to bring about the desired change in inflation without looking at the past values of the lending interest rate and inflation draws us into the economic uncertainty debate between the Classical and Keynesian schools of thought. Using the lending interest rate as a proxy for macroeconomic stabilization policy, this study determined whether it is the classical assertion that the future behaviour of economic variables can be perfectly predicted from historical data that holds for Nigeria, or it is the opposite notion of Keynes. This was done by analyzing trends in Nigeria's lending interest rate, inflation rate and economic growth over the period of 1986 to 2020. The relevance of macroeconomic stabilization policy in Nigeria was also examined using a structural vector autoregressive model. Findings agreed with the Keynesian notion that due to uncertainty, the future behaviour of economic variables cannot be predicted by historical data. This has made the macroeconomic stabilization policy in Nigeria ineffective. However, the policy is still relevant in Nigeria and should not be undermined. The study recommends alternative policy options such as formulating an employment-targeting stabilization policy alongside the inflation targeting policy as this may likely stabilize the economy and also prepare the economy for economic uncertainty.**

*Keywords***: Economic Theory; Macroeconomic Stabilization; Classical Uncertainty; Keynesian Uncertainty; Stabilization Policy.**

*JEL Classification***: B12, B22, C22, D81, E12, E43.**

I. INTRODUCTION

There exists a discrepancy between the classical and Keynesian theories about the prediction of the future behaviour of economic variables from the past statistical data present. The classical theory believes that the future can be predicted with perfect certainty based on a statistical analysis of past evidence while the Keynesian theory states that the future is uncertain and cannot be reliably predicted based on any statistical analysis of past evidence (Davidson, 1998).

The use of historical data to form predictions is a common practice in economic forecasting. It appears policymakers are more engrossed with the classical notion of uncertainty. Recent global occurrences however suggest that Keynes might be right when he made his claims about uncertainty. A lot of events have shaped the world in the 21st century alone. Notable among these include the global financial crisis of 2008, the outbreak of COVID-19 in 2019 and the most recent Russia-Ukraine Crisis in 2022. These occurrences were least expected. In Nigeria, uncertainty has been recorded severally in the forms of civil unrests, economic recessions, global fall in oil prices, armed banditry and terrorism, the outbreak of diseases such as Ebola, Lassa fever, COVID-19. These events have been tantamount to the changes in the economic structure of the country. Hence, these uncertainties are seen as being capable of deciding the level of effectiveness of economic policies, including the macroeconomic stabilization policy.

The drivers of economic stabilization policy are interest rate, inflation and economic growth. According to the Central Bank of Nigeria, economic growth is the end target of economic stabilization policy, inflation is the major determinant of the policy direction and interest rate is the tool for actualizing its goal (Central Bank of Nigeria [CBN], 2010). Stabilization policies are usually supported by fiscal policies and are viewed globally as the monetary policy instruments of the Central Banks (Eje, 2018). In the face of challenging economic outcomes, the monetary authorities develop stabilization policies which aimed at restoring decent measures of macroeconomic balance to the economy. For Hayes (2021), macroeconomic stabilization policy aims at maintaining a healthy level of economic growth and minimal price changes. Sustaining a stabilization policy requires monitoring the business cycle and adjusting fiscal policy and monetary policy as needed to control abrupt changes in demand or supply. The policy is designed to prevent the economy from excessive "over-heating" or "slowing down." Depending on the level of price fluctuation or inflation, the monetary authority may raise or reduce the interest rate and reduction in interest rate encourages borrowing while increase in interest rate does the opposite. Either way, the end is to stabilize the economy for enhanced growth.

In Nigeria, the first stabilization policy was adopted in 1986. Bakare (2012) states that the stabilization policy became important to policymakers because they realized that a centrally planned economy was a contributing factor to macroeconomic

instability, hence, the need to achieve full employment and price stability. Since then, macroeconomic stabilization policy in Nigeria has been guided by statistical evidence where present and past statistical data are used to formulate stabilization policies with the belief that the future can be predicted with certainty.

However, it is good to mention here that despite the various stabilization policies that have existed in Nigeria, the Nigerian economy has not stabilized. Both inflation and unemployment are high and the speed of growth of the economy has been slow. According to the National Bureau of Statistics (NBS, 2022), Nigeria's inflation rate was 15.63% in December 2021. At the same time, unemployment in Nigeria stood at 32.5% while the economy's growth rate averaged was 1.15% from 2010 to 2021 (NBS, 2022). The fact that the Nigerian economy has not stabilized suggests that these two uncertainty hypotheses need to be re-examined. Hence, this study provides the answers to the following questions:

i. Can historical data perfectly predict economic stabilization in Nigeria?
ii. Is macroeconomic stabilization policy in Nigeria relevant?

II. LITERATURE REVIEW

2.1 Conceptual Issues and Empirical Review

The literature reviewed in this study conceptualizes interest rate, inflation rate, economic growth and uncertainty. The literature also theorizes the relationship among these concepts and attempts a review of previous studies revolving around them.

Teriba, (2012) defines interest rate as the amount billed on the borrowed money, expressed as a percentage of the principal, from a lender to a borrower for the use of the money. It is frequently stated as a percent of the sum of money borrowed (principal) for one year or whatever other period – month, week, day etc.as agreed between the lender and the borrower when taking out the loan. Specifically, the interest rate is the percentage of the principal that is paid as a fee over a given period. Interest rates may be expressed in nominal or real terms depending on whether or not changes in price levels (inflation) are taken into account in their calculations. If no adjustment is made for price level variations, the interest rate is expressed in nominal terms. A nominal interest rate is the interest rate that does not include inflation. It is practically the most elementary case of interest rate (Teriba, 2012).

Inflation occurs when there is an increase in the price of goods and services Olugbenga and Oluwabunmi, (2020). This price increase is seen as inflation when it is persistent and above the specified benchmark. For instance, an increase in the money supply can gravitate to a higher price level in a matter of time. There are various types of inflation known in the literature, some of these types are: demand-pull, which arises as a result of an increase in aggregate demand without a corresponding increase in supply, supply push or cost-push inflation happens when a reduction in supply caused by an increase in the cost/price of the commodity produced (Anochiwa & Maduka, 2015). Inflation can also be structural which arises as a result of changes in monetary policy. This type of inflation is generally referred to as built-in inflation. Within these categories,Umaruand Zubairu (2012) recognize inflation to be hyper, extremely high, chronic, high, moderate, and low.

Anochiwa and Maduka (2015) believed that the ability of monetary authorities to maintain single-digit inflation would increase the capacity to accelerate economic growth. However, the reverse is the case for Nigeria. Available data from the Central Bank of Nigeria Statistical Bulletin (2018) on the trend of inflation indicate that the inflationary situation in Nigeria became alarming from 1980 until 2018.

Empirical research pairing inflation, interest rate and economic growth include the likes of Babalola, Danladi, Akomolafe and Ajiboye (2015) who determined the effects of inflation and interest rate on economic growth in Nigeria. They also determined the correction measures forsustainable inflation and interest rate trends in Nigeria between 1981 to2014. They found that inflation and interest rate have negative effects on Economic growth but neither inflation nor interest rate granger caused economic growth. Similarly, Olaniyan, Adegboyo, Owoniya, Alaketu (2020) examined the impact of interest rate and economic growth as a determinant of the firm's investment decisions in Nigeria between the period of 1989 and 2019. Data were obtained from the Central Bank of Nigeria Statistical Bulletin and found a unique long-term relationship between interest rates, external borrowing, exchange rate, and economic growth.

Olugbenga and Oluwabunmi, (2020) undertook a study on the influence of inflation on the growth prospects of the Nigerian economy, using an autoregressive distributed lag model on selected variables from 1980 to 2018. The study found that inflation and real exchange rate exert a significant negative impact on economic growth, while interest rate and money supply presented a positive and significant impact on economic growth.

Using the panel analysis, Ndoricimpa (2017) studied the inflation threshold on economic growth in some selected African countries. The result indicated a non-linear relationship between the two variables, and that low inflation enhances the growth of the economy in the middle-income countries, while it has no effect on the sample put together.

In a more closely related study, Bakare (2012) explored the nexus among stabilization policy, unemployment crisis and growth in Nigeria using the Ordinary Least Square multiple regression, (OLS). The results of the study showed that the past values of unemployment crisis could be used to predict the future behaviour of economic growth in Nigeria.

In somewhat reframed format, some studies embedded interest rate and inflation rate in what is known as monetary policy and studied its effect on prices and economic growth. For instance,

Musa, Asare and Gulumbe (2013) investigated the effectiveness of monetary-fiscal policies interaction on price and output growth in Nigeria. Impulse responses and variance decompositions were used to capture the dynamic correlations of variables. The results suggested that the policy variables - money supply and government revenue - hada more positive impact on price and economic growth in Nigeria specifically in the long run. The findings also suggested that both monetary and fiscal policy exert a greater impact on real GDP and inflation in Nigeria.

In another study, Usman and Adejare (2014) examined the impact of monetary policy on industrial growth in Nigeria, with data from the Central Bank of Nigeria statistical bulletin covering from 1970 to 2010. Multiple regressions were employed to analyze the data. The results indicated that manufacturing output, treasury bills, deposit, lending and rediscount rates had significant effects on the industrial growth in Nigeria from 1970 to 2010. Hence, the study concluded that rediscount rate and deposit have a significant positive effect on industrial output but treasury bills have negative impacts on industrial output.

These few studies reviewed above only provided an insight into how stabilization policies can influence the growth of the economy. Even though the effect of stabilization policy on economic growth is not direct, the studies have not been able to establish any indirect links. Also, the studies have not factored in the issue of uncertainty, and whether or not it is good to predict future values of inflation from historical data through stabilization policies. These are the unique issues addressed by this study.

2.2 Theoretical Review

The theory of economic uncertainty, expressed in the Classical and Keynesian schools of thought, lays the theoretical foundation for this study. As discussed in the introductory part of this study, there is no agreement between the classical and Keynesian notions of economic uncertainty surrounding past and future phenomena. The discrepancy lies in the authenticity of perfectly predicting future economic occurrences from historical data. The Classical believe this is possible while the Keynesians do not believe the same (Davidson, 1998). This lack of agreement has triggered our empirical curiosity as to whether macroeconomic stabilization policy works in Nigeria by drawing inferences from past values of interest rate, inflation rate and economic growth.

The workability of macroeconomic stabilization policy is explained in the Monetarist Theory pioneered by Milton Friedman (1967). The theory posits that increasing the money supply at a faster rate than the growth in the economy results in inflation, which is harmful to economic growth. In an attempt to influence inflation and economic growth, interest rate control can be used, where there is a change in the short-term interest rate by the Central Bank (Bain and Howells, 2003). However, the impact of monetary policy changes is not direct and it affects economic growth through different channels.

Expansionary monetary policy leads to a decrease in real interest rates and investment spending will increase, leading to an increase in aggregate demand. The rise in aggregate demand led to an increase in price level economy output. This implies a negative relationship between interest rate and economic growth and a negative relationship between interest rate and inflation. However, if there is an increase in interest rate, the real GDP increases in the long run. Macroeconomic stabilization policy therefore, targets price stability by influencing changes in the interest rate which directly influences inflation and indirectly affects economic growth.

III. METHODOLOGY

This study employed the use of trend analysis and structural vector autoregressive model (SVAR). Macroeconomic stabilization policy seeks to keep the economy stable by increasing or decreasing interest rates as needed to maintain a healthy level of economic growth and minimal price changes. The trend analysis will therefore be used to evaluate if past changes in the lending interest rate led to expected changes in economic growth and inflation rate respectively. The structural vector autoregressive model will be used to examine the effect of interest rate on economic growth and inflation in Nigeria through the lending interest rate (where the effect of lending interest rate on economic growth and inflation is used as macroeconomic stabilization). The study will cover the period from 1986 to 2020.

3.1 Model Specification

The model used for this study is drawn from the theories reviewed in the previous section. This study regresses interest rate against inflation and economic growth. The theory suggests lending interest rate as a function of inflation. This can be expressed mathematically as follows:

$$INT = f(INF) \tag{1}$$

$$INT_t = \alpha + \beta INF_t + \varepsilon_t \tag{2}$$

Where *INT* is the interest rate and *INF* is inflation.

The Keynesian theory assumes a positive relationship between inflation and economic growth in the short run only. This implies that inflation (INF) is a positive function of economic growth (GDP). Symbolically,

$$INF = f(RGDP) \tag{3}$$

$$INF_t = \beta_0 + \beta_1 GDP_t + \varepsilon_t \tag{4}$$

Where *INF* is the inflation rate and RGDP is the real gross domestic product.

Equations (1) and (3) suggest the transmission effect of an increase in bank lending rate to economic growth through an induced increase in inflation. Explicitly, an increase in the bank lending rate leads to an increase in the general price level, and an increase in inflation consequently leads to economic growth.

$$\Uparrow INT \rightarrow \Downarrow INF \rightarrow \Downarrow GDP$$

This relationship can be estimated using a structural vector autoregressive model (SVAR). SVAR is preferred in this case because of its advantage over standard VAR by allowing for the contemporaneous effect of a shock in the real interest rate on economic growth through the relevant channels. The study identifies economic growth by assuming that unexpected variations in inflation are exogenous relative to the coinciding values of the remaining macroeconomic variables included in the SVAR.

Using (2) as optimal lag length according to the lag length criteria reported in section 4, a generic SVAR (2) model can be expressed as:

$$A_0 Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \varepsilon_t \tag{5}$$

Where A_0 is a matrix of contemporaneous coefficients, $A_1 - A_4$ are coefficient matrices at lags 1, 2, …, t; Y_t is the matrix of endogenous variables at current value, and $Y_{t-1} - Y_{t-2}$ are matrices of endogenous variables at lags 1 to 2.

To capture the contemporaneous effect, the SVAR (2) model can be specified as follows;

$$\begin{bmatrix} 1 & -\Pi_{12}^0 & -\Pi_{13}^0 \\ -\Pi_{21}^0 & 1 & -\Pi_{23}^0 \\ -\Pi_{31}^0 & -\Pi_{32}^0 & 1 \end{bmatrix} \begin{bmatrix} INT_t \\ INF_t \\ RGDP_t \end{bmatrix} =$$

$$\begin{bmatrix} \Pi_{11}^1 & \Pi_{12}^1 & \Pi_{13}^1 \\ \Pi_{21}^1 & \Pi_{22}^1 & \Pi_{23}^1 \\ \Pi_{31}^1 & \Pi_{32}^1 & \Pi_{33}^1 \end{bmatrix} \begin{bmatrix} INT_{t-1} \\ INF_{t-1} \\ RGDP_{t-1} \end{bmatrix} +$$

$$\begin{bmatrix} \Pi_{11}^2 & \Pi_{12}^2 & \Pi_{13}^2 \\ \Pi_{21}^2 & \Pi_{22}^2 & \Pi_{23}^2 \\ \Pi_{31}^2 & \Pi_{32}^2 & \Pi_{33}^2 \end{bmatrix} \begin{bmatrix} INT_{t-2} \\ INF_{t-2} \\ RGDP_{t-2} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \end{bmatrix} \tag{6}$$

Following the recursive approach, which is prominently applied in the empirical literature, $-\Pi_{12}^0, -\Pi_{13}^0$, and $-\Pi_{23}^0$ were restricted to zero for the SVAR(4) model to be identified. Thus, the recursive SVAR (4) model is stated below;

$$\begin{bmatrix} 1 & 0 & 0 \\ -\Pi_{21}^0 & 1 & 0 \\ -\Pi_{31}^0 & -\Pi_{32}^0 & 1 \end{bmatrix} \begin{bmatrix} INT_t \\ INF_t \\ RGDP_t \end{bmatrix} =$$

$$\begin{bmatrix} \Pi_{11}^1 & \Pi_{12}^1 & \Pi_{13}^1 \\ \Pi_{21}^1 & \Pi_{22}^1 & \Pi_{23}^1 \\ \Pi_{31}^1 & \Pi_{32}^1 & \Pi_{33}^1 \end{bmatrix} \begin{bmatrix} INT_{t-1} \\ INF_{t-1} \\ RGDP_{t-1} \end{bmatrix} +$$

$$\begin{bmatrix} \Pi_{11}^2 & \Pi_{12}^2 & \Pi_{13}^2 \\ \Pi_{21}^2 & \Pi_{22}^2 & \Pi_{23}^2 \\ \Pi_{31}^2 & \Pi_{32}^2 & \Pi_{33}^2 \end{bmatrix} \begin{bmatrix} INT_{t-2} \\ INF_{t-2} \\ RGDP_{t-2} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \end{bmatrix} \tag{7}$$

To avoid cross-error correlations or spill-over volatility, and remove the possibility of autocorrelations, we set

$$A_0 Y_t = B U_t \tag{8}$$

Where Y is the matrix of endogenous variables, B is the variance matrix, and U is the matrix of error terms. This can be presented in matrix form as follows;

$$\begin{bmatrix} 1 & 0 & 0 \\ -\Pi_{21}^0 & 1 & 0 \\ -\Pi_{31}^0 & -\Pi_{32}^0 & 1 \end{bmatrix} \begin{bmatrix} INT_t \\ INF_t \\ RGDP_t \end{bmatrix}$$
$$= \begin{bmatrix} \delta_1 & 0 & 0 \\ 0 & \delta_2 & 0 \\ 0 & 0 & \delta_3 \end{bmatrix} \begin{bmatrix} U_{1t} \\ U_{2t} \\ U_{2t} \end{bmatrix} \dots\dots\dots\dots \tag{9}$$

This implies that

$$A_0 E_t = B U_t \tag{10}$$

Where E is the matrix of initial impulses (i.e., initial volatility in the endogenous variables). This can be represented in matrix form as stated in equation 19.

$$\begin{bmatrix} 1 & 0 & 0 \\ -\Pi_{21}^0 & 1 & 0 \\ -\Pi_{31}^0 & -\Pi_{32}^0 & 1 \end{bmatrix} \begin{bmatrix} e_t^{INT} \\ e_t^{INF} \\ e_t^{GDP} \end{bmatrix}$$
$$= \begin{bmatrix} \delta_1 & 0 & 0 \\ 0 & \delta_2 & 0 \\ 0 & 0 & \delta_3 \end{bmatrix} \begin{bmatrix} U_{1t} \\ U_{2t} \\ U_{2t} \end{bmatrix} \dots\dots\dots\dots \tag{11}$$

Thus, to compute initial responses, we can set

$$E_t = A_0^{-1} B U_t \tag{12}$$

That is;

$$E = SU \tag{13}$$

Where $S = A_0^{-1} B$

This can be presented in matrix form as;

$$\begin{bmatrix} e_t^{INT} \\ e_t^{INF} \\ e_t^{GDP} \end{bmatrix} = \begin{bmatrix} a & 0 & 0 \\ b & c & 0 \\ d & e & f \end{bmatrix} \begin{bmatrix} U_{1t} \\ U_{2t} \\ U_{2t} \end{bmatrix} \tag{14}$$

Where,

a = initial response of interest rate to own shock;
b = initial response of inflation to shock in interest rate;
c = initial response of inflation to own shock;
d = initial response of economic growth to shock in interest rate;
e = initial response of economic growth to inflation shock; and
f = initial response of economic growth to own shock.

3.2 Data and Data Sources

The study used data on the lending interest rate, Real GDP growth rate (as a proxy for economic growth) and inflation rate from 1986 to 2020. This study period was selected based on the

fact that the first macroeconomic stabilization policy in Nigeria came into effect in 1986. The year 2020 is also significant to this study because the outbreak of COVID-19 appeared to reaffirm that the existence of uncertainty cannot be overlooked. All the data were sourced from the World Bank Statistical Database.

IV. RESULTS AND DISCUSSIONS

This section presents data and discusses the results of the statistical tests and analyses conducted in this study. The first part analyzes and discusses the characteristics of the data through descriptive analysis and trends. By doing so, the study evaluates if changes in the lending interest rate were accompanied by expected changes in the inflation rate and consequently, economic growth in Nigeria. The second part attempts to authenticate the theory of economic stabilization policy in Nigeria as outlined in Milton Friedman's (1967) monetarist theory.

4.1 The Classical Uncertainty versus Keynesian Uncertainty: Speaking through Data

We analyze the trends of interest rate, inflation rate and economic growth in Nigeria over the period of 1986 to 2020. As stated in the monetarist theory, macroeconomic stabilization is achieved by adjusting the lending interest rate. If the inflation rate falls when the interest rate increases, and vice-versa, we may believe that the future values of the inflation rate in Nigeria can be perfectly predicted from past values of interest rate. This is the stand of the classical notion of economic uncertainty. If, however, an increase in interest rate does not lead to a fall in inflation rate or vice-versa, we may believe that the future values of inflation rate in Nigeria cannot be predicted with perfect certainty by analyzing trends in the lending interest rate.
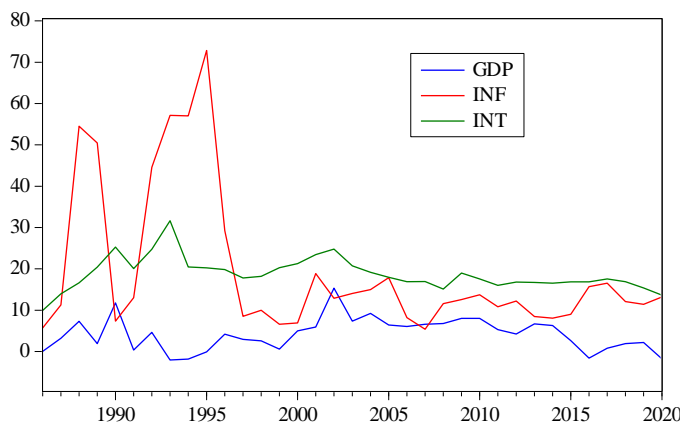

Figure 1: Trends of Interest Rate, Inflation Rate and Economic Growth in Nigeria – 1986 to 2020

The trends of interest rate and inflation rate in Nigeria from 1986 to 2020 appear to be similar over the years. Both interest rate and inflation rate increased for two consecutive years from 9.96% and 5.72% respectively in 1986 to 13.96% and 11.29% in 1988. Both variables fell in 1989 and 1990 respectively. For most of the years, increase in the lending interest rate was accompanied by increase in the inflation rate while decrease in

interest rate was followed by decrease in the inflation rate. These trends do not align with the expectation of a macroeconomic stabilization policy in Nigeria. The macroeconomic stabilization policy expects that when there is an increase in the interest rate, inflation falls and vice-versa. The stabilization policy does not expect both rates to move in the same direction. The historical data we refer to shows that the inflation rate responded to changes in interest rate as expected 29% of the time over 35 years. In 1994, 2003, 2004, 2005, 2008, 2010 and 2020, the inflation rate rose when the interest rate fell, while in 1999, 2002 and 2007, increases in interest rate were accompanied by declines in the rate of inflation. This implies that five (5) out of every seven (7) macroeconomic stabilization policies in Nigeria fail. Consequently, the behaviour of economic growth viz-a-viz changes in the lending interest rate has been non-different. Both macroeconomic variables have moved in parallel directions throughout the period under study. Macroeconomic stabilization policy does not expect nominal GDP to rise with a rising lending interest rate, especially as an increase in the lending rate is a discretionary monetary policy tool used by the Central Bank.

The massive failure of macroeconomic stabilization policies in Nigeria can be attributed to the reality of economic uncertainty. This brings to life the arguments put forward by the classical and Keynesian schools of thought about economic uncertainty. While the classical notion that the future economic phenomenon can be predicted from historical data was found to be 29% true, the peculiarities of the Nigerian macroeconomic stabilization policy align more with the Keynesian notion of uncertainty. For 71% of the time, the stabilization policy in Nigeria failed to bring about the expected changes in inflation rate and economic growth. This implies that the past values of interest rate cannot perfectly predict future inflationary trends in Nigeria.

The foregoing discussions have laid the foundation for questioning the relevance of economic stabilization policy in Nigeria. The results suggest that we cannot rely on historical data for stabilization policy formulation in Nigeria. However, until statistically proven, we cannot be too sure. In the next section, we examine the relevance of macroeconomic stabilization policy in Nigeria by exploring the transmission mechanism among lending interest rate, inflation rate and economic growth.

4.2 Examining the Relevance of Macroeconomic Stabilization Policy in Nigeria.

The relevance of macroeconomic stabilization policy in Nigeria is examined by evaluating the transmission effect of interest rate on economic growth in Nigeria through a structural vector autoregressive model (SVAR). The model regress the lending interest rate against economic growth through the inflation rate. This channel of transmission has already been discussed under the monetarist theory and model specification. In this section,

we analyze the results of the unit root test, the lag selection criteria and the SVAR estimates.

Table I: Unit Roots Results (Im, Pesaran and Shin)

Series	t-Stat	Prob.
W-stat	-4.26737	0.0000
GDP	-3.6816	0.0090
INF	-4.5395	0.0013
INT	-3.1137	0.0349

Source: Authors' Computations

Table I shows that the series achieved stationarity in their levels form, both as a group and individually. This suggests that there is no unit root problem in the series, and the model is likely to produce stable estimates. Achieving stationarity at level for all series included in the model is also a precondition for the estimation of a structural vector autoregressive model.

Next, we determine the optimal lag length for our SVAR model. Lag length selection is an important step in the estimation process. The optimal lag reduces the chances of residual correlations and enables the model to produce consistent estimates. Results of the lag selection criteria are presented in Table 2.

Table II: Lag Criteria Table

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-291.6706	NA	36222.72	19.01101	19.14978	19.05624
1	-273.3281	31.95135	19909.98	18.40827	18.96336	18.58921
2	-251.4069	33.94259	8819.895	17.57464	18.54605*	17.89129
3	-238.3781	17.65187	7134.890	17.31472	18.70245	17.76708
4	-221.8626	19.17929*	4824.877*	16.82985*	18.63390	17.41792*

Source: Authors' Computations

* indicates lag order selected by the criterion.

Even though almost all the lag selection criteria selected lag 4, we choose to select our optimal model based on the Schwarz information criterion (SC). The choice of SC is based on the fact that our model is analytical and seeks to explain if the macroeconomic stabilization policy in Nigeria has been effective. Our lag length criterion has selected lag 2 as the optimal lag for the model. This means that our parsimonious model is SVAR (2).

We analyze the transmission of interest rate to economic growth in Nigeria in three parts – the contemporaneous effects, the short-run impulseresponse and the long-run impulseresponses.

Estimated A Matrix: SVAR Contemporaneous Coefficients

	GDP	INF	INT
GDP	1.000000	0.000000	0.000000
INF	0.864342	1.000000	0.000000
INT	-0.237367	-0.025517	1.000000

Source: Authors' Computations using Eviews: 10.0

NB: the signs of the coefficients of the estimated A matrix are reversed.

For two reasons, restrictions were imposed on the elements of the upper diagonal of the A matrix for the model to be identified, and for recursive reasons. We do not expect interest rate to exert an immediate effect on inflation and economic growth instantly. However, since interest rate, inflation and economic growth are interdependent, we have inflation rate responding to economic growth and interest rate responding to inflation and economic growth immediately. The estimated A matrix reveals that inflation responds negatively to a contemporaneous shock in economic growth by -0.86%. This is likely to happen if the growth in the economy is necessitated by an increase in domestic output without a corresponding increase in demand. The estimated A matrix correctly predicts an immediately positive response of the lending interest rate to a shock in inflation rate. This is quite in line with the macroeconomic stabilization policy. The Central Bank is expected to raise the lending interest rate as a discretionary measure to reduce inflation. This suggests that the response of interest rate to an increase in inflation in Nigeria will be inline with the goal of macroeconomic stabilization policy.

We also evaluate the response of interest rate (stabilization tool) to a positive shock in inflation in the short run. Our SVAR estimates, to this effect, are presented in the estimated S matrix (the matrix of short-run impulseresponses).

Estimated S Matrix: SVAR Short-run Impulse-Responses Coefficients

	GDP	INF	INT
GDP	3.807739	0.000000	0.000000
INF	-3.291188	12.71708	0.000000
INT	0.819849	0.324506	2.766293

Source: Researcher's Computations using Eviews 10.0

There is no clear difference between the contemporaneous and short-run estimates based on the signs of the coefficients. This means that the policy measure in response to a positive shock in inflation is the same as discussed above.

We have affirmed that the macroeconomic stabilization policy in Nigeria will respond to a rise in inflation as expected. The next step is to find out if the policy will achieve its intended target in the long run. The results analyzed with respect to this are presented in the estimated Matrix F which is the matrix of long-run impulseresponses.

Estimated F Matrix: SVAR Long-run Impulse-Responses Coefficients

	GDP	INF	INT
GDP	9.346510	0.927778	-2.749865
INF	-17.90924	15.99251	21.27082
INT	1.306103	0.765418	7.517806

Source: Researcher's Computations using Eviews 10.0

It appears that the goal of macroeconomic stabilization policy in Nigeria will be defeated in the long run. Though the response of economic growth to one-time shocks in the inflation rate (positive) and interest rate (negative) conform to the monetarist theory, it is also good to know that the response of inflation to a shock in the lending interest rate (positive) does not. This shows that even when the Central Bank of Nigeria raises the lending interest rate as a discretionary stabilization policy, inflation will not fall in the long run as expected.

This result justifies the Keynesian notion of economic uncertainty discussed earlier in this study. In our discussion on whether it is the classical school of thought or that of Keynes that applies to Nigeria's macroeconomic stabilization policy, we found that the Keynesian notion was justified 71% of the time between 1986 and 2020 against the classical notion of uncertainty. The failure of the macroeconomic stabilization policy to reduce inflation rate by increasing the lending interest rate provides a further justification that the future behaviour of inflation in Nigeria cannot be perfectly predicted from the historical values of the lending interest rate.

The next question that comes to mind is if the macroeconomic stabilization policy fails in Nigeria because of economic uncertainty only or because the policy itself is not relevant. If other factors provide a more powerful explanation of the behaviour of inflation in Nigeria than the lending interest rate, we may be convinced that the macroeconomic stabilization policy in Nigeria is not relevant. To find out, we analyze the variance decomposition of inflation rate using the SVAR model estimated earlier in this study. Results of the variance decomposition of inflation rate are presented in Table III.

Table III: Variance Decomposition of Inflation Rate in Nigeria

Period	S.E.	Shock in GDP	Own Shock	Shock in INT
1	13.13606	6.277334	93.72267	0.000000
2	16.35521	7.834142	92.07253	0.093323
3	17.56351	11.81509	80.01538	8.169534
4	18.99619	11.57684	70.19343	18.22974
5	19.69629	11.42424	66.21865	22.35712
6	19.87953	11.46923	65.17873	23.35205
7	19.93241	11.56507	64.89044	23.54449
8	19.95246	11.61368	64.79964	23.58668
9	19.96050	11.63901	64.76604	23.59495
10	19.96300	11.65134	64.75386	23.59480

Source: Authors' Computations using Eviews 10.0

Variance decomposition explains the proportion of changes in a variable that is accounted for by all the factors under consideration. It distributes the changes in the variable of interest among all the variables considered to be responsible for such changes. In our model, the factors considered to be responsible for the changes in inflation are itself, economic growth and the lending interest rate. As it was considered during the discussions on the impulse responses, instant change in the inflation rate is accounted for by shocks in economic growth and inflation itself. More than 93% of such changes are explained by inflation itself while the remaining areexplained by shock in economic growth. Movement along the temporal path reveals that the influence of macroeconomic stabilization policy comes in along the way, variations due to own shock decline and the influence of both economic growth and interest rate increase with time. In the long run, the lending interest rate exerts more influence on inflation in Nigeria than economic growth. This suggests that if other factors are held constant, the lending interest rate is a strong predictor of the rate of inflation in Nigeria. Therefore, it will not be right to undermine the relevance of the macroeconomic stabilization policy in Nigeria, even though the policy has failed on many occasions.

Post-Estimation Diagnostic Tests

Haven discussed the economic plausibility and statistical significance of our estimates in the preceding sections, in this section, we evaluate the econometric reliability of the results discussed in this study. Consequently, we check the stability of the model's estimates through the Inverse Roots of Autoregressive Characteristic Polynomial. At the same time, we analyze the results of serial correlation and heteroskedasticity.

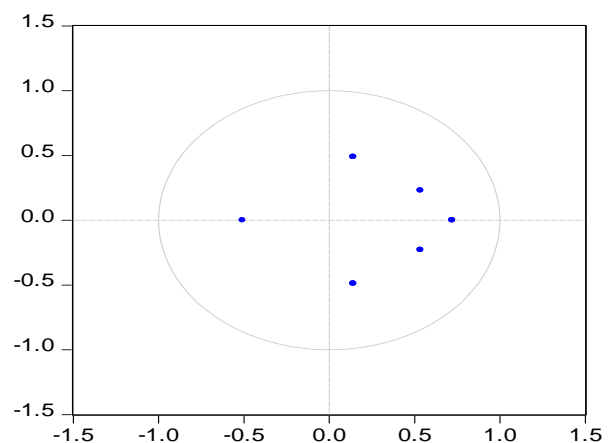Figure 2: Inverse Roots of AR Characteristic Polynomial

Figure 2 shows that the estimates from the model used in this study are stable. This implies that the model is likely to produce consistent estimates if exposed to a new dataset. This is because the inverse roots (represented by the points on the graph) are all located within the circle.

Table IV: Results of Serial Correlation and Heteroskedasticity

Diagnostic Test	Test Statistic	Statistic Value	Probability
Serial correlation	Likelihood Ratio	15.56634	0.0765
Heteroskedasticity	Chi-square	9.18899	0.4186

Source: Authors' Computations using Eviews 10.0

Based on the probability values of the test statistics for serial correlation and heteroskedasticity, as presented in Table IV, it suffices to say that our model's estimates are reliable. This means that the model is suitable for analyzing uncertainty as it relates to economic stabilization policy in Nigeria.

V. CONCLUSION AND RECOMMENDATIONS

From the findings discussed in this study, it is obvious that the macroeconomic stabilization policy in Nigeria has not been effective over the years. This is because the Keynesian notion of economic uncertainty applies more to the policy in Nigeria than the classical notion. However, the macroeconomic stabilization policy is still relevant in Nigeria and cannot be undermined. This is because, all things being equal, the lending interest rate is the strongest factor influencing the inflation rate in Nigeria apart from inflation itself.

Therefore, we recommend that macroeconomic stabilization policy should be backed up by alternative options which can be resorted to if uncertainty prevents the policy from being effective. The Central Bank of Nigeria should consider other factors that affect inflation in Nigeria apart from the lending interest rate. The economic theory proposes employment creation as an alternative measure toward achieving macroeconomic stabilization. The government should therefore complement the Central Bank by formulating an employment-targeting stabilization policy alongside the inflation targeting policy as this may likely stabilize the economy.

REFERENCES:

[1] Akinyede, O. M. & Elumah, L. O. (2017). Economic policy and stabilization policy in Nigeria. Eurasian Review of Business and Finance, 1(3), 1-9.
[2] Anochiwa, L. I. & Maduka, A. (2015). Inflation and economic growth in Nigeria: Empirical evidence? Journal of Economics and Sustainable Development, 6(20), 113-121
[3] Babalola, O. O., Danladi, J. D., Akomolafe, K. J. & Ajiboye, O. P. (2015). Inflation, interest rates and economic growth in Nigeria. European Journal of Business and Management, 7(30), 91-102.
[4] Bakare, A. S. (2012). Stabilization policy, unemployment crises and economic growth in Nigeria. Universal Journal of Management and Social Sciences, 2(4), 55–63.
[5] CBN, (2010). Monetary policy review, 1(1).
[6] Davidson, P. (1998). Uncertainty in Economics. In Katz, S., Read, C. B. & Banks, D. L. (eds), Encyclopedia of Statistical Sciences, 2, New York: Wiley.
[7] Eje, G. C. (2018). Effectiveness of stabilization policies in Nigeria under the Phillips curve framework. European Journal of Social Sciences Studies, 2(11), 16-27.
[8] Hayes, A. (2021). Stabilization Policy. Retrieved March 9, 2022 from https://www.investopedia.com/terms/s/stabilization-policy.asp
[9] Ndoricimpa, A. (2017). Threshold effects of inflation on economic growth in Africa: Evidence from a panel threshold regression approach. Working Paper Series, No 249, African Development Bank, Abidjan, Côte d'Ivoire.
[10] Olaniyan, N. O., Adegboyo, O. S., Owoniya, B. O, & Alaketu A. A. (2020). Interest rate and economic growth as determinants of firm's investment decision in Nigeria: A cointegration approach. Journal of Euro Economic Issue, 3(39).
[11] Olugbenga, A. A. & Oluwabunmi, D. (2020). Impact of inflation on economic growth: evidence from Nigeria. Investment Management and Financial Innovations, 17.
[12] Statistica (2022). Forecast unemployment rate in Nigeria in 2021 and 2022. Retrieved March 10, 2022 from https://www.statista.com/statistics/1119227/forecast-unemployment-rate-in-nigeria
[13] Umaru, A., & Zubairu, A. A. (2012). Effect of inflation on the growth and development of the Nigerian economy (an empirical analysis). International Journal of Business and Social Science, 3(10), 183-191.
[14] Usman, O. A. (2014). Impact of monetary policy on industrial growth in Nigeria. International Journal of Academic Research in Business and Social Sciences, 4(1), 18–31. http://doi.org/10.6007/IJARBSS/v4-i1/507