Digital Payments, Revenue Growth and Cost Efficiency in Indian Banking: Secondary-Data Evidence from the UPI Zero-MDR Period, FY 2021–22 to FY 2025–26

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Received: Oct 03, 2026 Accepted: Oct 31, 2026 Published: Nov 03, 2026

Abstract

India's Unified Payments Interface (UPI) processed 24,161.69 crore transactions worth ₹314.23 lakh crore in FY 2025–26, yet throughout the period studied merchants paid no merchant discount rate (MDR) on UPI payments. This article asks whether that scale is visible in bank revenue and cost efficiency. It combines official system aggregates, bank-level tables from the National Payments Corporation of India, government incentive disbursements and the published accounts of State Bank of India (SBI). Public sector banks executed about 57 per cent of approved top-50 remitter volume in December 2021 and December 2022, whereas app-facing payment service provider volume sat with a few private banks. Government incentives never exceeded ₹0.25 per UPI transaction, against an industry cost estimate of about ₹0.83 in FY 2025–26. SBI's remitter volume rose 3.5-fold between December 2021 and December 2024 while its operating expenses rose 37 per cent. Its cost-to-income ratio fell from 55.66 to 50.11 per cent after FY 2023–24, mainly because income outgrew costs, although costs relative to assets also eased. The evidence is descriptive rather than causal and provides a pre-MDR baseline for the framework effective from 15 October 2026.

Keywords: Unified Payments Interface; merchant discount rate; cost-to-income ratio; bank efficiency; payment roles; Indian banking

1. Introduction

In five financial years the Unified Payments Interface (UPI) moved from a fast-growing option to the default rail for retail payments in India. Annual UPI volume rose from 4,595.61 crore transactions in FY 2021–22 to 24,161.69 crore in FY 2025–26, and value from ₹84.16 lakh crore to ₹314.23 lakh crore (Ministry of Finance, 2026b). By 2024–25, digital modes accounted for 99.9 per cent of the volume of non-cash retail payments, and UPI alone for 84 per cent of retail payment volume (Reserve Bank of India [RBI], 2025a). These figures measure adoption. They say little about whether the banks that hold customer accounts, execute debits and resolve failed transactions earned more, or spent less, as a result.

The question is sharper in India than elsewhere because the direct fee channel was closed for the whole period. Since January 2020, amendments to Section 10A of the Payment and Settlement Systems Act, 2007 and Section 269SU of the Income-tax Act, 1961 have required zero merchant discount rate (MDR) on BHIM-UPI and RuPay debit card transactions (Prime

Minister's Office, 2025). The government compensated the ecosystem only partly, through an annual incentive scheme. In August 2026 the RBI Governor remarked that "someone has to pay the cost" of the payments infrastructure (Business Standard, 2026), and the Department of Financial Services (DFS) announced an MDR of 0.4 per cent on person-to-merchant (P2M) UPI payments above ₹2,000, effective 15 October 2026 (DFS, 2026). Whatever that reform does to bank income, FY 2021–22 to FY 2025–26 is the last complete stretch of the zero-MDR regime, and it deserves careful documentation before post-reform data alter the picture.

Two measurement problems complicate that documentation. Banks occupy different roles in a UPI payment: the remitter bank whose customer is debited, the beneficiary bank whose customer is credited, and the payment service provider (PSP) bank that sponsors the application through which the payment is initiated. The National Payments Corporation of India (NPCI) reports these roles separately, and they are distributed very unevenly across banks (NPCI, n.d.). In addition, the cost-to-income ratio, the efficiency indicator most often quoted in Indian bank reporting, can fall because income rises, because costs fall, or both. A falling ratio is not, on its own, evidence that automation saved money.

This article addresses both problems with secondary data. It asks how the UPI payment load was distributed across ownership groups and payment roles, how large fiscal support was relative to transaction scale, and whether the largest remitter bank became more efficient because its costs fell or because its income grew. The analysis draws on official UPI aggregates, NPCI bank-level tables for December 2021 and December 2022, Cabinet and DFS data on incentive disbursements, and the five-year financial highlights of State Bank of India (SBI, 2026). It does not estimate causal effects. Its contribution is a measurement-led baseline: it shows where the payment burden sat during the zero-MDR years, how thin the explicit compensation was, and why the efficiency gains of the period cannot be attributed to payments without further evidence.

Section 2 sets out the institutional arrangement. Section 3 reviews the literature and states three propositions. Section 4 describes the data and methods, Section 5 reports the findings, Section 6 discusses them, and Section 7 concludes with implications and limitations.

2. Institutional Background: Payment Roles and Pricing

A UPI payment involves at least four bank-side functions, which may sit with two, three or four institutions. The remitter bank holds the payer's account and executes the debit, and the beneficiary bank credits the payee. The payer PSP and payee PSP sponsor the applications and handles that originate and receive payment instructions, including third-party applications that

are not banks. NPCI's archived ecosystem statistics publish monthly tables for the top 50 remitter and beneficiary banks, the leading payer and payee PSPs, and the transactions routed through each application, together with approval and decline rates (NPCI, n.d.). Because a single payment appears in several tables, the figures cannot be added across roles, and a bank's own application traffic does not measure how many payments its customers make.

The roles matter economically. A remitter bank carries the account-side work of every debit: authentication, balance checks, fraud screening, reversal of failed debits and grievance handling. The PSP role carries the customer interface and, for merchant payments, often the acquiring relationship. Under a zero-MDR rule neither role earns a merchant fee on UPI P2M payments. The Cabinet release on the FY 2024–25 incentive scheme cites a reference MDR of up to 0.30 per cent of transaction value for UPI P2M payments, the charge that the zero-MDR mandate set aside (Prime Minister's Office, 2025).

The incentive scheme was the government's partial substitute. Reported disbursements were ₹1,389 crore in FY 2021–22, ₹2,210 crore in FY 2022–23, ₹3,631 crore in FY 2023–24 and ₹1,046 crore in FY 2024–25 (Ministry of Finance, 2026a). The BHIM-UPI component in the first three years was ₹957 crore, ₹1,802 crore and ₹3,268 crore (Prime Minister's Office, 2025). For FY 2024–25 the scheme was narrowed to P2M transactions of up to ₹2,000 at small merchants, with an incentive of 0.15 per cent of transaction value within an outlay of ₹1,500 crore, paid to the acquiring bank and shared with the issuer bank, the PSP bank and app providers (Ministry of Finance, 2025; Prime Minister's Office, 2025). Large-merchant transactions carried neither MDR nor incentive.

The 2026 framework changes these terms. From 15 October 2026, P2M transactions above ₹2,000 attract an MDR of 0.4 per cent, capped at ₹300 for payments of ₹75,000 or more, with a flat ₹5 per transaction for categories such as fuel, insurance, telecom and utilities and 0.02 per cent for capital-market payments. Person-to-person payments, and small merchants receiving up to ₹1 lakh a month through UPI QR codes, remain free. The merchant pays the MDR to its acquiring bank, and an NPCI-led steering committee decides how it is distributed among participants. DFS cites an industry estimate that operating UPI costs about ₹20,000 crore a year and states that transactions of up to ₹2,000 make up more than 95 per cent of P2M volume (DFS, 2026).

3. Review of Literature and Propositions

3.1 Technology Adoption and Bank Performance

Evidence that technology raises bank performance is mixed, and the mix depends on what is measured. Beccalli (2007) found little relationship between total information technology (IT) investment and the profitability or efficiency of European banks, with effects differing across types of IT spending. Studies of specific channels report clearer results. Hernando and Nieto (2007) found that Spanish banks adopting the internet as a complementary channel saw overhead expenses decline gradually and profitability improve after a lag, and DeYoung et al. (2007) found that internet adoption raised the profitability of community banks in the United States, partly through deposit service charges. Scott et al. (2017), using the adoption histories of 6,848 banks for SWIFT, a network-based messaging infrastructure, report large long-run profitability effects that were greater for small banks and that strengthened as more banks joined. Across these studies, infrastructure benefits arrive with delay and depend on how widely others adopt.

Payments as such have received less attention. Hasan et al. (2012), using data from 27 European markets for 2000–2007, found that banks performed better where retail payment markets were more developed, mainly through fee income, and that effective payment markets were associated with greater bank stability. Their mechanism runs largely through fees, the channel that India's zero-MDR rule closed for UPI merchant payments. Milne (2006) argues that network effects shape banks' incentives to innovate in payments because the value of an innovation depends on adoption by other participants. The theory of two-sided platforms adds that the allocation of charges between the two sides of a transaction matters as much as their level (Rochet & Tirole, 2003), and in India that allocation has been set by regulation rather than by competition among networks.

3.2 Recent and Indian Evidence

Recent studies rely on broader digitalisation measures. Chhaidar et al. (2023) study 23 European banks over 2010–2019 using a digital-engagement score built from annual-report terminology and find a positive association with profitability that is stronger for larger banks. Chao et al. (2024) analyse 54 Chinese rural commercial banks over 2010–2021 and report higher profitability associated with a digital-transformation index, operating partly through asset quality and operating efficiency. Dadoukis et al. (2021) find that banks with greater pre-pandemic IT adoption had better market returns and lending during the first COVID-19 shock. Phan et al. (2020), by contrast, find that the growth of fintech firms predicts weaker

performance among Indonesian banks, a reminder that digital payments can move customer relationships away from banks as easily as towards them.

For India, Thakur et al. (2023) examine 33 commercial banks over 2010–2019 and report a negative linear relationship between ICT expenditure and net interest margin, with non-performing assets as a moderator; although the abstract describes a U-shaped relationship, the quadratic term is statistically insignificant in their results. Indian payments research has concentrated on users and merchants. Crouzet et al. (2023) show that the 2016 demonetisation produced a persistent rise in merchant adoption of an electronic wallet and estimate that adoption would have been 45 per cent lower without complementarities, and Agarwal et al. (2024) find that greater use of digital payments raised household spending. D'Silva et al. (2019) describe how India's public digital infrastructure was designed for interoperability. None of these studies examines how the bank-side burden of UPI was distributed or how it relates to bank cost ratios.

3.3 Research Gap and Propositions

Three gaps follow from this review. Bank-performance studies measure technology through spending, text-based scores or composite indices rather than through observed payment roles. Indian payments research has examined adoption and consumption more than bank economics. And no study located here documents the zero-MDR period as a baseline against which the 2026 pricing change can be assessed. The review is focused rather than systematic, so the gap is stated relative to the sources examined. Three propositions guide the analysis.

P1: The UPI payment load is distributed asymmetrically, with account-side (remitter) volume concentrated among public sector banks and app-side (PSP) volume concentrated among a small number of private banks.

P2: Explicit fiscal compensation during the zero-MDR period was small relative to transaction scale and to industry estimates of system cost.

P3: Improvements in the cost-to-income ratio of the largest remitter bank during the period were driven more by income growth than by reductions in operating expenses.

The propositions are examined descriptively. They are not hypotheses tested with inferential statistics.

4. Data and Method

4.1 Data Sources

The study uses published secondary data only; no personal or customer-level information is involved. System aggregates for FY 2021–22 to FY 2025–26 come from a Ministry of Finance reply in the Lok Sabha reporting NPCI data (Ministry of Finance, 2026b). Bank-level payment data come from NPCI's archived ecosystem statistics for December 2021 and December 2022, which list the top 50 remitter and beneficiary banks with total volume and approval rates, and the fifteen largest payer and payee PSPs (NPCI, n.d.). December lies in the third quarter of the financial year and avoids year-end effects. Remitter volumes for December 2023 and December 2024 for the five largest remitter banks come from Worldline's India Digital Payments reports (Republic World, 2025; Worldline, 2024), and monthly system totals from news reports of NPCI data (Business Standard, 2024, 2025). Incentive disbursements are taken from the March 2025 Cabinet release and the February 2026 DFS impact report (Ministry of Finance, 2026a; Prime Minister's Office, 2025), and pricing details from the DFS note on the 2026 MDR framework (DFS, 2026).

SBI is the bank-level case. It is the largest remitter bank in every NPCI table examined, with about a quarter of top-50 remitter volume, and it publishes a consistent five-year series of standalone income, expenses, assets and ratios (SBI, 2026). Bank-group context comes from RBI's Report on Trend and Progress of Banking in India (RBI, 2025b) and a rating-agency review of bank cost ratios (CareEdge Ratings, 2024).

4.2 Measures and Procedures

Operating income (OI) is net interest income plus non-interest income, and operating expenses (OpEx) are staff plus overhead expenses, both as reported by SBI. The cost-to-income ratio (CIR) is 100 × OpEx/OI. Cost intensity is OpEx divided by average total assets, where the average is the mean of opening and closing assets; the published series allows it from FY 2022–23 onwards. Monetary values are in ₹ crore, and one lakh crore equals 100,000 crore. Mean ticket size is value divided by volume.

Four procedures are applied. Annual and compound growth rates describe system scale. Each bank in the December 2021 and December 2022 remitter tables is assigned to an ownership group following RBI's classification, and group shares are computed on approved volume, defined as total volume multiplied by the approval rate; because total volume includes declined attempts, approved volume is the closer measure of completed debits. Fiscal intensity

is measured as incentive per UPI transaction and as a percentage of UPI value. Finally, the change in SBI's CIR is decomposed using the identity

$$\Delta \ln \mathrm{CIR}_t = \Delta \ln \mathrm{OpEx}_t - \Delta \ln \mathrm{OI}_t,$$

in which each term is split into its components (staff and overhead expenses; net interest and non-interest income) using the average shares of the two adjacent years as weights. The decomposition is exact for the total and accurate to within 0.02 log points for the components.

4.3 Scope of Inference

The proposal from which this study developed specified a two-way fixed-effects regression of bank outcomes on lagged bank-level UPI exposure. That design requires all twelve monthly NPCI tables for every bank and year, reconciled with each bank's audited statements, and an adjustment for the July 2023 merger of HDFC Ltd into HDFC Bank, which RBI itself excludes from some bank-group comparisons (RBI, 2025b). With five annual observations per bank and about thirty eligible banks, the model would also rest on limited within-bank variation and few clusters. Rather than report fragile coefficients, the study confines itself to descriptive and accounting evidence and leaves the regression to work that can exploit post-October 2026 variation in MDR exposure.

5. Findings

5.1 System Scale

Table 1

UPI Volume, Value and Transaction Size, FY 2021–22 to FY 2025–26

Financial year	Volume (crore)	Value (₹ lakh crore)	Volume growth (%)	Value growth (%)	Mean ticket (₹)
2021–22	4,595.61	84.16	—	—	1,831.31
2022–23	8,371.44	139.15	82.16	65.34	1,662.20
2023–24	13,112.95	199.95	56.64	43.69	1,524.83
2024–25	18,586.60	260.56	41.74	30.31	1,401.87
2025–26	24,161.69	314.23	30.00	20.60	1,300.53
CAGR, 2021–22 to 2025–26	51.42	39.01			

Note. Levels from Ministry of Finance (2026b), reporting NPCI data. Growth rates, compound annual growth rates (CAGR, %) and mean ticket (value ÷ volume × 100,000).

Volume grew at a compound annual rate of 51.42 per cent and value at 39.01 per cent, so the mean transaction fell from ₹1,831 to ₹1,301 (Table 1). Volume growth slowed every year, from 82.16 per cent in FY 2022–23 to 30.00 per cent in FY 2025–26, yet the absolute annual addition kept rising, from about 3,776 crore transactions to about 5,575 crore. Bank-

side workload for authentication, reversals and grievances follows the count of debits rather than their value, so the gap between volume and value growth means that the operational load expanded faster than any value-based charge could have.

5.2 Where the Remitter Load Sits

Table 2

Approved UPI Remitter Volume of the Top 50 Remitter Banks by Ownership Group, December 2021 and December 2022

Ownership group	Banks (n)	Share 2021 (%)	Share 2022 (%)	Approval 2021 (%)	Approval 2022 (%)
Public sector banks	12	57.17	56.96	90.22	91.58
Private sector banks	17	31.86	31.44	94.01	94.05
Payments banks	4	7.83	8.54	90.99	87.42
Regional rural banks	9	1.25	1.22	80.39	81.08
Small finance banks	4	0.79	0.92	87.37	87.86
Foreign banks	3	0.89	0.73	95.09	95.02
Urban co-operative bank	1	0.21	0.20	95.54	95.72
All top-50 banks	50	100.00	100.00	91.35	91.82
Approved top-50 volume (million)		4,483.40	7,641.87		
Approved volume as % of total UPI volume		98.2	97.6		

Note. Author's calculations from NPCI (n.d.) monthly tables. Approved volume = total volume × approval rate; approval rates are volume-weighted. Total UPI volume was 4,566.30 million in December 2021 and 7,829.49 million in December 2022 (NPCI, n.d.).

Table 2 classifies the NPCI top-50 remitter banks by ownership. Approved top-50 volume equals 98.2 per cent of total UPI volume in December 2021 and 97.6 per cent in December 2022, so the tables cover nearly the whole market. The twelve public sector banks, all present in the top 50, executed 57.17 per cent of approved remitter volume in December 2021 and 56.96 per cent in December 2022, while seventeen private banks executed about 31 per cent. SBI alone accounted for 26.4 and 25.6 per cent of total top-50 volume in the two months. The shares barely moved because public and private bank volumes grew at almost identical rates, 67.3 and 68.1 per cent, against system growth of 71.5 per cent; payments banks and small finance banks grew faster from small bases.

Approval rates differ by group. The volume-weighted rate was 90.2–91.6 per cent for public sector banks and about 94.0 per cent for private banks, and around 80–81 per cent for regional rural banks. A declined attempt still consumes processing and, if a debit occurred, reversal effort, so a lower approval rate implies more work per completed payment. The rates combine customer-side business declines with technical declines and should not be read as a ranking of bank systems.

The concentration of remitter volume persisted. Worldline's reports list SBI, HDFC Bank, Bank of Baroda, Union Bank of India and Punjab National Bank as the five largest remitter banks in December 2023 and December 2024. Between December 2021 and December 2024 their remitter volumes grew by multiples of 3.50 (SBI), 3.42 (HDFC Bank), 3.89 (Bank of Baroda), 3.80 (Union Bank of India) and 4.37 (Punjab National Bank), against a system multiple of 3.66, from 4,566 million to 16,730 million transactions a month (Business Standard, 2025; NPCI, n.d.; Republic World, 2025; Worldline, 2024). SBI Research (2025) reported SBI as the top remitter member with 5.2 billion transactions, about 3.4 times the next bank, and noted that public sector banks led the remitter side while private banks led the beneficiary side.

5.3 Asymmetry Across Payment Roles

Table 3

UPI Volume by Payment Role for Selected Banks, December 2022 (Million Transactions)

Bank (group)	Remitter	Beneficiary	Payer PSP	Payee PSP	Own apps	Payer PSP ÷ remitter
SBI (PSB)	2,128.94	938.15	613.07	370.13	4.22	0.29
Bank of Baroda (PSB)	509.92	249.01	< 1.3	7.54	1.02	≈ 0
Union Bank of India (PSB)	487.38	242.13	< 1.3	< 6.6	0.92	≈ 0
Punjab National Bank (PSB)	354.80	174.36	< 1.3	< 6.6	0.22	≈ 0
HDFC Bank (PVB)	700.19	384.38	693.09	372.15	11.81	0.99
ICICI Bank (PVB)	426.32	543.27	1,252.92	898.83	48.29	2.94
Axis Bank (PVB)	397.64	562.51	1,466.35	979.12	65.56	3.69
Kotak Mahindra Bank (PVB)	351.80	157.66	11.83	20.39	11.53	0.03
Yes Bank (PVB)	48.46	1,309.96	2,760.70	2,850.04	36.16	56.97

Note. NPCI (n.d.), December 2022 tables; volumes are total volumes including declines and cannot be summed across roles. PSB = public sector bank; PVB = private sector bank. "< 1.3" and "< 6.6" denote banks absent from the fifteen largest payer or payee PSPs, whose smallest members processed 1.29 and 6.60 million transactions. "Own apps" is the total for the bank's branded UPI applications.

Table 3 places the remitter role beside the other roles for nine large banks. The asymmetry is sharp. SBI executed 2,128.94 million remitter debits but acted as payer PSP for 613.07 million transactions. Bank of Baroda, Union Bank of India and Punjab National Bank together executed 1,352 million remitter debits without appearing among the fifteen largest payer PSPs. At the other extreme, Yes Bank executed 48.46 million remitter debits yet sponsored 2,760.70 million payer-side and 2,850.04 million payee-side transactions, and ICICI Bank and Axis Bank processed about three and 3.7 times as much payer PSP volume as remitter volume. HDFC Bank's two volumes were almost equal. Bank-branded applications were small everywhere: SBI's own applications carried 4.22 million transactions.

The pattern supports P1. Account-side processing concentrated in public sector banks, whose customers paid through applications sponsored by a handful of private PSP banks. Because the FY 2024–25 incentive was paid to acquiring banks for sharing with issuers, PSPs and apps, and because the PSP and acquiring relationships lay largely outside the public sector, the institutions carrying the heaviest debit load were not necessarily those closest to the incentive flow. An analysis of the FY 2023–24 disbursement data reports that a small number of banks received most of that year's incentive (Factly Media & Research, 2025).

5.4 Fiscal Support Relative to Scale

Table 4

BHIM-UPI Incentive Relative to UPI Activity, FY 2021–22 to FY 2025–26

Financial year	UPI volume (crore)	UPI value (₹ lakh crore)	Incentive (₹ crore)	Incentive per transaction (₹)	Incentive as % of value
2021–22	4,595.61	84.16	957	0.21	0.011
2022–23	8,371.44	139.15	1,802	0.22	0.013
2023–24	13,112.95	199.95	3,268	0.25	0.016
2024–25	18,586.60	260.56	1,046[a]	0.06	0.004
2025–26	24,161.69	314.23	n.a.	—	—
Industry cost estimate applied to 2025–26	24,161.69	314.23	20,000[b]	0.83	0.064

Note. Volumes and values from Ministry of Finance (2026b). Incentives for 2021–22 to 2023–24 are BHIM-UPI payouts (Prime Minister's Office, 2025). [a]Total reported disbursement for 2024–25, when the scheme covered only UPI P2M transactions of up to ₹2,000 at small merchants (Ministry of Finance, 2026a). [b]Annual industry estimate of UPI operating cost cited by DFS (2026).

Spread across all UPI transactions, the incentive was ₹0.21 per transaction in FY 2021–22, ₹0.22 in FY 2022–23 and ₹0.25 in FY 2023–24, falling to ₹0.06 in FY 2024–25 when the scheme was narrowed (Table 4). As a share of UPI value it never exceeded 0.016 per cent. Against FY 2025–26 volume, the industry cost estimate cited by DFS (2026) implies about ₹0.83 per transaction, or 0.064 per cent of value. The comparison is approximate, since the incentive was confined to particular transaction classes and the cost figure is an industry estimate rather than an audited number, but the orders of magnitude are clear: the most generous year's incentive per transaction was less than a third of the FY 2025–26 cost estimate, and the FY 2024–25 figure about a fifteenth. This supports P2. Most of the cost of the zero-MDR period was absorbed within the ecosystem, and the remitter evidence suggests that much of the account-side share fell on banks.

5.5 SBI: Income-Led and Cost-Led Changes in Efficiency

Table 5

SBI Operating Outcomes, Cost Intensity and Profitability, FY 2021–22 to FY 2025–26

Indicator	2021–22	2022–23	2023–24	2024–25	2025–26
Operating income (₹ crore)	161,272	181,456	211,558	228,648	246,564
Operating expenses (₹ crore)	85,979	97,743	117,761	118,069	123,549
Operating income growth (%)	—	12.52	16.59	8.08	7.84

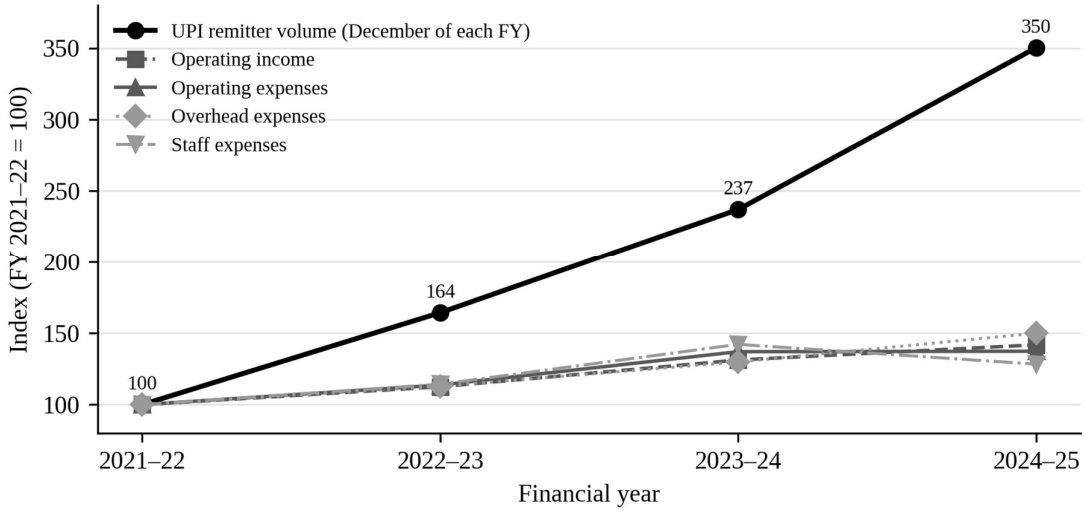
Indicator	2021–22	2022–23	2023–24	2024–25	2025–26
Operating expenses growth (%)	—	13.68	20.48	0.26	4.64
Staff expenses growth (%)	—	14.25	24.34	−9.66	2.13
Overhead expenses growth (%)	—	12.88	15.01	15.46	7.65
Non-interest income share of OI (%)	25.15	20.18	24.43	26.98	29.79
Cost-to-income ratio (%)	53.31	53.87	55.66	51.64	50.11
OpEx / average assets (%)	—	1.86	2.01	1.84	1.73
OI / average assets (%)	—	3.46	3.62	3.56	3.45
Return on assets (%)	0.67	0.96	1.04	1.10	1.12
Net interest margin (%)	3.12	3.37	3.28	3.09	2.91

Note. Levels, cost-to-income ratio, return on assets and net interest margin from SBI (2026), standalone; SBI labels these years FY 2022 to FY 2026.

Figure 1 places SBI's payment load beside its income and costs. SBI's remitter volume in December 2024 was 3.5 times its December 2021 level, whereas between FY 2021–22 and FY 2024–25 its operating income rose 41.8 per cent and its operating expenses 37.3 per cent. Overhead expenses, the line that holds technology spending along with premises and other running costs, rose 49.9 per cent over those years and continued rising in FY 2025–26, for a cumulative increase of 61.4 per cent against 31.1 per cent for staff expenses. The divergence between payment load and costs is consistent with scale economies in processing, but it is equally consistent with costs being shared with switches, PSPs and app providers, or recorded in lines that do not vary with volume. The published series cannot separate these possibilities.

Figure 1

SBI UPI Remitter Volume Compared with Operating Income and Expenses (Index, FY 2021–22 = 100)

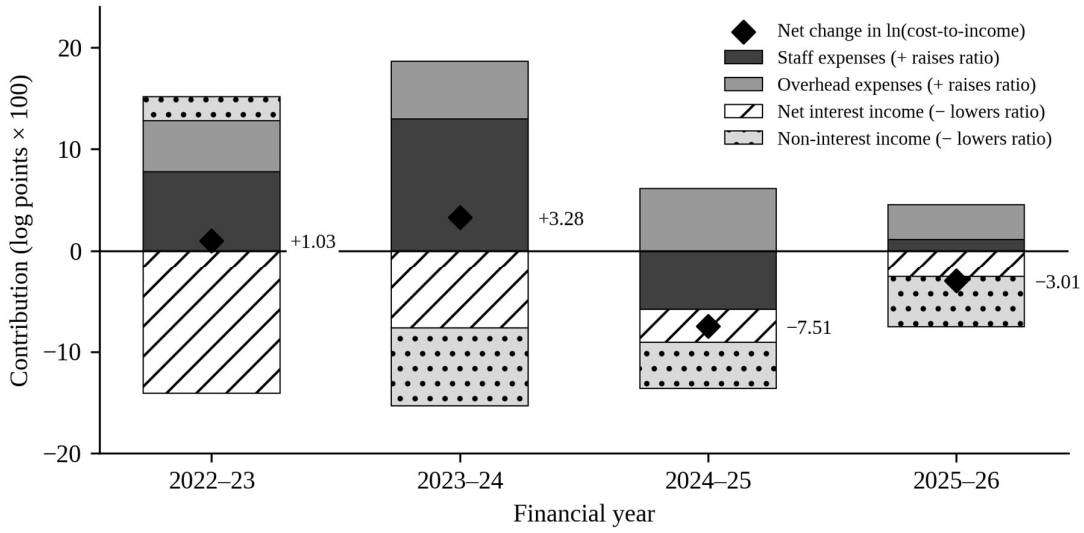


Note. Remitter volume is NPCI total volume for December of each financial year (December 2021 = 1,296.56 million; December 2024 = 4,540 million), from NPCI (n.d.), Worldline (2024) and Republic World (2025). Financial series from SBI (2026). Author's calculations.

Figure 2 decomposes the annual change in SBI's cost-to-income ratio. The ratio rose in FY 2022–23 and FY 2023–24, when expenses grew faster than income; in FY 2023–24 staff expenses alone contributed 12.97 log points, in line with the wage-revision and pension costs that lifted public sector bank cost ratios in that period (CareEdge Ratings, 2024). The ratio then fell by 4.02 percentage points in FY 2024–25 and by 1.53 points in FY 2025–26. In FY 2024–25 operating expenses were almost unchanged: a 9.66 per cent fall in staff expenses was offset by a 15.46 per cent rise in overheads, so the entire improvement of 7.51 log points came from income growth of 7.77 log points. In FY 2025–26 income growth of 7.54 log points outweighed cost growth of 4.54 log points, and non-interest income supplied 4.95 of the 7.54. The share of non-interest income in operating income rose from 20.18 per cent in FY 2022–23 to 29.79 per cent in FY 2025–26 (Table 5). The improvement in the ratio was therefore income-led, which supports P3, and the income behind it came disproportionately from non-interest sources, which in SBI's accounts combine fees, treasury income and recoveries and cannot be assigned to UPI from the published series.

Figure 2

Decomposition of the Annual Change in SBI's Cost-to-Income Ratio (Log Points × 100)



Note. Cost components enter with a positive sign and income components with a negative sign; diamonds show the net change. Component weights are average shares of adjacent years. Author's calculations from SBI (2026).

A second measure qualifies this conclusion. Operating expenses fell from 2.01 per cent of average assets in FY 2023–24 to 1.84 per cent in FY 2024–25 and 1.73 per cent in FY 2025–26, while operating income stayed between 3.45 and 3.62 per cent of assets. In FY 2025–26 total assets grew 14.18 per cent and operating expenses 4.64 per cent. Relative to the size of its balance sheet, SBI did become cheaper to run; relative to its income, the gain was almost

entirely an income effect. Both statements hold, and relying on the cost-to-income ratio alone would have hidden the first while overstating the role of cost reduction in the second. Profitability moved differently again, with return on assets rising from 1.04 to 1.12 per cent and net interest margin falling from 3.28 to 2.91 per cent between FY 2023–24 and FY 2025–26.

6. Discussion

The findings point to a mismatch, during the zero-MDR period, between the banks that carried UPI's account-side load and those that stood closest to its explicit rewards. Public sector banks executed close to three of every five debits; private PSP banks and their partner applications held the customer interface and most merchant relationships; and the government incentive, paid through acquirers, covered a small fraction of the estimated system cost. In two-sided market terms (Rochet & Tirole, 2003), regulation fixed the merchant-side price at zero and left banks to recover costs indirectly, through deposits, cross-selling and customer retention, none of which appears as UPI revenue in published accounts.

This reading helps reconcile the international and Indian evidence. Hasan et al. (2012) found that payment development improved bank performance mainly through fees. Where fees are prohibited, that channel is shut and the remaining benefits depend on indirect monetisation, which is slower and harder to attribute. The negative ICT–margin relationship reported by Thakur et al. (2023) and the fintech-competition result of Phan et al. (2020) fit this account: technology spending and payment activity can expand without a matching rise in margins when the customer interface belongs to someone else. SBI's experience is consistent with it. Its payment load grew far faster than its costs or income, its overhead line grew fastest among cost components, and its efficiency gains in the last two years came mostly from non-interest income whose sources are not specific to payments.

The findings also caution against transferring the more optimistic results. Positive associations between digitalisation and profitability (Chao et al., 2024; Chhaidar et al., 2023; Scott et al., 2017) were obtained where banks could price the services they digitised, and they should not be read as expected effect sizes for UPI. Scott et al. (2017) and Hernando and Nieto (2007) also found that benefits arrived with long lags. If the same holds for UPI, five years may be too short for benefits to surface in bank accounts even if they exist.

The 2026 MDR framework will alter the arrangement in ways that cannot yet be measured. Its revenue accrues only on P2M payments above ₹2,000 at merchants outside the small-merchant category, a segment that DFS places at less than 5 per cent of P2M volume

(DFS, 2026), and its distribution among acquirers, issuers, PSPs and apps is left to an NPCI-led committee. Press estimates suggest that SBI could be the largest single gainer because of its share of the issuing side (Outlook Business, 2026), but any such estimate depends on a devolution formula that has not been published. The evidence here offers a criterion for judging that formula. If devolution follows the acquiring relationship, as the incentive did, it will flow mainly to banks that already hold the PSP and merchant side; if it compensates the remitter function, more of it will reach public sector banks. Either outcome is a policy choice, and the zero-MDR baseline documented in this study is what it should be measured against.

7. Conclusion, Implications and Limitations

This study examined whether five years of UPI growth under a zero-MDR rule left a visible mark on bank revenue and cost efficiency. Account-side payment load was concentrated in public sector banks, which executed about 57 per cent of approved remitter volume, while app-facing PSP volume was concentrated in a few private banks. Fiscal support never exceeded ₹0.25 per transaction, against an industry cost estimate of about ₹0.83. SBI's lower cost-to-income ratio after FY 2023–24 was income-led and drew heavily on non-interest income, even though its operating costs did fall relative to assets. The data are consistent with banks, particularly public sector remitter banks, absorbing a material share of UPI's cost during the period. They do not show that UPI raised or lowered bank profitability.

For bank management, the results argue for separating payment-related costs and income in management accounts, and preferably in disclosures, so that the effect of the 2026 MDR can be tracked. Monitoring cost intensity relative to assets alongside the cost-to-income ratio would also prevent income-driven improvements from being mistaken for cost discipline. For policymakers, the devolution formula for the new MDR should state how it treats the remitter function, and publishing incentive and MDR receipts by bank would show where the money goes. For researchers, the October 2026 reform offers variation that the zero-MDR period lacked: banks differ in their exposure to high-value P2M payments, a difference that could support a difference-in-differences design built on the bank-year panel originally proposed for this study.

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