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Debit Cards vs. UPI in Driving Financial Inclusion in India: A Comparative Study of Relevance, Adoption, and Hybrid Usage Patterns

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Abstract: ***The path towards financial inclusion has undergone a dramatic transformation due to the swift development of India's digital payment infrastructure. Debit cards, especially RuPay and ATM-cum-debit cards, were initially essential in expanding banking services through programs like the Jan Dhan Yojana. Their hegemony has been progressively diminished, though, by the emergence of the Unified Payments Interface (UPI). This study examines how UPI and debit cards contribute to financial inclusion, using secondary data from the RBI, NPCI, and World Bank (2012-2025). According to the data, debit card transactions increased gradually until 2019-20, reaching a peak of ₹7.04 lakh crore, before leveling out at ₹5-7 lakh crore a year. On the other hand, demonetization and the COVID-19 pandemic caused a sharp increase in UPI transactions, which went from ₹0.69 lakh crore in 2016-17 to ₹260 lakh crore in 2024-25. UPI's mobile-centric architecture, real-time interoperability, and merchant integration have transformed digital payments, even while debit cards are still primarily centered on ATMs. The survey also highlights issues like infrastructural deficiencies, fraud concerns, and hurdles to digital literacy. There is evidence of dual usage, with consumers favoring debit cards for cash requirements and UPI for digital payments. This underscores the necessity of balanced governmental support to maintain inclusivity in low-connectivity and rural areas.***

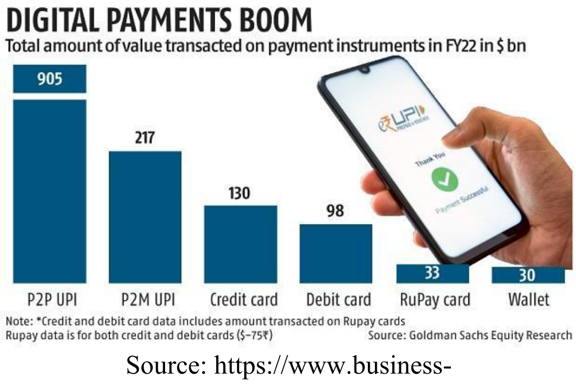
Keywords: Financial Inclusion, Debit Cards, Unified Payments Interface (UPI), Digital Payments, India

1. Introduction

In recent decades, the Indian financial environment has experienced a tremendous digital transformation that has radically changed how people access and use banking services. The introduction and widespread use of debit cards, especially through the Pradhan Mantri Jan Dhan Yojana (PMJDY), marked a significant turning point in this journey. By giving millions of previously unbanked persons their first official connection to the banking system, this program, which was started in 2014, sought to advance financial inclusion. Having a debit card signified the introduction of many low-income and rural households into the structured financial system.

The domestic RuPay card network, which was created to enable safe, affordable, and easily accessible digital transactions, is at the center of this change. This invention paved the path for a "cash-lite" economy by empowering citizens to make digital payments and lowering the country's dependency on cash. India's financial culture has steadily changed over the past 20 years from one that relied heavily on cash to one that prioritizes digital payments. Debit cards gave users flexibility and increased their trust in the banking system by offering the combined benefits of point-of-sale (PoS) usage and ATM withdrawals. Scaling this impact was made possible in large part by the PMJDY effort. More than 340 million RuPay debit cards had been distributed by 2023, giving millions of people who had previously been shut out of formal banking access to financial services. In addition to safely saving money, this access allowed people to engage in the digital economy, make electronic payments, and immediately access government subsidies.

In summary, RuPay and the PMJDY framework have facilitated the widespread use of debit cards, which represents a revolutionary development in India's financial industry. It emphasizes how digital tools may improve ease, encourage financial inclusion, and change customer behavior. This foundation guarantees that the path towards a more egalitarian and digitally empowered economy stays firmly on course as India continues to innovate in fintech and digital banking.



Source: https://www.business-standard.com/article/finance/credit-card-linkage-to-upi-uncertainty-over-pricing-leaves-players-in-dark-122061000566_1.html

Concurrently, the Unified Payments Interface (UPI), which offers immediate, mobile-first, and interoperable solutions, has transformed retail payments through its launch and quick growth. With billions of transactions processed each month, UPI is currently the fastest-growing real-time payment system in the world, putting India at the forefront of innovation in digital finance. Even if UPI use is still on the rise, little is known about debit cards' place in the changing environment, especially when it comes to long-term financial inclusion. However, financial inclusion has been broadened with the introduction of the Unified Payments Interface (UPI) in 2016. From 21 million transactions in 2016 to over 83 billion in 2023, UPI's mobile-first architecture, interoperability, and real-time settlement have allowed for exponential development (NPCI, 2023). When digital payments became necessary for everyday transactions amid the COVID-19 pandemic and demonetization (2016), its significance was further enhanced.

1.1 Research Questions

The study seeks to address the following questions:
1) Has UPI surpassed debit cards as the primary method of financial inclusion in India, or are they still useful?
2) What are the differences between UPI and debit cards in terms of security, usability, and accessibility?
3) What are the regional and socioeconomic trends in the uptake of UPI and debit cards?
4) What are the consequences of policy for striking a balance between the future integration of Central Bank Digital Currency (CBDC), UPI innovation, and ATM-debit infrastructure.

1.2 Research Objectives

The primary objectives of this study are:

1) To examine how debit cards have developed in India as a tool for financial inclusion, especially in light of the PMJDY and RuPay programs.
2) To investigate UPI's emergence as an interoperable, mobile-first payment system and how it has accelerated financial inclusion in India.
3) To evaluate the accessibility, usability, security, inclusivity, and policy support of UPI and debit cards.
4) To evaluate the consequences of policy for striking a balance between the future integration of Central Bank Digital Currency (CBDC), UPI innovation, and ATM-debit infrastructure

When combined, these goals seek to offer a thorough grasp of how digital payment methods have influenced India's path toward financial inclusion.

2. Literature Review

Author(s) & Year	Title of Study / Source	Objective / Purpose	Methodology	Key Findings / Results	Relevance to Current Study / Gap Identified
Invalli, S. (2025)	Digital Payment Patterns in India: A Cross-Sectional Study of Credit Cards, Debit Cards, and Unified Payments Interface (UPI) Trends. Cureus Journals, 2(1).	To investigate the patterns of digital payment modality uptake.	Cross-sectional study, survey data.	Debit cards are being used less frequently, credit cards are only available to metropolitan elites, and UPI is increasing at the quickest rate.	Creates a baseline comparison between UPI and debit usage.
Chandel, S., & Chandel, S. (2025)	The Role of Digital Payment Systems in Advancing Financial Inclusion in India. Cureus Journals, 2(1).	To examine how electronic payments contribute to financial inclusion.	Utilizing inclusion indicators in an empirical analysis.	UPI improved rural & low-income access significantly.	Demonstrates how UPI has a greater influence on inclusion than debit cards.
Gnanakumar, P. B., & Baby, M. K. (2025)	Empowering Financial Inclusion: A Data-Driven Approach to Affordable Credit in UPI.	To link credit accessibility and UPI transactions.	Data-driven transaction record model.	UPI history serves as a stand-in for microcredit assessment.	Offers a credit component of inclusion that isn't found in debit card systems.
Vermani, R., & Arora, N. (2025)	Unravelling the dynamics: a theoretical exploration of the role of UPI in digital inclusion. In From Digital Disruption to Dominance. Emerald.	To provide a theoretical perspective on the function of UPI.	Conceptual/theoretical exploration.	UPI is viewed as a disruptive public digital infrastructure.	Gives a theoretical foundation for comparing and contrasting debit cards.
Irfan, M., Dias, R., Sridhar, M., Galvão, R., Varela, M., & Ribeiro, R. (2024)	Exploratory data analysis of debit and credit card spending across types of banks in India. Revista de Gestao Social e Ambiental, 18(9), e07140.	To study spending behavior by card type and bank.	Exploratory Data Analysis (EDA) using transaction datasets.	In rural and semi-urban areas, debit cards are more common than credit cards, and private banks have higher card spending rates.	Shows that debit cards are still relevant in some markets.
Saha, S. K. (2024)	PMJDY impact assessment: Financial inclusion in Indian banks through beneficiaries, deposits, and RuPay debit cards. Int. J. Progressive Research in Eng. Mgmt. & Science, 4(4), 2521-2526.	To evaluate the financial inclusion results of the PMJDY initiative.	Quantitative analysis of PMJDY accounts, deposits, RuPay usage.	RuPay debit cards are essential for opening an account, but they don't get used very often.	Debit cards are underutilized after the UPI growth, despite being shown as entrance instruments.
Girish, G. P., Honnamane, P. S., Kundu, S. G.,	A Study on Digital Public Infrastructure and Unified Payments Interface of India. In	To research UPI as a digital public infrastructure.	Analysis of secondary data and a case study.	India's DPI success is largely due to UPI's	Highlights the systemic function of UPI in contrast to

& Banerjee, S. (2023)	Int. Conf. on Intelligent Computing & Optimization. Springer.			scalability and interoperability.	the restricted use of debit cards.
Sharma, A., Bhimavarapu, V. M., Kanoujiya, J., Barge, P., & Rastogi, S. (2022)	Financial inclusion—an impetus to the digitalization of payment services (UPI) in India. J. Asian Finance, Economics & Business, 9(9), 191-203.	To examine UPI's contribution to digital inclusivity.	Quantitative and correlation analysis.	Adoption of UPI and bank account penetration were favorably connected.	Empirical evidence regarding the impact of UPI on inclusion.
Kaur, K., & Kaur, M. (2020)	Determinants of diffusion and adoption of ATM cum debit cards in Indian banking sector. Global Business Review, 21(5), 1263-1278.	To identify factors influencing debit card adoption.	Survey-based empirical study.	Convenience, security, and service quality drive adoption.	Explains why, despite their initial success, debit cards now suffer difficulties in comparison to UPI.
Kaur, N. (n.d.)	Status of Debit Card Holders: A Comparative Analysis of Public and Private Sector Banks in India.	To evaluate the issuance and use of debit cards among various banks.	Comparative analysis of public vs private sector banks.	Private banks exhibit more active usage, while public banks issue more cards (PMJDY, RuPay).	Draws attention to the debit card ecosystem's use disparity.
Garg, S., & Agarwal, P. (2014)	Financial inclusion in India - a Review of initiatives and achievements. IOSR Journal of Business and Management, 16(6), 52-61.	To examine early efforts at financial inclusion.	Literature review & secondary data.	PMJDY, RuPay, and ATM-cum-debit cards were crucial in initial access.	Gives historical context; prior to the emergence of UPI, debit cards were early instruments.

Research Gap

With the rapid growth of the Unified Payments Interface (UPI), which has revolutionized digital payments, the usefulness of debit cards in India is becoming less and less clear. In the past, debit cards played a key role in financial inclusion, particularly through the Pradhan Mantri Jan Dhan Yojana (PMJDY) RuPay network, which gave millions of unbanked residents their first taste of formal banking. But in daily transactions, UPI's speed, ease, and popularity have eclipsed the use of debit cards. Although recent research and discussions emphasize UPI's explosive growth, they pay little attention to how this change impacts the function of debit cards in the financial system. This disparity begs the important question of whether UPI has essentially supplanted debit cards as the main digital payment method or if they are still relevant.

3. Research Methodology

This study uses a comparative research design that combines qualitative and quantitative methods to assess how the Unified Payments Interface (UPI) and debit cards, especially ATM-cum-debit and RuPay cards, contribute to financial inclusion in India. While the quantitative study concentrates on statistical trends and adoption patterns, the qualitative component highlights user impressions, usability, and behavioral preferences. Reports from the National Payments Corporation of India (NPCI), which detail UPI transaction volumes, interoperability, and merchant adoption, as well as secondary datasets from the Reserve Bank of India (RBI), which offer insights on ATM withdrawals, debit card penetration, and RuPay adoption, are among the data sources. Furthermore, openly accessible databases like the World Bank's Findex help to comprehend inclusion outcomes from 2015 to 2025 by documenting the shift from adoption powered by debit cards to UPI. The analytical methods used include comparative assessment to determine the relative contributions of UPI and debit cards to account usage, transaction activity, and overall financial inclusion; cross-tabulation to find hybrid adoption patterns across various use cases; and trend analysis for longitudinal tracking of UPI and debit card usage.

4. Evolution of Debit Cards in India

4.1 Pre and Post -UPI Significance of Debit Cards

Debit cards were India's main digital payment method prior to the introduction of UPI (2016). They served to facilitate Point-of-Sale (PoS) transactions and allow ATM cash withdrawals.

- Debit cards quickly spread throughout both public and private sector banks, as evidenced by the fact that there were 553 million in use in March 2016 compared to 135 million in March 2010 (RBI, 2016).
- Debit card usage for retail payments grew, with PoS transactions rising from ₹16,389 crore in FY 2011-12 to ₹2,43,502 crore in FY 2015-16 (RBI, 2016).

Payment System Debit Card: Annual Turnover (April-March)

Table 1: Payment System Debit Card: Annual Turnover (April-March)

Year	Volume (lakh)	Value (₹ lakh crore)
2024-25	16,120.00	5
2023-24	22,860.00	5.9
2022-23	34,179.00	7.2
2021-22	39,384.00	7.3
2020-21	40,146.00	6.61
2019-20	50,611.00	7.04
2018-19	44,143.00	5.9
2017-18	33,434.00	4.6
2016-17	23,993.00	3.3
2015-16	11,736.00	1.6
2014-15	8,081.00	1.2
2013-14	6,191.00	0.9
2012-13	4,691.00	0.7

Source: Annual Reports of the Reserve Bank of India from the Financial Year 2012-13 to 2024-25

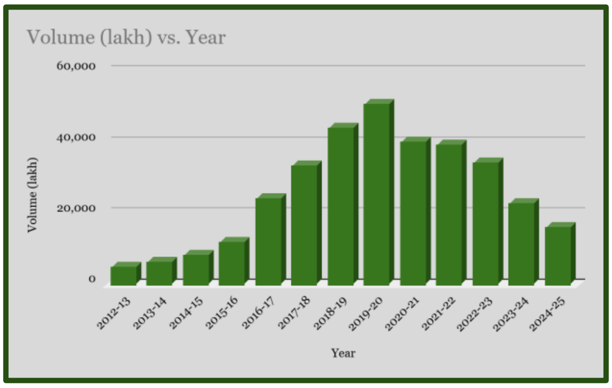


Chart 1: Payment System Debit Card: Annual Turnover in Volume (April-March)
Source: Annual Reports of the Reserve Bank of India from the Financial Year 2012-13 to 2024-25

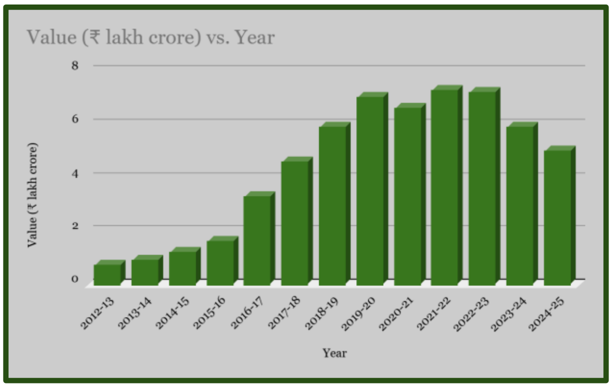


Chart 2: Payment System Debit Card: Annual Turnover in Value (April-March)
Source: Annual Reports of the Reserve Bank of India from the Financial Year 2012-13 to 2024-25

Analysis of Debit Card Transaction Trends in India (2012-2025)

According to the data, India's debit card usage may be divided into three phases. First, during the expansion era (2012-2017), transaction values climbed from ₹0.7 lakh crore to ₹3.3 lakh crore, and transaction volumes increased significantly from 4,691 lakh in 2012-13 to 23,993 lakh in 2016-17. This increase occurs in tandem with the growth of the ATM network and the push for financial inclusion through the distribution of PMJDY and RuPay debit cards.

Second, the peak period (2017-2020) shows the highest adoption, with values stabilizing at about ₹7 lakh crore and volumes reaching a record high of 50,611 lakh in 2019-20. Debit cards were the most popular retail digital payment method during this time, right before UPI became widely used.

Third, the UPI substitution effect is emphasized throughout the decline phase (2020-2025). Between 2019-20 and 2024-25, transaction volumes decreased by over 68%, to 16,120 lakh, while values decreased from ₹7.04 lakh crore to ₹5 lakh crore. The declining trend shows how UPI transactions have surpassed debit cards for both small-value and high-frequency payments, even though the system was resilient during the pandemic (2020-21).

Overall, the trajectory highlights the early use of debit cards for account-linked financial access, but their applicability is waning due to UPI's interoperability and mobile-first design.

4.2 RuPay and Jan Dhan Yojana (PMJDY)

The Pradhan Mantri Jan Dhan Yojana (PMJDY, 2014) and the introduction of RuPay debit cards (2012) were crucial in increasing the use of debit cards:

- More than 136 million RuPay debit cards had been issued by March 2015, most of which were connected to recently opened PMJDY accounts (NPCI, 2015).
- RuPay is the largest domestic card network, with over 600 million cards as of March 2020 (NPCI, 2020).
- In addition to increasing account ownership, PMJDY made sure that every account holder received a RuPay debit card so they could access subsidies, make ATM withdrawals, and conduct PoS transactions.

This successfully turned debit cards into a financial access tool, particularly for the impoverished in rural areas and those without bank accounts.

4.3 Limitations of Debit Cards

Despite their importance in increasing access to finance, debit cards have a number of structural and operational issues that hindered their usefulness as a digital payment method. Since ATMs accounted for more than 88% of debit card transactions in FY 2015-16, their use was primarily limited to cash withdrawals, which limited their ability to promote digital payments (RBI, 2016). With about 220,000 ATMs in India in 2016, the majority of which were located in urban areas, maintaining ATM networks also proved expensive, leaving rural areas underserved and underpenetrated (RBI, 2016).

Furthermore, the RBI reported 16,468 debit card fraud cases between April and September 2016, totaling losses of ₹615 crore, indicating that security concerns constituted a significant obstacle (RBI, 2017). In addition to decreasing efficiency, these structural barriers—ATM reliance, expensive infrastructure, and fraud risks—also sparked questions about customer confidence and the long-term viability of debit cards in promoting financial inclusion.

5. Rise of UPI as a Financial Inclusion Tool

Payment System Unified Payments Interface: Annual Turnover (April-March)

Table 2: Payment System Unified Payments Interface: Annual Turnover (April-March)

Year	Volume (lakh)	Value (₹ lakh crore)
2024-25	18,58,660	260.6
2023-24	13,11,295	200
2022-23	8,37,144	139.1
2021-22	4,59,561	84.2
2020-21	2,23,307	41.04
2019-20	1,25,186	21.32
2018-19	53,915	8.76
2017-18	9,152	1.09
2016-17	179	0.69

Source: Annual Reports of the Reserve Bank of India from the Financial Year 2012-13 to 2024-25

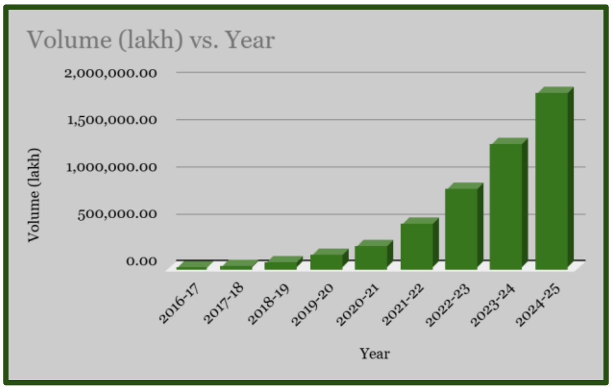


Chart 3: Payment System Unified Payments Interface: Annual Turnover in Volume (April-March)
Source: Annual Reports of Reserve Bank of India from the Financial Year 2016-17 to 2024-25

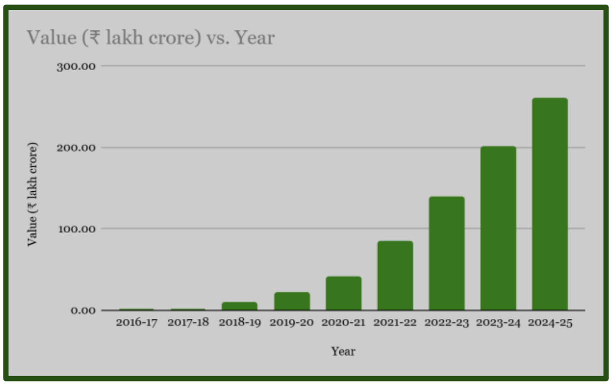


Chart 4: Payment System Unified Payments Interface: Annual Turnover in Value (April-March)
Source: Annual Reports of Reserve Bank of India from the Financial Year 2016-17 to 2024-25

Analysis of UPI Transaction Trends in India (2016-2025)

One of the fastest adoption curves in the history of digital banking may be seen in the trajectory of UPI transactions. Due to its infancy, UPI only recorded 179 lakh transactions totaling ₹0.69 lakh crore in its first year (2016-17). Adoption, however, quickened after demonetization, with volumes rising to 9,152 lakh in 2017-18 and then to 53,915 lakh in 2018-19, representing a compound annual growth rate (CAGR) of more than 500% during this time. The number of transactions increased from 125,186 lakh to 459,561 lakh between 2019-20 and 2021-22, while the transaction value nearly quadrupled from ₹21.32 lakh crore to ₹84 lakh crore. This expansion is a result of the COVID-19 pandemic, which normalized digital payments, as well as greater merchant adoption.

By 2024-2025, UPI has surpassed debit and credit cards by a significant margin and established itself as India's main retail digital payment system with 1,858,660 lakh transactions valued at ₹260 lakh crore. As the foundation of financial inclusion and cashless transactions in India, the data amply demonstrates UPI's scalability, going from specialized use to nearly universal acceptance in just ten years.

5.1 Instant, Interoperable, and Mobile-First Design

By providing real-time, interoperable, and mobile-first payments, the Unified Payments Interface (UPI), introduced by NPCI in April 2016, completely transformed digital banking in India. With just a smartphone and a Virtual Payment Address (VPA), UPI made it possible to conduct smooth peer-to-peer (P2P) and peer-to-merchant (P2M) transactions, in contrast to debit cards that required ATMs or PoS machines.

- Just 17.9 million transactions totaling ₹6,947 crore were handled by UPI in its inaugural year (2016-17) (NPCI, 2017).
- In a single month, UPI processed 9.96 billion transactions by July 2023, totaling ₹15.34 lakh crore, demonstrating its exponential acceptance (RBI, 2023).

This change emphasizes UPI's function as an affordable, expandable digital public infrastructure that promotes financial inclusion.

5.2 Post-2016 Demonetization & COVID-19 Acceleration

The introduction of UPI in India was greatly hastened by two critical occurrences. The first was the demonetization in 2016, which forced people and companies to look for cash substitutes after high-value currency notes were taken out of circulation. Consequently, between November 2016 and March 2017, UPI transactions increased by about 20 times (RBI, 2017). The second pivotal moment occurred during the COVID-19 pandemic (2020-2021), when digital transactions became the favored choice due to lockdowns, social distancing measures, and worries about viral transmission through physical cash.

With more over 300 million users in 2021 compared to just 100 million in 2019, UPI quickly established itself as the accepted payment method during this time (NPCI, 2021). When taken as a whole, these incidents not only spurred widespread adoption but also solidified UPI's position as a pillar of India's digital payment system, outperforming debit cards in terms of daily financial inclusion.

5.3 Innovations Expanding Inclusion

NPCI launched a number of innovations to close gaps and increase adoption:

- **UPI Lite (2022):** Targeting rural and low-connectivity areas, it facilitates offline small-value transactions (≤₹200) without the need for the internet.
- **UPI 123PAY (2022):** Provides 400 million non-smartphone consumers with the ability to transact using IVR, missed calls, and proximity sound-based payments.
- **UPI for International Remittances (2023):** Cross-border payments in collaboration with nations such as the UAE and Singapore (PayNow-UPI linkage), which lowers costs and speeds up remittances.

These developments make UPI a potent instrument for financial inclusion by reaching digitally excluded groups.

5.4 Limitations of UPI

Even with its quick expansion and broad success, UPI still faces significant obstacles that prevent its widespread use. Only 67% of Indians owned smartphones as of 2022 (Statista, 2023), indicating that smartphone penetration is still uneven and that a sizable portion of the population still uses feature phones. UPI's impact in underserved areas is further limited by internet connection, since 41% of rural households lacked connectivity in 2021 (NSSO, 2022).

Digital literacy presents challenges even for connected consumers, since many first-time users in semi-urban and rural areas find it difficult to use UPI apps efficiently and continue to be at risk of fraud. The scope of security and fraud concerns is further supported by the fact that in FY 2021-2022, the RBI received over 95,000 fraud complaints pertaining to UPI (RBI, 2022). When taken as a whole, these problems show that even while UPI has revolutionized digital payments, it will not be able to fully promote inclusive financial empowerment in India unless infrastructural deficiencies, literacy obstacles, and security threats are addressed.

6. Comparative Analysis: Debit Cards vs. UPI

Theme	Debit Cards (ATM-cum Cards)	UPI (Unified Payments Interface)
Accessibility	ATM/PoS dependent; ~11.0B transactions (2023).	Mobile-based; ~83.7B transactions (2023).
Ease of Use	PIN-based withdrawals & PoS; slower for small-value transactions.	QR scans & VPAs; seamless for micro-payments.
Security	Card skimming, cloning risks; ATM fraud cases reported by RBI.	Phishing/social engineering threats; real-time monitoring improves safety.
Inclusivity	PMJDY issued ~340M RuPay debit cards by 2023 (RBI).	UPI scaled from 0.02B transactions (2016) → 83.7B (2023) (NPCI).
Policy & Regulation	RBI promoted RuPay via zero MDR and free issuance in PMJDY.	RBI & NPCI waived MDR (2019); innovations like UPI Lite & 123PAY expanded reach.

Comparative Analysis of UPI vs. Debit Card Transactions (2016-2025)

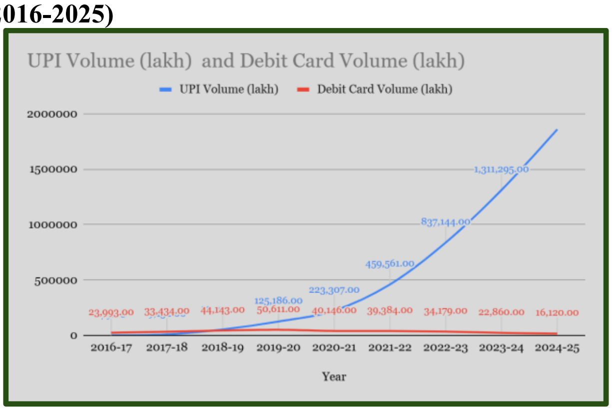


Chart 5: Comparative Analysis of UPI vs. Debit Card Transactions (2016-2025)
Source: Annual Reports of the Reserve Bank of India from the Financial Year 2016-17 to 2024-25

According to the data, India's digital payments environment has drastically changed in the last ten years. Due to its early introduction period, UPI only had 179 lakh transactions in 2016-17, whereas debit cards led with 23,993 lakh. But this disparity was soon closed by UPI's exponential growth: by 2018-19, UPI had already surpassed debit cards for the first time, processing 53,915 lakh transactions, while debit cards handled 44,143 lakh.

After 2019-20, UPI became the undisputed leader. UPI soared from 125,186 lakh in 2019-20 to an incredible 1,858,660 lakh in 2024-25 — approximately 115 times larger than debit card usage in the same year — whereas debit card volumes peaked at 50,611 lakh in 2019-20 and subsequently rapidly decreased. By 2024-2025, debit card volumes had fallen to 16,120 lakh, demonstrating a relative stagnation in customer preference for POS/ATM-based payments.

Debit cards were crucial to financial inclusion prior to 2016, mostly through ATM withdrawals, but UPI has subsequently surpassed them as the main instrument for routine digital transactions, highlighting a structural shift. UPI was able to surpass debit cards, which were still constrained by infrastructure costs and ATM dependence, because to its mobile-first, interoperable architecture and policy push (demonetization, MDR exemptions, PMJDY-linked accounts).

All things considered, the comparison highlights a leapfrogging occurrence in payment systems: India went from cash to debit cards to UPI in less than ten years, making UPI the primary force behind financial inclusion.

Comparative Analysis of UPI vs. Debit Card Transaction Values (2016-2025)

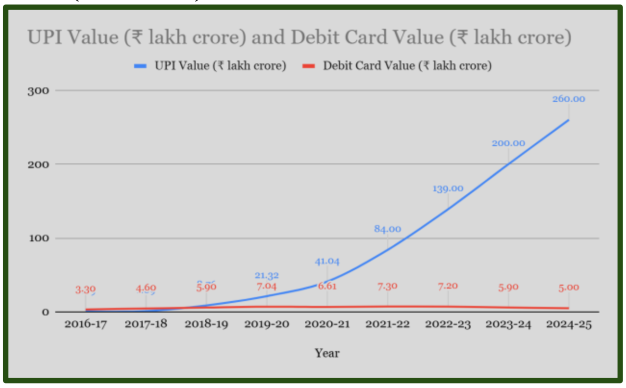


Chart 6: Comparative Analysis of UPI vs. Debit Card Transaction Values (2016-2025)
Source: Annual Reports of the Reserve Bank of India from the Financial Year 2016-17 to 2024-25

The narrative of UPI's supremacy in India's digital payments ecosystem is supported by the transaction value data. Debit cards fared significantly better than UPI in the early years; in 2016-17, they processed ₹3.3 lakh crore, compared to ₹0.69 lakh crore for UPI, which was insignificant. Debit cards were still more expensive (₹7.04 lakh crore) than UPI (₹21.32 lakh crore) as late as 2019-20, although the difference was starting to narrow quickly.

Around 2020-2021, UPI's transaction value (₹41.04 lakh crore) more than six times exceeded that of debit cards (₹6.61

lakh crore). Since then, UPI has dominated the market; by 2022-2023, UPI processed ₹139 lakh crore, far exceeding debit cards' processing of ₹7.2 lakh crore. Transactions using UPI totaled ₹260 lakh crore by 2024-2025, more than 50 times those of debit cards (₹5 lakh crore).

This change demonstrates how streamlined mobile-based digital transactions (UPI) have replaced cash-withdrawal-based usage (debit cards at ATMs/POS). After 2019-20, the transaction values of debit cards stagnated, indicating a decline in customer choice. In contrast, UPI, with the help of government incentives, merchant acceptance, and interoperability, was able to capture both high-value and regular small-value payments.

The value trend essentially highlights how UPI has evolved from a specialized payment method to the foundation of India's retail digital economy, pushing debit cards to the status of an additional cash-access instrument.

6. Hybrid Adoption Patterns

Debit cards are still useful in some situations, especially for cash withdrawals and offline transactions where digital acceptance is still restricted, even if UPI has a resounding lead in digital transactions. However, due to its speed, ease, and compatibility, UPI has emerged as the go-to method for retail payments and peer-to-peer transfers. This illustrates a coexistence paradigm in which UPI serves as the "everyday payments enabler" and debit cards serve as a "gateway to banking" by providing initial financial access. This complimentary usage is demonstrated by data from the RBI and NPCI, as well as survey findings that emphasize how consumers rely on both forms depending on the situation.

7. Policy Implications

1) ATM-Debit Infrastructure: Phase-down or Resilience Backbone?

- ATM-debit cards continue to be essential for accessing cash, even though UPI dominates digital transactions (~83.7B in 2023, NPCI), particularly in semi-urban and rural areas with low smartphone penetration (Pew Research, 2021).
- Policy must strike a compromise between expanding digitally first and preserving ATM networks as a defense against outages, cyberthreats, and gaps in inclusion.

2) Enhancing Financial Literacy for Hybrid Adoption

- In a hybrid usage paradigm, UPI is used for micropayments while debit cards are used for withdrawals.
- Programs for digital financial literacy should be strengthened by the government and banks, with an emphasis on safe transaction procedures (avoid phishing, card fraud, and social engineering schemes).

3) Regulatory Reforms: MDR Waivers & Infrastructure Push

- Although the RBI's zero-MDR policy on UPI has increased merchant acceptability, some contend that it discourages banks and payment providers from making more investments.
- To avoid ecosystem imbalances, policies must strike a balance between the incentives offered by UPI innovations and RuPay debit cards, which are crucial for Jan Dhan beneficiaries.

4) Integration with CBDC (Digital Rupee)

- Some use cases for debit cards may be replaced by UPI-CBDC interoperability after India's CBDC pilot program begins in 2022.
- To guarantee that CBDC enhances rather than replaces the current hybrid payment infrastructure, a tiered regulatory framework will be required.

8. Conclusion

According to the report, UPI has overtaken debit cards as the main force behind financial inclusion in India, marking a significant shift in the country's digital payments environment. Debit cards, particularly RuPay, were essential in the early days of bank account use, but as UPI's convenience, scale, and interoperability increased after demonetization and COVID-19, their significance has decreased. Debit cards are still useful for resilience and cash access in places with poor connectivity, though. To promote a hybrid, inclusive payment environment, a well-rounded policy strategy is necessary.

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