



Role of GST in growing Digital payment adoption as a tool for financial inclusion in India

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Abstract

The Goods and Services Tax (GST) is one of the biggest tax reforms in India after independence, implemented on 1st July 2017. GST has transformed the India's indirect taxation system. The introduction of GST has marked as significant structural reform aimed to formalizing the economy and improving tax compliance. Simultaneously, India has witnessed rise in digital payments, driven by policy initiatives and financial inclusion programs. This study examines the role of GST in growing digital payment adoption and its contribution to financial inclusion in India. This study analyzes the relationship between GST revenue and digital payments by using secondary data from RBI, NPCI website, Government Reports, and Press Reports. The study employs correlation analysis to examine the relationship between GST revenue and digital payment growth and comparative analysis by applying key indicators like digital payment adoption, financial inclusion index, GST revenue collection, the data is collected for the study from 2009-10 to 2024-25 and divide the period into pre-GST period and post-GST period. The findings of the study reveal as strong positive relationship between GST revenues and digital payment adoption, indicating GST has acted as a catalyst for formal financial inclusion. The study concludes that GST and digital payments together has significantly enhanced financial inclusion in India.

Keywords: GST, Financial Inclusion, Digital Payments, UPI, NPCI.

Introduction

The financial system of India has undergone rapid transformation after 2017. In the year 2017 the Goods and Services tax was implemented, which replaced state levies, services tax and VAT with a single tax structure thereby transformed country's indirect taxation system by simplifying tax compliance, reduce tax evasion and created a business-friendly environment. Under GST e- registration, electronic filing of tax returns, digital invoicing, and maintaining electronic ledger are mandatory which compelled business to adopt digital¹.

The digital compliance requirements of GST such as e-filing, e-invoicing, and online tax payments have encouraged businesses to adopt digital payment systems. This shift has been especially significant for small and medium enterprises (SMEs), which have had to modernize their operations to meet new regulatory standards¹. After 2017, businesses are rapidly using the UPI, IMPS, Debit Cards, Credit Cards, Net Banking, and Mobile Wallets for payments to fulfill their tax duties and complete transactions². This digital tax system indirectly accelerated the adoption of digital payments. The adoption of digital payment platform influences the government's goal of cashless economy and financial inclusion goal. This study explores the role of GST in growing digital payment adoption as a tool for financial inclusion in India.

Review of literature: Abid Hussain, Rizwan Qasim³ their study on "an Assessment of digital payment trends and their impact on GST collection in India" examine the relationship between digital payment trends and GST collection in India and found that digital transactions have become pivotal in enhancing GST collection and digital payment transactions have emerged as essential tools for enhancing GST collection.

Akki Maruthi⁴ in his study on "Digital Payment System Maturity and Macroeconomic Foundations: An Empirical Analysis of GST Determinants in India" examine the role of digital payment system maturity alongside macroeconomic fundamentals as determinants of India's GST revenue. The result of the study revealed that Digital payments should be viewed as a transparency tool, not a direct revenue source.

Bhargavi Pail and Dr. C K Suresh⁵ their study on "Impact of GST Notices via UPI Payments on Cash Usage among Small Vendors" finds that GST notices linked to UPI transactions have substantially influenced the behavioral patterns of small vendors in Bengaluru. Despite acknowledging the efficiency and convenience of digital payments, vendors demonstrated a strong inclination toward cash due to fear of penalties, legal complications, and unclear compliance obligations.

Srishti Chandel and Saumya Chandel⁶ examine the drivers of digital payment adoption using the Theory of Planned Behavior (TPB), a well-established framework for understanding technology adoption along with individual decision-making and found that attitude toward digital payment systems and PBC have significant impacts on the intention to use these systems, while subjective norms play an insignificant role. Moreover, behavioral intention strongly predicts financial inclusion, and the mediating role of trust further strengthens this relationship⁶.

U. Homiga and Prishitha S W¹ their study investigates the impact of GST on the growth of digital payments in India, focusing on how GST-driven compliance requirements have accelerated digital transactions among businesses and consumers and the results indicate that GST has reinforced digital payment usage by embedding digital compliance into business operations and promoting transparency.

Ozili, P. K⁷. in his paper “Impact of Digital Finance on Financial Inclusion and Stability”, Ozili argued that digital payments can enhance financial transparency and efficiency, especially in informal economies. However, without infrastructure and policy alignment, benefits remain limited.

Chawla⁸ examines the role of digital payment adoption in enhancing operational efficiency among unorganized retailers, through its influence on sales volume and inventory management efficiency.

Dharam Dev⁹ examines how UPI is reshaping the Indian banking industry and informs strategic decision-making processes and promotes a proactive approach to maximizing the potential of UPI for the benefit of financial service providers and end-users.

The several studies have examined the digital payments and financial inclusion independently and their limited research which directly connects GST with digital payment growth. This study attempts to fill this gap and the study will examine the role of GST in growing digital payment adoption as a tool for financial inclusion in India.

Objectives of the study: i. To analyze the growth of digital payments in India post-GST implementation. ii. To examine the relationship between GST implementation and digital payment

adoption. iii. To assess the role of digital payments in financial inclusion. iv. To identify the challenges in achieving financial inclusion through digital payments.

Methodology

The present study adopts an analytical and descriptive research designed to examine the role of GST in growing digital payment adoption as a tool for financial inclusion in India. The study is based on secondary data sources. The relevant data have been collected from NPCI official website, RBI reports on financial inclusion, ministry of finance for digital payment statistics, Government GST revenue reports and NABARD financial inclusion survey reports. The study covers a time period from 2017-18 to 2024-25, as in the year 2017 the GST was implemented in India and digital payments expanded rapidly from 2018 onwards. The trend analysis, percentage growth rate, correlation analysis and graphical analysis have been employed to analyze the collected data.

Results and Discussion

Growth Analysis of Digital Payments: Results are mention as in following Tables.

Table-1: Digital Payment Transactions and GST Revenue¹⁰⁻¹⁴.

Year	Gross GST Revenue (Rs. lakh crore)	Digital Payment Transactions (in lakh crore)	UPI Transactions (in lakhs crore)
2017-18	7.19	1962	1
2018-19	11.77	2482	9
2019-20	12.22	2953	21
2020-21	11.37	3000	41
2021-22	14.83	3021	84
2022-23	18.1	3355	139
2023-24	20.18	3659	200
2024-25	22.08	4,580	233

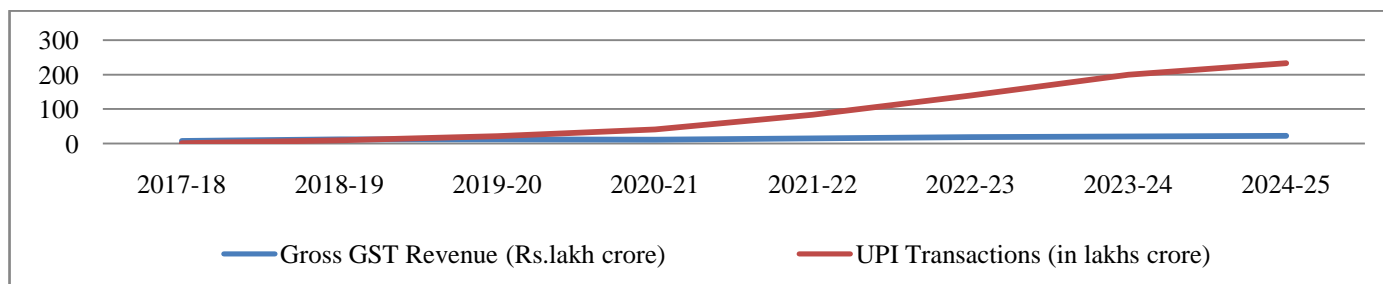


Figure-1: Growth Analysis of Digital Payments¹⁰⁻¹⁴.

The Table-1 and graph reveal that a consistent upward trend in both GST revenue and digital payments transactions in India from 2017-18 to 2024-25. The gross GST revenue increased from Rs.7.19 lakh crore in 2017-18 to Rs. 22.08 lakh crore in 2024-25, indicating improved tax compliance. The digital payment transactions rose from 1962 lakh crore to 4580 lakh crore showing rapid adoption of digital payment modes. This shows that the implementation of GST has encouraged business to adopt digital systems for invoicing, tax filing and payments thereby increasing the use of digital platforms which are the tools of financial inclusion.

Correlation Analysis: To examine the relationship between GST implementation and digital payment adoption, the study uses GST revenue as the independent variable and UPI digital payment transaction as dependent variable⁹. GST revenue reflects the degree of tax compliance where as digital payment transactions indicate the level of financial inclusion. The relationship between these variables is examined using Pearson’s correlation coefficient. In which GST Revenue is denoted by X and UPI transactions is denoted by Y¹⁵.

Table-2: Gross GST Revenue and UPI Transactions¹⁴⁻¹⁶.

Year	Gross GST Revenue (Rs. In lakh crore) (X)	UPI Transactions (in lakhs crore) (Y)
2017-18	7.19	1
2018-19	11.77	9
2019-20	12.22	21
2020-21	11.37	41
2021-22	14.83	84
2022-23	18.1	139
2023-24	20.18	200
2024-25	22.08	233

The Pearson correlation coefficient between GST revenue (X) and UPI transactions (Y) is: $r = 0.97$.

The correlation coefficient of $r=0.97$ means strong positive correlation, it indicates that a very strong positive relationship between GST revenue and digital payment transactions. This suggests that increase in GST revenue is associated with growth in digital payments and GST has contributed to the growth of digital payments in India.

Comparison of Pre-GST and Post GST Period in India: The following Table-03C presents a comparative analysis based on the above tables and figures of Pre-GST and Post-GST periods, it highlights how GST has contributed to improving tax

compliances, encouraging digital payments thereby enhancing tax revenue performance.

Table-3A: Pre-GST digital transactions¹².

Year	Digital Payment Transactions (in Crore)
2010-11	50.2
2011-12	67.8
2012-13	93.2
2013-14	127.7
2014-15	181.6
2015-16	292.8
2016-17	595.7

Table-3B: Indirect Tax Collection during Pre-GST and Post-GST¹³⁻¹⁵.

Pre-GST		Post-GST	
Year	Indirect Tax Collection	Year	Gross GST Revenue (in crore)
2009-10	245367	2017-18	740650
2010-11	345127	2018-19	1177368
2011-12	391232	2019-20	1222116
2012-13	474767	2020-21	1136805
2013-14	495541	2021-22	1483291
2014-15	545680	2022-23	1807680
2015-16	708013	2023-24	2018249
2016-17	866109	2024-25	2208000

Link between GST and Digital Payments: The effective and strong functioning of a tax system depends largely on the technological advancements and digital ecosystem of the economy. The key attributes of any taxation system include registration; return filing, invoicing, refund mechanism. The adoption of technology to these key attributes increases the tax compliance. GST encourages the E-invoicing, Input Tax Credit tracking online registration, return filing and refund of excess tax paid. GST portal enables the taxpayers to pay tax online and online return filing mechanism. GST encourages businesses to adopt digital payment methods, bringing informal transactions into the formal financial sector. The payment system under GST

is digitized and the digitized nature of GST payment allows for real time monitoring data collection. It is important to note that the GST is not levied on the UPI transactions. Thus, GST

indirectly pushes business towards digital payments and digital payment tools help the small business keep better records, which facilitates easier filling of GST returns.

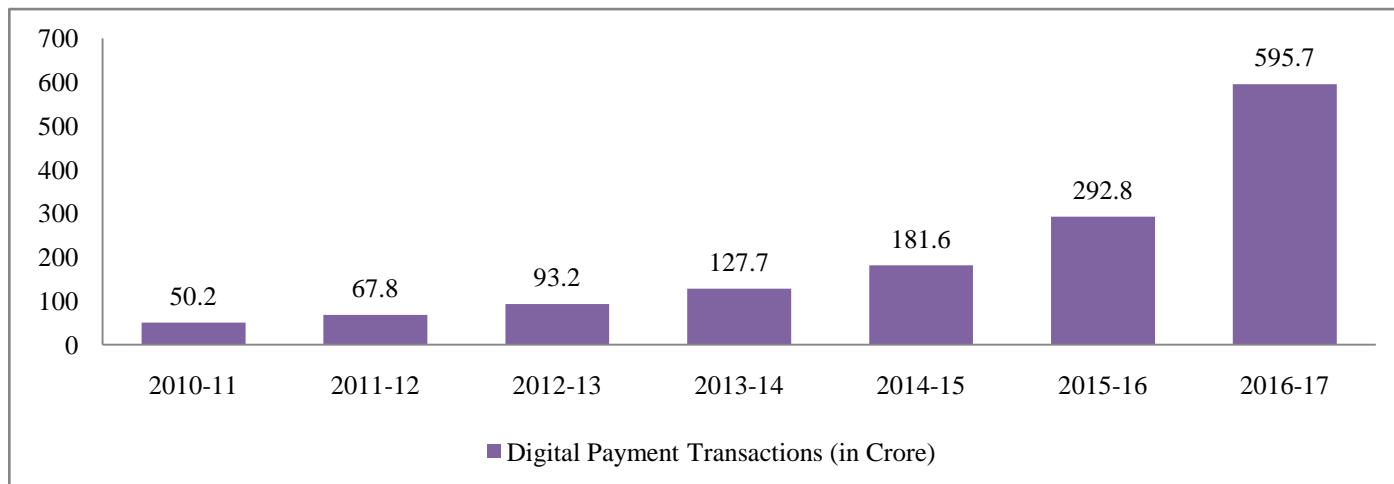


Figure-2: Pre-GST digital Transactions¹².

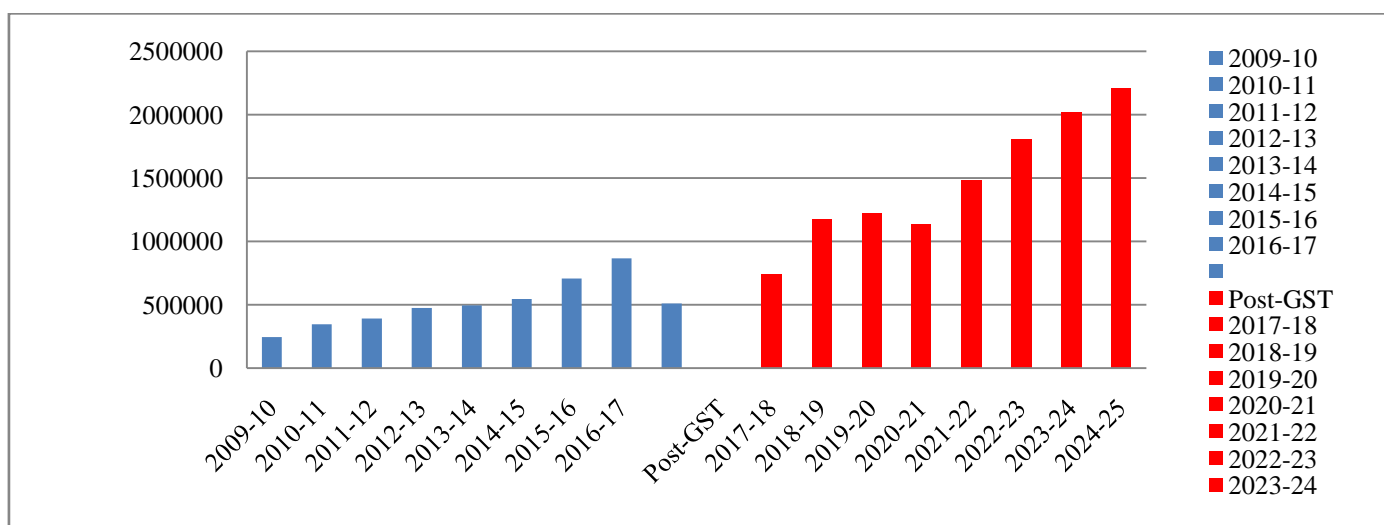


Figure-03: Pre-GST and Post-GST Indirect Tax Collection¹³⁻¹⁵.

Table-3C: Comparison of Pre-GST and Post GST Period in India.

Indicator	Pre-GST (Before 2017)	Post-GST (After 2017)
Digital transactions	During Pre-GST period from 2010-11 the digital transactions mainly card payments and IMPS have low growth	Whereas after implementation of GST and its electronic compliance requirements increase the number of digital transactions.
Tax compliance	Due to complex indirect tax structure before GST reduces the tax compliance	Whereas simplified, comprehensive tax structure and the one nation one tax as GST improved tax compliances.
Digital payment adoption	The pre-GST period witnessed limited adoption of digital payment platforms.	The GST framework and its electronic compliance requirements mandate the widespread adoption of digital payments.
Tax Revenue Collection	The average tax collection increased 65% from pre-GST period (2009-10 to 2016-17) to post GST period (2017-18 to 2024-25)	

Table-4: Digital Payment Growth and Financial Inclusion in India^{11-13,17}.

Year	UPI Transactions (million)	IMPS Transactions (Million)	AEPS Transactions (Million)	Financial Inclusion Index ¹⁷
2017	18	5070	401	43.4
2018	915	5970	972	46
2019	5,350	7260	1420	49.9
2020	12,520	8310	2270	53.1
2021	22,330	9410	3200	53.9
2022	45,960	9880	3960	56.4
2023	83,710	10280	4200	60.1
2024	131,130	10500	4450	64.2

The RBI's Financial Inclusion Index (FI Index) shows marked improvement¹⁶. The FI-Index rose from 43.4 in March 2017 to 53.9 in March 2021, and further to 60.1 in March 2023 and 64.2 in March 2024. It indicates that the digital payments act as a key driver of financial inclusion.

Findings of the study: The study reveals a significant increase in Gross GST revenue from 7.19 lakh crore in 2017-18 to 22.08 lakh in 2024-25 and digital payment transactions increased from 1962 lakh crore to 233 lakh crore. It shows that there is a consistent growth in GST revenue and digital payment transactions, indicating that GST implementation has contributed to the expansion of digital payments in India thereby accelerating the financial inclusion.

The Pearson correlation coefficient between GST revenue (X) and UPI transactions (Y) is: $r = 0.97$. It indicates that higher the tax compliance under GST law is associated with increased usage of digital payment platforms like UPI, IMPS, AEPS and card payments.

The findings of the study also revealed that the pre-GST period 2010-11 to 2016-17 showed slow growth in digital payments and digital payments were mainly limited to card payments. Whereas the post-GST period 2017-18 to 2024-25 witnessed rapid increase in digital transactions, especially through UPI, IMPS, AEPS and card payments. The GST has led to simplified indirect tax structure which is encouraging digital compliance, which in turn accelerated digital payment adoption.

Overall, the study indicates that, the fully digital system of GST acted as a catalyst for digital transformation and compelling businesses to adopt digital payments methods and maintain electronic records encourages businesses to adopt banking system and digital modes of payments such as UPI, IMPS, AEPS and card payments for compliance and efficiency. This in

result GST indirectly facilitates financial inclusion by promoting digitalization.

Based on the above findings the following suggestions are proposed. a. The government should improve internet connectivity and provide better infrastructure which will enhance digital payment adoption and support GST compliance. b. The digital literacy should be enhanced because improved digital literacy will increase user confidence and participation in digital transactions. c. Implementation of strong cyber security measures to protect digital transactions.

Conclusion

The study concludes that Goods and Services Tax (GST) has played a significant role in promoting and accelerating digital payments in India. GST has played transformational and indirect role in promoting digital payments. The strong positive correlation between GST revenue and digital payment transactions highlights the interdependence of GST taxation system and digitalization. GST has enhanced the reliance on digital financial system with the initiatives like UPI, IMPS, AEPS and Digital India has significantly advanced financial inclusion. With appropriate digital infrastructure development, policy support, digital literacy and strong cyber security measures, GST can continue to strengthen India's digital economy.

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