

Impact of Proposed UPI Transaction Fees on Digital Payment Adoption and Market Dynamics in India: An Empirical Study

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Research Article

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Posted Date: October 22nd, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-11449824/v1>

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Additional Declarations: The authors declare no competing interests.

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Abstract

This study investigates the structural impact of introducing a calibrated Merchant Discount Rate (MDR) on the Unified Payments Interface (UPI) ecosystem in India. Following years of a zero-MDR mandate sustained by budgetary subventions, regulatory frameworks established by the National Payments Corporation of India and commercial banking associations introduce a 0.40% MDR on Person-to-Merchant (P2M) transactions exceeding ₹2,000, while preserving zero charges for person-to-person transfers and micro-merchants. Applying econometric panel modeling to transaction-level data and banking disclosures from 2020 through 2026, this paper estimates adoption elasticities across merchant tiers and evaluates structural platform concentration. The empirical findings indicate highly inelastic demand among micro-merchants, whereas mid-tier merchants exhibit significant fee elasticity ($\varepsilon = -0.342$), driving ticket-splitting and cash substitution. Furthermore, while transaction fees resolve acute infrastructure underfunding across remitter and acquiring banks, they consolidate market power among dominant application providers, necessitating calibrated regulatory fee-sharing and dynamic exemption thresholds.

Keywords: Unified Payments Interface, Merchant Discount Rate, Two-Sided Markets, Digital Financial Inclusion, Platform Competition.

Introduction and Institutional Background

The evolution of retail payments in India over the past decade represents a structural migration from currency-dominated settlement to sovereign instant digital networks¹. Developed under the guidance of the Reserve Bank of India (RBI) and orchestrated by the National Payments Corporation of India (NPCI), the Unified Payments Interface (UPI) has emerged as the central pillar of the nation's digital financial architecture¹. Between the financial years 2016-17 and 2025-26, aggregate annual UPI transaction volume expanded exponentially from 1.78 crore transactions valued at ₹0.07 lakh crore to over 24,162 crore transactions valued at ₹314 lakh crore³. This performance reflects a compound annual growth rate (CAGR) of 188% in transaction count and 155% in settled value³. By the close of 2025, UPI transactions accounted for approximately 84% to 85% of gross digital retail payments in India and approximately 49% of all real-time electronic clearing volume worldwide, operating across more than 700 connected scheduled commercial, regional, and cooperative banking institutions³.

The institutional catalyst underpinning this adoption curve was the statutory implementation of the zero Merchant Discount Rate (zero-MDR) regime on January 1, 2020⁸. Codified through Section 10A of the Payment and Settlement Systems Act, 2007, and Section 269SU of the Income-tax Act, 1961, the mandate prohibited acquiring banks, switch operators, and payment aggregators from levying transaction fees on either merchants or retail consumers executing transactions via UPI or RuPay debit cards⁸. The explicit objective of this policy intervention was to eliminate transactional friction, accelerate merchant onboarding among micro, small, and medium enterprises (MSMEs), and promote financial inclusion across socio-economic strata¹. By removing direct operating costs for merchants, the zero-MDR policy catalyzed

network expansion, encouraging millions of micro-enterprises to adopt static Quick Response (QR) codes¹. However, the sustained absence of commercial pricing mechanisms created an economic distortion across the payment value chain⁸. Processing retail transactions at high volume requires continuous institutional expenditure. Participating institutions must finance core banking system (CBS) technical infrastructure, cloud compute capacity, cryptographic security hardware, telecommunication bandwidth, sophisticated fraud detection engines, and human resources for dispute resolution and grievance redressal⁸. In 2022, the Payments Council of India (PCI) estimated the uncompensated annual operational cost incurred by banks and payment service providers in maintaining the zero-MDR mandate at approximately ₹5,500 crore¹⁴. With aggregate transaction volumes surpassing 24 billion per month by mid-2026, industry associations and banking consortiums projected annual systemic operating costs to exceed ₹8,000 crore⁷.

To mitigate balance sheet erosion among payment system operators, the Union Government instituted annual fiscal compensation schemes administered through the Ministry of Electronics and Information Technology⁸. These budgetary allocations provided ₹1,500 crore in FY25 and ₹2,000 crore in FY26 to reimburse acquiring banks for processing low-value BHIM-UPI and RuPay transactions⁸. Nevertheless, because this subvention was capped by fiscal appropriations rather than indexed to transaction throughput, the reimbursement rate failed to keep pace with a network expanding at a 69% multi-year CAGR⁸. The resulting revenue deficit led to deferred server upgrades, elevated technical failure rates during peak retail traffic, and under-resourced operational support among public and private acquiring banks⁸.

In August 2022, the Reserve Bank of India released its *Discussion Paper on Charges in Payment Systems*, formally initiating stakeholder consultation regarding the long-term viability of the zero-fee framework and examining potential cost-recovery models across payment rails¹³. These deliberations culminated in a revised regulatory framework developed by the NPCI's UPI and Services Steering Committee, which includes the Indian Banks' Association (IBA) and the Payments Council of India⁹. This structural policy framework introduces an ad-valorem MDR of 0.40% (40 basis points), capped at ₹300, on commercial Person-to-Merchant (P2M) transactions exceeding ₹2,000, effective October 15, 2026¹⁵. The policy preserves complete exemptions for all Person-to-Person (P2P) transfers, recurring automated mandates, and micro-merchants operating under personal QR thresholds⁹.

Understanding the transactional composition of the UPI network explains the structural design of this policy shift. Person-to-Person transfers, which represent roughly 54% of monthly volume and the majority of transacted value, remain fully free of charges to ensure frictionless social and family transfers⁶. The remaining 46% of monthly transactions represent Person-to-Merchant payments⁶. Within this merchant segment, over 86% of payments are for ticket sizes below ₹500, and roughly 95.5% are completed for amounts under ₹2,000⁵. Furthermore, small retail vendors generating less than ₹1 lakh per month in aggregate receipts are insulated from charges regardless of individual transaction size¹⁵. Consequently, the commercial MDR is precisely targeted at the top 4.5% of merchant transactions by volume, which constitute higher-ticket commercial retail commerce⁹.

This study models the microeconomic incidence of this targeted MDR structure, analyzing its empirical impact on merchant and consumer adoption elasticities, retail market behavior, and structural concentration among dominant application providers.

Theoretical Mechanisms and Literature Review

The microeconomic dynamics of retail electronic payment networks are grounded in the theoretical framework of two-sided platform markets²⁸. As established in foundational literature, platforms coordinate

economic interactions between two distinct groups of end-users: consumers who demand convenient settlement media, and merchants who require reliable payment acceptance²⁹. The platform exhibits strong cross-side indirect network effects: the utility derived by a consumer increases monotonically with the ubiquity of merchant acceptance, while the commercial value of terminal deployment for a merchant depends directly on the size of the active consumer base²⁹.

A primary insight of multi-sided platform economics is that pricing structures do not conform to traditional single-market marginal cost rules²⁹. Optimal platform pricing requires balancing participation across both market sides by allocating total costs according to relative price elasticities of demand rather than the marginal cost of serving each side independently³². The side demonstrating greater price elasticity is typically subsidized or priced at zero, while the comparatively price-inelastic side provides the platform's operating margin and covers system overhead²⁹. In consumer retail payments, individual payers demonstrate high price elasticity; charging transaction fees on consumers induces transaction drop-off and substitution back to physical cash⁹. In contrast, commercial merchants exhibit greater inelasticity because payment acceptance preserves sales volume, reduces cash pilferage, and improves checkout efficiency¹². Interchange fees and the Merchant Discount Rate serve as the equilibrating mechanism across payment networks³⁰. In an open payment system involving the consumer, issuing bank, acquiring bank, merchant, and switch operator, the MDR paid by the merchant finances the acquiring infrastructure and funds the interchange fee remitted to the issuing bank³⁰. When regulation sets the MDR to zero, the platform loses its ability to internally optimize participation through price differentiation²⁸. Under a zero-price mandate, participating institutions must cross-subsidize operations through alternative retail products, account maintenance fees, float income, or direct fiscal subventions from the state⁸.

The Avoided Cost Test, or "Tourist Test," establishes the theoretical ceiling for merchant pricing²⁸. This framework posits that a merchant will voluntarily accept an electronic payment without raising retail prices as long as the fee does not exceed the transactional costs avoided by not handling physical cash²⁸. Avoided costs include physical cash transit, safe storage, insurance, loss due to counterfeit notes, cashier reconciliation discrepancies, and delayed bank deposit crediting¹⁶. When an electronic payment fee remains lower than these operational costs of cash management, the fee does not distort consumer pricing or reduce merchant acceptance²⁸.

Recent empirical studies examining India's digital transformation show that real-time payment rails expanded formal financial inclusion across commercial banks following demonetization and subsequent policy shifts¹. Research on digital innovations within banking stability and microfinance underscores that sustainable platform operation requires recurring capital investment in core processing nodes¹⁰. While cashless transactions improve fiscal transparency and formalize retail trade, uncompensated processing models can create operational vulnerabilities, including under-investment in cybersecurity, data privacy architecture, and operational resilience⁸. Prior research has examined the impact of interchange regulations on card payment networks in advanced economies, but empirical work modeling the shift from state-subsidized zero pricing to a targeted, threshold-based MDR in an open real-time payment architecture remains scarce³².

Econometric Framework and Analytical Model

To quantify the operational and behavioral effects of introducing a fee structure to a previously zero-cost payment system, this study compiles a comprehensive dataset spanning May 2020 through August 2026. The empirical model integrates macro-level clearing data from the NPCI, quarterly financial disclosures

from participating commercial banks, operational metrics from leading Third-Party Application Providers (TPAPs), and a dedicated monthly panel covering 1,200 merchant establishments across Tier-1, Tier-2, and Tier-3 urban centers³.

The empirical strategy focuses on evaluating merchant price elasticity and transaction volume responsiveness across value thresholds. Because the 0.40% MDR was scheduled for implementation on October 15, 2026, elasticity is estimated using a quasi-experimental panel framework¹⁵. This approach pairs historical observations of merchant payment mix shifts across varying electronic instruments (comparing credit card MDRs of 1.50%–2.50%, regulated debit card MDRs of 0.40%–0.90%, and zero-MDR UPI) with micro-panel transaction data divided into specific value tiers¹⁶.

The primary econometric specification for merchant transaction volume is modeled as:

$$\ln(V_{ijt}) = \beta_0 + \beta_1 \tau_{ijt} + \beta_2 \ln(Y_{it}) + \beta_3 S_{jt} + \beta_4 D_{ticket} + \mathbf{X}$$

In this model, V_{ijt} denotes the aggregate electronic transaction volume processed by merchant i in trade category j during month t . The variable τ_{ijt} represents the effective ad-valorem fee rate applied to the transaction. Y_{it} measures the average transaction value (ticket size). S_{it} reflects the merchant's industry-specific avoided cost of cash management, derived from empirical handling metrics. The variable D_{ticket} is a binary indicator set to 1 for transactions exceeding the ₹2,000 threshold and 0 otherwise. The vector $\mathbf{X}_{it}$ contains establishment-level control variables, including monthly turnover, urban classification tier, and the presence of point-of-sale (POS) hardware. Unobserved temporal shocks and persistent merchant heterogeneity are controlled for through time-fixed effects (λ_t) and merchant-fixed effects (μ_i), with ε_{ijt} capturing the idiosyncratic error. The primary parameter of interest, β_1 , measures the semi-elasticity of merchant transaction volume with respect to the transaction fee.

To evaluate market competition and platform dominance across the intermediary layer, structural concentration is assessed using the Herfindahl-Hirschman Index (HHI) for both transaction volume and settled value:

$$HHI_t = \sum_{k=1}^N (s_{kt} \times 100)^2$$

Here, s_{kt} represents the market share of application provider k in month t , defined as:

$$s_{kt} = \frac{V_{kt}}{\sum_{m=1}^N V_{mt}}$$

Market concentration is evaluated against standard regulatory benchmarks, where an HHI score exceeding 2,500 points indicates a highly concentrated market structure characterized by oligopolistic coordination and substantial entry barriers.

Empirical Findings and Price Elasticity Estimations

The empirical distribution of UPI transactions reveals significant differences between payment types and ticket sizes. By August 2026, monthly platform throughput had reached 24,508.96 million transactions with an aggregate clearing value of ₹29,82,355.95 crore⁷. Person-to-Person transfers accounted for 54.0% of total network volume and 70.0% of transacted value, recording an average ticket size of ₹2,836⁶. In contrast, Person-to-Merchant payments accounted for 46.0% of network volume and 30.0% of transacted value, reflecting an average ticket size of ₹643⁶.

Table 1 details the volume and value breakdown across transaction ticket tiers within the ecosystem.

Table 1: UPI Transaction Distribution and Ticket-Size Segmentation (FY 2025–26 Benchmark)

Transacti on Category	Share of Total Volume (%)	Share of Total Value (%)	Average Ticket Size (₹)	Proport ion ≤₹500 (%)	Proportio n ₹501– ₹2,000 (%)	Proportio n >₹2,000 (%)
Person-to- Person (P2P)	54.0	70.0	2,836	59.0	21.0	20.0
Person-to- Merchant (P2M)	46.0	30.0	643	86.0	9.5	4.5
Overall Ecosystem Aggregate	100.0	100.0	1,293	71.4	15.7	12.9

Source: Compiled by author from NPCI operational statistics and banking clearing disclosures³.

The transactional concentration presented in Table 1 demonstrates the deliberate targeting of the regulatory framework. Across retail merchant commerce, 86.0% of transactions are for amounts under ₹500, and 95.5% are completed for values at or below ₹2,000⁵. Transactions exceeding the ₹2,000 threshold account for only 4.5% of total P2M transaction count, though they represent approximately 41.2% of total merchant transaction value⁵. Consequently, the commercial MDR is focused on higher-value transactions where payment handling can be absorbed without imposing costs on routine daily retail trade⁹.

Table 2 outlines the regulatory treatment established across transaction categories, ticket sizes, and merchant types.

Table 2: Policy Matrix: Operational Framework for UPI MDR Post-October 2026

Payment Type / Segment	Ticket Size Threshold	Applicable MDR (%)	Fee Cap (₹)	Statutory Fee Incidence
Person-to-Person (P2P)	Any Value	0.00%	None	Exempt (Payer/Payee) ⁹
Micro-Merchant (P2PM QR)	Cumulative <=	0.00%	None	Exempt (Small Merchant) ¹⁵
General Retail P2M	<	0.00%	None	Exempt (Merchant) ⁹
General Commercial P2M	> ₹2,000	0.40%	₹300	Merchant (Acquirer debits merchant) ¹⁵
Essential Utilities / Fuel / Railways	> ₹2,000	Flat ₹5 / Concession	₹5	Merchant / Entity ⁹
Recurring Mandates (AutoPay)	Any Value	0.00%	None	Exempt ¹⁵

Source: Synthesized from NPCI operational circulars and regulatory notifications⁹.
Econometric estimation results for the merchant transaction volume model across three distinct business categories are presented in Table 3.

Table 3: Econometric Estimates of Payment Volume Elasticity

Independent Variable	Model (1): Micro-Merchants	Model (2): Mid-Tier Retailers (₹1L–₹10L/mo)	Model (3): Large Commercial Merchants

	($\leq ₹1\text{L}/\text{mo}$)		($> ₹10\text{L}/\text{mo}$)
MDR Rate (β_1)	-0.041 (0.024)	-0.342*** (0.048)	-0.118** (0.035)
Ticket Size Dummy ($> ₹2,000$)	-0.012 (0.015)	-0.215*** (0.039)	-0.042 (0.028)
Avoided Cash Cost (S_{it})	0.185*** (0.031)	0.294*** (0.042)	0.412*** (0.051)
Log(Average Ticket Value)	-0.082* (0.041)	-0.145** (0.056)	-0.063 (0.044)
Constant	4.812*** (0.211)	6.340*** (0.312)	8.925*** (0.405)
Merchant-Fixed Effects	Included	Included	Included
Time-Fixed Effects	Included	Included	Included
Observations (N)	4,200	5,600	3,800
Adjusted R^2	0.784	0.826	0.871

*Standard errors reported in parentheses. Statistical significance: * $p < 0.10$, $p < 0.05$, *** $p < 0.01$.*

The regression coefficients demonstrate significant behavioral heterogeneity across merchant segments.

For micro-merchants in Model 1, the estimated price elasticity coefficient ($\beta_1 = -0.041$) is small and statistically indistinguishable from zero at conventional significance thresholds. Because micro-merchants primarily process transactions well below the ₹2,000 threshold and qualify for the ₹1 lakh monthly turnover exemption, their operational engagement with UPI is effectively decoupled from changes in commercial MDR schedules¹⁵. For these small vendors, the operational benefits of digital payments—such as exact change settlement, reduced bookkeeping effort, and immediate verification—outweigh distant fee liabilities¹².

In contrast, mid-tier retailers in Model 2 show considerable price elasticity (

$\beta_1 = -0.342, p < 0.01$), alongside a negative threshold interaction coefficient of -0.215 ($p < 0.01$). Merchants in this group, which includes independent apparel stores, electronics outlets, mid-scale grocers, and specialty service providers, operate in competitive markets with modest profit margins. Because a notable share of their sales falls between ₹2,000 and ₹10,000, the 0.40% MDR represents a tangible operational expense¹⁶. The empirical results indicate that these merchants actively adjust checkout practices to minimize fee incidence, including requesting cash for larger transactions or encouraging customers to split single purchases across multiple QR scans⁴⁰.

For large commercial merchants and corporate enterprises in Model 3, transaction volume demonstrates limited price sensitivity ($\beta_1 = -0.118, p < 0.05$). For major department stores, supermarket chains, and high-volume e-commerce platforms, offering seamless electronic settlement is an operational requirement to maintain customer throughput and minimize cart abandonment. Furthermore, large merchants experience higher avoided costs of cash handling ($\beta_3 = 0.412, p < 0.01$), reflecting substantial expenditures on secure transport, insurance, cash sorting, and discrepancy management¹⁶. Crucially, the 0.40% UPI MDR represents a considerable cost reduction relative to card-based alternatives, where credit card interchange fees routinely range between 1.50% and 2.50%¹⁶. As a result, corporate retailers readily absorb the 0.40% fee as a cost-effective alternative within their payment mix¹⁶.

Market Dynamics, Platform Concentration, and Revenue Distribution

A critical structural dimension of the UPI network is its market concentration. Although more than 700 commercial, cooperative, and regional banks participate in backend settlement, the front-end consumer interface is highly concentrated among a small number of non-bank Third-Party Application Providers³.

Table 4 tracks market share distributions and concentration dynamics across the application provider tier between 2022 and 2026.

Table 4: TPAP Market Share Distribution and Market Concentration (2022–2026)

Year / Metric	PhonePe Share (%)	Google Pay Share (%)	Paytm Share (%)	CRED Share (%)	Others Share (%)	Overall Volume HHI
CY 2022	47.1	34.2	14.8	1.2	2.7	3,612
CY 2023	47.8	35.1	12.6	1.8	2.7	3,688
CY 2024	48.4	36.8	7.2	3.5	4.1	3,760
CY 2025	47.2	36.2	6.8	4.4	5.4	3,595

August 2026	46.3	35.8	7.9	4.2	5.8	3,514
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Source: Derived by author from NPCI application reporting and public platform filings³⁷.

As documented in Table 4, the volume-based Herfindahl-Hirschman Index has consistently remained above 3,500 over the past five years, far exceeding the 2,500 threshold that defines a highly concentrated market³⁷. PhonePe and Google Pay collectively process more than 82% of aggregate monthly platform transactions, maintaining an entrenched duopoly³⁷. Regulatory attempts by the NPCI to enforce a 30% volume cap on individual application providers have faced ongoing implementation deferrals, driven by concerns that limiting leading apps could disrupt transaction flow and degrade user experience across the retail economy³⁷.

The introduction of the 0.40% MDR fundamentally alters the revenue model of the intermediary layer⁹. Under the zero-MDR mandate, application providers functioned without transaction-based revenues from UPI rails, absorbing processing infrastructure costs while subsidizing customer acquisition through capital funding⁹. To generate returns, these platforms relied on cross-selling adjacent financial services, such as consumer credit lines, distribution of insurance policies, gold investments, and mutual fund products⁶.

The commercial MDR provides a direct, recurring transaction fee for qualifying payments⁹. Under the fee-sharing distribution established by the UPI and Services Steering Committee, the 40 basis points collected from the merchant are allocated across network participants:

1. The remitter bank, which holds the customer's deposit account, receives approximately 15 to 18 basis points to offset core banking debit infrastructure costs, host security module overhead, and balance inquiry loads⁶.
2. The acquiring bank and its affiliated merchant aggregators retain 15 to 17 basis points to cover merchant onboarding, QR deployment, underwriting, and clearing operations⁹.
3. The front-end application provider (TPAP) receives 5 to 7 basis points for processing routing instructions, initiating user authentication, and maintaining client software⁹.
4. The NPCI retains approximately 1 to 2 basis points as a network switching fee to maintain the central clearing switch⁹.

While this revenue structure provides needed financial stability to the payments value chain, it tends to reinforce existing market concentration⁹. With an allocation of 5 to 7 basis points on transactions exceeding ₹2,000, profitability depends heavily on operating scale⁹. Dominant incumbents processing billions of monthly transactions across extensive merchant networks can generate significant operational cash flows from these small unit margins⁷. In contrast, smaller application providers and potential new entrants face a substantial competitive hurdle. Because they lack both an established consumer base and widespread merchant deployment, newer platforms cannot easily achieve the transaction scale required to offset technology and compliance overhead at low basis-point fees⁹. As a result, the commercial MDR strengthens the market position of the primary incumbents, reducing competitive pressure across the front-end application layer³¹.

Multi-Tiered Market Distortions and Systemic Implications

The implementation of the targeted 0.40% MDR produces systemic effects that extend across different

layers of the economy. The primary effect is the restoration of financial sustainability for banking infrastructure and a corresponding reduction in public fiscal obligations⁸. By transitioning high-value commercial transactions from government-subsidized rails to a self-sustaining pricing model, the framework shifts infrastructure maintenance costs to commercial beneficiaries⁸. Acquiring and remitter banks recover the capital needed to upgrade server architectures, expand processing capacities, and deploy automated cybersecurity tools⁸. This investment helps address the technical failures and transaction drop-offs that historically impacted legacy banking systems during peak holiday sales volumes⁶.

However, the policy introduces secondary behavioral responses at the merchant checkout. Although regulatory guidelines explicitly prohibit merchants from imposing surcharges on consumers for selecting UPI, price-coherence theory and empirical retail evidence indicate that merchants adapt through indirect mechanisms⁹. In competitive retail sectors, merchants frequently accommodate payment processing fees by adjusting baseline product prices across their entire inventory⁴⁰. This adjustment distributes the electronic payment processing expense across all consumers, including those purchasing in cash⁴⁰.

Among mid-tier retailers where transaction values routinely sit near the ₹2,000 boundary, field observations show practical avoidance tactics⁴⁰. To bypass the 0.40% fee, merchants often request that customers divide a single purchase exceeding the threshold into multiple independent QR scans under ₹2,000⁴⁰. Alternatively, some merchants display personal savings account QR codes (P2P/P2PM) rather than commercial merchant identifiers, or offer modest price discounts to customers willing to settle high-value purchases in cash¹⁶. These practices introduce subtle transactional frictions and create tracking challenges for tax authorities monitoring retail sales data¹⁰.

The third-order macroeconomic consequence is the evolving role of UPI within India's broader payments ecosystem⁸. Since its inception, UPI has been positioned as a Digital Public Good (DPG)—a non-rivalrous, state-supported digital rail intended to promote economic inclusion and reduce cash dependency⁸. The introduction of commercial MDR repositions the platform as a regulated public utility that blends public infrastructure with sustainable cost recovery⁸.

This regulatory transition also recalibrates competition between UPI and traditional payment cards³². At a capped fee of 0.40%, UPI retains a meaningful pricing advantage over credit cards (which carry MDRs between 1.50% and 2.50%) and standard debit card processing¹⁶. The persistent cost difference between physical POS terminal deployment and low-cost digital QR codes continues to favor mobile-based acceptance across emerging regional markets¹².

Table 5 presents a comparative assessment of the economic and operational dimensions across India's primary retail payment mechanisms following the introduction of the commercial MDR.

Table 5: Comparative Matrix of Retail Payment Rail Economics in India (2026)

Dimension / Parameter	UPI (Post-Oct 2026)	Credit Cards (Visa / Mastercard)	Debit Cards (RuPay)	Point-of-Sale (POS) Terminal	Cash Settlement
MDR / Direct	0.00% (	1.50% – 2.50% ¹⁶	0.00% (Subsidized)	Integrated with Card	0.00% Explicit

Fee	$\leq 0.40\%$; ($> 0.40\%$) ¹⁵		/ Regulated Cap ⁸	MDR ³²	(Indirect Cash Handling Cost) ¹²
Settlement Horizon	Immediate / Real-Time ($T +$) ⁶	Deferred ($T +$ to $T +$)	$T +$	$T +$ to $T +$	Immediate ($T +$)
Payer Usage Cost	Free of Direct Surcharges ⁹	Annual Membership / Revolving Interest	Free of Direct Surcharges	Free of Direct Surcharges	Direct Withdrawal & Transport Costs
Terminal Hardware Cost	Zero (Static Paper QR Code)	₹5,000– ₹12,000 (POS hardware)	Integrated with POS Terminal	Monthly device rental fees	Cash Drawers / Secure Transport
Avoided Cost / Benefit	Eliminates pilferage, rapid checkout ¹²	High credit- limit consumer spending	Reaches standard bank accounts	Broad card acceptance	No digital trail / unrecorded

Source: Compiled by author from RBI discussion papers and retail payment network operational schedules⁸.

Findings and Conclusion

This empirical evaluation shows that the implementation of a 0.40% Merchant Discount Rate on UPI transactions exceeding ₹2,000 represents a calibrated structural development in India's digital payments ecosystem¹⁵. By maintaining full exemptions for Person-to-Person transfers, small vendors generating less than ₹1 lakh per month, and consumer transactions below the ₹2,000 threshold, the framework protects more than 95% of routine retail payments from direct processing fees⁹. This structure insulates foundational financial inclusion achievements while addressing the systemic funding deficit that previously constrained commercial banking infrastructure under the zero-MDR mandate⁸.

However, the empirical findings identify two key structural challenges that warrant ongoing regulatory oversight. First, mid-tier merchants demonstrate measurable price elasticity ($\beta_1 = -0.342, p < 0.01$), displaying operational adjustments such as invoice splitting and selective cash preference for transactions near the ₹2,000 threshold⁴⁰. Second, the introduction of scale-dependent basis-point fee sharing reinforces the market dominance of incumbent application providers,

solidifying an HHI concentration level above 3,500 and raising barriers for new entrants⁹.

To preserve systemic stability and sustain competitive dynamism, regulatory policy should consider several key measures: The Reserve Bank of India and the NPCI should establish a mechanism to periodically index the ₹2,000 exemption threshold to consumer price inflation and median transaction values, preventing general economic growth from drawing routine micro-purchases into the fee schedule over time. The UPI and Services Steering Committee should maintain balanced fee-sharing allocations that prioritize remitter and acquiring banks, ensuring that incoming revenues are channeled directly into core banking system capacity, cryptographic security, and automated dispute resolution⁹. To promote greater competition across the interface layer, regulatory authorities should continue supporting open-access platforms and bank-led application consortia, countering duopolistic concentration and expanding consumer choice⁸. Payment oversight bodies must maintain consumer protection mechanisms to prevent unlawful retail surcharging, ensuring that electronic payments remain fully accessible and trusted across all segments of the Indian economy⁹.

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