Monetary Policy Impact on Household Welfare Through Consumption in Nigeria

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Abstract

This research investigates the relationship between monetary policy and welfare, utilizing household consumption expenditure as an indicator of welfare. The analysis covers the period from 2000 to 2023, employing monthly data. The study reached several key conclusions by applying the Structural Vector Autoregressive (SVAR) model, a variant of the unrestricted VAR model designed for forecasting multiple interrelated variables. It was found that while the interbank rate, M2, and exchange rate exhibit significant independence, household consumption expenditure is highly sensitive to monetary conditions. The overwhelming impact of M2 on household expenditure, which accounts for nearly 96.0 percent of its variance by the conclusion of the forecast period, highlights the critical importance of money supply in shaping consumption behaviors. This outcome indicates that monetary policy, especially through money supply mechanisms, wields considerable influence over household spending choices.

Keywords: *Monetary Policy, Money Supply, Inflation.*

JEL Classification: E52, E51, E31

Introduction

Since the appearance of a study by Stiglitz, Sen, and Fitoussi (2010) in monetary literature on the need for measuring welfare beyond the Gross Domestic Product (GDP) approach, renewed interest in understating the effect of macroeconomic policy on household welfare has emerged. This is against the backdrop that the household plays dual roles of providing factor services as well as embarking on consumption expenditures, and by so doing, influences the demand and the supply pattern in the economy. Whenever households embark on consumption expenditures, they aim to enhance their welfare. Household welfare meant an improvement in household well-being, represented by the sum-total satisfaction derived from household consumption of economic goods. Expenditures on such goods include expenses on food items, non-food items (including health, education, rent, and utilities), and consumer durables meant to maximize household utility (Kang, Chung, & Sohn, 2013),

Monetary literature has shown that household welfare is affected by changes in monetary policy. This is evident in the works of Juha (2011), Jordaan (2013), Kang, Chung, and Sohn (2013), Slacalek, Tristani and Violante (2019), and Duarte and Pereira (2022). However, for Slacalek, Tristani, and Violante (2019) and Duarte and Pereira (2022), one of the channels through which monetary policy is transmitted to affect household welfare is the household consumption expenditure channel. Household consumption expenditure is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households for consumption. It is computed from a country's GDP by taking the amount of money spent on a country's consumables as final household expenditure. In most countries, household consumption expenditure constitutes about 60.0 percent of the total GDP.

Available data from World Bank Development Indicators (WDI) (2021) show that since 1980, the trends of employment, income distribution, poverty, and inequality among individuals in Nigeria have been unstable. The employment rate which was well above 40.0 per cent in1980 decreased sharply to about 20.0

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per cent in 1985 but rose slowly to less than 40.0 per cent in 1990. However, since 1990, the employment rate has been downward and was well below 20.0 per cent in 2020. The poverty rate, compared to other measures of individual welfare, is the most life-threatening as it picked up to be over 60.0 per cent index in 1995, suggesting that over 60.0 per cent of individuals live on less than US$1.9 per day. However, the trend of poverty was downward, it was far above 40.0 per cent in 2020.

The inequality index suggests that the gap between the income of the rich and the poor in Nigeria is very wide and continues to be widening, on average, throughout this study. Furthermore, the individual income level was low, even below 10.0 per cent in 1995. Overall, the implication of falling employment rate, low income, high poverty rate, and high inequality is that the welfare statuses of common individuals in Nigeria are very low and require policy measures such as monetary policy to jettison the situation. When the pace of economic growth is slow, household consumption expenditures are affected by uncertainty (Oduh, 2012). This creates problems to monetary policy management. One of these problems is the increased price level (inflation). When there is inflation, the real value of the household's cash balance falls. As such their purchasing power is hampered, leading to a fall in consumption expenditure and a downward movement of the savings trend (Mansoor et al., 2025).

In Nigeria, high inflation over the years has intensified poverty, low income, and unemployment among households who are fixed-income earners and has also reduced their welfare over the years. This growing pace of poverty, low income, and unemployment has attracted the attention of policymakers and academia (Yellen 2014; Bernanke 2015, Draghi 2016). Empirical evidence from existing literature has identified poverty, low income, and unemployment as the main factors for low household welfare, and that these factors result from technological progress (Acemoglu 2002), changes in demographics (Karahan and Ozkan 2013), globalization (Feenstra and Hanson 2008, Furceri and Loungani 2015), structure of the labor market (Jaumotte and Osorio-Buitron 2015) and failure of monetary policy (Goshit, 2014; Stiglitz, Sen and Fitoussi, 2010) Even though poverty, low income, and unemployment are dragging on household welfare, the focus of monetary policy for many developing countries has not changed from price and exchange rate stabilities. In other words, poverty reduction, income equity, and employment are not prioritized in the conduct of monetary policy and as such, the welfare of households continued to suffer jeopardy.

The impact of monetary policy on welfare remains a subject of debate, with studies yielding conflicting results. While some argue that expansionary policies reduce inequality (Coibion et al., 2012), others find the opposite (Saiki & Frost, 2014; Domanski et al., 2016). Bernanke (2015) acknowledges that monetary policy influences income distribution, but its overall effect remains uncertain. These discrepancies stem from differences in methodology, estimation techniques, and data sources, highlighting a gap in literature. This study seeks to address these inconsistencies by contributing to the ongoing discourse on the welfare implications of monetary policy in Nigeria.

Monetary policy in Nigeria has consistently fallen short of achieving key welfare targets such as poverty reduction, employment generation, and equitable income distribution. Despite various policy measures by the Central Bank of Nigeria (CBN), poverty remains widespread, with 70% of the population living below the poverty line in 2019 (NBS, 2020). The persistent gap between policy goals and outcomes raises concerns about the effectiveness of monetary policy in addressing welfare issues. Existing studies on the welfare effects of monetary policy largely focus on OECD countries, making them less applicable to Nigeria's economic structure. This study aims to assess the impact of monetary policy on household welfare using household consumption expenditure as a proxy, shifting the focus from conventional macroeconomic indicators to a more direct measure of economic well-being.

Literature Review

Conceptual Review

This study defines household welfare as the satisfaction derived from consumption expenditure, measured by the annual growth rate of household final consumption expenditure in constant local currency. It includes the market value of all purchased goods and services. Monetary policy refers to measures regulating

money supply, value, and cost to align with economic activity, involving interest rates, money supply, and exchange rate adjustments by central banks to achieve policy objectives. Monetary policy regulates money supply, value, and cost to align with economic activity (Ujuju and Etale, 2016). Uchendu (2009) expands this by emphasizing the use of central bank instruments to influence credit availability and macroeconomic stability. Monetary policy affects household welfare through three key effects: income (impact on interest rates for savers and borrowers), wealth (changes in asset values), and substitution (shifts in consumption patterns due to real interest rate changes). These effects interact with household heterogeneity such as income and wealth creating distributional channels that influence inequality. As Dolado et al. (2018) argue, monetary policy's overall impact on inequality remains ambiguous due to these offsetting effects.

In the conduct of monetary policy, three main channels (interest rate, money supply and exchange rate channels), through which impulse is transmitted to individual welfare. Suzuki (2008) finds a positive correlation between real interest rates and welfare benefiting financial institutions Sangas (2017) argues the opposite, linking high interest rates to lower output, income, and employment. Dehejia et al. (2012) highlight that high rates can erode income, reduce financial service uptake, and worsen inequality, ultimately undermining poverty alleviation efforts. Westfall (2020) defines money supply as currency and liquid instruments available in an economy, influenced by central banks and regulators. An increase in money supply lowers interest rates, boosts investment, stimulates spending, and raises labor demand, while a decline has the opposite effect. Sune (2019) classifies money supply into M0, M1, M2, and M3 based on liquidity, with M1 covering cash and equivalents, M2 including short-term deposits, and M3 adding long-term deposits. The Federal Reserve relies on Money Zero Maturity (MZM) as an inflation indicator due to its immediate liquidity.

The exchange rate is the price of one currency in terms of another, linking domestic and international prices and facilitating trade (Adeneye, Otto & Cookey, 2014). It influences both demand (through exports, imports, and reserves) and supply (through imported goods). Exchange rates can be official (government set and supported by the central bank) or unofficial (black market, driven by supply and demand). The real exchange rate reflects a country's economic position relative to others. Its role in international transactions is crucial, as it enables direct price comparisons of traded goods and services (Iyoha, 2003)

Welfare refers to social efforts designed to promote the basic physical and material well-being of people in need. Welfare services are provided to help with people's living conditions and financial problems. Household consumption expenditure refers to spending by households on goods and services for daily needs, including food, housing, transport, health, and leisure (Aryusmar, 2020; Ihugba, Metu & Ezenekwe, 2021). It also includes imputed expenditures like owner-occupiers' rents (Amadeo, 2020). Household consumption, classified into durable and nondurable goods, is a key economic indicator and a major component of GDP. Income is the primary determinant, as it enables households to purchase goods and services (Nasrudin, 2020). Household income is the total earnings of all household members from wages, salaries, investments, retirement accounts, and welfare payments (Scott, 2020). It serves as a key economic indicator and a risk measure for loan underwriting. The United Nations (2019) defines poverty as a denial of choices, opportunities, and dignity, marked by a lack of basic needs, security, and social inclusion. The World Bank (2018) highlights poverty's dimensions: lack of opportunity, empowerment, and security. Monetary policy influences poverty, as higher interest rates can increase it, while lower rates stimulate growth, wages, and poverty reduction (Sagrem, 2018; Kopp, 2020).

Household consumption expenditure reflects welfare, with monetary policy influencing it through interest rates, inflation, and income. The HANK model highlights direct and indirect effects (Kaplan & Violante, 2014). Expansionary policy boosts employment and wages, while contractionary policy stabilizes inflation but may hurt lower-income households (Fouda, 2014). High interest rates and low incomes constrain savings and investment in Nigeria, slowing growth (Oduh, 2012). Understanding monetary policy's welfare impact is crucial for addressing poverty and inequality.

Empirical Literature Review

Several studies have examined the impact of monetary policy on household welfare across different economies. El-Jahel, MacCulloch, and Shafieem (2020) found that both inflation and unemployment negatively affect well-being, with varying effects depending on the dimension of welfare analyzed. Auclert (2019) highlighted the role of redistribution in monetary policy transmission, emphasizing the amplifying effects of earnings heterogeneity, inflation, and interest rate changes. Nguyen and Nguyen (2019) identified wage employment as a key factor in poverty reduction in Vietnam, while Oye, Alege, and Olomola (2018) found welfare gains from fiscal and monetary policies in Nigeria, particularly when fiscal rules balance debt targets with monetary policy independence. Kaplan, Giovanni, and Violante (2016) demonstrated that labor demand plays a greater role in monetary policy transmission than intertemporal substitution, contrasting traditional models. Kaplan and Violante (2014) showed that households with limited liquid assets have high consumption responses to fiscal stimulus. Kang, Chung, and Sohn (2013) found that real interest rates correlate positively with poverty in Korea, while inflation reduces poverty in the short term but has no long-term effect on income distribution. Alba, Chia, and Park (2012) assessed monetary policy regimes in East Asia, concluding that CPI inflation targeting minimizes welfare losses under varying import-to-GDP ratios.

Studies on monetary policy and household consumption reveal key transmission mechanisms. Duarte and Pereira (2022) show that in Portugal, wealthy hand-to-mouth households react most to monetary shocks due to housing wealth and interest rate exposure. Similarly, Ihugba et al. (2021) find that in Nigeria, money supply boosts consumption, while inflation has a negative impact. In the Euro Area, Slacalek et al. (2019) highlight labor income and housing wealth as key drivers of monetary policy effects. Le et al. (2019) emphasize the USD's role in Vietnam's trade balance. Coibion et al. (2012) link contractionary policy to increased inequality in the U.S., while Brunnermeier and Sannikov (2012) argue that monetary policy redistributes wealth, potentially mitigating economic distortions.

Gap in Literature

Most studies on monetary policy focus on price stability, exchange rates, and balance of payments, often overlooking household consumption expenditure, a key driver of economic growth. This omission can lead to biased results due to the "error in the variable" problem. Unlike previous studies, this research prioritizes household consumption in the growth process. Empirical findings on monetary policy's impact on household welfare remain inconclusive. While Domanski et al. (2016) highlight negative effects, Coibion et al. (2012) suggest positive impacts from expansionary shocks, underscoring the need for further research. Methodologically, studies like Ihugba, Ametu, and Ezenekwe (2021) using the vector error correction model (VECM) overlooked variable integration order. This study addresses such gaps by employing the nonlinear ARDL model, which accommodates mixed integration orders, and the SVAR model to recover structural innovations.

Research Methodology

To specify the theoretically established nature of the contemporaneous links between variables, rather than the recursive nature of the Cholesky decomposition, the Structural VAR is introduced into the methodological framework. This is expected to allow the data to be estimated to recover structural innovations from residuals of a reduced-form VAR.

Structural Vector Autoregressive (SVAR) Model

This study employs the SVAR model, a structured variant of the unrestricted VAR used for forecasting multiple variables (Eloriaga, 2020). Unlike unrestricted VAR, SVAR imposes restrictions to define variable interactions, preventing misinterpretations. For example, if the central bank lowers interest rates to counter falling employment but employment still declines, SVAR helps avoid erroneous conclusions about policy effects. These restrictions establish a structured timeline for model behavior. Therefore, SVAR aims to use economic theory rather than the Cholesky decomposition to recover structural innovations from residuals

of a reduced-form VAR. SVAR has certain advantages over unrestricted VAR and VEC models. One advantage of the SVAR over the unrestricted VAR is that it enables us to specify the theoretically established nature of the contemporaneous links between variables, rather than the recursive nature of the Cholesky decomposition that the unrestricted VAR imposes. The SVAR used in this study was estimated from a five-variable empirical VAR (p) model whose vector Xt is given as:

Xt = [INT, EXR, M2 and HCE] …………………………………...………………. (1)

Where:

$INTt$ = interest rate

EXR = Exchange rate

M2 = Money supply

HCE = Household Consumption Expenditure

Given that

$BXt = \Gamma_0 + \Gamma_1 X_{t-1} + \zeta$ ……………………………………………………… (2)

Then the reduced form of the structural or primitive form in (2) can be written as:

$Xt = A_0 + A_1 X_{t-1} + et$ ……………………….…………………………… (3)

Where:

Comparison of 3 and 2 above suggests that the errors (et) in the reduced-form VAR are indeed composites of the underlying structural shocks εt since:

$A0 = B^{-1}\Gamma_0$; $A_1 = B^{-1}\Gamma_1$ …………………………………...………. (4)

$et = B^{-1} \zeta t$ …………………………………….………………………. (5)

et is the one-step-ahead forecast errors in $\mathbf{X}t$ but does not have any structural interpretation, and εt is the autonomous changes in $\mathbf{X}t$ in model (3). To obtain the impulse response functions (IRF) or variance decompositions (VD), it is necessary to use the structural shocks εt and not the forecast errors et. The idea of structural decomposition is to take the observed values of et from an empirical VAR and to restrict the system so as to recover εt as $\varepsilon t = Bet$. The restriction has to be such that the various εij are recovered and the assumed independence of the various εij are preserved. To solve this identification problem, it is therefore necessary to impose at least $n^2 - [(n^2-n)/2] = (n^2-n)/2$ restrictions on the structural model (Enders, 2004). Since our VAR has 5 variables, we need at least $(5^2 - 5)/2 = 10$ additional restrictions for the identification. In terms of the variables of the study, the VAR specification is given as:

$$\text{HCEt} = \alpha_0 + \sum_{i=1}^{q} \alpha_1 \text{HCE}_{t-i} + \sum_{i=1}^{q} \alpha_2 \text{INT}_{t-i} + \sum_{i=1}^{q} \alpha_3 \text{EXR}_{t-i} + \sum_{i=1}^{q} \alpha_4 \text{M2}_{t-i} + \mu_1 \ldots \ldots . (6)$$

$$\text{INTt} = \beta_0 + \sum_{i=1}^{q} \beta_1 \text{HCE}_{t-i} + \sum_{i=1}^{q} \beta_2 \text{INT}_{t-i} + \sum_{i=1}^{q} \beta_3 \text{EXR}_{t-i} + \sum_{i=1}^{q} \beta_4 \text{M2}_{t-i} + \mu_2 \ldots \ldots . (7)$$

$$EXRt = \pi_0 + \sum_{i=1}^{q} \pi_1 HCE_{t-i} + \sum_{i=1}^{q} \pi_2 INT_{t-i} + \sum_{i=1}^{q} \pi_3 EXR_{t-i} + \sum_{i=1}^{q} \pi_4 M2_{t-i} + \mu_3 \ldots\ldots (8)$$

$$M2t = \Omega_0 + \sum_{i=1}^{q} \Omega_1 HCE_{t-i} + \sum_{i=1}^{q} \Omega_2 INT_{t-i} + \sum_{i=1}^{q} \Omega_3 EXR_{t-i} + \sum_{i=1}^{q} \Omega_4 M2_{t-i} + \mu_4 \ldots\ldots (9)$$

Where; α, β, π, and Ω and partial slopes (i = 1,2, ---- q) and other variables are as defined earlier.

Data Types and Sources

This study will utilize monthly time series data that covers a period of twenty-three (23) years from 2000 to 2023. Data on monetary policy variables (money supply, interest rate, exchange rate) were sourced from the CBN statistical bulletin (2020). Data on household consumption expenditure was sourced from the United Nations database (https://unstats.un.org/unsd/snaama/Basic), World Bank national accounts data, and OECD National Accounts data files.

Variable Definitions

Household consumption expenditure (HCE): The Household consumption expenditure is measured as the annual percentage growth rate of the Household final consumption expenditure. It is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses. Here, household consumption expenditure includes the expenditures of nonprofit institutions serving households.

Money Supply (M_2): This is measured in monetary terms and expressed in Nigerian naira. It is an annual data and consists of currency in circulation plus demand account deposits and time deposits with commercial banks. Currency in circulation consists of coins and notes of different denominations while time deposit is the current account of customers with commercial banks. Mathematically, M_2 is expressed as $M_2 = M_1 + T^d$ and $M_1 = C + D^d$, where; M1 = narrow money supply; T^d = time deposits; C = currency in circulation; D^d = demand account deposits.

Real Interest Rate (INT): Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. It is the bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to the creditworthiness of borrowers and objectives of financing. The terms and conditions attached to these rates differ by country, however, limiting their comparability.

Exchange Rate (EXR): Official exchange rate refers to the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency units relative to the U.S. dollar). Data on the official exchange rate is available in the CBN statistical bulletin.

Results and Discussion

This work made use of the R studio to conduct the structural VAR analysis, before that we analyzed the descriptive statistics, unit root test, the Johansen cointegration, impulse-response, and forecast error variance decomposition. Sim (1980) introduction of VAR models and the application of Cholesky decomposition for structural shock identification transformed empirical macroeconomics, providing a flexible and data-driven approach to studying dynamic relationships among economic variables.

Descriptive Statistics

The descriptive statistics reveal notable characteristics for each variable. The interest rate has a mean of -0.022 and a median of -0.055, indicating a slightly negative average. Its range is wide, from a minimum of -43.29 to a maximum of 51.47, with a standard deviation of 7.589, reflecting moderate variability. The skewness (0.635) and kurtosis (15.829) highlight a right-skewed distribution with heavy tails, suggesting occasional extreme values. For money supply (M2), the mean and median are both 0.000, indicating symmetry. However, its minimum (-6.650) and maximum (1.650) values, along with a high standard deviation of 4.520, show significant variability.

Table 1. Descriptive Statistics

	Interest rate	M2	Exr	HCE
Mean	-0.022	0.000	0.002	0.000
Medium	-0.055	0.000	0.000	0.000
Maximum	51.470	1.650	0.100	1.650
Minimum	-43.29	-6.650	-0.010	-6.650
Standard dev	7.589	4.520	0.010	4.520
Skewness	0.635	-10.883	4.987	-10.883
Kurtosis	15.829	170.200	36.985	170.200

Source: Authors'Computation

The extreme skewness (-10.883) and kurtosis (170.200) reveal a highly left-skewed distribution with concentrated extreme outliers, likely to reflect sharp contractions. The exchange rate (Exr) has a mean of 0.002 and a median of 0.000, showing relative stability. However, it has a narrow range, with a minimum of -0.010 and a maximum of 0.100, and a low standard deviation of 0.010. Despite this, the high skewness (4.987) and kurtosis (36.985) indicate occasional extreme positive deviations. Human capital expenditure (HCE) mirrors the characteristics of M2, with a mean and median of 0.000. Its minimum and maximum values are -6.650 and 1.650, respectively, and it has a standard deviation of 4.520. Like M2, it exhibits extreme negative skewness (-10.883) and kurtosis (170.200), suggesting irregular and sharp reductions.

The data for all variables exhibits non-normality, with high skewness and kurtosis values indicating the presence of outliers and extreme events. Robust statistical methods or data transformations will likely be necessary to address these irregularities in further analyses. This is more reason why the data was differenced.

Table 2. Unit Root Test

Level			First difference			
1%	5%	10%	1%	5%	10%	
Dinterbank	-3.45	-2.87	-2.57	-	-	-
Dm2	-3.45	-2.87	-2.57	-	-	-
Dexr	-3.45	-2.87	-2.57	-	-	-
Dhce	-3.45	-2.87	-2.57	-	-	-

Source: Authors' Computation

The unit root test results presented in Table 3 provide insights into the stationarity of the variables (Dinterbank, Dm2, Dexr, and Dhce) at their levels. The critical values for the test are consistent across all variables: -3.45 at the 1% significance level, -2.87 at 5%, and -2.57 at 10%. The variables were found to be stationary at level, which is why the first difference was not conducted.

Table 3. Johansen Cointegration Test

Hypnothesied no of ce	Eigenvalue	Trace statistics	0.05 critical value	prob
None	0.17	94.05	47.85	0.00
At Most one	0.09	40.07	29.79	0.00
At Most two	0.03	11.25	15.49	0.19
At Most three	0.00	2.34	3.84	0.12

Source: Authors' Computation

The Johansen cointegration test results provide valuable insights for the use of a Structural Vector Autoregressive (SVAR) model by examining the long-term relationships between the variables. The test helps determine if the variables are cointegrated, which is crucial when specifying the SVAR model, as cointegrated variables imply the existence of long-term equilibrium relationships.

In the results, the null hypothesis of "no cointegration" is rejected at the first two levels. Specifically, the eigenvalue for the "None" hypothesis is 0.17, and the trace statistic is 94.05, which is significantly higher than the 0.05 critical value of 47.85, with a p-value of 0.00. This rejection indicates at least one cointegrating relationship between the variables, which is important for the SVAR model because it suggests that the variables move together in the long run. For the "At Most One" hypothesis, the eigenvalue is 0.09, and the trace statistic of 40.07 exceeds the critical value of 29.79, with a p-value of 0.00. This result suggests the presence of a second cointegrating relationship, further reinforcing the notion that the variables have a long-term equilibrium. However, for the "At Most Two" and "At Most Three" hypotheses, the trace statistics (11.25 and 2.34, respectively) are below the critical values of 15.49 and 3.84, with p-values of 0.19 and 0.12, indicating no additional cointegrating relationships. This suggests that only two long-term relationships exist among the variables.

Since we are using a 4 by 4 matrix the structural shock of the structural VAR of the transmission would be transmitted as shown in Table 4
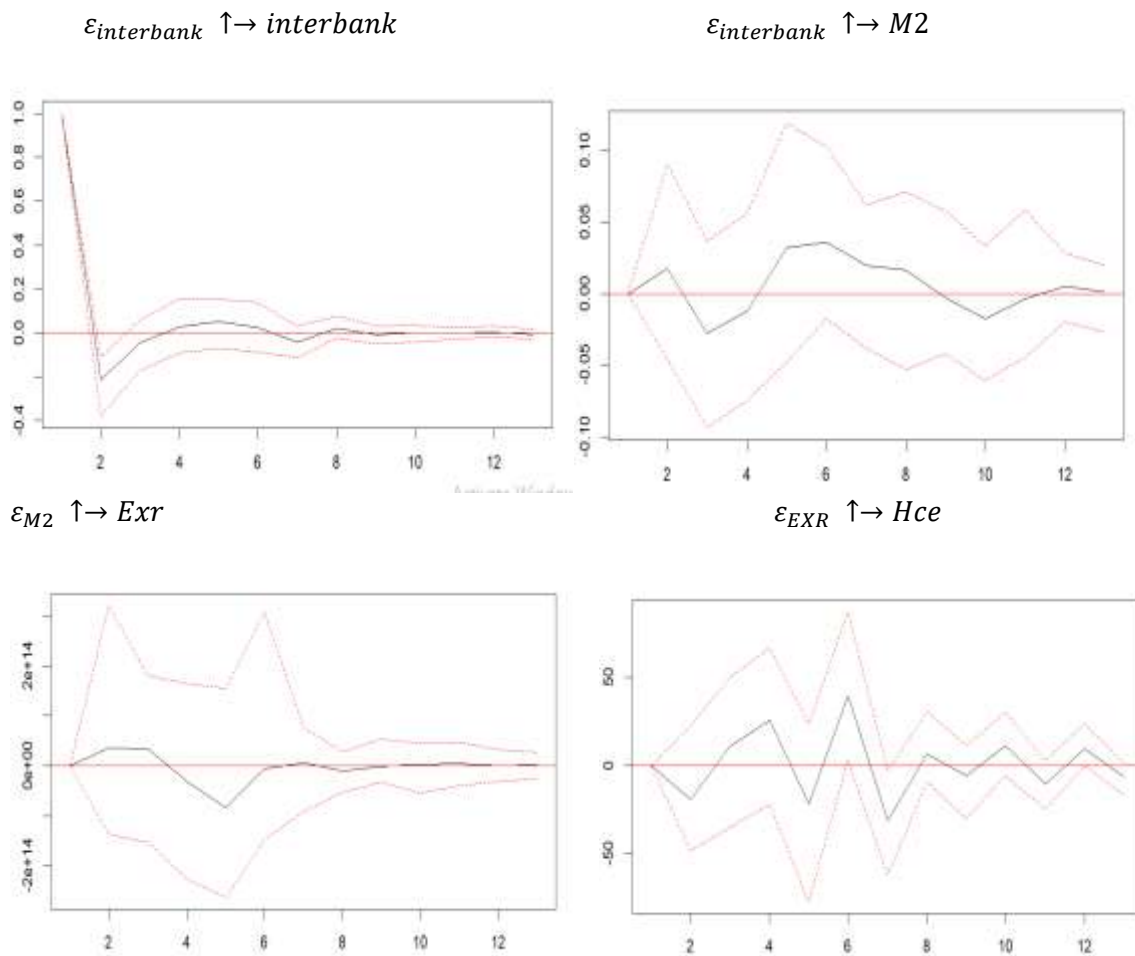
Table 4. Structural Shocks

SVAR STRUCTURAL SHOCKS				
Responses	INTEREST	M2	EXR	HCE
INTEREST	$\delta_{11,t}$	NA	NA	NA
M2	+	$\delta_{22,t}$	NA	NA
EXR	+	+	$\delta_{33,t}$	
HCE	+	+	+	NA
				$\delta_{44,t}$

Source: Authors' Computation

Impulse Response

Based on the SVAR, we believed with economic theory that the transmission mechanism would look like this Interbank Rate Shock (Policy Action) →M2 Adjusts (Credit Channel) →Exchange Rate Responds

(Capital Flows) →HCE Changes (Spending Channel) →Feedback to Policy Decisions. The graph below shows the transmission of policy recommendations.

$\varepsilon_{interbank} \uparrow \rightarrow interbank$ $\varepsilon_{interbank} \uparrow \rightarrow M2$

$\varepsilon_{M2} \uparrow \rightarrow Exr$ $\varepsilon_{EXR} \uparrow \rightarrow Hce$

The impulse response analysis reveals key dynamics within the SVAR model. An interest rate shock initially causes a sharp spike but quickly declines, returning to equilibrium as its effect fades. The response of M2 to an interest rate shock is minimal at first, fluctuates slightly, and stabilizes near zero, indicating a mild adjustment process. The exchange rate's response to an M2 shock is similarly weak, showing short-term fluctuations before converging to equilibrium. Lastly, an exchange rate shock has a temporary impact on household consumption, with initial volatility followed by stabilization, reflecting households' gradual adjustment to currency fluctuations.

Table 6. Forecast Variance Error Decomposition

Variable	Step	Interbank	M2	ExchangeRate	HouseholdExpenditure
Interbank	1	0.024296	0.953695	0.021850231	0.000159405
Interbank	2	0.024115	0.953988	0.021744827	0.000152293
Interbank	3	0.024149	0.95393	0.021761609	0.000159386
Interbank	4	0.024153	0.953923	0.021764007	0.000159773
Interbank	5	0.024129	0.953963	0.021749566	0.000159236
Interbank	6	0.02413	0.953961	0.021750171	0.000159297
Interbank	7	0.024112	0.953989	0.021739924	0.000158998
Interbank	8	0.024111	0.953991	0.021739096	0.000158938
Interbank	9	0.024112	0.95399	0.021739402	0.000158999
Interbank	10	0.024111	0.95399	0.021739332	0.000159007

Interbank	11	0.024111	0.95399	0.021739286	0.000159008
Interbank	12	0.024111	0.95399	0.021739355	0.000159019
M2	1	0	0.989228	0.002759253	0.008012747
M2	2	0.00022	0.988487	0.002356889	0.008936166
M2	3	0.000773	0.987666	0.002777709	0.008783631
M2	4	0.000873	0.987517	0.00285302	0.008757166
M2	5	0.001586	0.986456	0.003388317	0.008570183
M2	6	0.002437	0.985169	0.004003758	0.00839011
M2	7	0.002703	0.984704	0.004117126	0.008475755
M2	8	0.002884	0.984407	0.004217375	0.008491809
M2	9	0.00289	0.984398	0.004221046	0.008491121
M2	10	0.003069	0.984149	0.004378036	0.008404549
M2	11	0.00307	0.984152	0.004386435	0.008391186
M2	12	0.003089	0.984119	0.004393349	0.008398717
ExchangeRate	1	0	0	0.99009901	0.00990099
ExchangeRate	2	0.004719	0.984257	0.008989259	0.00203426
ExchangeRate	3	0.014523	0.968921	0.015400745	0.001154642
ExchangeRate	4	0.016102	0.96654	0.016544736	0.000812538
ExchangeRate	5	0.01745	0.964623	0.017665144	0.000261986
ExchangeRate	6	0.017506	0.964456	0.017599608	0.000438505
ExchangeRate	7	0.017639	0.964235	0.017670906	0.000454469
ExchangeRate	8	0.01776	0.964042	0.01774318	0.000455334
ExchangeRate	9	0.017757	0.964046	0.01774162	0.000455385
ExchangeRate	10	0.017773	0.96402	0.017750838	0.000456211
ExchangeRate	11	0.017805	0.963969	0.017768488	0.000458274
ExchangeRate	12	0.017807	0.963965	0.017769332	0.00045922
HouseholdExpenditure	1	0	0	0	1
HouseholdExpenditure	2	0.01318	0.971318	0.015112961	0.000389667
HouseholdExpenditure	3	0.012132	0.972985	0.014405475	0.000477435
HouseholdExpenditure	4	0.021912	0.957169	0.020093666	0.00082535
HouseholdExpenditure	5	0.022969	0.955549	0.020801599	0.000680985
HouseholdExpenditure	6	0.021137	0.958661	0.019871434	0.000330723
HouseholdExpenditure	7	0.021618	0.957912	0.020184102	0.000286412
HouseholdExpenditure	8	0.021736	0.957718	0.020249874	0.000296644
HouseholdExpenditure	9	0.021788	0.957633	0.020280248	0.000298572
HouseholdExpenditure	10	0.021917	0.957426	0.020357168	0.000300196
HouseholdExpenditure	11	0.021934	0.9574	0.020370176	0.000295318
HouseholdExpenditure	12	0.02192	0.957426	0.020363773	0.000290395

Source: Authors' Computation

The forecast variance decomposition reveals distinct patterns of influence among the financial variables over 12 periods. The interbank rate demonstrates strong autonomy, with about 95% of its variance explained by its own shocks, while other variables have minimal impact. M2 (money supply) shows similar independence, though slightly less pronounced, with its own innovations accounting for around 98% of its variance throughout the period. The exchange rate maintains considerable self-determination, starting at 99% and moderating to about 96% by period 12, with minor influence from interbank rates. Most notably, household expenditure emerges as the most responsive variable in the system. While initially self-determined, it becomes heavily influenced by M2 (around 96%), with minor contributions from interbank rates and exchange rates, suggesting that household spending is particularly sensitive to changes in money

supply. This decomposition indicates a financial system where monetary conditions, particularly M2, have significant influence over household spending patterns, while other variables maintain relative independence.

Conclusions and Policy Recommendations

Based on the combined analysis of impulse responses and variance decomposition, this study reveals important dynamics in the monetary transmission mechanism and its effects on household consumption in the economy. The impulse response functions show that interest rate shocks have relatively short-lived effects, with the system generally returning to equilibrium. Particularly noteworthy is the response of household consumption to exchange rate shocks, which shows initial volatility before stabilizing, suggesting households' ability to adapt to exchange rate fluctuations over time.

The variance decomposition provides complementary insights, revealing that while the interbank rate, M2, and exchange rate maintain considerable autonomy, household consumption expenditure is notably responsive to monetary conditions. The dominant influence of M2 on household expenditure, accounting for approximately 96% of its variance by the end of the forecast horizon, underscores the significant role of money supply in determining consumption patterns. This finding suggests that monetary policy, particularly through money supply channels, has substantial power in influencing household spending decisions.

The outcome of this study agrees with the findings of Duarte and Pereira (2022) and Ihugba, Ametu, and Ezenekwe (2021). One of the referenced papers investigated the effects of monetary policy shocks on household consumption expenditures in Portugal, while the other focused on the effect of expansionary monetary policy on Nigeria's household consumption. Just like the finding in this study, the analysis of the data on Portugal showed that the wealthy hand-to-mouth households' consumption has the most significant reaction to monetary shocks because of extensive housing wealth and net interest rate exposure channels. In addition, the study finds that the wealthy hand-to-mouth households' consumption response explains why the aggregate consumption reacts more to monetary shocks in Portugal. In either case, money supply effect on household consumption was more pronounced.

Similarly, the study on Nigeria showed that money supply has a positive and significant relationship with household consumption in both the short-run and long-run, an outcome that supports the findings of our research.

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