



An Assessment of digital payment trends and their impact on GST collection in India

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Abstract

The study provides the relationship between digital payment trends and GST collection in India. It reveals that the COVID-19 pandemic significantly impacted business and economic activity in the country. Despite these challenges, the study observes a positive relationship between digital payments and GST collection. Moreover, there has been a considerable increase in the volume of digital transactions, even during the COVID-19 pandemic. Compared to the volume of digital transactions, the GST collection has been reduced during the pandemic period. However, there has been a sharp increase in GST collection after the pandemic. Overall, the study concludes that digital payment transactions have emerged as essential tools for enhancing GST collection.

Keywords: Digital payments, GST Collection, COVID-19 Pandemic

Introduction

India has experienced a swift surge in digital technologies, revolutionizing the way people make payments (Kaur and Kumar, 2023) ^[12]. A pivotal advancement in this domain is the Unified Payments Interface (UPI), introduced in 2016 by the National Payments Corporation of India (NPCI) (Raj, 2023) ^[15]. NPCI, established by the Reserve Bank of India (RBI) and Indian Banks' Association (IBA), is a key player in India's digital payment infrastructure. The 2016 demonetization further accelerated the shift towards digital payments (Agarwal *et al.*, 2019) ^[1]. Mobile payment applications utilizing UPI have become indispensable, providing functionalities such as bank statements, fund transfers, and more, all accessible via a mobile device (Donovan, 2012) ^[5]. The simplicity, compatibility across multiple banks, and accessibility of UPI has broadened financial inclusion in India, leading to a gradual decline in cash as the primary mode of payment (Dar, 2023) ^[4]. Various factors, including government schemes for financial inclusion such as Jan Dhan Yojana and Aadhaar, increasing smartphone adoption, and user-friendly digital wallets, have played significant roles in this transformation. UPI, with its convenient and quick fund transfer capabilities, has proven to be a game-changer in this regard (Jani, 2017) ^[11]. This digital revolution offers benefits beyond convenience. It reduces operational costs, increases security against theft, and allows for real-time data analysis for improved financial planning (Atkinson and Castro, 2008 ^[3]; Jameaba, 2020) ^[10]. The introduction of the Goods and Services Tax (GST) in 2017 represented a significant milestone. This tax replaced a complex indirect tax structure with a singular unified tax, with the goal of simplifying administration and removing cascading taxes. By encompassing a larger segment of the economy within the tax framework, GST has the capacity to expand the tax base and enhance government revenue. Additionally, the digital nature of GST transactions facilitates real-time data collection, enabling better tax compliance monitoring and reducing tax evasion (Tiwari and Singh, 2018) ^[21]. The growth of digital payments and GST implementation create a powerful synergy. Digital transactions leave a clear audit trail, making it easier to track the movement of goods and services, leading to better tax

compliance. Moreover, digital payments eliminate the possibility of tax evasion through cash manipulation. This transparency stimulates trust in the system, encouraging businesses to formally register for GST and comply with regulations. However, challenges remain. Concerns regarding digital literacy and internet connectivity in rural areas need to be addressed for broader inclusion. Similarly, the complexities of GST compliance can be daunting for small and medium businesses. Government initiatives for financial literacy campaigns, infrastructure development, and simplification of GST procedures are crucial to address these challenges.

Therefore, the current study seeks to analyze the impact of digitalization on GST collection by examining existing data and its significance in establishing India's financial perspective.

1. Various Digital payment styles in India

Prepaid Credit Cards: Like gift cards, prepaid credit cards are preloaded with funds from an individual's bank account. Users can use these funds to purchase instead of borrowing from the bank. Similar to mobile phone recharges, these cards may be topped up to a certain amount, allowing for recurrent usage.

Debit/RuPay Cards: Debit/RuPay cards are directly linked to an individual's bank account. They may be used at several locations, including stores, ATMs, online wallets, micro-ATMs, and for e-commerce purchases. In India, debit cards exceed credit cards. By December 2015, the number of debit cards had exceeded 630 million, as compared to 22.75 million credit cards in circulation.

AEPS: The Aadhar Card Enabled Payment System (AEPS) uses the unique 12-digit Aadhar Identification Number to enable bank-to-bank transactions at point-of-sale (PoS) terminals. AEPS services include balance inquiries, cash withdrawals, cash deposits, and Aadhar to Aadhar fund transfers.

Online or Mobile Wallets: Online wallets are accessible via the internet and smartphone applications, allowing users to save money within the app by recharging with debit or

credit cards, UPI, and net banking. For consumer wallets, the monthly limit is US\$311 (Rs 20,000), which may be extended to US\$1,554 (Rs 100,000) following Know Your Customer (KYC) authentication. Similarly, the merchant wallet limit is US\$777 (Rs 50,000) monthly with self-declaration and US\$1,554 (Rs 100,000) monthly with KYC verification. These wallets support peer-to-peer (P2P) financial transfers.

USSD: USSD, or Unstructured Supplementary Service Data, is a mobile banking service on GSM networks. It connects to a merchant's bank account and allows payments via cell phone. Customers can pay up to US\$77.68 (Rs 5,000) daily using this service.

UPI: The Unified Payments Interface (UPI) is a system that connects several bank accounts into a single mobile application platform, irrespective of the participating bank. It connects multiple banking functions to simplify fund transfer and merchant payments. Furthermore, UPI facilitates peer-to-peer (P2P) financial transfers, assuring smooth transactions between people.

2. Factors influencing the users of Unified Payments Interface in India

The Unified Payments Interface (UPI) has become increasingly popular in India due to its convenience, accessibility, and ease of use. Several factors influence its adoption and usage among users:

Convenience and Cheap: UPI offers a convenient way for users to make peer-to-peer payments and merchant transactions using their smartphones. Its seamless integration with banking apps allows users to transfer funds instantly without the need to remember or input beneficiary details. There were times when individual often have to part Approx. 5% of the fund in the name of Fund Transfer, while Visa and Master Card are still 1-2% of the fund. NEFT and IMPS are cheaper but, they pinch for the small amount.

Ease of Use: UPI transactions are initiated and authenticated by using simple methods such as mobile numbers, virtual payment addresses (VPAs), or scanning QR codes. This simplicity makes it accessible to users across various demographics, including those who may not be well-versed in digital payments.

Security: UPI transactions are secured through multiple layers of authentication, including MPINs (Mobile Personal Identification Numbers) and biometric verification, ensuring the safety of user data and funds. This enhances confidence among users regarding the security of their transactions.

Government Support and Initiatives: The Indian government has been actively promoting digital payments, including UPI, as part of its broader agenda to drive financial inclusion and reduce cash transactions. Initiatives such as Digital India and demonetization have played a significant role in accelerating the adoption of UPI among users.

Increased Merchant Acceptance: The growing acceptance of UPI payments among merchants, including small and medium-sized businesses, has encouraged users to adopt the

platform for making transactions at various retail outlets, online stores, and service providers.

Cashback and Incentive Programs: Banks and payment service providers often offer cashback rewards, discounts, or other incentives to users for conducting transactions through UPI. These promotional offers act as motivators for users to choose UPI over traditional payment methods.

Innovative Features and Integration: Continuous innovation in UPI services, such as the introduction of new features like UPI Auto-Pay, recurring payments, and integration with other platforms like messaging apps and e-commerce websites, enhances its appeal and utility for users.

These factors collectively contribute to the increasing popularity and adoption of UPI among users in India, making it one of the most preferred modes of digital payment in the country.

Review of Literature

Iyer (2021) ^[9] highlighted that digital payments in India experienced a significant upsurge post-demonetization and have since continued to grow. This momentum has been further fueled by the government's Digital India initiative, which aims to transform the nation into a digitally empowered society and knowledge economy, striving for a "faceless, paperless, and cashless" environment. The convenience of cashless transactions and the emphasis on transparency have been key drivers behind the expansion of digital payments, particularly amidst the pandemic. The study aims to delve into public perceptions of digital payments, evaluate their potential as a future transaction technology in India, and investigate the cybersecurity measures in place to safeguard consumer privacy. Pal and Herath (2020) ^[14] underscored the significance of mobile payment technology in catalyzing socioeconomic advancement through enhanced financial inclusion. They developed a methodology inspired by the concepts of development economists Schumacher (2011) ^[17] and Sen (2001) ^[18], prioritizing affordable technology, straightforward implementation, local relevance, and innovative capacity. Supported by secondary survey data, their field study accentuated the crucial role of mobile payments in sustainable development, emphasizing the imperative of integrating local businesses. Shinde (2019) ^[6] emphasized the digital transformation brought about by GST filing, with the goal of enhancing transparency and efficiency. Saini and Sharma (2019) ^[20] highlighted the importance of GST in driving economic acceleration. Conversely, Vasanthagopal (2011) ^[7] underscored the necessity of GST to streamline tax systems and stimulate economic growth. However, Mawuli (2014) cautioned against the potential adverse effects of GST on countries with lower per capita income due to its comparatively higher tax burden. Khan *et al.* (2015) ^[13] commended digitalization for revolutionizing the Indian economy, improving payment convenience, and fostering connectivity among people. Purohit and Anup (2019) contended that digital payments played a crucial role in reshaping purchasing and selling practices within Indian society following the demonetization period. Their study examined the surge in cashless transactions and the growing adoption of online payment systems. Through an online survey, they

gauged public opinion regarding digital transactions and their broader societal implications. In contrast, Rus *et al.* (2019) [16] delved into the potential risks associated with online payments, particularly in emerging economies like Eastern Europe. They aimed to implement risk management strategies for online payments and develop a framework to address the escalating challenges in the financial sector. Gupta and Asha (2018) [8] highlighted various factors driving the mainstream adoption of digital payments in India, including smartphone penetration, non-banking institutions providing digital payment services, the demand for user-friendly solutions like UPI apps, and supportive regulatory environments. Their research emphasized the importance of addressing security concerns to instill confidence in digital transactions.

After reviewing the literature, it is apparent that there are few studies available on the correlation between digital payment and GST collection. To address this gap, the current study aims to explore the influence of digital

payment on GST collection in India, considering the rising trend of digital payment not only within India but also on a global scale.

Data and Methodology

The current research endeavors to evaluate the evolving Digital Payment Trends and their impact on GST Collection in the India. The digital payments encompass BHIM-UPI, IMPS, NACH, AePS, NETC, debit cards, credit cards, NEFT, RTGS, and PPI through descriptive and conceptual methodologies. The study covers the period from 2017-18 to 2022-23. Charts and tables are used to show trends and growth. Data on GST has been taken from the Reserve Bank of India (RBI) whereas the data on digital payments comes from the National Payment Corporation of India (NPCI) website respectively.

Results and Analysis

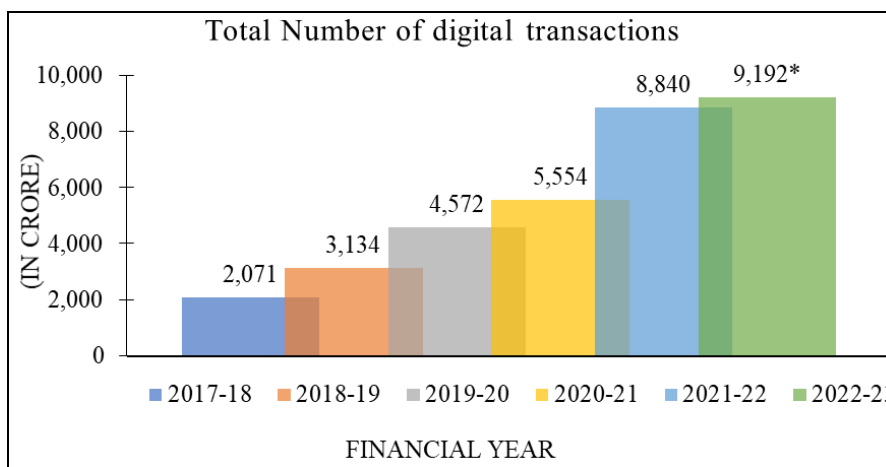
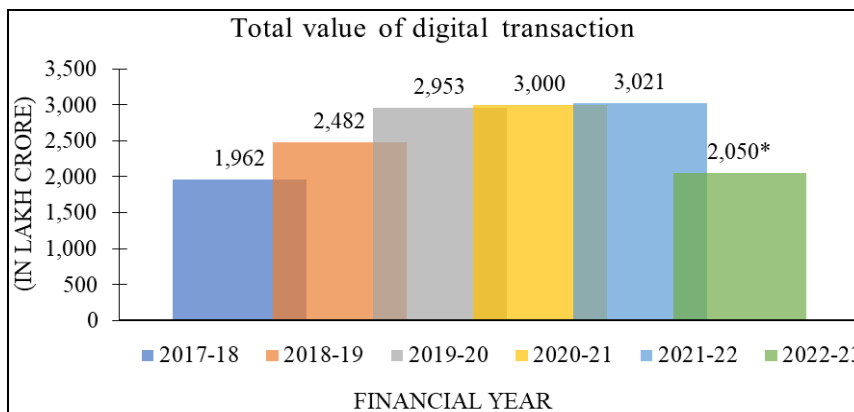


Fig 1: Trend in Number of Digital Transactions

Figure 1 illustrates the upward trend in the number of digital transactions over time. In the fiscal year 2017-18, there were 2.071 crore digital transactions, which increased to 3.134 crore in the following year, and further surged to 9.192

crore in the fiscal year 2022-23. This indicates a consistent rise in transactions over the years, possibly attributed to growing awareness and convenience associated with digital payment methods.

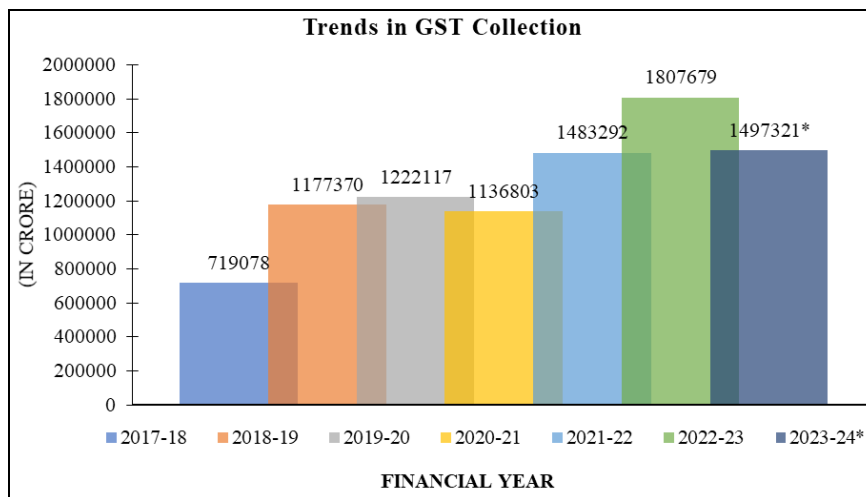


Source: NPCI, * Data till 31st December

Fig 2: Trends in the Value of Digital Transaction

Figure 2 illustrates the fluctuations in the transaction value across different time periods. In the fiscal year 2017-18, the value of digital transactions stood at 1.962 lakh crore. This increased to 2.482 lakh crore in 2018-19. For the fiscal years 2019-20, 2020-21, and 2021-22, the transaction values

remained relatively stable, at around 3,000 lakh crore. It's important to note that the apparent drop in 2022-23 to 2.050 lakh crore might be due to limited data, as only transactions up to December 31st were included.



Source: RBI, * Data till 31st December

Fig 3: Trends in GST Collection

Figure 3 illustrates the evolution of GST collection over time. Beginning at Rs 7,19,078 crore in 2017-18, the total GST collection steadily increased, reaching Rs 12,22,117 crore in 2019-20. However, the collection decreased to Rs 11,36,803 crore in 2020-21, likely attributed to the adverse impact of the COVID-19 pandemic on daily life and businesses. Following this downturn, GST collection rebounded in subsequent years, except for 2023-24, where the collection data only includes transactions until December 31st. Overall, the trend reflects a rise in GST collection over the period, with exceptions during the pandemic-induced downturn.

Table 1: Growth Rate of Digital Payments and GST Collection

Financial Year	No. of Digital Transactions	Value of Digital Transactions	GST Collection
2017-18	-	-	-
2018-19	51.33%	26.50%	63.73%
2019-20	45.88%	18.98%	3.80%
2020-21	21.48%	1.59%	-6.98%
2021-22	59.16%	0.70%	30.48%
2022-23	3.98%*	-32.14%*	21.87%
2023-24	-	-	-17.17%*

Source: Author Calculation, * Data till 31st December

In this section, we have calculated the growth rate of Digital Payment and GST Collection. Table 1 show that from 2018-19 to 2021, there is a diminishing pattern in the growth rate of digital payment and GST collection. In 2021-22, the growth rate of no. of digital payments increased to 59.16%, while the growth rate of the value of digital transactions diminished to 0.70%. The growth rate of GST collection has risen to 30.48% and again fell to 21.87% in subsequent years; for the annual comparison, data must be complete for digital payments in 2022-23 and GST collection in 2023-24. Hence, overall, it shows a diminishing growth rate but is positive in the initial three years. The growth rate of GST collection reached negative 6.98% in 2020-21. The pandemic may be the reason for this negative growth of GST collection.

In this section, we have analyzed the growth rates of Digital Payment and GST Collection. Table 1 reveals a diminishing trend in growth rates from 2018-19 to 2021 for both digital payment and GST collection. However, in 2021-22, there

was a notable increase in the growth rate of digital payments, reaching 59.16%, while the growth rate of the value of digital transactions slightly decreased to 0.70%. The growth rate of GST collection rose to 30.48% but fell again to 21.87% in subsequent years. For accurate annual comparisons, complete data for digital payments in 2022-23 and GST collection in 2023-24 are necessary. Overall, the trend indicates diminishing growth rates, albeit remaining positive in the initial three years. Notably, the growth rate of GST collection plummeted to -6.98% in 2020-21, likely attributable to the adverse effects of the pandemic.

Conclusion

The analysis of available data indicates that digital transactions have become pivotal in enhancing GST collection. Between 2017-18 and 2022-23, there has been a notable increase in both the penetration of digital transactions and GST collection in India, except during the COVID-19 period. Despite the pandemic, there was a considerable rise in the volume of digital transactions. Notably, there was a significant improvement in GST collection in the period 2021-22, despite the challenges posed by COVID-19. Although there was a temporary setback during the pandemic, overall trends in GST collection have displayed an upward trajectory. However, during the 2020-21 pandemic periods, GST collection declined to Rupee. 11,38,803 crore due to the substantial disruption in economic activities. This decline underscores the pandemic's impact on GST revenues. Analyzing the growth rates of digital payments reveals a continuous decline, except for the number of digital payments in FY 2021-22, which remained positive. In contrast, the growth rate of GST collection exhibited significant fluctuations, starting at 63.73% in 2018-19, declining in 2019-20 and 2020-21 due to the pandemic, then rebounding to 30.48% in 2021-22 and 21.87% in 2022-23. This suggests a positive correlation between digital payments and GST collection, as the increase in digital transactions correlates with higher GST revenues.

References

1. Agarwal S, Ghosh P, Li J, Ruan T. Digital Payments Induce Over-Spending: Evidence From The 2016

- Demonetization in India. Unpublished Manuscript, 2019.
2. Agogo Mawuli. Goods and Service Tax- An Appraisal. Paper Presented At the PNG Taxation Research and Review Symposium, Holiday Inn, Port Moresby, 2014, 29-30.
 3. Atkinson RD, Castro D. Digital Quality of Life: Understanding the Personal and Social Benefits of The Information Technology Revolution. SSRN, 2008. Available at: SSRN 1278185.
 4. Dar SA. The Dawn of Digital Payments: Revolutionizing India's Financial Landscape. *LC International Journal of STEM*, 2023;4(3):82-98.
 5. Donovan K. Mobile Money for Financial Inclusion. *Information and Communications for Development*, 2012;61(1):61-73.
 6. Shinde M. A Study of Impact and Challenges of GST on Various Constituents of Indian Economy. *International Journal of Research and Analytical Reviews*, 2019;6(1).
 7. Vasanthagopal R. GST In India: A Big Leap in the Indirect Taxation System. *International Journal of Trade, Economics And Finance*, 2011, 2(2).
 8. Gupta D, Asha. Digital Payments Revolution in India. *Digitalization*, 2018:137-139.
 9. Iyer VM. Digital Payments the Future of India. Lessons to Be Learnt From COVID Pandemic: Significance of Incorporating Inevitable Changes in Diverse Sectors, 2021:21.
 10. Jameaba M. Digitization, Fintech Disruption, and Financial Stability: The Case of the Indonesian Banking Sector. *Social Science Research Network*, 2020.
 11. Jani S. Mobile Payments in India, 2017.
 12. Kaur H, Kumar S. India's Digitalization: Trends and Challenges Shaping the Future. *India@ 75: Presidency of G20*, 2023, 190.
 13. Khan S, Khan S, Aftab M. Digitization and Its Impact on Economy. *International Journal of Digital Library Services*, 2015;5(2):12.
 14. Pal A, De R, Herath T. The Role of Mobile Payment Technology In Sustainable and Human-Centric Development: Evidence From The Post-Demonetization Period In India. *Information Systems Frontiers*, 2020;22(3):607-631.
 15. Raj A. Consumer Perception on UPI. Doctoral Dissertation, 2023.
 16. Rus A, Rovinaru M, Rovinaru F, Mihut M. Dealing with E-Payments: Risks and Opportunities. *Managerial Challenges of the Contemporary Society. Proceedings*, 2019;12(1):1-4.
 17. Schumacher EF. *Small Is Beautiful: A Study of Economics As If People Mattered*. Random House, 2011.
 18. Sen A. *Development as Freedom*. OUP Oxford, 2001.
 19. Sheetal JU, Purohit DN, Anup V. Increase in Number of Online Services and Payments through Mobile Applications Post Demonetization. *Advances In Management*, 2019;12(1):34-38.
 20. Saini S, Sharma MK. Awareness and Impact Of GST Among Small Business Owners: A Study of Mandasaur City In M.P. *Indian Journal of Accounting*, 2019, 51(1).
 21. Tiwari H, Singh SN. Goods and Service Tax: Economic Revival of India. *Paradigm*, 2018;22(1):17-29.