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Unleashing the Digital Revolution: Analyzing the Surge in Digital Payments Adoption in India

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Abstract

With 1.3 billion people—or almost 18% of the global population—India is the second-most populous country. To meet the needs of an expanding population in terms of financial services, a digital payment system that is both efficient and sustainable over the long run is essential. The advantages of digital payment include convenience, anonymity, and adaptability. The growth of digital payments in relation to the size and value of operations from 2012–2013 to 2018–2019 is the primary focus of this research study. Digital payments as a whole have grown in volume (24.11% increase) and value (15.84%) throughout the last few years nationwide, according to the study. More than 28,000 lakh transactions, totaling over INR 15,20,000 billion, would likely take place in the country's digital payment system between 2020 and 2021.

Keywords:Payment&Clearingscheme,DigitalPayment,Retailpayment,Cashlessbudget

Introduction

Indian banks are always innovating with the help of cutting-edge tech to improve the online banking experience for its customers in terms of ease, security, accessibility, and customisation. Also, it's becoming faster and better at what it does. The expansion and modernization of the payment system has led to more transparency and accountability, cheaper transactions, and a broader casual budget. Also, especially in rural India, it has sped up financial growth and reduced overall dishonesty. Numerous significant changes have been implemented in India's financial sector within the last thirty years. Changes in the financial services industry occurred in the 1990s as a result of the significance of deregulation, competition, and the adoption of global best practices. In a 1998 essay titled "Payment Systems in India," the Reserve Bank of India (RBI) laid out its plans for the integration, growth, and consolidation of India's various payment systems. The purpose of the Payment and Settlement Systems Act, which was passed in 2007, is to ensure that the payment and settlement system in the country is secure, reliable, efficient, easily accessible, and authorised.

To increase financial inclusion, the RBI must devise a strategy to protect the benefits of a modern, organised payment and settlement system, including innovative items, so that they may reach more people than now have access to them (Vision Document 2012–2015). Acquisition hopeful engagement in the payment system over several apparition periods led to this action. In 2015, the Indian government unveiled the groundbreaking initiative "Digital India" with the aim of transforming the country into a knowledge-based economy and society. Digital India's mission includes facilitating "Faceless, Paperless, Cashless" transactions. Some of the positive outcomes of the advancements between 2015 and 2018 include the introduction of new and innovative technologies, a notable shift from paper to electronic payment modalities, a considerable increase in transaction turnover, initiatives focused on the customer, recognition on an international scale, and so on. Government actions such as the Goods and Services Tax law's approval in 2017 and the demonetization of high-denomination currency notes in 2016 have further increased digital use.

ReviewofLiterature

In his study, Rajat Deb (2020) studied family financial habits before and after the introduction of mobile applications. The current study indicated that compared to the previous time, using mobile apps increased financial and financial decision-making by almost 50%.

Digital payments have an effect on real GDP, a measure of economic growth, according to the study of Ravikumar et al. (2019). According to the researchers, out of all the kinds of digital payment, only retail electronic transactions considerably boost real GDP in the short term.

However, when looking at the long term, retail digital payment has almost no effect on real GDP. Also, in the long run, digital payments in general and retail electronic payments in particular won't have much of an impact on India's economic growth.

Affordability is the biggest problem for digital media consumers and businesses, according to Richard Reisman (2019). The writer observed that merchants and purchasers are still engaged in the "FairPay" game. Even more so, since it improves upon the existing Business to Consumer (B2C) sector, Fairpay is an innovative approach to solve problems.

In their 2018 article, David et al. considered the pros and cons of implementing distributed ledger technology (DLT) into the payments and settlements system over the long run. Based on the findings, DLT has the potential to be used for a variety of new processes, including but not limited to: identity management, cross-border payments, digital asset ownership transfers, immutable and secure data storage, development and clearance, and more.

Digital wallet adoption and familiarity were the subjects of a 2017 descriptive and analytical research by Jubair and Yakoob. While almost half of respondents in both urban and rural areas were aware with digital wallets, those in the former were more likely to accept and utilise them.

According to Shendge, Shelar, and Kapase (2017), there will be positive and negative effects of India's transition to a cashless economy. However, the positive effects may outweigh the negative ones.

According to Padashetty and Krishna Kishore (2013), the adoption of digital payment systems, particularly mobile payments, has been influenced by factors such as the perceived value, ease of use, trust, and communication.

The research by Hasan et al. (2012) looks at the European area's economic development from 1995 to 2009 and how retail payments relate to that growth. Here we show that switching to electronic retail payments boosts consumption, trade, and overall economic development. Card payments, followed by credit transfers and direct debits, have the strongest correlation among the various retail payment methods.

Even while innovations in retail payments raise the prospect of a cashless future, Papadopoulos (2007) acknowledged that innovations in electronic money (e-money) provide novel solutions, enhance simplicity, and decrease expenses. Cash has always been and will continue to be the most convenient, covert, and inexpensive option for small-value transactions because of its long history of use.

Objectives of the study

- To learn how digital payments are growing overall in India and
- To examine different kinds of digital payments are growing at different rates.

Research Methodology

Over the course of seven fiscal years, from 2012–2013 to 2018–2019, this study tracks the overall growth of numerical expenditures in India and in a few specific categories. In order to analyse the growth performance during the research period, seven different restrictions were taken into account: RTI client transactions, CTS, IMPS, debit and credit card, M-Wallet, and PPI cards. The size and value of the connections involved were also analysed. The results of the research were derived via several statistical tests, including the mean, the CGR, the CV, the AGR, the straight line trend, the Kruskal Wallis $\chi 2$ test, and the post-hoc comparison test.

Limitations of the Study

This study only covered seven types of digital payment methods in order to measure patterns in growth throughout the research period.

Discussions and Analysis

Increase in Total Digital Payments

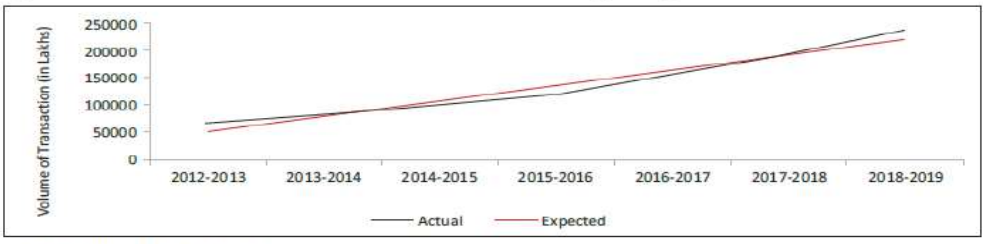
The overall growth of digital payments, measured in terms of both volume and value, is seen in Table 1.

Table1:Increase in Digital Payments in India as a Whole

	Digital Payments in India	
Reference Period	Volume of Transactions(in lakhs)	Value of Transactions (Rs. In crores)
2012-2013	65,812	553,51,198
2013-2014	80,353	640,61,822
2014-2015	98,695	724,00,501
2015-2016	120,593	802,26,850
2016-2017	157,412	959,12,592
2017-2018	190,858	1164,68,676
2018-2019	236,484	1329,05,595
2019-2020*	248,850	1397,59,460
2020-2021*	277,126	1526,51,924
Mean	135,744	881,89,605
CV (%)	45.82	32.18
CGR (%)	24.11	15.84
*Forecast		

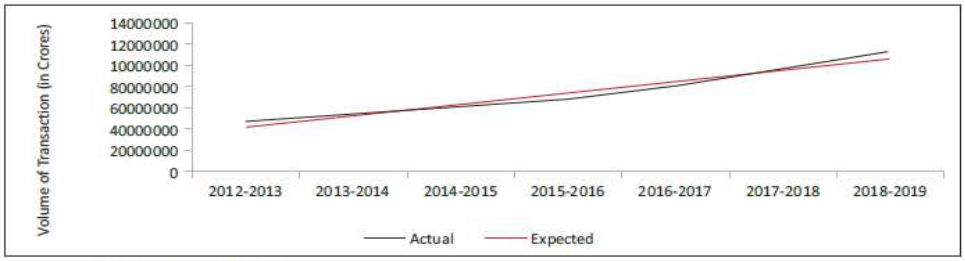
Online payments in India are on the rise, according to Table 1. This is true in terms of both volume and value of transactions. During the study period, an average of 135,744 lakh actions each year generated digital payments valued INR 881,896.05 billion (CV 32.18%). There was a 24.11% increase in the number of activities inside the country's electronic payment system and a 15.84% increase in the value of activities, according to the compound growth rate of research from 2012–2013 to 2018–2019. Moreover, projections indicate that by 2020–2021, the value of digital payments would reach INR 1526,519 billion, with a number of transactions close to 28,000 lakhs, reflecting rises of 17.19 percent and 14.86 percent, respectively. Electronic payment volume growth was less rapid than anticipated during 2014–2015 and 2017–2018. From 2018–2019 forward, it has been steadily rising (refer to Figure 1). When looking at the value of digital payment transactions, the overall growth rate in 2012–2013 and 2013–2014 was higher than anticipated, but it has been on the rise since 2017–2018 (see Figure 2).

Figure 1: Growth Movement in Volume of Transactions in Digital Payments



Source: Reports from Reserve Bank of India

Figure 2: Growth Movement in Value of Transactions in Digital Payments



e *Source: Reports from Reserve Bank of India*

The use of digital payments is growing and spreading to new industries.

The average increase in volume and value of digital payment transactions for each category is

shown in Table 2, covering the reference period from 2012-2013 to 2018-2019.

Table 2: Growth of Digital Payments across categories

Mode	Volume of Transactions (in lakh)		Value of Transactions (Rs. In crore)	
	Mean	CGR (%)	Mean	CGR (%)
RTGS Customer Transactions	971.93	12.41	78422569	15.37
Cheque Truncation System (CTS)	8787.50	22.26	6259320	20.44
Immediate Payment Service (IMPS)	5121.72	213.93	446401	257.16
Credit Cards	9430.24	28.79	302543	30.6
Debit Cards	95308.32	16.18	2685933	13.43
M-Wallet	13992.05	127.73	54035	142.05
PPI Cards	2132.11	72.46	18805	48.44

Source: Reports from Reserve Bank of India

Based on the data in Table 2, the most common digital payment methods are debit cards, M-Wallets, and credit card payments, with RTGS, CTS, and debit cards accounting for the largest percentages when discussing transaction volume. The amount and value of electronic payments have grown in the last seven years. The nation's quantity and value of transactions involving digital payments increased from 2012-2013 to 2018-2019, hence the CGR across all forms of electronic payments shows positive development. When compared to other types of digital payment systems, IMPS and M-Wallet services had the greatest rates of growth for both characteristics throughout the study period.

A rise in the total number of digital payments made

Table 3: Mean Ranks in Volume of Digital Payment Transactions

Digital Payments	Mean Rank	
RTGS	10.50	χ^2 23.993**
CTS	13.00	df = 6
IMPS	35.33	p<0.01
Credit Card	21.83	
Debit Card	13.50	
M-Wallet	33.83	
PPI Cards	22.50	

** Sig. at 1% level; *Sig. at 5% level; NS = Not Significant

Source: Reports from RBI

Table 3 indicates that there is statistical significance at the 1% level for the estimated result of the Kruskal Wallis test (χ2 23.993**; p<0.01; df 6). Therefore, it may be concluded that the null hypothesis is false. The data reveals that there was a significant disparity in the growth rates of transaction volumes for the various digital payment methods.

Growth Rates of Different Digital Payment Types in Terms of Transaction Volume

To look at how different categories' growth performance varied during the research period, a post hoc analysis was conducted. Table 4 offers a more comprehensive example.

Table 4: Category-wise comparison in Growth Rate in Volume of Digital Payments

Sample1 - Sample 2	Mean Rank Difference	Std. Error	Std. Test Statistic	Result
RTGS - CTS	-2.500	7.083	0.353^{NS}	Here, the calculated values are statistically not significant at 5% level. Therefore, null hypothesis is accepted. It is reported that the growth rate in volume of transactions is the same across these categories of digital payments.
RTGS - Debit card	-3.000	7.083	0.424^{NS}	
RTGS - Credit Card	-11.330	7.083	1.600^{NS}	
RTGS - PPI Cards	-12.000	7.083	1.694^{NS}	
RTGS - M-Wallet	-23.330	7.083	3.294**	Here, the calculated values are statistically significant. Therefore, null hypothesis is rejected. It indicates that the growth rate in volume of transactions is different across these categories of digital payments.
RTGS - IMPS	-24.830	7.083	3.506**	
CTS - Debit Card	-0.500	7.083	0.071^{NS}	Here, the calculated values are statistically not significant at 5% level. Therefore, null hypothesis is accepted. It is concluded that the growth rate in volume of transactions is the same across these categories of digital payments.
CTS - Credit Card	-8.833	7.083	1.247^{NS}	
CTS - PPI Cards	-9.500	7.083	1.341^{NS}	
CTS - M-Wallet	-20.833	7.083	2.941**	Here, the calculated value is statistically significant at 1% level. Therefore, null hypothesis is rejected. It indicates that the growth rate in volume of transactions is different within these categories of digital payments.
CTS - IMPS	-22.333	7.083	3.153**	

Value of Digital Payment Transactions Growing at a Consistent Rate

To look at how different categories' growth performance varied during the research period, a post hoc analysis was conducted. For a more comprehensive example, see Table 5.

Table 5: Mean Ranks in Value of Digital Payment Transactions

Digital Payments	Mean Rank	
RTGS	13.50	χ^2 23.473**
CTS	13.33	df = 6
IMPS	36.00	p<0.01
Credit Card	23.33	
Debit Card	14.17	
M-Wallet	34.17	
PPI Cards	16.00	

** Sig. at 1% level; *Sig. at 5% level; NS = Not Significant

Source: Reports from RBI

Table 5 shows that there is statistical significance at the 1% level for the estimated result of the Kruskal Wallis test (χ2, 23.473**; p<0.01; df 6). Therefore, it may be concluded that the null hypothesis is false. Based on the data, it's clear that various types of digital payments have vastly varying rates of transaction value increase.

Results That Matter Regarding The Disparity Between Transaction Volume Growth Rates

- Counts of RTGS transactions, CTS transactions, debit card transactions, credit card transactions, and PPI card transactions all showed almost identical growth percentages within the relevant time period.
- The benchmark periods for RTGS, M-Wallet, and IMPS show vastly different trends in transaction volume growth.
- During the time in question, CTS, IMPS, and MWallet all saw substantial increases in transaction volume, although at different rates.
- CTS's fee structure is quite consistent, in contrast to the fluctuating fees associated with debit, credit, and PPI cards.
- The reference period saw no discernible variation in the growth rates of debit, credit, and PPI card transaction volumes.
- Debit card, M-Wallet, and IMPS transaction volumes grew at quite different rates over the reference period.
- Credit, PPI, M-Wallet, and IMPS growth rates throughout the reference period are statistically identical.
- IMPS, M-Wallet, and PPI Cards all had comparable growth rates within the given time frame.
- During the reference period, the growth rates of IMPS and M-wallet are indistinguishable.

Results That Matter Concerning the Disparity in the Rate of Growth of Transaction Value

- The reference period shows no discernible difference in the growth rates of the value of transactions in CTS, RTGS, Debit Cards, PPI Cards, and Credit Cards.
- CTS, M-Wallet, and IMPS all had different transaction value growth rates during the reference period.
- The value of RTGS transactions, Debit Cards, PPI Cards, and Credit Cards all grew at around the same pace throughout the reference period.
- During the reference period, there is a noticeable difference in the growth rates of RTGS transaction values, M-Wallet, and IMPS.
- During the reference period, the growth rates of the values of transactions done using debit, PPI, and credit cards were almost identical.
- In comparison to debit card transactions, the value of credit card transactions grew at a much slower pace throughout the reference period.
- The reference period saw no substantial variation in the growth rates of PPI Card transaction value compared to credit card transaction value.
- Compared to other payment methods, such as M-Wallet, IMPS, and credit cards, the value of PPI card transactions grew at a much slower pace throughout the reference period.

- Credit card transaction values, M-Wallet values, and IMPS values all increased at around the same pace over the reference period.
- Over the reference period, the growth rates of transaction values in M-Wallet and IMPS are not significantly different.

Conclusion

Through digital payment networks, India's economic system is interconnected with all other economies. Buying things (such paying for electricity or insurance premiums) and sending money to loved ones or associates is also a breeze. It may be used by vendors to collect payments from customers and by governments to deliver social benefits and collect taxes. The number and value of digital payment transactions both increased significantly, with the former seeing a compound growth rate of 24.11% and the latter of 15.84%. India now has a secure and efficient payment system because to the government's efforts to phase out cash from the economy. This has resulted in PPI Cards, M-Wallet, and IMPS seeing outstanding growth during the study period, especially with regard to value and volume measures. In terms of digital payments, money transfers, and online payment systems, these avenues have been revolutionary. The convenience and low cost of electronic money transfers are hastening the transition away from cash in the economy.

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