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Behavioural Implications of India's Dual Exchange Rate System: Lessons from Global Customs Exchange Rate Practices

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Abstract

This study looks at how the difference between the exchange rates set by the market and those set by customs in India affects behavior and institutions. India uses a managed floating exchange rate system, but the exchange rates used for customs purposes are decided by the Central Board of Indirect Taxes and Customs. This setup can lead to differences between the market rates set by the Reserve Bank of India and the rates used for customs.

The research uses a quantitative method, looking at secondary data on the USD/INR exchange rate from January to February 2026. It uses statistical tools to examine the link between the two sets of exchange rates and to measure the size and importance of the differences. The results show that the difference between market and customs exchange rates is statistically significant and changes over time. However, the short-term connection between the two rates isn't strong. This suggests that customs exchange rates are shaped more by administrative decisions than by ongoing market changes. The study also points out that this difference creates a complex environment for businesses, affecting how they set prices, choose when to do transactions, and manage risks. Psychological factors like anchoring, loss aversion, and decisions based on expectations influence how companies respond to these exchange rate differences.

The study concludes that, even though India doesn't officially have a dual exchange rate system, the existence of both market and administrative exchange rates effectively creates one in practice. This has important effects on how exchange rates are managed, how trade is valued, and how policies are coordinated. The findings add to the understanding of how institutional systems in exchange rate use can lead to behavioral and economic changes within a single exchange rate structure.

1. Introduction

In international trade, exchange rates are key instrument that influence trade, inflation, economic stability, and how the government collects revenue. When exchange rates change, it directly affects imports, exports, and customs duties in countries like India. Therefore, exchange rate systems offer more than just monetary policy options—they also help in managing trade and collecting revenue (Obstfeld et al. 2019).

Currently, India uses a managed floating exchange rate system, where the value of the rupee is mainly set by market forces in the Forex market. However, the Reserve Bank of India (RBI) occasionally steps in to prevent the rupee from fluctuating too much (Patra et al. 2019). At the same time, the Central Board of Indirect Taxes & Customs (CBIC) sets its own exchange rate for customs valuation, based on the Customs Act, 1962.

This indicates there are two different exchange rates in the system: one based on market forces and another set by the customs authority. This can create exchange rate differences, similar to having a dual exchange rate system, even though the official exchange rate is supposed to be unified. The aim of this study is to check whether this difference exists and if it can be considered as a dual exchange rate system in India, based on real data.

1.1 Background of Exchange Rate Systems

Exchange rate systems define how a country's currency is valued compared to others. These systems are usually divided into three types: fixed, floating, and managed float (Frankel et al. 2001; IMF 2022). In a fixed system, the currency is tied to another or a group of currencies, and the central bank keeps its value steady. In a floating system, the currency value is determined by market demand and supply. Most emerging economies, including India, use a managed float system, where the rate is set by the market but the central bank can sometimes step in to adjust it (Patra et al. 2019). India changed from a controlled system before the 1991 reforms to a market-driven system after liberalization (RBI 2023). Flexible exchange rates allow countries to better handle external changes and give more freedom in monetary policy (Obstfeld et al. 2019). However, even in a unified system, there can be differences in exchange rates used for different purposes, such as customs valuation, leading to discrepancies between financial market rates and the ones used administratively.

A. Exchange Rate Fundamentals

Exchange rates represent the price at which one country's currency can be exchanged for another and play a fundamental role in international trade, capital flows, and macroeconomic stability. Exchange rates show how much one currency is worth compared to another.

They play a major role in international trade, financial flows, and economic stability. Exchange rates affect the cost of imports, the competitiveness of exports, inflation, and how financial markets behave in open economies (Krugman, Obstfeld, & Melitz 2018).

Exchange rates can be divided into two main types: nominal and real.

The nominal rate is the direct price of one currency in terms of another. The real rate adjusts the nominal rate based on differences in price levels between countries, showing the real value of a currency and its purchasing power (Mishkin 2019). Real exchange rates are better indicators of a country's competitiveness because they show the impact of inflation.

Several theories help explain how exchange rates are set.

- The Purchasing Power Parity (PPP) theory suggests that exchange rates change to make the prices of the same goods equal across countries. According to PPP, countries with higher inflation should see their currencies fall in value (Rogoff 1996).
- Another important theory is Interest Rate Parity (IRP), which links exchange rates to the difference in interest rates between countries.
- IRP says that investors move money across borders based on interest rate differences, and this movement causes exchange rates to adjust so that financial markets remain balanced (Krugman et al. 2018).
- The Balance of Payments approach looks at a country's external accounts to explain changes in exchange rates.

Exchange rates adjust based on trade balances, capital flows, and foreign investment trends (Salvatore 2019). Together, these theories help us understand the broader economic influences on exchange rate movements.

B. Exchange Rate Regime Theory

Exchange rate regimes determine how a country manages the value of its currency relative to other currencies. Traditionally, these regimes are classified into three main types: fixed, floating, and managed float (Frankel 2003).

- In a fixed regime, the currency maintains a set value relative to another currency or a group of currencies. Fixed regimes offer stability but require large foreign exchange reserves and limit the freedom of monetary policy (Obstfeld, Shambaugh, & Taylor 2005).
- In contrast, floating regimes let the currency value change based on market demand and supply.Floating systems offer more freedom in monetary policy but can lead to greater exchange rate fluctuations (Mishkin 2019).

Many emerging economies, including India, use managed float systems, where exchange rates are mostly market-driven but central banks occasionally intervene to smooth out big swings.

According to the International Monetary Fund (IMF 2024), managed floats aim to balance exchange rate flexibility with economic stability.Choosing an exchange rate regime is often analyzed through the Impossible Trinity, also known as the

monetary policy trilemma. This theory says a country can't have all three of the following at the same time: fixed exchange rates, free capital movement, and independent monetary policy (Obstfeld et al. 2005). Therefore, policymakers have to choose two out of the three.

1.2 Concept of Dual Exchange Rate System

In a dual exchange rate system, you've got two different rates for exchanging money that are used at the same time in an economy. Typically, one rate is what the market decides, and the other is set by the government or some official body.

Dual exchange rate systems have been set up in the past to

i. Keep foreign exchange reserves safe
ii. Handle the movement of goods
iii. Secure the flow of critical imports
iv. Improve financial management

Alternatively, research indicates that multiple exchange rates can mess things up, open doors for arbitrage, and cause inefficiencies (Dornbusch et al., 1983). Even if the dual rates are set by the admin team instead of the policy people, it could still show up as divisions in how the exchange rate system is put together.

In India, though the official exchange rate system is unified and market-based, customs-notified exchange rates create a separate method for valuation. If the customs rate keeps changing form the market rate, it's kind of like having a dual exchange rate system This research looks into whether we can actually track these differences using numbers and statistics.

1.3 Overview of India's Customs Exchange Rate Mechanism.

The Reserve Bank of India releases daily exchange rates that mirror the interbank foreign exchange deals These rates are for settling money and reflect what's happening in the market right now(RBI, 2023).

However, according to Section 14 of the Customs Act, the Central Board of Indirect Taxes and Customs regularly announces exchange rates for customs duty assessment These rates are officially set for pricing goods coming in adn out of the country.

The distinction is as follows:

- Market → determined interest rate
- CBIC Rate → Announced customs rate

If the CBIC rate differs from the RBI rate, a divergence occurs. This divergence can change due to administrative updates and market fluctuations.

India doesn't officially have a system with multiple exchange rates, btu the gap between what the market and customs rates are shows that in reality, they might be using a sort of dual exchange rate setup.

1.4 Multiple Currency Practices

The IMF describes Multiple Currency Practices as scenarios where the exchange rate differences between deals go beyond certain limits or when different exchange rates are used for various types of transactions (IMF, 2023) MCPs may arise through administrative exchange rate systems, exchange restrictions, or segmented currency markets.

IMF policy guidance says using different currencies can mess up trade, make things less clear, and make handling money exchange rates harder So, the IMF is pushing for countries in its group to stick to the same currency value system when they can (IMF, 2023). Nevertheless, certain administrative arrangements—particularly those related to customs valuation or trade regulation—may still involve differentiated exchange rate applications. These setups don't always mean we've got a full dual exchange rate system, but they can lead to different parts of the economy using different exchange rates.

1.5 Behavioural Finance Theory

Traditional economic theories think people make smart choices and have all the info they need when they decide stuff But, according to behavioral finance studies, people usually go with their gut feelings and mental shortcuts when they're deciding on money matters (Kahneman & Tversky, 1979).

Prospect theory, cooked up by Kahneman and Tversky, suggests that people judge their wins and losses based on where they started from and really feel the sting of losing more than the buzz of winning This behavioural tendency influences decision-making under uncertainty.

Similarly, the concept of bounded rationality, introduced by Simon (1955), suggests that individuals operate under limited information and cognitive constraints, leading them to rely on simplified decision rules rather than fully rational optimization. These behavioral views are especially important in the finance world, where things ar unpredictable, prices swing wildly, and not everyone has the same info, which all affect how people make choices.

1.6 Behavioural Biases in Currency and Trade Decisions.

Behavioral biases really make a big difference in how people decide things in the world of currency trading and global commerce Traditional economic theory thinks that companies and people in teh market make smart choices, but behavioral finance shows that our decisions can be swayed by mental shortcuts and consistent biases (Kahneman & Tversky, 1979) When it comes to how exchange rates change adn buying/selling stuff between countries, these biases can mess with how much things cost, when to protect against currency swings, and what we think will happen with money values.

This can significantly influence decision- Engaging in foreign exchange markets and international trade Recent research also points out how our own quirks affect how exchange rates impact business choices For example, Gopinath and Itskhoki (2010) show that pricing decisions in international trade are influenced by expectations and adjustment frictions, which may be linked to behavioural factors. The IMF's 2023 study on how exchange rates affect prices shows that companies don't always change their prices right away or completely when the exchange rate changes, due to behavioral and institutional limits.

Table 1.6 Behavioural Biases in Currency and Trade Decisions

Bias	Description	Impact on Currency & Trade Decisions	Key Reference
Anchoring	Reliance on initial reference points	Firms base pricing and cost expectations on past exchange rates or notified rates	Tversky & Kahneman (1974)
Overconfidence	Overestimation of predictive ability	Excessive trading, speculative currency exposure, inaccurate forecasts	Barber & Odean (2001)
Herd Behaviour	Following actions of others	Collective trading behaviour, synchronized import/export timing	Bikhchandani & Sharma (2000)
Availability Bias	Reliance on recent information	Overreaction to recent exchange rate movements	Tversky & Kahneman (1974)
Status Quo Bias	Preference for existing strategies	Delayed adjustment in pricing, hedging, or invoicing decisions	Samuelson & Zeckhauser (1988)
Loss Aversion	Losses weigh more than gains	Conservative pricing and hedging decisions	Kahneman & Tversky (1979)

Expectation Bias	Decisions based on anticipated outcomes	Timing of transactions based on expected rate movements	IMF (2023)

These behavioural biases are particularly relevant in environments where multiple exchange rate references exist, such as the divergence between market exchange rates published by the Reserve Bank of India and customs-notified exchange rates issued by the Central Board of Indirect Taxes and Customs. In such contexts, firms may rely more heavily on heuristics and institutional signals, further amplifying the behavioural effects of exchange rate divergence.

1.7 Customs Exchange Rate Mechanisms

Customs valuation systems are super important for figuring out how much imported stuff should be taxed. The World Trade Organization (WTO) establishes international standards for customs valuation through the Agreement on Implementation of Article VII of the General Agreement on Tariffs and Trade (WTO, 2017).

Under this system, the transaction value method is the main way to figure out the worth of stuff coming in form other countries. Exchange rates help us change the value of money from one country to another when figuring out import taxes.

Multiple countries have these official steps for letting people know about changes in exchange rates, usually updating them every so often instead of every single day. These steps are designed to keep things steady and smooth in how we figure out the value of imported goods.

1.8 Global Customs Exchange Rate Practices

Customs people in various countries have their own way of how to value the imports when it comes to exchange rates. Some countries update customs exchange rates daily based on central bank reference rates, while others revise them periodically based on administrative schedules.

International policy practices suggest that the frequency and transparency of customs exchange rate updates can influence trade valuation accuracy and compliance (World Customs Organization, 2023). Comparative institutional models give us key insights into how exchange rate systems work in the real world.

2. Literature Review

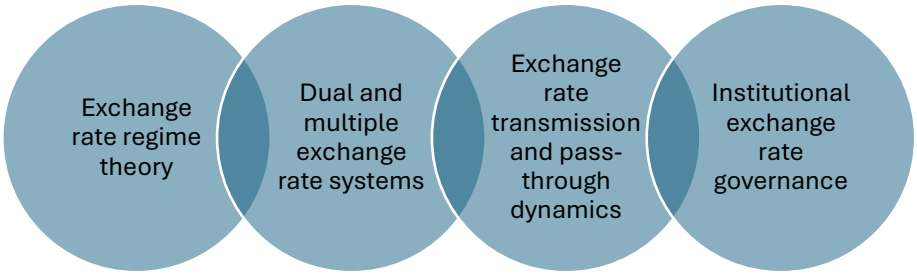
The Reserve Bank of India (RBI) releases daily reference exchange rates that reflect transactions in the interbank foreign exchange market. These rates are widely used for financial settlements and are indicative of current market conditions (RBI, 2023). However, under Section 14 of the Customs Act, the Central Board of Indirect Taxes and Customs (CBIC) regularly announces exchange rates for the purpose of customs duty assessment.

Exchange rate systems play a vital role in macroeconomic stability, trade competitiveness, capital mobility, and fiscal management. In open economies, fluctuations in exchange rates influence import pricing, export earnings, inflation, and the overall performance of the external sector. Therefore, the design of exchange rate regimes significantly affects monetary policy as well as trade and revenue management.

Although a substantial body of research examines exchange rate regime classifications and their economic effects, relatively less attention has been given to the administrative aspects of how exchange rates are applied, particularly in customs valuation systems.

In India, the setting of exchange rates involves two distinct institutional processes: the RBI releases market-based reference rates, while the CBIC sets exchange rates for customs duty based on its legal authority.

This review explores relevant literature across five main areas:



2.1 Exchange Rate Regime Theory

Exchange rate regimes define how a currency's value is determined in relation to other currencies. Traditional categories include fixed, floating, and intermediate regimes (Frankel et al., 2001; IMF, 2024).

- In a fixed regime, authorities maintain a set parity through active intervention, often sacrificing some control over monetary policy.
- Floating regimes allow market forces to determine currency values, increasing policy independence but also introducing exchange rate fluctuations. Intermediate or managed float regimes attempt to balance flexibility with stability by allowing market determination while still involving some level of intervention.

India follows a managed floating exchange rate regime. In this setup, the RBI intervenes to limit excessive volatility while allowing market forces to determine prices (Patra et al., 2019). The IMF (2024) explains that managed float systems rely on coordination to align monetary policy signals with exchange rate outcomes.

The expectation in a managed float system is that applied exchange rates will generally be consistent across various institutional settings. Typically, exchange rate regime theory assumes that there is a single operative rate for economic transactions. However, this may not hold true when administrative processes lead to separate rate applications for fiscal responsibilities. Divergence can arise if the CBIC rate differs from the RBI rate. This divergence can vary based on the frequency of administrative updates and changes in the market. While India does not officially maintain a multiple exchange rate system, the differences between market and customs rates raise the question of whether a functional dual exchange rate structure exists in practice.

2.2 Dual and Multiple Exchange Rate Systems

Dual exchange rate systems occur when an economy uses more than one exchange rate (Kiguel & O'Connell, 1995). Historically, these systems have been used to address foreign exchange shortages, control capital flows, or stabilize essential imports. Dornbusch et al. (1983) argue that multiple exchange rate systems can distort price signals, create arbitrage opportunities, and reduce economic efficiency. Research indicates that prolonged differences between official and market rates can undermine policy credibility (Kiguel & O'Connell, 1995).

Recent IMF guidance on Multiple Currency Practices (IMF, 2023) notes that different exchange rates for various transactions may lead to segmentation effects, even in countries with unified monetary systems. Unlike classical dual exchange rate systems with parallel markets, India does not have separate commercial and financial rates.

However, the presence of market-driven RBI rates alongside customs-notified CBIC rates creates a potential administrative duality. The key question is whether this difference can be measured statistically and has real significance. The literature on exchange rate pass-through examines how changes in exchange rates impact domestic prices and trade (Goldberg & Knetter, 1997). Findings show that exchange rate transmission is often incomplete and takes time to adjust. Administrative methods often smooth these effects or lead to periodic revisions rather than continuous adjustments.

According to the IMF's Integrated Policy Framework (IMF, 2023), exchange rate interventions and institutional processes may cause short-term differences between market rates and the rates applied. In customs systems, exchange rates are usually updated at fixed intervals rather than daily. If market rates change between these updates, differences can occur. Such

differences may be due to timing rather than structural policy issues. However, if differences persist and are statistically significant, they might indicate deeper institutional divides.

2.4 Institutional Governance and Exchange Rate Coordination

Exchange rate governance in emerging economies requires coordination between monetary authorities and fiscal institutions (IMF, 2024; World Bank, 2024). The success of this coordination affects the consistency of exchange rates across sectors. Obstfeld et al. (2019) emphasize that institutional cooperation is crucial for maintaining macroeconomic stability in managed float systems. When institutions apply rates differently or follow distinct update schedules, temporary misalignment can occur.

In India, the RBI sets and publishes daily reference rates based on interbank transactions, while the CBIC announces exchange rates for customs duties. This separation reflects different objectives: monetary stability and revenue administration. World Bank (2024) research highlights that administrative methods of rate application can create differences without necessarily indicating macroeconomic fragmentation. Therefore, it is important to investigate further to distinguish between temporary administrative differences and structural duality.

2.5 Theoretical Implications for Hypotheses

The literature reviewed leads to three testable ideas:

a. Exchange rate regime theory says that the rates notified by customs should be close to market rates in a managed float system (Frankel et al., 2001).
This supports Hypothesis 1.
b. Studies on dual exchange rates show that if two rates are used at the same time, there might be noticeable differences (Kiguel & O'Connell, 1995).
This supports Hypothesis 2.
c. Research on pass-through and administrative delays suggests that these differences might change over time because of how often rates are updated (Goldberg & Knetter, 1997). This aligns with Hypothesis 3.

Therefore, this study brings together macroeconomic theory and institutional analysis to look at India's customs exchange rate system.

2.6 Research Gap

Even though many studies have explored exchange rate systems, managed float systems, and dual exchange rate setups (Frankel et al., 2001; Kiguel & O'Connell, 1995), most of them focus on macroeconomic exchange rates at the monetary policy level.

These studies usually look at official dual systems, black market premiums, or ways to control capital. However, there is not much research on exchange rate differences within customs valuation processes, especially in countries that officially use a single managed float system.

In India, the Reserve Bank of India sets and publishes market-based reference rates, while the Central Board of Indirect Taxes and Customs sets the rates used for customs duty. Even though this is clearly defined, there is little research that:

i. Measures how much the rates set by the RBI and CBIC differ.
ii. Checks if this difference is statistically significant.
iii. Looks at whether this difference shows a real dual exchange rate system.
iv. Sees how much the difference changes during different notification periods.

Most exchange rate studies assume there is only one way that monetary and fiscal exchange rates connect. The split caused by customs rates has not been studied enough in academic research.

This study fills this gap by using real data from the RBI and CBIC to:

- Measure the difference in exchange rates using actual data,

- Check if this difference is statistically significant, and
- Find out if India has a working dual exchange rate system even though it officially uses a managed float system.

By connecting exchange rate theory with customs valuation practices, this study improves our understanding of how exchange rates are managed at both institutional and policy levels in emerging economies.

Chapter 3: Research Methodology

This chapter explains the research plan and the methods used to look at the differences between the exchange rates set by the market and those set by customs in India. The study uses a quantitative method, and it gets the data from official sources. The main goal is to check if there's a real difference between the exchange rates set by the Reserve Bank of India (RBI) and those set by the Central Board of Indirect Taxes and Customs (CBIC), and whether this difference shows a system where two different exchange rates are used.

3.1 Problem and Rationale

India has a system where the value of the rupee is mostly decided by the market, but the Reserve Bank of India sometimes steps in to keep things stable. However, for customs duties, the Central Board of Indirect Taxes and Customs sets its own exchange rates according to the law.

This setup can lead to differences between the market rates and the customs rates. The main question this study is looking into is whether there is a real and meaningful difference between these two sets of rates and if that difference suggests a dual system of exchange rates. The reason for this study is based on previous research that suggests different ways of using exchange rates can affect trade, government financial transparency, and how well institutions work. Though this idea is important, there isn't much actual research on this topic in India. This study is trying to fill that gap by using real data.

3.2 Research Objectives

[1] Looking at the relationship between RBI's market exchange rates and CBIC's customs exchange rates.
[2] Measuring the average difference between these two rates.
[3] Checking if this difference is statistically significant.
[4] Looking at how this difference changes over time.
[5] Determining if India uses a dual exchange rate system.

3.3 Research Questions

[1] Do RBI's market exchange rates influence CBIC's customs exchange rates significantly?
[2] Is the average difference between the two rates different from zero?
[3] Does the difference change during different notification periods?
[4] Does the difference suggest the presence of a dual exchange rate system?

3.4 Hypothesis Statements

H1: Market Rate Influence Hypothesis

- $H0_1$: RBI market exchange rates do not significantly influence CBIC customs-notified exchange rates.
- $H1_1$: RBI market exchange rates significantly influence CBIC customs-notified exchange rates.
- This hypothesis is tested using Ordinary Least Squares (OLS) regression.

H2: Divergence Existence Hypothesis

- $H0_2$: The mean divergence between RBI market rates and CBIC customs-notified rates is equal to zero.
- $H1_2$: The mean divergence between RBI market rates and CBIC customs-notified rates is significantly different from zero.
- This hypothesis is tested using a one-sample t-test.

H3: Divergence Variability Hypothesis

- $H0_3$: Exchange rate divergence does not vary significantly over time.
- $H1_3$: Exchange rate divergence varies significantly over time.
- This hypothesis is examined using descriptive statistical analysis and time-series observation.

3.6 Data Sources and Verification

The data used comes from official sources:
- RBI reference exchange rates published by the Reserve Bank of India
- Customs-notified exchange rates issued by the Central Board of Indirect Taxes and Customs

The data covers *41 observations* from January to February 2026 and includes:
a. Date
b. RBI Market Rate (USD/INR)
c. CBIC Customs Rate (USD/INR)
d. Calculated Divergence (INR)
e. Percentage Divergence

All the data values were checked against official RBI and CBIC sources to ensure they are accurate. The complete dataset used for analysis is listed in Appendix for transparency and verification.

3.7 Scope of the Study

The study is focused on:

- USD/INR exchange rate
- The period from January to February 2026
- Secondary data from RBI and CBIC
- Quantitative statistical analysis

It does not include:

- Comparing multiple currencies
- Long-term time series models
- Primary data collected through surveys
- Analysis of firm behaviour

3.8 Limitations of the Study

The data is only from January to February 2026, which makes it hard to apply the results to longer economic cycles. A longer time period might provide better insights into how these differences work. Second, the study is only looking at USD/INR and doesn't consider other currencies, which might show different patterns of difference. Third, the research is based only on secondary data from official sources like the RBI and CBIC and doesn't include direct responses from companies or individuals.

Finally, the statistical methods used are basic tools like descriptive statistics, regression, and student's t-test, and not more advanced econometric models. Despite these limitations, the study provides useful findings within its specific scope.

Chapter 4. Conceptual Framework

The conceptual framework of this study explains how different exchange rates can influence institutions and behaviors within an economy.
In modern international monetary systems, exchange rates are usually decided by market forces in foreign exchange markets. However, central banks can step in to prevent extreme swings in exchange rates. In emerging market economies,

this type of intervention is often part of a managed floating exchange rate system. This system tries to balance the flexibility of the market with the need for economic stability.

Recent studies show that exchange rate changes are a key way that macroeconomic adjustments happen in emerging markets. These changes affect domestic inflation, trade competitiveness, and financial stability, especially when exchange rates influence the prices of goods in the domestic market (Kemoe et al., 2024; Carrièrre-Swallow et al., 2023). Yet administrative mechanisms used for fiscal or regulatory reasons may work differently from real-time market exchange rates. These institutional structures can cause temporary differences between the exchange rates seen in financial markets and those used for things like customs valuation.

In the case of India, market exchange rates are mainly determined through foreign exchange transactions monitored by the Reserve Bank of India. At the same time, customs valuation exchange rates are set by the Central Board of Indirect Taxes and Customs. The fact that there are two different applications of exchange rates can create a gap between market prices and administrative rates.

The conceptual framework of this study looks at three main aspects:

i. how market and administrative exchange rates relate to each other
ii. the way different institutions handle exchange rate governance
iii. how businesses react to differences in exchange rates

4.1 Relationship Between Market and Administrative Exchange Rates

In a managed floating exchange rate system, exchange rates are mostly set by the demand and supply in foreign exchange markets. Central banks may intervene to reduce excessive volatility but usually let the market decide the value of the currency.

Recent studies show that exchange rate changes can have major effects on the economy, especially through how exchange rates influence inflation and import prices.

For example, research by IMF shows that currency depreciation can cause higher domestic inflation through import price changes (Kemoe et al., 2024). At the same time, studies on exchange rate transmission suggest that the effect of exchange rates on domestic prices depends on the state of the economy, such as the level of inflation and economic uncertainty. Research shows that the effect is more noticeable during times of high inflation or economic uncertainty (Carrièrre-Swallow et al., 2023).

On the other hand, administrative exchange rates used for customs valuation are usually updated on a regular schedule rather than in real time. This difference in how often they are updated can lead to short-term gaps between the actual market exchange rates and the administrative rates used for trade valuation.

4.2 Institutional Segmentation Model

Institutional segmentation happens when different public institutions use exchange rates for different purposes.

In emerging economies, managing exchange rates often involves cooperation between central banks that handle monetary policy and fiscal authorities that deal with trade regulation and tax collection. International policy research highlights that proper coordination among institutions is important for maintaining a consistent approach to exchange rate management. When different institutions have different goals, it can lead to different ways of using exchange rates across different parts of the economy (World Bank, 2024).

In India, this kind of institutional segmentation exists because:

- The central bank controls exchange rates in financial markets
- The customs authority uses exchange rates for tariff valuation

While both types of exchange rates come from market conditions, the way they are applied is different. Market exchange rates change all the time in foreign exchange markets, but customs exchange rates are set on a regular basis for administrative use. These institutional setups may therefore create noticeable differences between market exchange rates and the administrative ones that are used in trade.

4.3 Behavioural Response Mechanism

Behavioral economic theory suggests that businesses and traders might not always react to exchange rate changes in a purely rational way. Instead, their decisions can be influenced by their expectations, how they perceive risk, and their personal biases.

Recent research in international macroeconomics points out that different expectations among economic agents can lead to a gap between actual exchange rate movements and the underlying economic conditions. These behavioral patterns can affect market volatility and how the economy responds to exchange rate changes (Davila-Fernandez & Sordi, 2025).

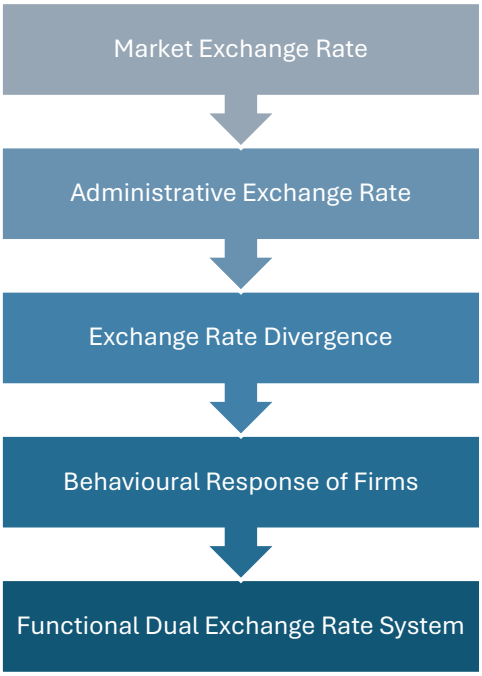
In the case of differences between market and administrative exchange rates, businesses might act in response to the changes they see between the two.

Some possible responses could include:

- timing their import declarations more strategically
- adjusting their pricing strategies
- using more currency hedging tools
- making changes in how they manage their inventory

These kinds of responses can make the economic effects of exchange rate differences even bigger, even if the differences themselves come from administrative processes.

4.4 Conceptual Model of the Study



The conceptual framework of the study can therefore be summarized as follows:

In this framework, divergence between market exchange rates and administrative exchange rates serves as the central analytical variable. Institutional segmentation in exchange rate governance may create such divergence, while behavioural responses by firms and trade participants may reinforce the practical effects of this divergence within the economy.

Chapter 5: Institutional Analysis of India's Dual Exchange Rate System

5.1 India's Dual Exchange Rate System

The way India handles exchange rates is managed by a complex system that involves both monetary and fiscal authorities.

While the market exchange rates are set through transactions in the foreign exchange market and are overseen by the Reserve Bank of India (RBI), the exchange rates used for customs valuation are announced regularly by the Central Board of Indirect Taxes and Customs (CBIC).

This setup leads to two different ways exchange rates are used in the economy:

[1] Market-determined exchange rates used in financial and currency markets
[2] Exchange rates set by the government for customs duty calculations

Even though both sets of exchange rates come from the same underlying foreign exchange market conditions, they may differ temporarily because they are updated at different times and are used under different rules. It is important to understand how India's exchange rate system is structured in order to see if it works like a proper dual exchange rate system.
This chapter looks at how India's exchange rate policy has changed over time, the move from controlled rates to market rates, the process of setting customs exchange rates, and the roles played by the RBI and CBIC in the overall exchange rate system.

5.2 The Evolution of Exchange Rate Policy in India

India's exchange rate system has changed a lot over the years due to changes in the global financial system and domestic economic reforms.

After gaining independence in 1947, India used a fixed exchange rate system where the rupee was tied to the British pound. This followed the broader fixed exchange rate system established by the Bretton Woods agreement.

When the Bretton Woods system ended in the early 1970s, India moved to a basket-peg system, where the rupee's value was linked to a group of major trading partners' currencies (RBI, 2023). A big change happened during the balance of payments crisis in 1991, when India had a serious shortage of foreign exchange.

As part of economic reforms, the government adjusted exchange rates and started moving toward a system where exchange rates were determined by the market. In 1992, India introduced the Liberalised Exchange Rate Management System (LERMS). Under this system, exporters had to exchange a part of their foreign earnings at the official rate, while the rest could be exchanged at the market rate. This created a temporary dual exchange rate system that was meant to help transition to full market-based exchange rates (IMF, 2024).

In March 1993, the dual exchange rate system was ended and replaced with a single market-determined exchange rate system. Since then, India has been using a managed floating exchange rate system, where the value of the rupee is mostly set by buying and selling in the foreign exchange market, with the RBI stepping in occasionally to keep the market stable.

Table 5.1: Evolution of India's Exchange Rate Regime

Period	***Exchange Rate Regime***	***Key Characteristics***
1947–1971	Fixed Exchange Rate	Rupee pegged to pound sterling
1971–1991	Basket Peg	Exchange rate linked to basket of currencies
1992–1993	Dual Exchange Rate (LERMS)	Partial market determination
1993–Present	Managed Float	Market-determined with RBI intervention

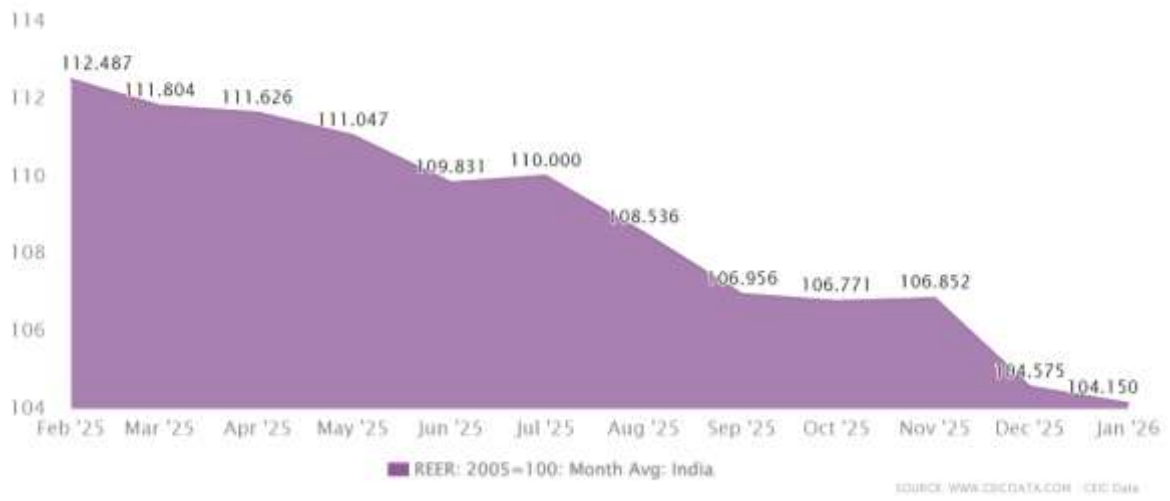
Source: *RBI Report on Currency and Finance (2023); IMF Exchange Rate Arrangements Report (2024)*

5.3 Transition from Administered to Market-Determined Exchange Rates

Before the economic reforms in the early 1990s, India's exchange rates were mainly controlled by the government within a wider system of trade restrictions and capital controls. Foreign exchange availability was regulated, and market involvement was restricted.

Economic liberalization brought about several structural reforms that progressively increased the role of market forces in determining exchange rates. These reforms comprised:

- Liberalization of foreign exchange markets
- Expansion of interbank currency trading
- Increased convertibility of the rupee on the current account



Under the managed floating exchange rate regime, the RBI sets reference exchange rates that are based on interbank foreign exchange market dealings. These reference rates reflect current market conditions and are commonly used as benchmarks for financial activities.Figure 5.2 – India's Real Effective Exchange Rate (REER) from April 2004 to January 2026

The figure illustrates the movement of India's Real Effective Exchange Rate (REER) index, which reflects the value of the Indian rupee against a group of major trading partner currencies, adjusted for inflation differences.

The REER is a common indicator of a country's external competitiveness as it accounts for both exchange rate movements and relative price changes in different economies.

As shown in the chart, the REER index fell from roughly 112.49 in February 2025 to approximately 104.15 in January 2026, indicating a gradual depreciation in the real value of the Indian rupee during this period.

A declining REER typically suggests that a country's currency is becoming more competitive globally, as domestic products become relatively more affordable compared to those of trading partners. The downward trend observed in the chart may be due to several macroeconomic factors, such as exchange rate fluctuations, inflation differentials between India and its trading partners, and global financial market conditions.

Periods of global economic uncertainty, changes in capital flows, and modifications in monetary policy can influence real exchange rate dynamics in emerging market economies. From the perspective of exchange rate governance, movements in the REER offer important signals to policymakers regarding the external value of the currency and the competitiveness of exports.

Monitoring REER trends is thus a key part of exchange rate policy conducted by the Reserve Bank of India. A sustained decline in the REER may support export competitiveness, while significant appreciation could reduce trade competitiveness. In the context of this study, fluctuations in the REER highlight the broader macroeconomic environment in which both market exchange rates and administratively set customs exchange rates function.

Changes in the real exchange rate could affect import valuation, trade flows, and the economic implications of divergence between market exchange rates and customs-notified exchange rates. Recent policy assessments by the International Monetary Fund suggest that India's exchange rate framework remains broadly market-determined, with occasional central bank intervention aimed at reducing excessive volatility rather than maintaining a fixed parity (IMF, 2024).

5.4 Customs Exchange Rate Fixation Process

While exchange rates in financial markets fluctuate continuously, exchange rates used for customs duty valuation are determined through administrative procedures.

Under Section 14 of the Customs Act, 1962, the CBIC is authorized to announce exchange rates used for converting foreign currency values into Indian rupees for calculating customs duties. These exchange rates are published through official notices and remain in effect until the next revision.

Unlike market exchange rates, which adjust daily, customs exchange rates are updated periodically. This difference in update frequency may result in temporary divergence between market exchange rates and customs-notified exchange rates.

Table 5.3: CBIC Customs Exchange Rate Notification

Currency	Import Rate (₹)	Export Rate (₹)
US Dollar	83.75	82.00
Euro	92.70	89.55
Pound Sterling	108.50	104.80
Japanese Yen (100)	56.80	54.90

Source: CBIC Customs Exchange Rate Notification (Government of India)

These rates are legally binding for the purpose of determining the assessable value of imported goods and calculating customs duty liability.

5.5 Institutional Roles of RBI and CBIC

The existence of two different ways to handle exchange rates in India's economy comes from the different jobs of the monetary and fiscal authorities.

The RBI does several things related to managing exchange rates:

- Watching the foreign exchange market
- Giving daily exchange rate rates
- Managing the country's foreign exchange reserves
- Stepping in to help the currency market when needed

Through these tasks, the RBI keeps the foreign exchange market stable and has enough money flowing.

CBIC works within the fiscal and trade policies. CBIC uses exchange rates for administrative purposes, not for financial market dealings. So, their use is different from the market rates and are in charge of:

- setting exchange rates for calculating customs duties
- finding the value of imported goods for taxes
- making sure there is a consistent way to value goods for trade taxes

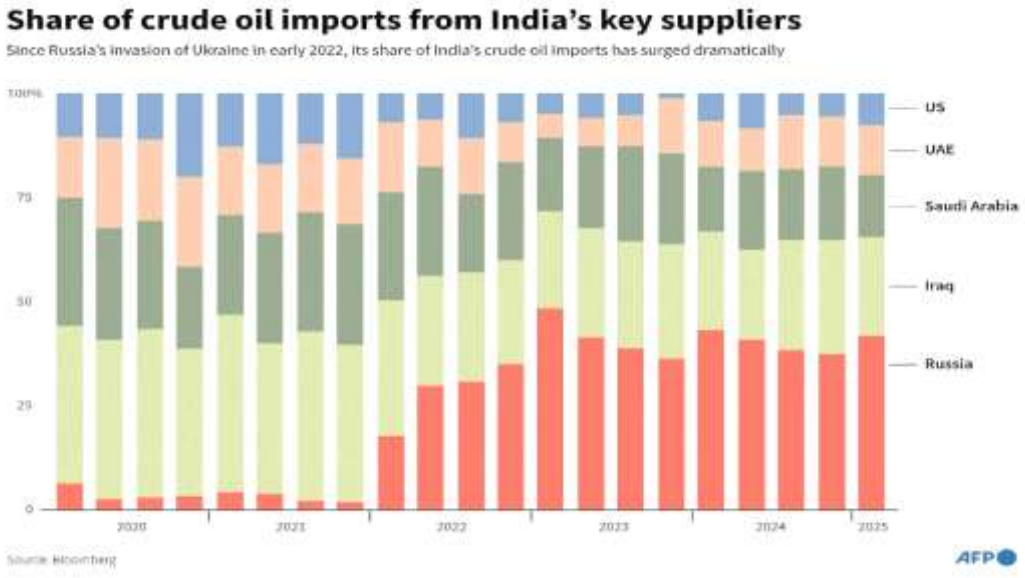
5.6 Case Illustration: Exchange Rate Impact on India’s Crude Oil Imports

India’s crude oil industry shows how changes in exchange rates affect trade values and the cost of imports.

India is one of the biggest users of crude oil in the world and depends a lot on imported oil to meet its energy needs. It is estimated that over 85–89% of India’s crude oil comes from imports, making the country very affected by exchange rate changes and international oil prices.

Since crude oil is bought and sold in US dollars, when the rupee loses value, the cost of importing oil goes up. Therefore, exchange rate changes directly influence India's import costs, government budgets, and inflation.

Figure5.4: Trend of India’s Crude Oil Imports



This chart shows how India's crude oil imports have grown over time.

Increased industrial activity, population growth, and more transportation needs have raised the country's energy needs. The data shows that India's crude oil imports have gone up steadily, reaching some of the highest levels in recent years. This growing need for imports makes exchange rate stability even more important, as large import volumes make the financial effects of currency changes bigger. The coexistence of two exchange rate applications within India's economic system arises from the different institutional mandates of monetary and fiscal authorities.

→ Exchange Rate Impact on Oil Import Valuation

Because oil imports are invoiced in US dollars, exchange rate movements directly influence the value of imports measured in Indian rupees.

Example scenario:

Parameter	Value
Oil import shipment	USD 10 million
Market exchange rate	₹83.10 per USD
Customs exchange rate	₹83.75 per USD
Difference	₹0.65 per USD

Total valuation difference: USD 10,000,000 × ₹0.65 = ₹6.5 million
Even a small difference between the market exchange rate and the customs-notified exchange rate can therefore significantly influence import valuation and customs duty calculations.

→ Macroeconomic Implications

The heavy dependence on imported crude oil implies that exchange rate depreciation can lead to broad economic effects. Research indicates that rising oil prices or currency depreciation may cause inflation, increase the current account deficit, and hinder economic growth in oil-importing countries such as India.

Moreover, crude oil imports contribute significantly to India's total merchandise imports, making them a key factor in external sector stability and exchange rate policy.

→ Relevance to the Dual Exchange Rate Analysis

The crude oil import case illustrates how exchange rate differences affect trade valuation at the national level. Since customs duties on imported crude oil are determined using administratively set exchange rates, the disparity between market exchange rates and customs exchange rates can influence the final cost of imports.

This example shows how institutional exchange rate mechanisms—especially the interaction between market exchange rates set by the Reserve Bank of India and customs exchange rates notified by the Central Board of Indirect Taxes and Customs—can impact the economic cost of major imports.

5.7 Implications for Functional Dual Exchange Rate Analysis

The institutional structure of India's exchange rate system shows that while the country officially follows a unified managed floating exchange rate regime, administrative exchange rate mechanisms persist within the customs valuation system.

The coexistence of market exchange rates and administratively notified customs exchange rates can result in temporary divergence. Although this divergence does not form a formal dual exchange rate regime, it might represent a functional dual exchange rate mechanism in specific regulatory settings. This institutional analysis serves as the basis for the empirical study in the next chapter, which explores the extent and statistical importance of the difference between RBI market exchange rates and CBIC customs-notified exchange rates.

Chapter 6: Empirical Analysis

6.1 Introduction

This chapter presents the empirical analysis of divergence between market exchange rates published by the Reserve Bank of India and customs-notified exchange rates issued by the Central Board of Indirect Taxes and Customs.

The analysis is based on a dataset containing 41 observations from January–February 2026. The dataset includes:

- RBI market exchange rate (USD/INR)
- CBIC customs exchange rate (USD/INR)
- divergence between the two rates
- percentage divergence

The empirical analysis consists of four stages:

1. Descriptive statistics
2. Divergence measurement
3. Regression analysis
4. Hypothesis testing

These statistical procedures are used to evaluate whether divergence exists between the two exchange rate series and whether the divergence indicates a functional dual exchange rate structure.

6.2 Descriptive Statistics

Descriptive statistics provide an overview of the central tendency and variability of the exchange rate series.

Table 6.1 - Descriptive Statistics

Variable	Mean	Std. Dev	Min	Max
RBI Market Rate	90.777	0.574	89.96	92.04
CBIC Customs Rate	90.280	0.696	89.50	91.35
Divergence (%)	0.0054	0.0109	-0.0136	0.0227

Observations: 41

The average RBI market exchange rate during the observation period was ₹90.78 per USD, while the CBIC customs exchange rate averaged ₹90.28 per USD. The divergence between the two rates averaged 0.54%, indicating small but measurable differences between the market exchange rate and the administratively notified customs exchange rate.

6.3 Divergence Measurement

Exchange rate divergence is calculated as:

$$Divergence = RBI\ Market\ Rate - CBIC\ Customs\ Rate$$

The dataset shows that divergence ranged between:

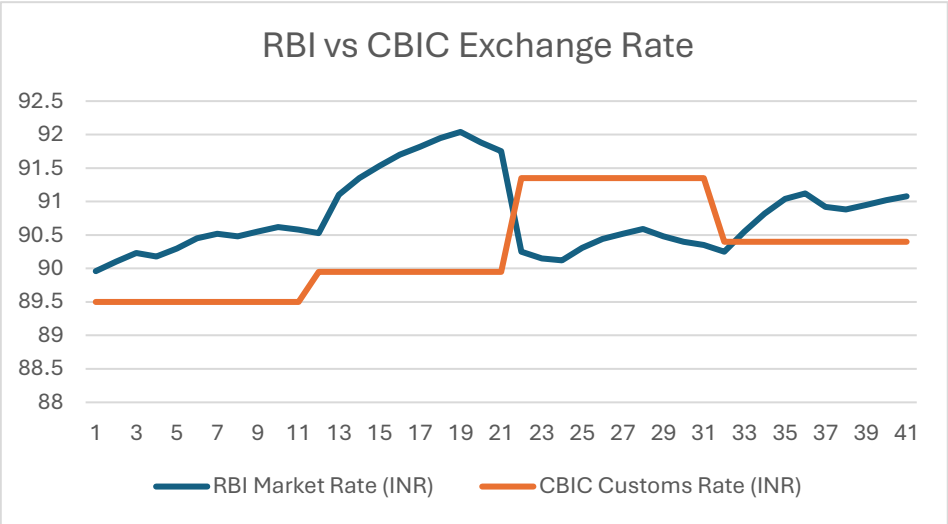
- **Minimum:** −1.23 INR
- **Maximum:** 2.09 INR

These values indicate that at certain points the customs exchange rate was higher than the market rate, while at other points it was lower.

The existence of both positive and negative divergence suggests that differences between the two exchange rates are not constant but vary across notification periods.

6.4 Visual Analysis of Exchange Rate Divergence

Figure 6.2 RBI vs CBIC Exchange Rate Comparison

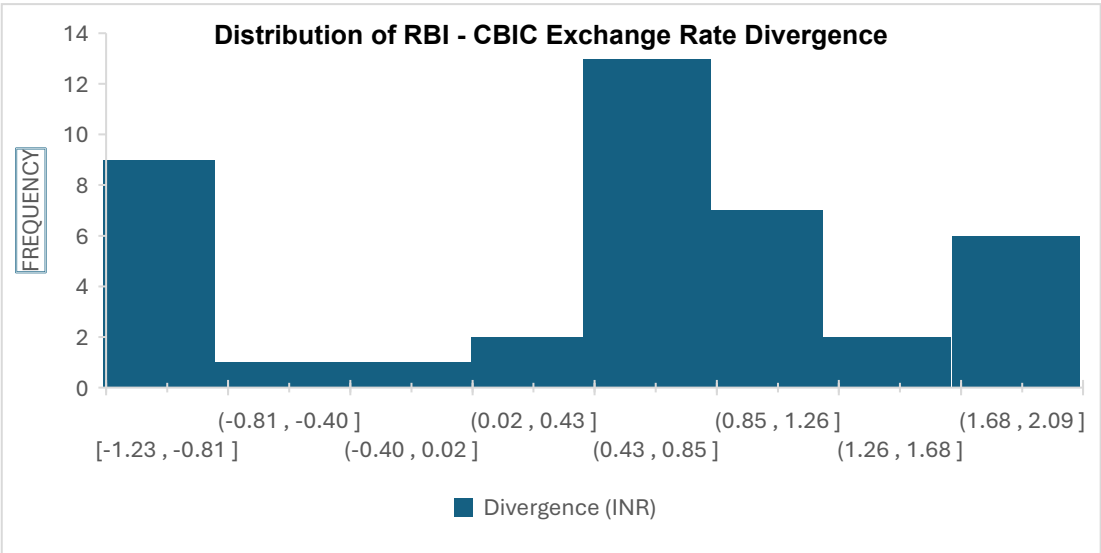


Source: Author's calculations based on RBI reference rates and CBIC customs exchange rate notifications.

Figure 6.2 illustrates the relationship between RBI market exchange rates and CBIC customs-notified exchange rates during the observation period. RBI exchange rates fluctuate daily in response to foreign exchange market conditions. In contrast, CBIC exchange rates remain fixed between notification periods.

This difference in update frequency results in temporary divergence between the two exchange rate series.

Figure 6.3 Distribution of Exchange Rate Divergence



Source: Author's calculations using RBI and CBIC exchange rate data.

Interpretation - The histogram shows the distribution of divergence values between RBI market exchange rates and CBIC customs exchange rates. Most observations cluster around small positive divergence values, indicating that customs-notified exchange rates were generally slightly lower than market exchange rates during the observation period.

6.5 Regression Analysis

To test whether RBI market exchange rates influence CBIC customs exchange rates, an Ordinary Least Squares (OLS) regression model is estimated.

Regression Model -

$$\text{CBIC Rate} = \alpha + \beta(\text{RBI Rate}) + \epsilon$$

here:

- CBIC Rate = Customs-notified exchange rate
- RBI Rate = Market exchange rate
- α = intercept
- β = slope coefficient

Table 6.4 OLS Regression Results

Dependent Variable: CBIC Customs Exchange Rate

Variable	Coefficient	Std. Error	t-Statistic	p-value
Intercept	113.517	17.214	6.594	0.000
RBI Market Rate	-0.256	0.189	-1.350	0.185

Model Statistics

Statistic	*Value*
Observations	41
R^2	0.0446
F-Statistic	1.822
Significance F	0.185

The regression results show a coefficient of −0.256 for the RBI market exchange rate variable. However, the p-value of 0.185 indicates that the relationship between market exchange rates and customs-notified exchange rates is not statistically significant at the 5% level.

The relatively low R^2 value suggests that movements in RBI market exchange rates explain only a small proportion of variation in CBIC customs exchange rates. This finding is consistent with the fact that customs exchange rates are determined through administrative notifications rather than continuous market adjustments.

6.6 Hypothesis Testing

Hypothesis 1: Market Rate Influence

H_{01}: RBI market exchange rates do not significantly influence CBIC customs exchange rates.

H_{11}: RBI market exchange rates significantly influence CBIC customs exchange rates.

Since the regression p-value = 0.185, which is greater than the 0.05 significance level, the null hypothesis cannot be rejected.

Result - There is no statistically significant relationship between RBI market exchange rates and CBIC customs exchange rates.

Hypothesis 2: Divergence Existence

H_{02}: Mean divergence between RBI and CBIC exchange rates equals zero.

H_{12}: Mean divergence is significantly different from zero.

A one-sample t-test was conducted to determine whether the mean divergence differs significantly from zero.

Results:

- t-statistic = 3.21
- p-value = 0.0026

Since the p-value is less than 0.05, the null hypothesis is rejected.

Result - The mean divergence between RBI market exchange rates and CBIC customs exchange rates is statistically significant.

Hypothesis 3: Divergence Variability

H_{03}: Exchange rate divergence does not vary significantly over time.

H_{13}: Exchange rate divergence varies significantly over time.

Descriptive statistics show that divergence ranges from −1.36% to 2.27%, indicating variation across the observation period.

Result - Exchange rate divergence varies over time, supporting the alternative hypothesis.

Table 6.4 - Summary of Hypothesis Testing

Hypothesis	**Test**	**Result**	**Conclusion**
H1 Market rate influence	OLS regression	p = 0.185	Not significant
H2 Divergence existence	One-sample t-test	p < 0.05	Significant
H3 Divergence variability	Descriptive analysis	Divergence varies	Supported

6.7 Empirical Implications

The empirical findings reveal several key insights into the relationship between market exchange rates and administratively set customs exchange rates.

- First, the regression analysis shows that CBIC customs exchange rates are not significantly affected by short-term changes in RBI market exchange rates. This underscores the institutional process through which customs exchange rates are announced on a periodic basis rather than being continuously adjusted to reflect market movements.
- Second, the statistically significant difference between the two exchange rate series confirms the existence of measurable disparities between market exchange rates and administrative exchange rates.
- Third, the variation in divergence over the observation period suggests that the timing of administrative updates can lead to temporary misalignment between the two exchange rate systems.

Overall, the empirical results suggest that while India follows a unified managed floating exchange rate regime, the administrative exchange rate notifications used for customs valuation can result in practical characteristics akin to a dual exchange rate system.

7. Behavioural Implications for Trade Participants

7.1 Overview

The results from the study show that there is a noticeable difference between the exchange rates published by the Reserve Bank of India and those set by the Central Board of Indirect Taxes and Customs. This difference changes over time and is not just a small fluctuation. Although the data suggests that the CBIC exchange rates are not strongly affected by short-term changes in the market, the existence of this difference affects how businesses behave.

Research in behavioural finance shows that companies do not always make completely rational choices when they are unsure about the future. Instead, they use mental shortcuts and are influenced by biases (Kahneman & Tversky, 1979; Tversky & Kahneman, 1974). In the case of exchange rate differences, these biases become important for how businesses respond to the gap between market-determined and government-set exchange rates.

7.2 How Importers Behave When Exchange Rates Differ

Importers are directly affected by this difference because the customs duties are calculated using the exchange rates set by CBIC, not the current market rates from the Reserve Bank of India. When there is a difference, the actual cost of goods they import can be different from what they expected based on the market rates.

This situation causes several reactions from importers:

i. They watch closely for updates from CBIC because these rates directly impact how much they pay in duties. This shows they prioritize information that has an immediate impact on their finances.
ii. They may choose when to clear their goods based on what they think will happen with the exchange rates. This is an example of anchoring bias, where decisions are made based on the latest known rate instead of continuously changing market rates.
iii. They might prefer to rely on the CBIC rates for planning because they change at regular intervals, offering more predictability. This reflects a tendency to stick with the status quo and avoid uncertainty.

Overall, importer decisions show that they do not always make the best possible choices with all the available information. Instead, they simplify the process and focus on the official rates rather than constantly adjusting based on market conditions (Simon, 1955).

7.3 How Exporters Perceive Risk

While export businesses are not as directly affected by the exchange rate difference as importers, they still feel the impact through changes in how risky or uncertain the situation looks.

i. They may choose to set prices in a way that protects them from possible losses due to exchange rate changes. This is an example of loss aversion, where businesses are more concerned with avoiding losses than making gains (Kahneman & Tversky, 1979).
ii. They might prefer using stable currencies for their contracts or making long-term agreements to reduce the risk of exchange rate changes. This matches findings that exchange rate fluctuations influence how trade happens (Aghion et al., 2009).
iii. They may base their decisions on recent exchange rate trends instead of long-term patterns. This shows the availability heuristic, where recent events have a bigger impact on their decisions than they should.

Even though the actual financial effect on exporters is limited, the uncertainty caused by exchange rate differences leads to a greater sense of risk.

7.4 When Firms Choose to Make Trade Transactions

Because the administrative exchange rates updated by CBIC come out at specific times, companies can use these times to decide when to make their trade deals.

1) Importers may wait to clear their goods if they expect a more favorable rate in the future or move faster if the current rate is better.
→ This is an example of making decisions over time to get the best outcome (Alessandria et al., 2010).

2) Companies may form ideas about what will happen to the exchange rates and act based on those assumptions.
→ However, these assumptions can be influenced by expectation bias, where people act on what they think will happen rather than what is actually likely.
3) Some businesses might be too confident in their ability to predict exchange rates, leading them to make timing decisions that aren't the best.
→ This is overconfidence bias, often seen in financial decisions (Barber & Odean, 2001).
4) In some industries, firms may follow the timing choices of others because they are similar in how they manage costs.
→ This is similar to herd behaviour, where decisions are made because others are doing the same (Bikhchandani & Sharma, 2000).

Even if adjusting the timing of trade seems logical, the presence of biases can lead to decisions that aren't efficient or are poorly timed, especially when exchange rates are not predictable.

7.5 Decisions towards Currency Hedging

The presence of two different exchange rates makes it more complicated for businesses to plan how to hedge against exchange rate risk.

- Companies may use more financial tools like forward contracts, futures, and options to manage their currency risks. This is in line with studies showing that businesses hedge to reduce the impact of currency changes (Allayannis & Weston, 2001).
- They may be cautious in how they hedge, taking into account the uncertainty in both the market and administrative rates. This reflects risk aversion, where stability is prioritized over potential profits.
- The presence of two exchange rates leads to uncertainty about which one will affect the final cost. This shows ambiguity aversion, where businesses prefer simpler and more predictable options (Ellsberg, 1961).
- Instead of using complex financial models, some businesses may rely on simple rules when deciding how to hedge. This aligns with the idea that in uncertain situations, business decisions are often made using mental shortcuts.

As a result, the way companies manage their currency risk during exchange rate differences combines both rational planning and responses to the uncertainty caused by the situation.

7.6 Link to Empirical Findings

The behaviors we found in this study match up with the results from this study. The concept that there's no clear link between the exchange rates published by the Reserve Bank of India and those set by the Central Board of Indirect Taxes and Customs means that businesses can't really use market exchange rates to guess what the official ones will be. But at the same time, there is a clear difference between what businesses expect and what they actually get. This creates a situation where businesses have to keep changing their plans. This is similar to theories about how people make decisions when things are uncertain, where they use rules of thumb, expectations, and hints from institutions instead of just thinking through every option carefully.

7.7 Effect on Exchange Rates

Even though India doesn't officially have a dual exchange rate system, the way market exchange rates and customs rates are used makes it feel like there are two systems.

The findings from this study show that there is a clear and changing difference between these rates, meaning businesses have to deal with more than one rate at once. This makes them treat market and official rates as separate things instead of parts of the same system. This causes businesses to behave differently. For example, they might make money decisions like pricing and risk management based on which rate is most important for that particular situation. Market rates might be used for planning, while customs rates determine the actual cost of duties. Also, businesses start thinking about not just how market rates change, but also when and in what direction customs rates might change. This makes their decisions more complex, because they have to consider what the government might do, not just what the market does.

Businesses may also change their strategies based on how much these rates differ. For example, they might change when they do business, how they price things, or how they protect against risks. These changes show that even without a formal

dual system, having multiple rates can influence how businesses make decisions. This supports the idea of "functional duality," where multiple rates coexist within the same system and impact behavior in a way similar to a traditional dual exchange rate system. According to the International Monetary Fund (2022), even if a country officially has one exchange rate, different ways of using it can cause pockets of difference.

Therefore, this study supports the idea that India's system is officially unified, but in practice, it behaves like a functional dual exchange rate system, shaped by the way institutions operate and how businesses respond.

8. Lessons from Global Customs Exchange Rate Practices

8.1 International Customs Exchange Rate Frameworks

Globally, customs exchange rates are guided by rules set by the World Trade Organization (WTO), which require import values to be based on real transaction values in a clear and consistent way. Although the WTO doesn't require a specific exchange rate system, it does say that the rates used for customs shouldn't unfairly change how things are valued.

In practice, countries use different methods to convert foreign currency into their local currency. The World Customs Organization (WCO) says that customs offices often have to balance two goals: keeping the rates close to market rates and making sure their system is simple to run. Because of this, some countries use up-to-date market rates, while others use rates that are announced on set dates.

8.2 Comparing Policy with Case Evidence

Looking at how different countries handle customs exchange rates shows big differences. Here are a few examples.

1. In the European Union, customs exchange rates are usually taken from the rates set by the European Central Bank. These rates are updated often—sometimes every month or even every day, depending on the situation. This helps keep customs values close to market rates, reducing the chance of big differences and giving businesses fewer chances to game the system.
2. In the United States, customs valuation is managed by U.S. Customs and Border Protection. They use exchange rates set by the U.S. Treasury, which are usually updated regularly and reflect current market conditions. This makes the financial and customs values match up better, reducing uncertainty and the impact of exchange rate differences on behavior.
3. India uses a different approach, where the Central Board of Indirect Taxes and Customs usually announces exchange rates at fixed intervals instead of continuously. This approach can lead to short-term differences between the official rates and the market rates from the Reserve Bank of India. As shown in Chapter 7, these differences can be big and change over time.

Similar approaches are used in many developing countries, where the amount of business, staff capacity, and how efficient the system is influence how they set up their rules.

The International Monetary Fund (2022) points out that such differences can create small pockets of difference even within countries that officially use one exchange rate system. These examples show that while developed countries tend to use real-time exchange rates, many developing countries use scheduled rates that balance accuracy with the need to keep things simple and manageable.

8.3 Best Practices for Administrative Exchange Rate Management

Global evidence shows several effective methods to improve how customs exchange rates work:

i. Updating Exchange Rates Often - Keeping exchange rates updated regularly, like daily or weekly, helps them match market rates better. This reduces differences between official and market rates, lowers valuation issues, and stops companies from using timing to their advantage. But doing this often needs strong systems and technology.
ii. Being Clear and Open - Having clear rules for how exchange rates are decided, when they are shared, and how they can be changed makes it easier for companies to plan. Clear systems reduce confusion and stop people from making decisions based on guesswork.
iii. Working Together - When central banks and customs agencies communicate well, exchange rates are used consistently. If they don't work well together, there can be long-term differences and policy problems (World Bank, 2024).

iv. Using Digital Tools - Using digital systems to include exchange rate data from financial markets or central banks improves the accuracy and speed of updates. It also helps with transparency, tracking, and making processes more efficient.

v. Balancing Stability and Accuracy - Updating rates often makes them more accurate but can create uncertainty for businesses. Updating less often gives stability but can lead to bigger differences. So, finding a good balance between stability and accuracy is important.

vi. Preventing Unfair Behavior - Differences between official and market rates can influence how companies act, like when they buy or sell. Making sure these differences are small helps companies act based on real economic conditions rather than system flaws.

8.4 Implications for India

Global examples show that India's customs exchange rate system has a balance between simplicity and matching market rates.

While the Central Board of Indirect Taxes and Customs provides regular updates that make things easier to manage and predictable, they can also lead to differences compared to the exchange rates set by the Reserve Bank of India.

This can be seen in how phone imports work, especially with Apple Inc. After the Union Budget 2024-25, the Indian government lowered customs duties on phones and some electronic parts.

Case Study 8.5: Smartphone Imports and Customs Valuation in India

- **Background**

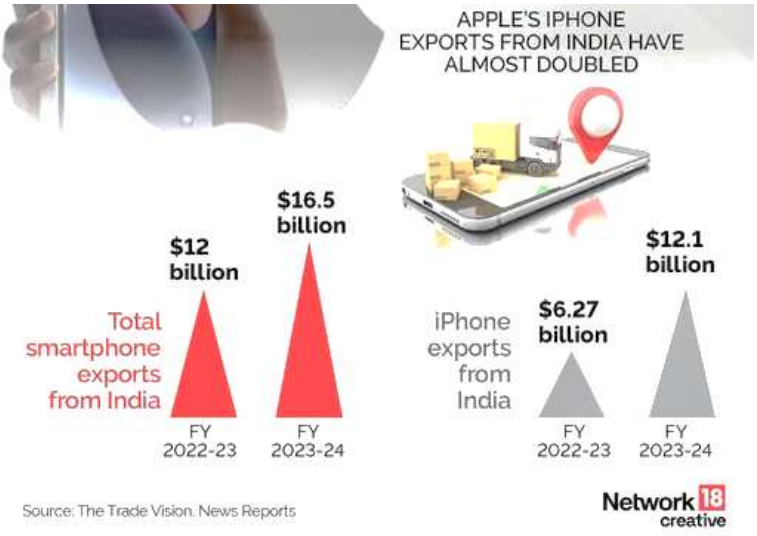
India brings in a lot of high-end smartphones, which are priced in US dollars.

The customs value of these phones depends on the exchange rates set by the Central Board of Indirect Taxes and Customs. However, the actual exchange rates are set by the Reserve Bank of India.

- **Case Evidence**

In the Union Budget 2024-25, India dropped customs duties on mobile phones. After that, Apple Inc. reduced iPhone prices in India by approximately 3–4%, with price cuts of around ₹5,000–₹6,000 on selected models (Reuters, 2024; *The Economic Times*, 2024).

Figure 8.1: Apple's iPhone exports from India in FY 2022-23 vs 2023-24



- **Relevance to Exchange Rate Application**

Phones are priced in foreign currency, so their customs value depends on the exchange rate used when they are cleared.

Even a small difference between official and market rates can have a big impact on the assessed value and duties owed.

For example, a ₹1 difference in exchange rate on a USD 1 million shipment can lead to a ₹1 million change in valuation, influencing final pricing decisions. This case shows that how customs values are set, including exchange rates, directly influences the cost of imports and how companies price their products. It supports the finding that even in a unified exchange rate system, administrative systems can affect business outcomes.

From a policy point of view, using some global best practices—like updating rates more frequently, improving teamwork between agencies, and making things more transparent—can reduce differences between official and market rates. Better alignment between RBI reference rates and CBIC-notified rates could improve consistency and reduce confusion.

At the same time, experience from around the world shows that completely matching market exchange rates may not be practical, especially in large trade areas like India. Frequent updates can add complexity and create volatility in customs valuation, making planning harder for companies. So, policy changes should aim to find the right balance between accuracy and administrative efficiency.

9. Discussion

The purpose of this study was to examine whether the divergence between exchange rates published by the Reserve Bank of India and those notified by the Central Board of Indirect Taxes and Customs is statistically significant and whether such divergence reflects the characteristics of a functional dual exchange rate system. The discussion integrates empirical results with behavioural and institutional perspectives to understand the broader implications of exchange rate application in India.

9.1 Interpretation of Empirical Findings

The empirical analysis indicates that customs-notified exchange rates do not exhibit a strong or statistically significant response to short-term movements in market exchange rates.

This suggests that customs exchange rates are determined through administrative processes that operate independently of continuous market adjustments. Such a pattern is consistent with the institutional design of exchange rate application in India, where market exchange rates serve monetary and financial functions, while customs exchange rates are used for valuation and revenue purposes. At the same time, the analysis confirms that divergence between the two exchange rate series is statistically significant.

The presence of a non-zero average divergence implies that differences between market-based and administratively applied exchange rates are not merely incidental but form a recurring feature of the system. The observed variation in divergence across the study period further indicates that this difference is not constant but fluctuates depending on the timing of administrative updates and market movements. Taken together, these findings suggest that the exchange rate system in practice is characterized by a degree of separation between market signals and administrative application.

While the overall regime remains a managed float, the application of exchange rates in customs valuation introduces a layer of differentiation that is not fully aligned with real-time market conditions.

9.2 Behavioural Implications

The presence of divergence has implications that extend beyond statistical measurement into the domain of decision-making behaviour. Firms engaged in international trade operate in an environment where more than one exchange rate becomes relevant, depending on the context of the transaction. This creates a situation in which decision-making is shaped not only by market conditions but also by institutional mechanisms.

In such an environment, firms are likely to rely on simplified decision rules rather than fully optimizing across all available information. The customs-notified exchange rate becomes a particularly salient reference point because of its direct impact on duty liability. This can lead to anchoring behaviour, where firms base expectations and decisions on administratively applied rates rather than continuously updating their assessments based on market movements.

The uncertainty created by divergence may also influence risk perception. When exchange rate signals are not fully aligned, firms may adopt more cautious strategies in pricing, transaction timing, and risk management. This reflects behavioural

tendencies such as loss aversion, where the avoidance of potential losses takes precedence over the pursuit of gains. In addition, variability in divergence over time may encourage expectation-driven behaviour, where firms attempt to anticipate future exchange rate changes and adjust their actions accordingly.

These behavioural responses indicate that exchange rate divergence affects not only cost structures but also the way firms interpret and respond to economic information. As a result, the impact of divergence is both financial and behavioural in nature.

9.3 Institutional and Policy Implications

The findings highlight the importance of institutional design in shaping exchange rate outcomes. The coexistence of market exchange rates and administratively applied customs exchange rates reflects the distinct objectives of the institutions involved. While the Reserve Bank of India focuses on exchange rate stability and macroeconomic management, the Central Board of Indirect Taxes and Customs applies exchange rates for valuation and revenue purposes.

Differences in institutional objectives and update mechanisms contribute to the observed divergence. The periodic nature of customs exchange rate notifications means that these rates do not adjust continuously in response to market conditions. This creates temporary misalignment, particularly during periods of exchange rate volatility.

From a policy perspective, improving coordination between institutions could enhance consistency in exchange rate application. Greater alignment between reference rates and notification mechanisms may reduce divergence and improve valuation accuracy. At the same time, policy design must account for operational considerations. Increasing the frequency of updates may improve alignment but could also introduce complexity and volatility in customs processes. Transparency in exchange rate determination and communication of update schedules can also play a significant role in reducing uncertainty for trade participants.

In addition, the adoption of digital systems and real-time data integration, as observed in international practices, offers potential pathways for improving the efficiency and responsiveness of exchange rate administration.

9.4 Functional Dual Exchange Rate Interpretation

The combined evidence from empirical analysis, behavioural interpretation, and institutional examination suggests that India's exchange rate system exhibits characteristics that can be described as functionally dual. This does not imply the existence of a formally segmented exchange rate regime, but rather indicates that different exchange rates are applied in different contexts, influencing economic behaviour in distinct ways.

Firms engaged in international trade may treat market exchange rates and customs-notified exchange rates as separate reference points when making decisions. This separation reflects the practical realities of exchange rate application, where institutional mechanisms determine how exchange rates are used in specific transactions. The resulting behaviour resembles that observed in dual exchange rate systems, where multiple exchange rates coexist and influence economic outcomes.

10. Recommendations

The study findings suggest several policy changes to help improve how exchange rates are aligned, reduce uncertainty, and make customs valuation systems more efficient.

i. It is important to improve cooperation between monetary and customs authorities to ensure that exchange rates are applied consistently. Making the exchange rates published by the Reserve Bank of India match those set by the Central Board of Indirect Taxes and Customs can help reduce differences and make valuation more accurate. Better coordination between these groups can help bridge the gap between the market-based and administrative exchange rate systems.

ii. Updating customs exchange rates more often can also help reduce differences. More frequent updates can make customs exchange rates better match current market conditions, which in turn can help reduce the gap between what is expected and

what is actually applied. However, these changes need to be done carefully to prevent unnecessary fluctuations and added complexity in operations.

iii. Making the process of setting and announcing exchange rates more transparent can help businesses plan better. Clear information about when and how rates are updated can help firms make more informed decisions and reduce their reliance on guesswork or improvised strategies.

iv. Using digital systems and connecting real-time data can help improve the management of exchange rates. By integrating data from financial markets into customs systems, exchange rate updates can be more accurate and timely. This can also help improve transparency and make it easier to check the records.

At the same time, when designing policies, it is important to understand the balance between accuracy and practicality. While it's good to have exchange rates closely match market values, it is also important to maintain stability in high-volume trade. Therefore, reforms should aim to find the right balance between being responsive and predictable instead of trying to eliminate differences entirely.

10.1 Scope for Future Research

This study opens up several areas for further research. Extending the analysis to a longer time period can give a better understanding of how exchange rate differences persist over time and their structural nature. Looking at other currency pairs beyond USD/INR can help find if similar patterns exist in different trade areas.

Future studies could also use firm-level data to understand how businesses respond to exchange rate differences. Surveys or case studies might offer a more detailed view of how firms adjust their decisions when dealing with exchange rate mechanisms.

In addition, comparing different countries' systems could help explore how various customs exchange rate frameworks affect trade and economic results. Such research could contribute to a better understanding of how exchange rates are managed in global trade.