

Determinants and Economic Consequences of UPI and Digital Payment Adoption: Evidence from Emerging Economies

Richa Mukund Parekh¹, Dr. Nikita Dholakia²

¹Research Scholar, Mats University, Raipur (C.G.)

²Assistant Professor, Department of Management, Mats University, Raipur (C.G.)

Abstract

Digital payment platforms—especially the Unified Payments Interface (UPI) have reshaped the way firms and households in emerging economies manage financial transactions. This paper examines three main areas. First, it identifies the factors that encourage or hinder businesses in adopting UPI and other digital payment instruments. Second, it explores the operational and behavioral challenges that small retailers and small and medium enterprises (SMEs) encounter as they shift from cash-based dealings. Third, it evaluates the economic consequences of this transition for business income, transaction expenses, customer retention, and overall consumer outlays. The analysis draws on data from the Reserve Bank of India (RBI) and the National Payments Corporation of India (NPCI), the World Bank Global Findex database, and peer-reviewed research on technology adoption. The findings suggest that trust, user-friendliness, network infrastructure, and public policy are the most influential drivers of uptake, while digital illiteracy, poor internet connectivity, and concerns about fraud remain the leading obstacles. The paper also indicates that adopting digital payments often increases short-term revenues and strengthens record-keeping for smaller firms, although these benefits vary notably by region and firm size.

Keywords: UPI, digital payments, financial inclusion, SMEs, emerging economies, technology adoption

1. Introduction:

1.1 Background of the Study:

For generations, cash has been the lifeblood of shops in India and in much of the developing world. In a small town, a shopkeeper often knows their regulars, records purchases in a notebook, and trusts the weight and feel of a banknote more than anything on a screen. Over the past decade, however, this familiar scene has started to shift rapidly. The National Payments Corporation of India's launch of UPI in 2016 enabled instant transfers between bank accounts using only a mobile number or a QR code (Digital India, 2026). What began as a handy tool for young, tech-friendly urban users has since become the core infrastructure for retail payments nationwide. By financial year 2024 - 25, UPI made up about 81% of India's retail digital payment volume, and digital transactions overall represented 99.7% of total payment volume in calendar year 2024 (Reserve Bank of India, 2025a, 2025b).

This expansion is not unique to India. World Bank Global Findex data indicate that in developing economies, the share of adults who sent or received a digital payment increased from 35% in 2014 to

57% in 2021, with the move speeding up further after COVID-19 reduced people's willingness to handle cash (Demirgüç-Kunt et al., 2022). As a result, many emerging economies now treat digital payment systems as a major policy focus, given their close connection to financial inclusion, tax transparency, and bringing small businesses into the formal economy.

Still, national-level growth figures can mask a more complicated reality on the ground. Many small retailers continue to operate in both cash and digital modes—not because they oppose technology, but because shifting fully involves genuine costs and risks. A vegetable vendor who accepts UPI may still worry about network failures during busy periods, customers presenting fake payment screenshots, or having to wait two or three days for funds to settle in their account. These frictions are important for economic research, since they help explain why aggregate adoption can appear strong while the quality and reliability of adoption remain uneven beneath the surface.

1.2 Objectives of the Study:

1. To study the key determinants and operational barriers influencing the adoption of digital payments and UPI by businesses in emerging economies.
2. To understand the operational and behavioral challenges faced by traditional retailers and SMEs when transitioning from cash to digital financial systems.
3. To analyze the economic consequences of digital payment adoption on enterprise revenue, transaction costs, customer retention, and macro consumer spending.

2. Review of Literature:

2.1 Determinants and Economic Consequences of UPI and Digital Payment Adoption in Emerging Economies:

2.1.1 Macro-Level Trends and the Rise of UPI:

Digital payment infrastructure has become a foundational pillar of digital and online economies across emerging markets, with India standing out as a leading example (*India Brand Equity Foundation, 2026; Parthiban et al., 2026*). Recent figures from the India Brand Equity Foundation show that in FY25, retail digital payment volume increased by 34.9% while transaction value rose by 16.1%, with the Unified Payments Interface (UPI) contributing 84% of overall transaction volume (*India Brand Equity Foundation, 2026*). By early 2026, the UPI ecosystem included close to 700 partner banks (691 banks in January 2026 and 694 by February 2026) and handled tens of thousands of crore transactions each month (*India Brand Equity Foundation, 2026*). Internationally recognized as the world's largest retail fast payment system by transaction volume, UPI has enabled frictionless mobile commerce and spurred related financial offerings such as credit-on-UPI and “Buy Now Pay Later” (BNPL) programs schemes (*India Brand Equity Foundation, 2026; Parthiban et al., 2026*).

2.2 Determinants of Digital Payment and E-Commerce Adoption:

Research studies often use models like the Technology-Organization-Environment (TOE) framework and the Technology Acceptance Model (TAM) to categorize adoption determinants in emerging economies.

2.2.1 Technological Determinants:

System quality, perceived usefulness, and perceived ease of use remain key determinants (*Chike et al., 2023; Malave Columna, 2026*). (*Chike et al., 2023*) noted that secure and seamless e-payment systems have the strongest positive effect on consumer trust and digital adoption. In contrast, slow internet

connections, frequent transaction failures, and inadequate technical infrastructure impede adoption (Adams, 2022; N & Shetty, 2025).

2.2.2 Organizational Determinants:

Within SMEs and conventional retail businesses, technology adoption is strongly shaped by organizational preparedness, the ICT competence of employees and managers, and the availability of firm resources (Adams, 2022; Kalita, 2024). Nevertheless, limited digital awareness and concerns about cybersecurity threats often hinder the shift (Bhosale et al., 2026).

2.2.3 Environmental Determinants:

Competitive forces, evolving consumer preferences for contactless payments, and government-supported initiatives strongly encourage firms to adopt digital payment systems (Adams, 2022; Saxena, 2018). However, unclear regulations, limited legal avenues for resolving online disputes, and supplier resistance continue to pose significant obstacles (Kalita, 2024; Saxena, 2018).

2.3 Micro and Macro Economic Consequences:

The economic consequences of implementing digital payment methods and online sales channels are wide-ranging:

2.3.1 Firm-Level Competitiveness and Efficiency:

Adopting digital payment systems and e-commerce expands market access, lowers operational and transaction expenses, strengthens supply-chain coordination, and boosts overall business performance and profitability. For conventional brick-and-mortar retailers, shifting to digital payment options (e.g., UPI and mobile wallets) can improve customer loyalty and align with changing consumer preferences (Lucian Dimoso & Utonga, 2024; Saxena, 2018).

2.3.2 Digital Divide and Threat to Traditional Retail:

Conventional retailers are experiencing reduced in-store traffic and are often less price-competitive than major online marketplaces. Smaller sellers, especially those with limited digital skills or heightened exposure to payment failures, see increasing risks to their current business models (Adams, 2022; N & Shetty, 2025).

2.3.3 Macroeconomic Contribution:

At the macro level, the growing adoption of digital payments and the rapid rise of e-commerce are expected to generate as much as 20% of national income in economies such as India by 2030, surpassing traditional sectors like agriculture and manufacturing (India Brand Equity Foundation, 2026).

2.4 Research Gaps Identified from the Literature:

A review of existing studies points to several important research gaps concerning the drivers and economic impacts of adopting digital payment systems and e-commerce among small and traditional retail businesses in emerging markets:

- With respect to micro-level effects on traditional retail relative to e-commerce platforms, prior research largely focuses on macro-level platform growth, overall consumer adoption, and outcomes for large firms, while giving limited empirical attention to micro, small, and medium-sized enterprises (MSMEs) and conventional small retailers. Although the uptake of digital payment tools such as UPI and online sales channels can bring benefits such as automatic transaction documentation, lower exposure to cash-related risks, and stronger customer repeat rates offline

merchants increasingly confront intense price undercutting, declining in-store traffic, squeezed margins, and even risks to long-term viability from well-funded online competitors.

- The literature also shows a clear lack of longitudinal evidence. Much of the available empirical research depends on cross-sectional surveys and short-horizon perception-based indicators measured at a single time point. As a result, robust longitudinal or panel-based approaches that could trace how increasing digital and payment-system integration over time affects sustained financial resilience, operational performance, and firm survival remain largely missing.
- Substantial regional inequalities and gaps in digital capability continue. Even though national-level indicators suggest fast expansion in digital payments and increasing online consumption in Tier-2/3 cities and rural centres, these aggregate figures can mask entrenched digital divides. Persistent constraints such as unreliable telecom networks, limited bandwidth, recurring payment failures, and low digital literacy among local shop owners still significantly limit the net economic gains experienced by firms in non-metro and provincial settings.

3. Determinants and Operational Barriers to Business Adoption:

3.1 Enabling Factors: Several factors consistently appear across the literature as drivers of adoption:

- **Convenience and transaction speed:** A survey study by the Indian Institute of Management Kozhikode reported that the most frequently cited reasons for adopting UPI were convenience, quicker transactions, and strong security and fraud safeguards—far outranking cashback deals or government-led promotional efforts (Vaibhav & Baag, 2025). This result is notable because it challenges a widely held policy view that uptake is mainly driven by financial incentives. While incentive programs may have supported initial adoption, continued use tends to be sustained by trust that payments will succeed, along with speed and routine behavior.
- **Government policy and infrastructure investment:** The RBI's Payments Infrastructure Development Fund has supported the rollout of payments acceptance infrastructure in smaller towns, and the number of UPI QR codes rose 91.5% to 65.8 crore by March 2025, with a strong concentration in Tier III to Tier VI locations (Reserve Bank of India, 2025a). Government-supported identity and financial inclusion initiatives commonly referred to as the JAM trinity (Jan Dhan accounts, Aadhaar identification, and mobile phones) form a key foundation for economic growth. In FY 2023–24, UPI transaction value touched ₹200 lakh crore, representing a 138% rise compared with 2017–18 (PIB, 2024).
- **Interface design and platform reliability:** Two privately operated apps Google Pay and PhonePe account for most UPI usage, largely due to user-friendly interfaces and reliable transaction success, whereas the government-backed BHIM has had difficulty staying relevant (Vaibhav & Baag, 2025). This point is important for policy debates: creating the public payments infrastructure is not the same as earning user confidence, and a state-run app cannot presume uptake simply because it has official endorsement.
- **Financial inclusion gains:** Global Findex figures indicate that by 2021, 71% of adults in developing economies held an account with a financial institution or a mobile money provider, rising from 42% in 2011 (Demirgüç-Kunt et al., 2022). A key driver of this increase has been the digitization of wage and government transfers, as 39% of adults in developing economies opened their first financial account specifically to receive a salary or a government payment (Demirgüç-Kunt et al., 2022).

- **Reliability as a precondition, not just one factor among many:** A systematic review of retailer-focused UPI research grouped the evidence into seven themes: infrastructure and reliability, trust and dispute resolution, human processes and onboarding, cost economics, process integration, customer demand, and the policy and institutional environment (Bhutani & Pahal, 2025). The review's main takeaway can be put simply: dependable transaction confirmations at the point of sale act like a form of "permission" that has to be in place before any other benefit of digital payments becomes relevant for merchants. A shopkeeper cannot compare convenience with costs if they are not first assured that the payment will actually be completed.

3.2 Operational Barriers

- **Digital illiteracy and low trust:** Findings from Varanasi and comparable semi-urban settings indicate that, even with relatively widespread uptake of digital payments among small retailers, substantial obstacles remain. These include gaps in digital skills, inconsistent internet access, and worries about cybersecurity and fraud, which continue to limit the effective use of digital payment platforms (J. Yadav, 2024). It is important to recognize that these two realities can coexist: strong adoption and strong anxiety are not mutually exclusive. A shopkeeper may rely on a tool every day yet still not fully understand how it works, leaving them vulnerable when problems arise.
- **Security and fraud perceptions:** Among non-adopters, lack of trust continues to be the biggest standalone barrier, outweighing both digital literacy gaps and broader unfamiliarity with online payments (Vaibhav & Baag, 2025). Concerns about fraud are not simply irrational; UPI scams involving fabricated payment screenshots and manipulated QR codes occur often enough at the street level that vendors rapidly share warnings by word of mouth, even though official fraud rates represent only a very small share of overall transaction volume.
- **Perceived financial and operational risk among unorganized retailers:** Perceived financial and operational risk among unorganized retailers: Research applying Extended Valence Theory to the unorganized retail sector found that perceived financial risk, perceived security risk, and perceived operational risk are the primary negative factors hindering UPI adoption, contrasted with perceived usefulness, ease of use, social influence, and facilitating conditions as the key positive drivers (Giri & Biswas, 2025). How this is framed is important: it is not merely a narrative of technology overcoming reluctance. Rather, it reflects a real cost-benefit assessment by business owners who often lack the margin to recover from an error.
- **Demand-side resistance and tax-visibility concerns:** Demand-side pushback and concerns about tax visibility: A major 2019 survey of 1,003 small brick-and-mortar merchants in Jaipur yielded a result that complicates the supply-side narrative outlined above. The authors found scant evidence that poor infrastructure, lack of bank accounts, limited smartphone access, or high fees were driving low uptake; most merchants already had the necessary basics. Instead, weak adoption was linked to demand-side issues especially merchants' sense that customers were not interested in paying digitally and to a particular fear that creating a digital sales trail would increase their tax burden (Ligon et al., 2019). This offers an important lesson for policy design. Initiatives that focus only on closing supply-side gaps such as distributing QR codes or subsidizing smartphones are unlikely to help merchants whose main reluctance stems from tax concerns rather than the technology itself.
- **The merchant-acceptance gap as a collective action problem:** The merchant-acceptance gap as a collective action problem: A related and more recent strand of work shifts the bottleneck from the individual level to the system level. In most emerging markets, having an account and access to fast

payment rails is no longer the main limiting factor; instead, the key issue is whether the neighborhood shop can take a digital payment at the checkout. For small merchants, ticket sizes are small, margins are tight, and the costs of on-boarding, devices, and ongoing service add up, making it often unprofitable for payment providers to serve them—at least initially. Since the benefits of broader acceptance accrue to the economy as a whole, while the expense of signing up the smallest merchants is borne by a single provider, no individual payments firm has sufficient incentive to invest on its own. This dynamic helps explain the scattered pilots and short-lived subsidy schemes observed across many emerging markets (Ardic & Perez-Galindo, 2026).

Table 1: Determinants of Digital Payment and UPI Adoption Among Businesses

Category	Determinant	Analytical Explanation (Mechanism and Direction)	Key Sources
Technological	Ease of use / Interface design	Reduces cognitive effort and enhances usability; a core TAM construct that positively influences adoption intentions	(Davis, 1989; Vaibhav & Baag, 2025)
Technological	Network & internet reliability	Acts as a foundational infrastructure condition; enables adoption when stable but constrains usage when weak due to transaction failures	(Bhutani & Pahal, 2025; Kumar, 2017)
Institutional	Government infrastructure investment (PIDF, QR expansion)	Expands digital payment ecosystem and merchant acceptance network, thereby enabling adoption	(Reserve Bank of India, 2025a)
Institutional	JAM Trinity (Jan Dhan–Aadhaar–Mobile)	Facilitates financial inclusion and seamless identity–account linkage, significantly enabling digital payment adoption	(PIB, 2024)
Institutional	Merchant acquisition economics	High onboarding and low-margin economics discourage small merchant participation, constraining ecosystem expansion	(Ardic & Perez-Galindo, 2026)
Behavioural	Trust in payment systems	Reduces uncertainty and perceived risk; strongly enables adoption when present but acts as a barrier when absent	(Saha & Kiran, 2022)
Behavioural	Digital literacy	Determines user capability to operate digital platforms; low literacy constrains adoption while higher literacy enables usage	(Kumar, 2017)
Behavioural	Demand-side disinterest / tax visibility concerns	Fear of formalization and taxation reduces willingness to adopt digital payments, especially in informal sectors	(Ligon et al., 2019)
Financial / Risk	Perceived financial & operational risk	Increases uncertainty regarding transaction outcomes, thereby discouraging adoption	(Giri & Biswas,

			2025)
Financial Risk	Security & fraud risk perception	Fear of fraud and cyber risks reduces user confidence and constrains digital payment adoption	(Vaibhav & Baag, 2025)
Social	Peer & community influence	Social validation and network effects positively influence adoption through normative pressure	(Venkatesh et al., 2003)

4. Behavioural and Operational Challenges in the Cash to Digital Transition:

Shifting a shop from cash to digital payments isn't a one-time change; it's a gradual, uneven transition, and many small retailers wind up operating a hybrid setup for years instead of completing a straightforward switch. A number of common challenges appear repeatedly across the studies reviewed here.

- **Habit and cash dependency:** (Sivathanu, 2019) examined consumer behaviour during India's 2016 demonetization, when the state abruptly removed high-denomination notes from circulation, and showed that "stickiness to cash" moderated responses by dampening the shift to digital payments even as physical cash became briefly hard to obtain. This serves as a helpful counterbalance to narratives that frame demonetization as a decisive inflection point. In subsequent work employing a quasi-experimental approach, researchers found only limited evidence that demonetization itself produced a persistent increase in digital uptake once outcomes were benchmarked against the money supply, whereas the COVID-19 lockdowns exerted a more pronounced and longer-lasting push toward alternative payment methods (V. Yadav & Das, 2025). Taken together, the studies imply that policy jolts by themselves tend to have less impact on behaviour than prolonged, real friction with the incumbent system.
- **settlement and reconciliation friction:** Cash provides a shopkeeper with immediate, tangible confirmation that payment was made. Digital payments add a brief lag and require technical trust: did the money actually go through, or did the customer's phone display a success message even though the transaction later failed in the background? The efficiency benefit is genuine, but it comes with a cost; it swaps one type of work (handling and counting cash) for another (watching a screen and sorting out disputes).
- **Uneven adoption within the same market:** Uneven uptake within the same market: Adoption is strongest among urban users, while semi-urban and rural areas trail behind but are closing the gap rapidly. This can create tension within a single supply chain—for example, when a city-based wholesaler expects digital settlement from a retailer in a smaller town who still prefers cash (Vaibhav & Baag, 2025). This misalignment can also quietly increase operating costs for smaller businesses that have to run both methods to meet the needs of all customers and suppliers.
- **Generational and gender variation:** Generational and gender differences can also appear within a single firm. In many family-owned businesses, a younger relative may oversee the digital payments app while an older proprietor keeps control of cash transactions and the physical inventory, potentially leading to confusion when balancing accounts at the end of the day. This point is based on anecdotal observation rather than systematically tested evidence and warrants more rigorous research, but it shows up frequently enough in fieldwork-based dissertations to be identified as a practical complication that survey-only data often fails to capture.

5. Economic Consequences of Digital Payment Adoption:

5.1 Enterprise revenue:

Multiple studies indicate that when small businesses adopt digital payment methods, they may boost performance by streamlining transactions, reaching more customers, and improving financial tracking; however, the size of any revenue gains differs widely by setting and is not consistently found.

5.2 Transaction Cost:

Digital payments cut two kinds of cost for merchants: the upfront expense of dealing with cash (bank deposits and transport, security, and time spent counting) and the less visible cost created by settlement lags in older card-based systems. For almost six years, UPI applied a zero merchant discount rate (MDR) to most person-to-merchant transactions in India, effectively eliminating transaction charges and making adoption financially appealing for the smallest shops that could not have borne card-network fees (Reserve Bank of India, 2025a). Other emerging economies should take note of this policy, because it shifts the underlying incentives to adopt: when margins are tight, a shopkeeper will push back against any payment method that quietly skims a portion of each sale, regardless of how convenient it may be.

This period of zero fees ended soon after the data for this study were collected. In September 2026, the Government of India announced that, effective 15 October 2026, a 0.4% MDR would be introduced for person-to-merchant UPI transactions above ₹2,000, with a cap of ₹300 on transactions of ₹75,000 or more, and with the fee to be shared among banks, payment service providers, and app providers rather than passed on to customers (Business Today, 2026; Syed, 2026). Small merchants who receive up to ₹1 lakh per month via UPI QR will continue to be exempt, and the government indicated that only about 4% of merchant transactions would be impacted, as most routine purchases remain below the ₹2,000 threshold. The rationale given for this shift is to create a sustainable funding base for UPI infrastructure, cybersecurity, and further rollout in rural and semi-urban regions, instead of depending indefinitely on a subsidized, fee-free network. Even so, trade bodies have expressed concerns that a modest but predictable fee could nudge some higher-value merchant payments back toward cash (Business Today, 2026). This change therefore serves as a real-time test of the mechanism discussed in this paper: merchant behaviour is shaped by cost predictability as much as by the absolute level of fees, and the coming months will indicate whether a capped, threshold-based charge sustains the confidence built under zero MDR or starts to weaken it.

5.3 Customer retention:

Faster checkout and the ability to accept payment from any customer, regardless of whether they carry cash, appear to support customer retention for small retailers, though the retention effect is harder to isolate statistically than the revenue effect. Trust-based research on UPI usage found that behavioral intention fully mediated the relationship between performance expectancy, trust, and actual use, meaning that a customer's ongoing loyalty to a payment method depends less on a single good experience and more on an accumulated sense that the system reliably works (Saha & Kiran, 2022). For a retailer, this means that early technical failures, such as a payment that fails during a busy period, can do outsized damage to long-term customer trust compared with the cost of the single failed transaction.

5.4 Macro-level consumer spending:

At the national level, the move toward digital payments is associated with a sharp increase in recorded transaction volumes and values. RBI data indicate that digital payment volume rose from 3,248 crore transactions in calendar year 2019 to 20,849 crore in calendar year 2024, while the total value increased from ₹1,775 lakh crore to ₹2,830 lakh crore over the same period (Reserve Bank of India, 2025b). Part

of this growth likely reflects real expansion in economic activity as more transactions enter the formal, traceable system; another part may simply be the formal recording of transactions that previously occurred in cash and went unmeasured, rather than an increase in underlying consumption. Distinguishing between these channels remains a difficult unresolved issue in the literature, and this paper does not attempt to settle it.

Table 2: Growth and Scale of UPI Ecosystem (2016–2026)

Dimension	Indicator	Initial Phase (2016–17)	Latest Phase (2025–26)
Adoption Scale	Annual Transaction Volume	1.78 Crore	24,162 Crore (≈188% CAGR; exponential adoption growth)
	Annual Transaction Value	₹0.07Lakh Crore	₹314 Lakh Crore (≈155% CAGR; rapid value deepening)
	Share in India's Digital Payments	–	84% (dominant retail payment instrument)
	Share in Global Real-Time Payments	–	49% (global leadership in real-time payments)
Growth Dynamics	YoY Volume Growth	–	30% (sustained high growth trajectory)
	YoY Value Growth	–	21% (moderate but stable value expansion)
Usage Intensity	Daily Average Transactions	–	66 Crore (high-frequency retail usage)
	Record Monthly Volume	–	2,366 Crore (July 2026; peak adoption milestone)
	Record Monthly Value	–	₹29.88 Lakh Crore (July 2026; peak transaction scale)
Ecosystem Expansion	Participating Banks	21	741 (massive institutional deepening and interoperability)
	Initial Adoption Benchmark	90,000 (Aug 2016)	(baseline indicating early-stage diffusion)
Global Diffusion	Countries Accepting UPI	–	11 (emerging cross-border payment integration)

Sources: (PIB, 2026)

6. Finding of the Study:

Three points stand out when the determinants, barriers, and consequences are placed side by side.

- Factors that encourage adoption and factors that hinder it are often two ends of the same underlying variable rather than two distinct checklists. Trust is the most obvious case: strong trust propels uptake, while a lack of trust is the most powerful reason people steer clear of the system. Policy

efforts that focus only on expanding infrastructure, without directly tackling trust through fraud safeguards and effective grievance redress, may increase the potential for adoption without significantly changing real-world behaviour.

- The economic upside from adopting digital payments is genuine, but it is neither guaranteed nor shared equally. A shop that starts using UPI does not automatically see higher profits; instead, it gains the capacity to accept payments from more customers and may lower some expenses, with the overall impact shaped largely by the quality of local infrastructure and the proprietor's ease with the technology.
- This is important for policymakers in other emerging markets who may see India's headline numbers and assume that introducing a comparable payment rail will produce the same results. India's experience worked in part because it combined several specific, intentional elements: a near six-year period of zero merchant fees, interoperability that allowed any bank to transact with any other, and roughly a decade of earlier investment in digital identity and bank account access through the JAM trinity. The capped, threshold-based merchant fee introduced in October 2026 signals the close of the zero-fee era and underscores a broader point: policies that accelerate early adoption are not always intended to last indefinitely. The more difficult issue for India and for any country drawing lessons from its model is whether a payment system can begin charging costs after trust and routine usage are established without reviving the same reluctance that zero pricing was meant to remove.
- Future studies should pay closer attention to the gap between headline statistics and what retailers actually experience. Nationwide data reporting 99.7% of payment volume as digital can still align with shop owners who recount everyday stress over fraud and slow settlements. Both realities can be simultaneously valid, and policies based solely on the aggregate figure may overlook the practical frictions that decide whether adoption remains stable over time or stays precarious.

7. Limitation of the Study:

This paper relies largely on evidence from India, as India provides the broadest body of published research focused specifically on UPI. Other emerging markets including those centered on mobile money platforms such as Kenya's M-Pesa could exhibit different patterns in the relative importance of key determinants, especially depending on whether payments are telecom-led or bank-led. In addition, several retailer-level results referenced here are based on small, local surveys rather than nationally representative samples, so the reported effect sizes should be viewed as suggestive rather than exact. The analysis also draws on secondary sources instead of primary data collection, and a more rigorous assessment of the causal arguments advanced here would require panel data following the same firms before and after adoption.

8. Conclusion:

In emerging economies, the uptake of digital payments UPI being the most prominent case has shifted from a limited convenience to the primary way people pay for retail purchases in under ten years. This change has been driven by a combination of product and system design, public investment in enabling infrastructure, and growing user trust, while remaining obstacles are largely tied to uneven digital skills, fear of fraud, and inconsistent infrastructure between regions. For businesses, the effects include measurable revenue increases, reduced costs from handling cash, and broader customer access, but these benefits come with real new day-to-day demands, such as more complex reconciliation and added

dispute resolution work that can be missed in high-level data. For policymakers and researchers elsewhere, the takeaway is not that simply replicating a UPI-style payment rail guarantees similar results; success depends on aligning the technology with appropriate fee models, reliable identity systems, and trust-building efforts suited to local realities.

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