

ABSTRACT

**ESSAYS ON EXCHANGE RATE
PASS THROUGH**

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The study of Exchange Rate Pass-Through (ERPT) has long been central to debates in international economics, macroeconomic stability, and monetary policy design. For India, the issue assumes particular salience as the country deepens its global trade integration while also managing the challenges of exchange rate volatility, imported inflation, and credibility of inflation targeting. Since the 1990s, India's shift from a controlled trade regime to a liberalized, outward-oriented economy has amplified exposure to external shocks. The experience of the global financial crisis, the taper tantrum, oil price swings, the pandemic, and more recent geopolitical disruptions underscores the importance of understanding how exchange rate changes translate into domestic prices. At the same time, India's increasing reliance on imported intermediates, its limited degree of rupee invoicing, and its evolving participation in global value chains (GVCs) make the dynamics of ERPT complex and non-linear.

Against this backdrop, the thesis provides a comprehensive analysis of ERPT in India through a combination of econometric and structural approaches, addressing gaps in the literature, advancing methodological innovations, and extracting policy-relevant insights.

The literature reviewed in this thesis reflects both global and Indian contributions. Classical theories of the law of one price and purchasing power parity predicted complete pass-through of exchange rate changes into domestic prices. However, empirical evidence from the 1980s onwards consistently showed incomplete pass-through, with Krugman's (1987) seminal work on pricing-to-market and Knetter's (1997) (analysis of exporter behaviour highlighting the role of firm-level strategies and market conditions. Later contributions extended these insights by incorporating nominal rigidities, imperfect competition, and currency invoicing practices, culminating in the dominant currency paradigm articulated by Gopinath (2010) and

others. The global empirical evidence confirms that ERPT is lower and declining in advanced economies with strong monetary anchors, but higher and more volatile in emerging markets. Indian studies, though fewer in number, similarly show incomplete pass-through, but they suffer from limitations such as focus only on imports, reliance on aggregate data, and lack of exploration of asymmetry, heterogeneity, and inflation expectations. These gaps define the contribution of the present study, which integrates disaggregated customs-level data, surveys on inflation expectations, and a New Keynesian DSGE framework into a unified analysis of ERPT in India.

The objectives of the thesis are fourfold. First, it aims to measure the magnitude and dynamics of ERPT into India's import and export prices, distinguishing between short-run and long-run effects while testing for asymmetry between appreciation and depreciation. Second, it seeks to analyse heterogeneity in ERPT across products, partner countries, and sectors, with attention to pricing-to-market behaviour, invoicing practices, and GVC integration. Third, it explores the link between ERPT and inflation expectations in the context of India's inflation-targeting framework, identifying nonlinear and asymmetric patterns in how households form expectations in response to exchange rate shocks. Fourth, it embeds ERPT into a New Keynesian DSGE model to study structural transmission mechanisms and policy-relevant dynamics. Together, these objectives reflect the need for a multi-dimensional analysis that goes beyond traditional reduced-form estimation and situates ERPT within the broader context of India's external and monetary policy frameworks.

The study relies on diverse data sources and methods tailored to each objective. Aggregate time-series data are analysed through Auto Regressive Distributed Lag (ARDL) models, Non Linear Auto Regressive Distributed Lag (N-ARDL) and Error Correction Models (ECM) to capture short-run and long-run ERPT into import and

export prices. Highly disaggregated product-level and partner-level customs data form the basis for static three dimensional panel regressions that identify heterogeneity and pricing-to-market strategies. Household survey data on inflation expectations are used to assess the impact of ERPT on expectation formation, while a structural New Keynesian DSGE model calibrated to Indian data provides insight into the dynamic interplay between exchange rate shocks, inflation, and policy. This mixed-methods approach ensures both empirical robustness and structural interpretability, allowing the study to contribute to both the econometric and modeling traditions in ERPT research.

The findings from the second chapter provide the first set of substantive insights. The analysis of aggregate import and export prices confirms that ERPT in India is incomplete: only about twenty-three percent of exchange rate changes are passed into export prices and about forty-five percent into import prices. The short-run estimates are lower than the long-run, reflecting the influence of contracts, nominal rigidities, and gradual adjustment. Crucially, the results reveal asymmetry: appreciation of the rupee reduces prices more strongly than depreciation increases them, showing that exporters compress margins during depreciation rather than fully adjusting foreign-currency prices. This has important implications for policymakers, as it suggests that depreciation cannot be relied upon as a straightforward tool to boost export competitiveness or correct current account deficits.

The third chapter, based on disaggregated data, highlights the extent of heterogeneity in ERPT. Product-level differences are striking: fuels and commodities exhibit near-complete ERPT, while differentiated goods such as pharmaceuticals and machinery display low pass-through. Country-level patterns are equally important: ERPT is higher in exports to emerging market destinations such as Bangladesh and Sri Lanka than to advanced economies such as the United States and Japan. This reflects

differences in demand elasticity, competitive pressures, and contractual arrangements. Evidence of pricing-to-market behaviour is strong, with exporters adjusting margins and local-currency prices in response to market-specific conditions. The role of global value chains further dampens ERPT, as costs are dispersed across multiple cross-border stages, muting the impact of exchange rate changes on final prices. This chapter demonstrates that ERPT in India is context-dependent, varying systematically with product characteristics, destination markets, and structural integration.

The fourth chapter introduces novel contributions by linking ERPT to inflation expectations and embedding it in a structural model. The analysis of household survey data shows that ERPT significantly influences inflation expectations, but in an asymmetric and nonlinear way. Appreciation reduces expectations more strongly than depreciation raises them, while past inflation exerts a dominant influence, underscoring the importance of monetary policy credibility. This finding complicates the inflation-targeting regime, since exchange rate shocks interact with expectations in a way that may destabilize inflation dynamics if credibility is weak.

The fifth chapter uses a Dynamic Stochastic General Equilibrium (DSGE) model to extend the analysis by embedding ERPT into a structural framework. The simulations reveal that ERPT is higher for tradables than for non-tradables, that monetary policy shocks generate near-complete pass-through while foreign shocks yield incomplete adjustment, and that invoicing practices critically shape outcomes. Contrary to traditional theory, ERPT is strongest under the dominant currency paradigm, moderate under local currency pricing, and weakest under producer currency pricing, reflecting the influence of rigidities and contractual stickiness. These results enrich the understanding of ERPT by linking it to structural features of the economy and the international monetary system.

From the results observed in each of the chapters in this thesis, it is evident that ERPT in India is incomplete, asymmetric, heterogeneous, and structurally conditioned by invoicing practices and GVC participation. This means that exchange rate depreciation cannot be treated as a reliable instrument for improving competitiveness or correcting external imbalances. Instead, policymakers must adopt a multi-pronged approach. For trade policy, depreciation should be complemented with measures to reduce input costs, improve logistics, and promote export diversification. For monetary policy, the Reserve Bank of India must incorporate ERPT diagnostics into its models, communicate clearly about sources of inflation, and strengthen credibility to anchor expectations. Structural reforms are also essential: providing MSMEs with hedging instruments, reducing reliance on imported intermediates, and reforming non-tradables like housing and logistics can help reduce persistence of shocks.

The thesis also identifies avenues for future research, reflecting the evolving nature of ERPT in a globalized economy. Linking customs-level data with firm-level balance sheets could shed light on how financial structures and hedging strategies influence pass-through. Studying ERPT in services trade, particularly IT and digital exports, would extend the analysis beyond goods. Assessing the impact of rupee internationalisation, the green energy transition, and climate-related shocks would bring the analysis up to date with new global challenges. Comparative studies across BRICS and other emerging markets could highlight structural similarities and differences, informing both academic debates and policy strategies.

In sum, the thesis provides a comprehensive, multi-dimensional account of ERPT in India. By integrating aggregate time-series analysis, disaggregated panel data, inflation expectation surveys, and DSGE modeling, it advances both empirical and theoretical understanding. The results confirm that ERPT is neither complete nor uniform; it is

asymmetric, heterogeneous, and mediated by institutional and structural conditions. The policy implications are profound: exchange rate management must be integrated with trade, monetary, and structural reforms, while credibility and resilience must be strengthened to manage external volatility. As India aspires to the vision of becoming a developed economy by 2047, the ability to manage ERPT effectively will be central to sustaining growth, maintaining stability, and securing a competitive position in the global economy.