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Colonial Currency as Imperial Finance: Evidence on India's Rupee-Sterling Exchange Rate, 1920-1925

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Abstract
The exchange rate management of the Indian rupee under British rule is central to understanding the financial architecture of empire. Although India is often described as a "monetary shock absorber" within the Sterling Area, the specific objectives of colonial exchange rate policy remain contested. This paper re-examines the period from 1920 to 1925, when the rupee briefly operated under a managed float, employing an autoregressive distributed lag (ARDL) bounds-testing approach to analyze the long-run relationship between the rupee–sterling exchange rate and India's import and export price indices. Using monthly data reconstructed by Balachandran (1990) [2], the results reveal no evidence of cointegration between the exchange rate and export prices, but a clear and statistically significant long-run relationship with import prices. A stronger rupee is associated with lower import prices, and the import-price model features a stable error-correction adjustment. These findings suggest that British policymakers prioritized stabilizing sterling-denominated remittances—such as the Home Charges over enhancing India's export competitiveness. Instead of serving trade objectives, exchange rate policy functioned as a macro-financial instrument designed to protect imperial liquidity and secure predictable revenue flows to London.

Keywords: Economic History, Indian Rupee, Sterling Area, Colonialism, Exchange Rate Policy, ARDL Bounds Testing

JEL codes: N15; N25; E42; F31

1. Introduction

In the wake of the First World War, Britain confronted an unfamiliar economic reality: once the world's preeminent creditor, it emerged heavily indebted and financially vulnerable. Stabilizing the external value of the pound sterling still the world's dominant reserve and vehicle currency became a central priority of British policy, shaping its engagements with the international financial system (Clauson, 1944) [7]. Within this reconfigured imperial order, colonial territories played strategic roles, but none more so than India. As the largest contributor of sterling-denominated payments to Britain through mechanisms such as the Home Charges, debt service, and quasi-fiscal transfers, India effectively served as the financial linchpin of what evolved into the Sterling Area (Tomlinson, 1982; Narsey, 2016 [11]).

The historiography has long recognized India's dual identity: an exploited colony whose resources underwrote imperial power, and a system-critical unit whose monetary and fiscal policies had geopolitical implications far beyond its borders (Balachandran, 1993) [4]. Yet, while the "drain" thesis emphasizes extraction and oppression, more recent scholarship calls for closer examination of how specific colonial instruments—particularly exchange rate policy functioned as tools for imperial stabilization. The question thus shifts from whether India absorbed shocks, to identifying the nature of these shocks and whose interests they served a distinction critical for understanding the economic architecture of the late empire (Roy, 1995) [12].

This paper contributes to this debate by examining British exchange rate management during the unique period of the rupee's managed float between 1920 and 1925. Rather than assuming that currency policy was aimed at fostering trade competitiveness, we posit an alternative hypothesis: that rupee management was oriented toward macro-financial goals, specifically the stabilization of sterling-denominated remittances essential for Britain's post-war reconstruction. To interrogate this hypothesis, we employ an autoregressive distributed lag (ARDL) bounds-testing approach to assess the long- and short-run relationships between the rupee–sterling exchange rate and India's import and export price indices.

The paper proceeds as follows: Section 2 reviews the historiographical foundations of India's monetary role within the colonial empire. Section 3 outlines the data and econometric strategy. Section 4 presents the empirical results. Section 5 discusses the macro-financial implications and reassesses India's role as an imperial "shock absorber." Section 6 concludes with reflections on the findings and implications for future research.

2. Historiographical Context

The history of India's colonial monetary system has evolved from ideologically polarized critiques to more rigorous examinations of how currency policy facilitated imperial financial priorities. This research builds on three major strands within the historical literature, each offering different insights into the mechanisms and motivations of British monetary governance in India.

The first strand comprises the nationalist critique, with B. R. Ambedkar's *The Problem of the Rupee* (1923) serving as its most influential text. Ambedkar contends that key monetary decisions, such as the adoption of the gold exchange standard and the fixed conversion of the rupee, were systematically calibrated to suit British fiscal interests. He argues that currency and exchange rate policies were used not merely to regulate commerce but to serve as instruments of extraction, privileging metropolitan financial priorities over the welfare of Indian producers, consumers, and taxpayers (Ambedkar, 1923) [1].

A second historiographical approach emphasizes the systemic role of colonial currencies within the larger architecture of imperial finance. Clauson (1944) [7] provides a foundational account of how the sterling-based colonial monetary system helped sustain Britain's position as the world's financial centre by enabling seamless sterling settlements, stabilizing liquidity, and extending London's influence across the Empire. In this interpretation, India's importance was not primarily commercial but macro-financial. The colony generated substantial sterling surpluses, regularly remitted to Britain as Home Charges, debt repayments, pension liabilities, and other recurring costs, making its currency a vital component of the Sterling Area's stability (Clauson, 1944; Narsey, 2016) [7, 11].

A third strand focuses on the political economy and institutional logics of colonial monetary policy. Tomlinson (1982) challenges earlier assumptions of imperial omniscience, highlighting the reactive and often conflicting nature of British decision-making during interwar crises. Rather than a unified imperial strategy, he reveals a governance structure riddled with political constraints and competing priorities. Building on this framework, Balachandran (1990, 1993) [2, 4] presents detailed empirical analyses of episodes such as the managed float of the rupee and Britain's interwar liquidity crisis. He shows how India was used as a financial "shock absorber" to stabilize the sterling area during periods of intense global and domestic pressure. Meanwhile, Roy (1995) [12] examines price movements in early twentieth-century India, pointing to the vulnerability of domestic prices to global commodity fluctuations and highlighting the inadequacy of India's monetary system in buffering these shocks.

This paper synthesizes insights from all three strands, but diverges by focusing explicitly on the mechanism through which exchange rate policy served imperial priorities in the early 1920s. Rather than asking whether India was exploited a question that has been extensively addressed—it examines the channels through which this exploitation occurred. The finding that the exchange rate was strongly linked to import prices, but not to export prices, supports the argument that currency management was oriented toward stabilizing sterling-denominated remittances rather than promoting India's trade competitiveness. Seen this way, the rupee's nominal flexibility during the managed float did not empower Indian interests but instead reinforced the fiscal architecture of empire through a monetized form of extraction.

3. Methodology and Data

3.1 Econometric Framework

To examine the relationship between trade prices and the rupee–sterling exchange rate, the paper employs the autoregressive distributed lag (ARDL) bounds-testing approach developed by Pesaran, Shin, and Smith (2001).

This framework is particularly suitable for historical time series that are short, potentially mixed-order (I(0)/I(1)), and subject to structural volatility.

The ARDL approach can be applied when regressors are a mixture of I(0) and I(1), avoiding the need for precise pre-classification of series and the associated power losses in small samples. It allows estimation of both short-run dynamics and long-run cointegrating relationships within a single error-correction specification, which is crucial for assessing whether the exchange rate and price indices share a stable long-run relationship.

In general form, the error-correction representation of an ARDL model for a price index y_t (export or import prices) and the rupee–sterling parity x_t can be written as:

$$\Delta y_t = \alpha_0 + \sum_{i=1}^{p} \alpha_i \Delta y_{t-i} + \sum_{j=0}^{q} \beta_j \Delta x_{t-j} + \lambda_1 y_{t-1} + \lambda_2 x_{t-1} + \varepsilon_t$$

Where Δ denotes the first-difference operator, ε_t is a white-noise error term, and the lag orders p and q are chosen to capture the monthly dynamics while preserving degrees of freedom. The joint significance of the lagged level terms (y_{t-1}, x_{t-1}) is tested using an F-statistic; the bounds-testing procedure compares this statistic against critical value bands to infer the presence or absence of a long-run relationship.

Two separate ARDL models are estimated:

- **Model 1 (export prices):** $y_t = \text{indexp}_t$, the export price index (1913 = 100).
- **Model 2 (import prices):** $y_t = \text{indimp}_t$, the import price index (1913 = 100).

In both models, the key regressor is the rupee–sterling parity $x_t = p/\text{INR}_t$, measured as pence per rupee (a higher value indicates a stronger rupee).

3.2 Unit root properties

Although the ARDL bounds approach does not require all variables to be I(1), it does require that none is integrated of order two or higher. Augmented Dickey–Fuller (ADF) tests are therefore used to assess the order of integration of each series.

Table 1: Unit root tests (ADF)

Variables	Level - *(p-values)*		1st difference - *(p-values)*	
	Intercept	Intercept and trend	Intercept	Intercept and trend
Rupee-sterling parity	0.00	0.51	0.00	0.00
Indian export price index	0.06	0.09	0.00	0.00
Indian import price index	0.19	0.74	0.00	0.00

Source: Author's calculations.

These results indicate that all three series are non-stationary in levels but become stationary after first differencing; they are therefore integrated of order one, I(1). This supports the use of the ARDL bounds-testing framework and rules out problematic I(2) behaviour.

3.3 Data and Sources

The analysis uses monthly data from January 1920 to December 1925. The variables are:

- **Rupee–sterling parity (p/INR):** pence per rupee, capturing the nominal exchange rate.
- **Export price index (indexp):** index of Indian export prices (1913 = 100).
- **Import price index (indimp):** index of Indian import prices (1913 = 100).

All three series are taken from the historical reconstruction in Balachandran (1990)[1], who compiles and harmonises official monetary and trade statistics for the period of the managed float.

The sample period is chosen to coincide with the operation of the rupee's managed float regime, following the recommendations of the Babington Smith Committee, and just before the transition to a more rigid sterling link. This window isolates the short-lived experiment in active exchange rate management that is at the heart of the historiographical debate.

4. Results

This section presents the ARDL estimation results for export and import prices. For each model, it reports the bounds test for a long-run relationship, the estimated long-run coefficient, the short-run dynamics, and key diagnostic tests.

4.1 Export price model

Table 4 summarises the cointegration test and diagnostics for the export price model, where the export price index (indexp) is regressed on the rupee–sterling parity (p/INR) within an ARDL–error-correction framework.

Table 2: Short-run coefficient estimates, ARDL model (export prices)

	Short-run coefficient estimates
	p/INR
Coefficient	–
p value	–

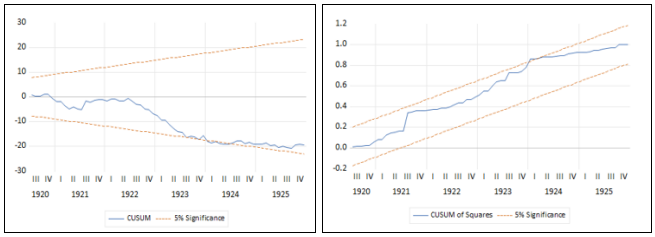
Source: Author's calculations.

[1] The historical time-series on the rupee–sterling exchange rate and trade price indices used in this study are taken from Balachandran's (1990) reconstruction of the managed float regime, where they are fully documented and available to researchers.

Table 3: Long-run coefficient estimates of linear ARDL model (1)

	Long-run coefficient estimates
	p/INR
Coefficient	0.06
p value	0.81

Source: Author's calculations.



CUSUM CUSUMSQ

Table 4: Diagnostic Statistics Associated with Linear ARDL Model (1)

F Stat	ECM_{t-1}	*p*	*LM*	*P*	*RESET*	*P*	*CUSUM (SQ)*	*Adj. R^2*
4.00	-0.09	0.01	0.40	0.82	0.46	0.50	US (US)	0.45

Source: Author's calculations

The bounds F-statistic of 4.00 lies below the conventional upper critical value for a model with one regressor at the 5% significance level in the Pesaran *et al*. (2001) framework. Consequently, the null hypothesis of no long-run relationship between the export price index and the rupee–sterling exchange rate cannot be rejected. The estimated long-run coefficient on p/INR (0.06) is small and statistically insignificant (p = 0.81), confirming the absence of a robust equilibrium link.

In the short run, the error-correction term (ECM_{t-1}) is negative and statistically significant, indicating some mean-reverting dynamics in export prices. However, the insignificance of the long-run coefficient suggests that these dynamics are not driven by a stable relationship with the exchange rate. Diagnostic tests show no evidence of serial correlation (LM test), functional form misspecification (RESET), or instability (CUSUM and CUSUMSQ).

4.2 Import price model

The second ARDL model takes the import price index (indimp) as the dependent variable and the rupee–sterling parity as the main regressor.

Table 5: Short-run coefficient estimates of linear ARDL model (2)

	Short-run coefficient estimates			
	p/INR_{-1}	p/INR_{-2}	p/INR_{-3}	p/INR_{-4}
Coefficient	-0.36	0.18	-0.23	-0.27
p value	0.00	0.25	0.16	0.08

Source: Author's calculations.

Table 6: Long-run coefficient estimates of linear ARDL model (2)

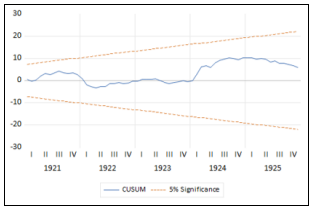
	Long-run coefficient estimates
	p/INR
Coefficient	0.66
p value	0.04

Source: Author's calculations.

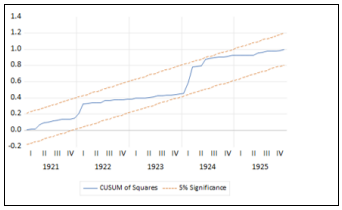
Table 7: Diagnostic Statistics Associated with Linear ARDL Model (2)

Diagnostics									
F Stat	***ECM_{t-1}***	***se***	***P***	***LM***	***P***	***RESET***	***P***	***CUSUM (SQ)***	***Adj. R^2***
7.21	-0.21	0.05	0.00	8.35	0.02	0.66	0.42	S (S)	0.28

Source: Author's calculations.



CUSUM



CUSUMSQ

The bounds F-statistic of 7.21 exceeds the upper critical value at conventional significance levels, indicating the presence of a statistically significant long-run relationship between the import price index and the rupee–sterling parity. The estimated long-run coefficient on p/INR is 0.66 ($p = 0.04$). Given that p/INR is defined as pence per rupee, a one-unit increase corresponds to an appreciation of the rupee against sterling. The positive coefficient implies that a stronger rupee is associated with lower import prices (since the index is expressed in rupees), consistent with standard pass-through logic.

The short-run error-correction term is negative (–0.21) and highly significant, implying that around 21% of any deviation from the long-run equilibrium is corrected each month. This speed of adjustment suggests that the import price–exchange rate relationship was both economically meaningful and rapidly enforced during the sample period. The CUSUM and CUSUMSQ tests indicate parameter stability over 1920–1925.

The LM statistic in Table 7 indicates some residual autocorrelation at conventional levels. This does not overturn the cointegration result, but it does suggest that further refinement of lag length selection or additional short-run controls (e.g., world prices or domestic demand proxies) could improve the model's fit and robustness.

5. Discussion

The empirical findings are unambiguous. While rupee movements exhibit no statistically significant long-run relationship with export prices, they are strongly cointegrated with import prices. This asymmetry implies that British policymakers prioritized maintaining predictable and low-cost import financing associated with meeting imperial financial obligations over supporting Indian export competitiveness. Such evidence challenges conventional narratives of currency policy as a trade instrument and instead situates it within a broader framework of fiscal extraction and imperial liquidity management (Balachandran, 1990; Narsey, 2016) [2, 11].

If British authorities had operated the rupee as a tool to enhance India's export competitiveness as would be expected in a trade-oriented strategy we should observe a stable long-run relationship between the rupee–sterling exchange rate and export prices. Yet, the export-price model reveals no such cointegration, suggesting that export prices for commodities such as jute, tea, and cotton fluctuated independently of exchange rate movements during this period.

The import-price model, however, tells a different story. The clear and statistically significant long-run relationship between the rupee–sterling parity and import prices, combined with a relatively fast speed of adjustment, indicates that exchange rate policy was closely aligned with the dynamics of rupee-denominated import costs. This asymmetrical pattern undermines any narrow narrative that sees exchange rate management as a trade-supporting function and instead supports a macro-financial interpretation of colonial currency policy.

Because India's most significant financial obligations to Britain including the Home Charges, pensions, interest on sterling debt, and administrative transfers were fixed in sterling terms, rupee depreciation would have sharply increased the local currency cost of these remittances. To maintain fiscal stability, the colonial state would have had to extract higher revenues domestically, aggravating political tensions and threatening the administrative equilibrium (Tomlinson, 1982). A deliberately strong and predictable rupee reduced these risks by keeping the sterling burden manageable in rupee terms. The tight cointegration observed between import prices and the exchange rate aligns precisely with this objective: a stable rupee ensured that the domestic cost of sterling-denominated imports remained aligned with imperial financial priorities rather than Indian economic needs.

Seen through this lens, exchange rate policy becomes not a tool of trade facilitation but an instrument of fiscal extraction and imperial discipline. The stabilisation of import prices effectively protected the colonial fiscal regime by preventing domestic cost inflation in key categories of expenditure, such as military supplies and administrative imports. This approach aligns with the broader role of India as a financial reservoir within the Sterling Area, repeatedly called upon to offset shocks to metropolitan liquidity and confidence (Balachandran, 1993; Clauson, 1944) [4, 7].

These findings reframe the widely cited "shock absorber" thesis. India did indeed absorb shocks, but not in a manner that safeguarded its own economy. Instead, the rupee functioned as a stabilising mechanism for British imperial finance, absorbing external pressures that might otherwise have destabilised sterling or increased the cost of imperial commitments. Exporting interests and domestic producers bore the brunt of global price fluctuations, while the rupee was managed to protect the remittance streams that flowed from India to Britain (Narsey, 2016) [11].

This analysis bridges the gap between nationalist arguments which foreground exploitation and monetary subordination and the imperial finance literature, which emphasizes systemic interdependence. Ambedkar's (1923) [1] critique of the rupee as a vehicle for colonial extraction is resonant here, but the ARDL findings provide a more granular mechanism: they show how exchange rate policy was strategically calibrated to delink export earnings from the rupee while tightly binding import prices and imperial remittances. The empirical asymmetry between models thus reveals both the strategy and the consequence of colonial

monetary governance in the early 1920s.

6. Conclusion

This study has revisited British management of the Indian rupee during the unique interlude of the 1920–1925 managed float, employing an autoregressive distributed lag (ARDL) bounds-testing framework to analyse monthly data on the rupee–sterling exchange rate and India's trade price indices. The central finding is a striking asymmetry: the exchange rate bears no stable long-run relationship with export prices, yet it is significantly and robustly cointegrated with import prices. This pattern points to a deliberate prioritization of financial stability over trade responsiveness in the conduct of colonial currency policy. Viewed through the lens of imperial macro-finance, these results suggest that British authorities were not primarily concerned with the competitiveness of Indian exports. Rather, the rupee was managed to stabilize the domestic currency cost of sterling-denominated obligations including the Home Charges, pensions, and debt service that underpinned the fiscal architecture of empire. By anchoring import prices and thereby containing the rupee cost of imperial remittances, British policymakers ensured that India remained the most reliable source of liquidity within the Sterling Area during a period of postwar fragility. In this sense, India functioned not merely as a "shock absorber," but as a monetary safety valve designed to protect metropolitan interests.

The contribution of this paper lies in shifting the focus from whether India was financially exploited a question well-established in the literature to how that exploitation was operationalized through the exchange rate. The evidence presented here demonstrates that exchange rate management did not fail to influence trade prices but was instead precisely calibrated to influence the components most critical to imperial fiscal consolidation. The absence of a trade-price linkage in exports is, therefore, not a sign of impotence but of strategic design. These findings carry implications beyond their narrow historical setting. They illustrate how monetary policy, even in ostensibly peripheral economies, may serve political and fiscal imperatives that overshadow domestic economic concerns. At the same time, the limitations of this study chiefly, its short temporal scope and focus on trade prices point to the need for further research. Extending the analysis to other periods, incorporating domestic price and interest rate data, and employing structural break or regime change models could help deepen understanding of colonial monetary strategy and its broader economic impact.

Ultimately, this study underscores the value of integrating time-series econometrics with archival and historiographical analysis. Even relatively modest empirical tools can illuminate the mechanics of imperial financial governance and the ways in which currency regimes translated metropolitan objectives into lived colonial realities. Such an approach not only enriches the historiography of Indian monetary history but also provides a template for analysing monetary power and dependency in other colonial and post-colonial contexts.

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