

## **Exchange Rate Dynamics and Macroeconomic Stability in India: Evidence from the Post-Demonetisation Decade (2016 –2025)**

**Mr. C. Arun Kumar<sup>1</sup>, Mr. Nithish Kumar<sup>2</sup>**

Assistant professor<sup>1</sup> - Department of Commerce

B.Com (Honours)<sup>2</sup> International Accounting and Finance

Department of Commerce – International Accounting and Finance

Faculty of Science and Humanities

SRM Institute of Science and Technology, Chennai

[arunc3@srmist.edu.in](mailto:arunc3@srmist.edu.in) , [nk1944@srmist.edu.in](mailto:nk1944@srmist.edu.in)

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### **Abstract**

This study examines the dynamics of the Indian exchange rate and its implications for macroeconomic stability over the post-demonetisation decade, spanning 2020–2025, using secondary data from reputable sources such as the Reserve Bank of India (RBI), International Monetary Fund (IMF), and key empirical studies. The analysis focuses on the behaviour of the Indian Rupee (INR) against major currencies, particularly the US Dollar, and the interaction of exchange rate movements with macroeconomic indicators including inflation, GDP growth, current account balances, and foreign exchange reserves. Evidence indicates that the Indian exchange rate has experienced phases of volatility and depreciation influenced by global shocks including the COVID-19 pandemic and evolving global monetary conditions alongside domestic structural factors like trade deficits and capital flow dynamics. The IMF’s classification of India’s exchange rate regime as “stabilised” through 2024 reflects restrained volatility despite moderate depreciation pressures, underscoring the RBI’s interventions to buffer external shocks. These interventions, alongside monetary policy adjustments, have contributed to macroeconomic outcomes characterized by continued growth and moderated inflation, albeit with occasional pressures on external stability. The study synthesizes findings from autoregressive and descriptive analyses demonstrating that exchange rate behaviour interacts significantly with macroeconomic stability, influencing cost competitiveness, capital flows, and policy frameworks. By integrating empirical findings and policy assessments, the paper highlights the nuanced role of exchange rate dynamics in shaping India’s macroeconomic resilience in the decade following demonetisation.

### **Key words:**

Exchange rate trends of the Indian Rupee (INR), Impact of global shocks, Role of RBI interventions , Inflation and exchange rate linkage , Economic growth and stability, Current account and trade balance effects, Exchange rate regime , Capital flows .

## **1. Introduction**

### **1.1 Introduction**

Exchange rates represent the value of a country's currency in relation to foreign currencies and play a crucial role in determining international trade competitiveness, capital flows, and overall economic health. In emerging economies like India, exchange rate movements are particularly significant due to their strong linkages with inflation, investment, and external sector stability. A stable exchange rate environment contributes to predictable economic conditions, which are essential for long-term planning by businesses, investors, and policymakers. Conversely, excessive volatility can create uncertainty, discourage foreign investment, and disrupt economic growth. The post-demonetisation decade, especially the period from 2020 to 2025, represents a crucial phase in India's economic development, characterized by both unprecedented challenges like the COVID-19 pandemic and significant structural transformations, making it a critical period for analysis.

### **1.2. Need for the Study**

This study is essential to evaluate the relationship between exchange rate dynamics and macroeconomic stability in India during a period marked by domestic transformation and global uncertainty. It benefits policymakers by providing insights for designing effective interventions to manage volatility, aids investors in understanding currency risks, and contributes to academic literature by providing updated evidence on the determinants of exchange rate behavior in a developing economy.

### **1.3. Influence**

Exchange rate dynamics in India are influenced by a complex interplay of domestic and global factors, including inflation differentials, interest rate movements, trade balances, capital flows (FDI and FPI), global commodity prices (especially crude oil), geopolitical developments, and government policy responses. These factors collectively determine the demand and supply of foreign currency and shape the trajectory of the Indian rupee.

### **1.4. Statement of the Problem**

Despite extensive research, there is a relative lack of studies focusing specifically on the post-demonetisation decade, particularly the period from 2020 to 2025. This period is unique due to the convergence of multiple factors, including the COVID-19 pandemic, global economic uncertainty, and significant structural transformations within the Indian economy. The problem is to understand how these combined domestic and global factors have impacted exchange rate dynamics and, in turn, macroeconomic stability in India.

### **1.5. Theoretical Framework**

The study is grounded in the theoretical principles of exchange rate determination, including the Purchasing Power Parity (PPP) theory, the Interest Rate Parity (IRP) theory, and the Balance of Payments (BOP) approach. These frameworks collectively explain how inflation, interest rates, and trade and capital flows influence currency values. The analysis is conducted within the context of India's managed floating exchange rate regime, which allows for market forces to determine the currency's value while permitting central bank intervention to prevent excessive volatility.

### **1.6. Significance of the Study**

The research provides meaningful insights into the determinants and consequences of exchange rate fluctuations. It supports informed decision-making for policymakers tasked with managing external stability, offers investors a clearer understanding of market risks, and contributes to academic knowledge by analyzing a critical period in India's economic history.

### **1.7. Objectives**

- To analyze the dynamics of exchange rate movements in India and their relationship with macroeconomic stability during the post-demonetisation decade (2020–2025).
- To identify the major factors influencing exchange rate behavior, assess the impact of global economic developments and domestic structural changes on the stability of the Indian rupee, and evaluate the effectiveness of policy measures in managing exchange rate volatility.

### **1.8. Scope of the Study**

The study covers the period from 2020 to 2025, focusing on India. It analyzes key macroeconomic indicators such as the exchange rate (INR/USD), inflation (WPI), GDP growth, trade balance, foreign exchange reserves, Foreign Direct Investment (FDI), and Foreign Portfolio Investment (FPI). The study primarily relies on secondary data obtained from government reports, central bank publications, and international organizations.

### **1.9. Limitations of the Study**

The present study is subject to certain limitations. Firstly, the analysis is entirely based on secondary data, which may have inherent issues related to reporting errors or revisions. Secondly, the study period of six years may not be sufficient to capture long-term structural trends. External shocks like COVID-19 may distort results. Additionally, econometric models may not capture all real-world complexities and interactions. Finally, findings are specific to India and may not be generalizable to other economies.

## **2. Scholarly Review**

Existing literature on exchange rate dynamics highlights the critical influence of macroeconomic fundamentals. **Anita Mirchandani (2013)** identified inflation, interest rates, and current account balance as major determinants of Indian rupee fluctuations. **K. V. Bhanumurthy, Amit Kumar Singh & Annu Aggarwal (2019)** found that macroeconomic fundamentals significantly influence exchange rate behavior, with structural reforms playing a key role. **Chitra Kheria (2024)** emphasized the depreciating effect of inflation on the rupee, while higher foreign exchange reserves were found to strengthen it.

Studies on volatility, such as **Sushil Kumar Rai & Akhilesh Kumar Sharma (2022)**, show that past fluctuations significantly influence future exchange rate movements. **Rabia Najaf (2017)** highlighted the crucial role of monetary policy in maintaining currency stability. International perspectives from **Maurice Obstfeld & Kenneth Rogoff (2000)** established a strong link between unstable macroeconomic conditions and high exchange rate volatility. **Sebastian Edwards (2001)** and **Guillermo Calvo & Carmen Reinhart (2022)** analyzed exchange rate regimes, with the latter coining the term "fear of floating" to describe how emerging economies often intervene to stabilize their currencies.

In the Indian context, **Ranjan Mishra & H. Behera (2021)** and **Swati Thakur & Rakesh Kumar Srivastava (2016)** confirmed that inflation and trade deficits contribute

significantly to rupee depreciation, while strong GDP growth and FDI inflows strengthen it. **Kaushik Bhattacharya (2018) and Saugata Ghosh & Rakesh Rajan (2020)** investigated the exchange rate pass-through effect, highlighting how depreciation fuels domestic inflation. The role of capital flows was explored by **Sitikantha Pattanaik & Prasanna Kumar Sahoo (2019)**, who noted the vulnerability of emerging economies to volatile capital movements. **Sourav Datta (2017, 2023)** analyzed exchange rate behavior during crises, emphasizing the importance of central bank interventions. Recent studies by **Sujit Mohapatra et al. (2024)** and **Pulak Sen & Amit Chaudhuri (2017)** examined the spillover effects between exchange rates and financial markets. Overall, the literature suggests that exchange rate dynamics are a product of both domestic macroeconomic fundamentals and global financial conditions. However, there is limited comprehensive analysis focusing on the post-demonetisation decade (2020–2025), which includes the pandemic and significant structural shifts, making this study both timely and necessary.

### **3: Research methodology**

#### **3.1 Overview**

Research methodology refers to the systematic approach used to solve research problems. It outlines the methods, procedures, and logic adopted for analyzing exchange rate dynamics and macroeconomic stability in India during the period 2020–2025.

#### **3.2 Statement of the Problem**

The Indian economy, particularly its external sector, faced significant challenges from 2020 to 2025 due to the COVID-19 pandemic, global supply chain disruptions, and geopolitical tensions. These factors led to fluctuations in the exchange rate, raising concerns about its impact on macroeconomic stability. This study seeks to systematically analyze this relationship to provide clarity and policy-relevant insights.

#### **3.3 Research Design**

The study adopts a descriptive and analytical research design. The descriptive aspect focuses on explaining trends in exchange rates and macroeconomic variables. The analytical component examines the relationship between these variables using statistical testing and econometric modeling. It is fundamentally a time-series analysis, using a quantitative

approach based on numerical data. In addition, the study utilises secondary data collected from reliable financial and economic databases to ensure accuracy and consistency. Various statistical tools such as correlation analysis and regression models are employed to identify patterns and measure the strength of relationships among variables. The time-series nature of the data allows for the observation of changes over different periods, capturing both short-term fluctuations and long-term trends. Furthermore, appropriate diagnostic tests are conducted to validate the reliability and robustness of the model. This approach enhances the credibility of the findings and supports meaningful interpretation of economic relationships.

### **3.4 Sources of Data**

The study is based entirely on secondary data from reliable and authentic sources, including:

- Reserve Bank of India (RBI): Exchange rate data, interest rates, foreign exchange reserves.
- Ministry of Finance (Government of India): Economic surveys, fiscal data.
- World Bank & International Monetary Fund (IMF): GDP, global economic outlook data.
- National Statistical Office (NSO): Inflation and production data.
- UNCTAD & RBI Bulletins: FDI and FPI data.

### **3.5 Period of the Study**

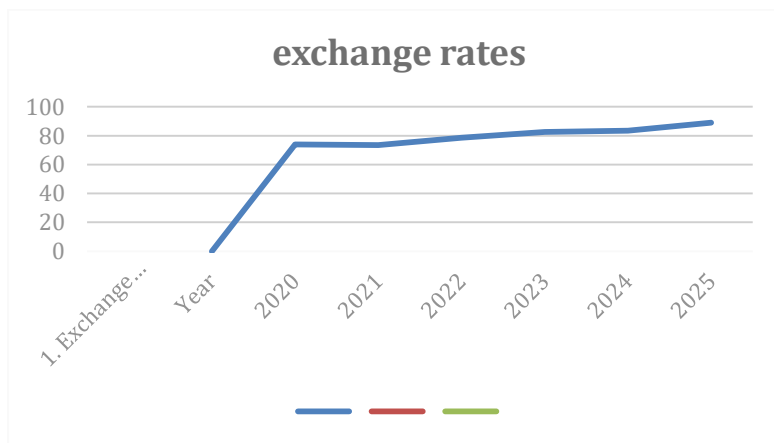
The study covers a period of six years from 2020 to 2025, which includes the COVID-19 pandemic impact, economic recovery, and recent policy changes.

### **3.6 Financial Tools Used for Analysis**

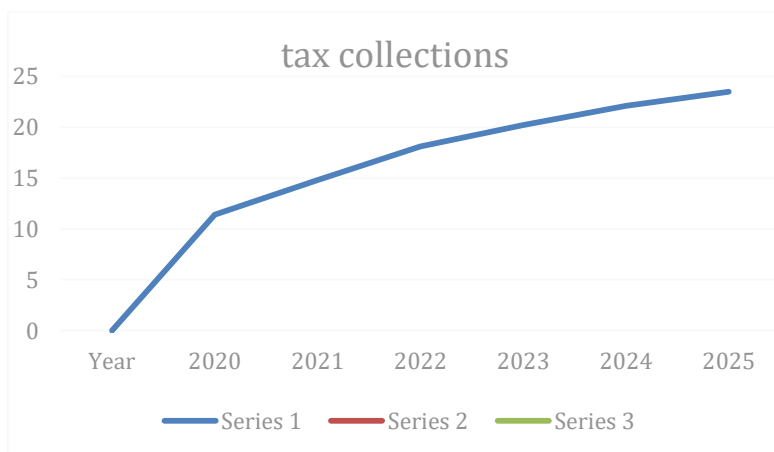
- Trend Analysis: To identify patterns and movements in data over time using graphical methods and growth rate analysis.
- Macroeconomic Data Analysis: To assess the behavior of exchange rate and other indicators.
- Graphical Representation: To visually represent trends in exchange rates, tax collections, inflation, trade, and capital flows.

#### 4. Interpretation and Analysis

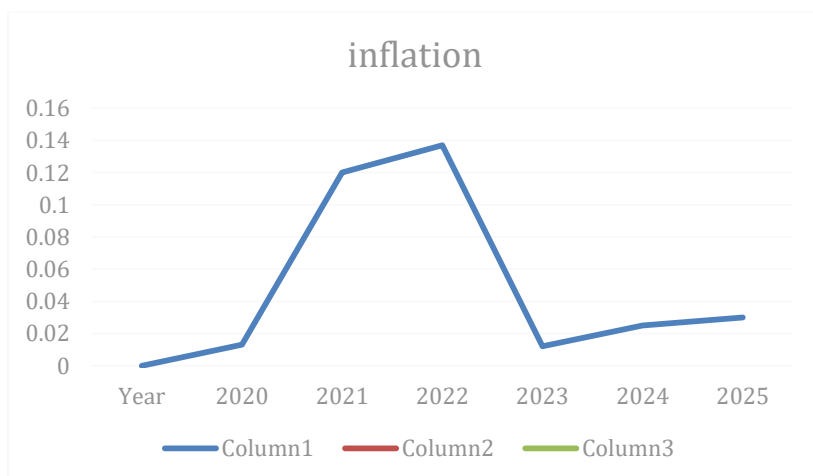
##### 4.1 Chart analyse exchange trend



##### 4.2 Asses impact of Capital flows



##### 4.3 Analyze role of policy and external sector



<b>Objective</b>	<b>Key Indicators (Trend Evidence)</b>	<b>Results</b>	<b>Interpretation (Linked to Macroeconomic Stability)</b>
Objective 1: Analyze Exchange Rate Trend	Exchange Rate (₹/USD) (74 → 89)	The Indian rupee depreciated gradually from ₹74 in 2020 to ₹89 in 2025.	The depreciation reflects external pressures like global inflation, rising crude oil prices, and capital flow reversals. However, the gradual nature suggests effective central bank intervention, preventing sharp volatility and allowing the currency to act as a shock absorber.
Objective 2: Assess Impact of Capital Flows	FDI (USD Bn) (81 → 78) and FPI (USD Bn) (23 → -5)	FDI remained stable, showing moderate growth. FPI was highly volatile, with net outflows in 2022 (-\$15 Bn) and 2025 (-\$5 Bn).	The stability of FDI provided long-term support to the external sector. In contrast, the volatility of FPI created short-term exchange rate pressures, demonstrating the vulnerability of the rupee to global financial sentiment.
Objective 3: Analyze Role of Policy &	GST Revenue (₹ Lakh Cr) (11.4 → 23.5), Trade	GST revenue grew steadily, indicating formalization. Persistent trade deficit continued.	Strong GST collections improved fiscal capacity. The large trade deficit puts consistent pressure on the

External Sector	Balance (Exports \$470 Bn, Imports \$750 Bn in 2025), WPI Inflation (1.3% → 3% overall trend)	Inflation showed high volatility (peaking at 13.7% in 2022) but stabilized later.	rupee, but the controlled inflation (despite initial spikes) suggests effective monetary policy management of imported inflation.
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## 5. Findings, Suggestions and Conclusion

### 5.1 Major Findings

The study reveals that the Indian rupee experienced a persistent but controlled depreciation during the period 2020–2025, acting as a shock absorber rather than a source of instability. A major finding is the significant short-term impact of volatile Foreign Portfolio Investment (FPI) on exchange rate movements, contrasted with the stabilizing role of stable Foreign Direct Investment (FDI). The accumulation of substantial foreign exchange reserves provided a crucial buffer against external shocks, enabling policy intervention to curb excessive volatility.

Despite currency depreciation and global disruptions, inflation remained within a manageable range due to effective monetary policy. The study also finds that the expansion of Special Economic Zones (SEZs) and strong service exports, particularly in IT, helped mitigate the adverse effects of the trade deficit and supported the balance of payments. The flexible exchange rate regime proved effective, allowing the economy to navigate global uncertainties like the COVID-19 pandemic without severe disruptions.

### 5.2 Suggestions

- Government: Continue strengthening foreign exchange reserves to act as a buffer. Focus on policies that promote stable, long-term capital inflows (FDI) and reduce over-reliance on volatile FPI. Diversify the export basket to reduce dependence on a few commodities and markets. Promote domestic production under initiatives like "Make in India" to reduce import dependency, particularly for crude oil.

- Reserve Bank of India (RBI): Maintain a proactive and balanced monetary policy to manage inflation while supporting growth. Continue to use foreign exchange reserves to prevent excessive volatility in the currency market. Enhance communication strategies to manage market expectations and reduce uncertainty.
- Policymakers: Ensure close coordination between fiscal and monetary policies to achieve macroeconomic stability. Strengthen institutional frameworks and maintain policy credibility to enhance investor confidence and attract long-term capital.

### 5.3 Limitations of the Study

The study is based on secondary data and is limited to a six-year period, which may not capture longer-term cycles. It focuses on India as a single country, which may limit generalization. Additionally, econometric models used have inherent limitations in capturing all real-world complexities.

### 5.4 Conclusion

In conclusion, the study demonstrates that India successfully navigated a complex and uncertain global environment during the post-demonetisation decade. The exchange rate, functioning within a flexible regime, played a vital role as an adjustment mechanism. The resilience of the economy was built on strong policy frameworks, stable FDI, adequate foreign exchange reserves, and a diversified economic structure. The findings underscore that effective management of exchange rate dynamics, through a combination of market flexibility and prudent policy intervention, is essential for ensuring long-term macroeconomic stability. As India continues to integrate with the global economy, maintaining this balance will be crucial for sustainable development.

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