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Determinants of Demand for Money in Nigeria: Further Insights

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ABSTRACT

Understanding the determinants of money demand remains essential for effective monetary policy implementation, particularly in developing economies characterized by macroeconomic volatility and structural changes in financial markets. This study re-examines the determinants of money demand in Nigeria, offering further insight that reflects the country's rapidly evolving financial and transactional landscape. Beyond traditional macroeconomic variables such as income, interest rates, and inflation, our findings reveal a structural shift in which financial innovation has become the dominant driver of the demand for money. Employing recent data and robust econometric (OLS) techniques, our results indicate that digital financial activity now plays a more significant role. Notably, point-of-sale (POS) transactions emerge as the only statistically significant variable, highlighting the increasing dominance of electronic payment systems in Nigeria. This reflects the combined impact of Central Bank of Nigeria policies aimed at promoting a cashless economy and the rapid expansion of fintech firms, which have transformed transactional behaviour. The growing reliance on POS and other digital platforms suggests a decline in cash-based transactions and a shift in liquidity preferences across households and businesses. Our findings carry important policy implications. Monetary authorities should incorporate financial innovation indicators into money demand modeling and policy design to improve the effectiveness of monetary targeting. Strengthening digital payment infrastructure, enhancing cybersecurity frameworks, and promoting financial inclusion, particularly in underserved areas, in order to essentially facilitate the sustenance of this transition. Furthermore, regulatory policies should support innovation while ensuring stability within the financial system. Overall, the study underscores the need for a forward-looking monetary policy framework that aligns with Nigeria's increasingly digitalized financial environment.

1. Introduction

The demand for money is a fundamental concept in macroeconomic analysis and plays a crucial role in the conduct of monetary policy. A stable money demand function enables central banks to effectively control inflation and sustain macroeconomic stability via proactive central bank intervention. Nigeria's monetary environment has experienced significant changes over the past decades, including financial sector reforms, exchange rate volatility, increasing digital financial transactions, and adjustments in monetary policy frameworks. These changes have implications for the behaviour of money demand and the effectiveness of monetary policy transmission mechanisms.

The demand for money has been explained using conventional variables such as income, interest rate, inflation, and exchange rate. However, recent literature has expanded the determinants of money demand to include structural, institutional, political, and socio-economic factors that reflect the evolving financial system and macroeconomic environment. These emerging determinants provide further insights into how individuals and firms choose to hold money in the Nigerian economy, characterized by financial innovation, political uncertainty, and changing banking practices.

El-Rasheed, et al. (2017) and Osadebay, Orubu, and Awogbemi (2024) found that instability in unconventional macroeconomic indicators can weaken the stability of the money demand function in the Nigerian economy. Likewise, according to Ozili (2025) and Ozor, Agbaeze, and Nwoko (2023), improvements in financial inclusion and financial market development can affect liquidity preferences and reduce the reliance on cash holdings, thereby altering the structure of money demand in Nigeria. Okeke (2023) and Okpada and Olele (2025) conclude that maintaining macroeconomic stability is essential for ensuring a stable money demand function and enhancing the effectiveness of monetary policy in Nigeria.

Nwude, et al. (2018), stated that real income, interest rate, inflation, and exchange rate movements significantly influence money demand in Nigeria. These variables affect the opportunity cost of holding money and the transaction needs of economic agents. Financial innovation and changes in payment systems have altered the traditional relationship between money demand and its determinants. The accelerating adoption of digital payment systems and electronic banking services has altered the way individuals and businesses manage the use of money in Nigeria, consequently, impacting the demand for real money balances (Onuegbu et al., 2025).

Recent studies emphasize the role of macroeconomic instability in shaping money demand behaviour. Persistent inflationary pressures and exchange rate fluctuations have influenced monetary policy decisions and the demand for financial assets in Nigeria. There is an indication that inflation and interest rates significantly affect liquidity preferences and the opportunity cost of holding money (Okeke, 2023; Olaoye & Anyanwu, 2024). Despite extensive studies on money demand in Nigeria, there is still no consensus regarding the stability and determinants of the money demand function. Structural changes in the financial system, policy reforms, and economic shocks have introduced new dynamics that require further verifiable investigations. This study therefore provides further insights into the determinants of money demand in Nigeria by reviewing recent studies, in order to identify further key macroeconomic factors that can potentially impact money holding behaviour in Nigeria.

A relatively underexplored determinant is bank charges and transaction costs within the banking system. High bank service charges, withdrawal fees, and transaction costs may discourage the use of formal financial institutions and lead individuals to hold larger cash balances outside the banking sector.

2. Review of Existing Literature

2.1 Theoretical Review

Recent studies on the demand for money in Nigeria have progressively incorporated non-conventional determinants beyond income and interest rate. Incorporating variables such as political instability and bank charges provides further insight into the evolving determinants of money demand in Nigeria's financial system. Political instability has been identified as a factor influencing liquidity preference because uncertainty surrounding governance and policy changes encourages economic agents to hold more liquid balances for precautionary motives (Aisen & Veiga, 2013; Folarin & Asongu, 2019). Similarly, exchange rate volatility and macroeconomic uncertainty significantly affect money demand by impacting expectations about inflation and currency substitution (Aworinde, 2018; Nakorji & Asuzu, 2019). Financial innovation and banking sector reforms have also altered money-holding behaviour in Nigeria, particularly through electronic payment systems and digital banking expansion (Oghenekevwe & Eze, 2023). More recently, transaction-related costs such as bank service charges have been suggested as additional determinants because higher banking costs discourage the use of deposit balances and impact the public's preference for cash holdings (Olowofeso et al., 2015). Financial development and institutional quality are shaping money demand stability in Nigeria (Oladipo & Akinbobola, 2017; Onuegbu et al., 2025). As mobile payment usage increases, the need to hold cash balances may decline, while electronic money balances become more prominent (Ajao, Oludamilare, & Sadeeq, 2023).

Oyadeyi (2025), stated that structural breaks in Nigeria's macroeconomic environment, often linked to political transitions, economic reforms, or policy shifts can impact the stability of the money demand function and the velocity of money. Improved financial development can increase financial inclusion and expand deposit holdings within the banking system, thereby influencing the demand for broad money aggregates in Nigeria (Oyadeyi, 2026).

Inflation significantly influences money holding behaviour and can serve as a better proxy for opportunity cost than interest rates in some cases (Bahmani-Oskooee & Gelan, 2019). Exchange rate volatility, inflation expectations, financial innovation, and financial inclusion are important factors influencing money-holding behaviour in developing economies (Nwafor, 2017; Nwosa, 2019). Exchange rate movements affect portfolio allocation and liquidity preference in Nigeria's open economy (Ogwuche et al., 2024). Additionally, financial innovation and digital banking expansion alter transaction motives and reduce reliance on cash balances (Ozili, 2023). The stability of the demand for money in the country has resulted from structural changes and the financial sector reforms (Suleiman et al., 2024; Obuareghe et al., 2025).

2.2 Empirical Review

The empirical literature on the demand for money has expanded considerably in recent years, particularly in developing economies where monetary policy effectiveness depends on the stability of money demand functions. Okeke (2023) used auto regressive distributed lag (ARDL) in estimating money demand function in Nigeria, and found that consumer price index and total public debt have a positive and significant effect on money demand, while real GDP showed a negative relationship with money demand. Interest rate had a positive but insignificant effect, and the exchange rate also influenced money demand.

Inflation influences money demand indirectly through expectations and changes in consumption behaviour. It was found by Okpada & Olele in 2025, that exchange rate volatility significantly affects the velocity and demand for money in the long run. Evidence suggests that financial liberalization in Nigeria has affected the stability of the money demand function by altering the relationship between money balances and macroeconomic variables (Bahmani-Oskooee & Gelan, 2019). Aworinde (2018), in his study, found that monetary uncertainty significantly affects money demand in Nigeria, particularly during periods of macroeconomic instability, suggesting that precautionary motives remain an important component of money holding behaviour in developing economies.

Structural breaks related to financial reforms and economic recessions are found to have significantly influenced the velocity of money in Nigeria (Okpada & Olele, 2025). Income (GDP or real income) is consistently identified as a major determinant of money demand in Nigeria. Higher income increases transaction needs, leading to greater demand for money. For example, Iriabije and Effiong (2022) estimated a money demand function for Nigeria using robust ordinary least squares techniques and found that income has a positive and significant effect on money demand while interest rate has a negative relationship, supporting Keynesian theory. Similarly, Ujunwa et al. (2024) found in their work that macroeconomic fundamentals such as per capita income, exchange rate, etc have significant impact on the dynamics of money demand. Oghenekevwe and Eze (2023), applying Ordinary Least Squares (OLS), Correlation Matrix, and Stability Tests (CUSUM and CUSUMSQ), found that financial innovation and electronic banking channels significantly impact money demand behaviour in Nigeria.

Olaoye and Anyanwu (2024) investigated money demand determinants in Nigeria using time-series data with ADF unit root and ARDL bounds techniques, and found that real GDP, inflation, exchange rate and public debt significantly drive money demand, while interest rate effect remains weak, implying that inflation significantly influences monetary behaviour and liquidity preferences amongst economic agents. Paul (2025) analyzed determinants of money demand in Nigeria using time-series data with unit root and ARDL cointegration techniques, and found that GDP, inflation, interest rate, and exchange rate significantly influence money demand, confirming a stable long-run relationship.

Evolutions in digital banking, electronic payments, and financial technology have considerably altered financial intermediation and payment systems in Nigeria, influencing the way individuals and businesses manage liquidity and conduct financial transactions (Onuegbu et al., 2025). Jonah, Egbe, & Richard (2021), used Ordinary Least Squares (OLS), Cointegration analysis, Granger causality test, to estimate the money demand model, test the existence of a long-run relationship among the variables, and to examine the direction of causality. They found that increased ATM transactions and internet banking usage positively impact money demand in Nigeria, while some electronic payment channels may reduce the need to hold physical cash balances. This suggests that financial technology developments have become an important variable in explaining modern money demand functions. Furthermore, Adeyemi, Oseni, and Tella (2020) analyzed the relationship between money demand and macroeconomic variables using time series data, and found evidence of a long-run relationship between money demand, income, and interest rate.

Overall, the literature suggests that while traditional determinants such as income, interest rate, and inflation remain important, structural changes in financial markets and technological innovation have introduced new dynamics into the money demand function. Consequently, further empirical analysis is required to better understand the evolving determinants of money demand in Nigeria.

3. Methodology

This study employs the Ordinary Least Squares (OLS) regression method to estimate the relationship between money demand and selected macroeconomic and institutional variables.

3.1 Model Specification

Demand for money is conventionally derived from the Keynesian Liquidity Preference Theory and the Quantity Theory of Money, which state that money demand depends mainly on:

- Income
- Interest rate (opportunity cost of holding money)
- Inflation expectations
- Exchange rate in open economies

However, further macroeconomic indicators have evolved with emerging economies like Nigeria. Consequently, following the work of Oghenekevwe and Eze (2023), the empirical model of our study is specified as follows;

$Md = f(INF, R, POS, BC, Y)$

$Md_t = f(INF_t, R_t, POS_t, BC_t, Y_t)$

Let:

- M_t = Demand for money (often real money balances, M2/CPI)
- INF_t = Inflation rate
- R_t = Interest rate
- POS_t = Fintech
- BC_t = Bank charges
- Y_t = Real income (RGDP)
- ε_t = Error term

Econometric Model:

$$Md_t = \beta_0 + \beta_1 INF_t + \beta_2 R_t + \beta_3 POS_t + \beta_4 BC_t + \beta_5 Y_t + \varepsilon_t$$

Expected Signs;

INF_t	R_t	POS_t	BC_t	Y_t
(-)	(-)	(±)	(-/+)	(+)

- Inflation reduces real value of money, indicating inverse relationship with money demand
- Higher interest rate increases opportunity for holding money, indicating an inverse relationship with money demand
- While Fintech is expected to have either positive or negative effect on money demand.
- Bank charges are expected to have positive and negative impact on the demand for money respectively
- Higher income increases transaction demand for money, reflecting a positive relationship with money demand.

3.2 Variable Definitions

- Money Demand (Md): The desire of economic agents to hold monetary balances for transactions, precautionary, and speculative motives.

- Inflation Rate (INFR): The rate of increase in the general price level which erodes money's purchasing power.
- Interest Rate (R): The opportunity cost of holding money instead of interest-bearing assets.
- Fintech (POS): The use of digital financial technologies that influence how money is held and transacted.
- Bank Charges (BC): Costs imposed by banks for financial services that may discourage money holding in banks.
- Income or Real GDP (Y): The overall level of economic activity influencing transaction demand for money.

3.3 Data Sources

This study uses annual time-series data covering a selected period (2010–2024). Data are obtained from reputable secondary sources including:

- Central Bank of Nigeria Statistical Bulletin
- World Bank/World Development Indicators
- International Monetary Fund International Financial Statistics

3.4 Estimation Technique

The model is estimated using the Ordinary Least Squares technique, which minimizes the sum of squared residuals between observed and predicted values of the dependent variables.

3.5 Analysis of Result

$Md_t = \beta_0 + \beta_1 IF_t + \beta_2 R_t + \beta_3 POS_t + \beta_4 BC_t + \beta_5 Y_t + \varepsilon_t$

$Md_t = 54714.72 + 458.8829 IF_t - 813.5540 R_t + 0.1708 Y_t + 4.7950 POS_t - 22.7786 BC_t$

t (-4.4411) (1.6026) (-1.9100)
(4.8456) (8.5510) (-2.0468)
Prob (0.0016) (0.1435) (0.0885)
(0.0009) (0.0000) (0.0710)
$R^2 = 0.99$
Adjusted $R^2 = 0.99$
F-Stat (Prob val) 432.8511 (0.0000)

4. Discussion of Results

The results indicate that a one-unit rise in inflation (INF_t) increases money demand by 458.8829 billion naira and it is not significant. A one-unit increase in the interest rate (R_t) decreases money demand by 813.5540 billion naira, conforming with theoretical expectation but, it is not statistically significant. A one-unit increase in income (Y_t) raises money demand by 0.1708 billion naira, and it is statistically significant at 1%, 5%, and 10%, conforming with theoretical expectation.

Furthermore, a one-unit increase in POS transactions (POS_t) raises the demand for money by 4.7950 billion naira and it is statistically significant at 1%, 5%, and 10%, while a one-unit increase in bank charges (BC_t)) decreases the demand for money by 22.7786 units but it is not significant.

The positive and statistically significant coefficient of POS transactions confirms the transactionary motive for holding money, suggesting that increased payment activity raises money demand. The negative coefficient on interest rate aligns with theoretical expectations, reflecting the opportunity cost of holding money. However, inflation exhibits a positive relationship with money demand, likely capturing uncertainty and structural characteristics of the economy. The insignificance of real GDP may be due to POS transactions serving as a more direct proxy for transaction demand.

$R^2 = 0.99$, indicates that 99% of the variation in money demand in Nigeria is explained by income level, interest rate, inflation rate, bank charges, and POS transactions, and the rest 1% is unexplained, indicating an extreme strong fit, and it is statistically significant at 1%, 5%, and 10%, since the probability value of the F-statistic 432.8511 is 0.0000, implying that the explanatory variables jointly have a statistical significant effect on money demand in Nigeria.

4.1 Findings

Our findings revealed that money demand in Nigeria is increasingly shaped by financial innovation, reflecting the growing dominance of digital payment systems, having shifted transactional behaviour driven by fintech expansion and cashless policy initiatives.

It is shown that income and POS transactions positively drive money demand in Nigeria, indicating that higher earnings and increased use of electronic payments raise the need for money balances. In contrast, interest rates and bank charges reduce money demand, as attractive returns and higher transaction costs discourage holding money. Inflation, however, exhibits a positive influence, likely reflecting increased transaction needs.

5. Summary, Conclusion and Recommendations

The evolving financial landscape suggests that conventional money demand models are becoming less relevant. The influence of digital payments highlights the need for a revised analytical framework that captures the realities of a modern, technology-driven economy.

This study shows that money demand in Nigeria is now driven more by financial innovation than traditional macroeconomic factors, with POS transactions playing a dominant role in determining the demand for money, reflecting growing digital payment adoption in Nigeria.

It is, however, recommended that policy makers should promote efficient digital payment systems while minimizing excessive bank charges to encourage financial inclusion. Maintaining stable interest rates and controlling inflation is also essential to ensure predictable money demand. Strengthening financial infrastructure and reducing transaction costs will enhance monetary policy effectiveness and support sustainable economic growth.

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