



A STUDY OF GROWTH TRENDS IN ELECTRONIC PAYMENTS IN INDIA

Poonam Gupta, Ph. D.

Associate Professor, Dyal Singh Evening College, Delhi University

Abstract

Payment System of a nation is the backbone of its financial system. Today, the availability of anywhere anytime banking and payment facilities have changed both the pace and the face of payment modes in India. Introduction of Electronic clearing services, Electronic fund transfer system, real time gross settlement system, establishment of Clearing Corporation of India and formation of National Payment Corporation of India, provision of Immediate payment service, pre- paid payment instruments and mobile payments have created new trends in Electronic Payments in India. These qualitative and quantitative developments in the payment system are depicted by the payment system indicators.

In the present article is an attempt has been made to study the growth trends in electronic payments in India as depicted by payment system indicators during the five years' period i.e.2011-12 to 2015-16. It is clearly seen that enhancement of payment infrastructure with multiple channels and products for payment services has resulted in robust growth both in terms of volume and value of payment transactions. A gradual shift from paper based transactions to electronic modes of payment is also clearly visible. Mega growth is witnessed in mobile payments. ATMs and Point of Sale terminals are increasing ease of operations and thus is encouraging the use of e-payment modes. The convergence of digital technology with payments is transforming consumer preferences towards electronic payments.

KeyWords: *Electronic Payments, Payment Indicators, Growth Trends, Reserve Bank of India, Mobile Banking, ATMs, Point of Sale Terminals*



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Introduction

Payment System of a nation is the backbone of its financial system. Today, the availability of anywhere anytime banking and payment facilities have changed both the pace and the face of payment modes in India. Reserve Bank of India has continuously taken steps to improve the payment services to provide an efficient and integrated payment and settlement system in the country.

Important recent developments in the payment system during the last ten years include formation of National Automated Clearing House in September 2008 & of National Payments Corporation of India in April 2009, introduction of Immediate Payments Services for mobile payments in November 2010, online verification of Aadhaar Universal Identification Cards in February 2012, RuPay electronic payment card scheme in March 2012, Aadhaar Payments Bridge System in July 2012, Aadhaar enabled Payment System in October 2013, National

Mission for Financial Inclusion in August 2014, Payment banks and Small banks in August 2015, Unified Payment Interface in April 2016, Bharat Bill Payment System and BHIM App on 30th Dec 2016. The RBI's vision statement - 2018 for Payment and Settlement Systems in India reiterates the commitment of RBI to encourage greater use of electronic payments by all sections of society so as to achieve a 'less cash society.' All the efforts, initiatives, innovations and technological advancements have created visible growth trends in electronic payments reflected by payment system indicators. The present paper is an attempt to study and analyze these indicators to understand the recent growth trends in payments.

Data and Methodology

Data for the study have been collected from reports, bulletins and website of Reserve Bank of India, National Payment Corporation of India and Government of India. Simple statistical tools have been used to make the analysis. All the referred sources have been acknowledged at the end of the article.

Payment System & Payment System Indicators

As per report of the Committee on Payment and Settlement Systems of Banks for international settlements (2013), Payment System consists of a set of instruments, banking procedures and typically, interbank fund transfer systems that ensure the circulation of money. In other words, payment system is the infrastructure that provides facility for transfer of monetary value of a transaction among parties. The qualitative and quantitative developments in the payment system are depicted by the payment system indicators. Payment system indicators measure the performance and growth of payment and settlement system of a nation. In India, payment system indicators data is provided in RBI bulletins. These payment systems and indicators are mainly divided into the following six heads :

i) Real Time Gross Settlement (RTGS) :- Real Time Gross Settlement is a settlement system under which settlement of funds is done continuously and individually on order by order basis. 'Real time' means the settlement processing is done immediately at the time they are received rather than at some later time. 'Gross Settlement' means that settlement is done individually rather than in batches. RTGS is mainly meant for large transactions. The minimum amount that can be remitted through it is Rs. 2,00,000.

ii) Clearing Corporation of India Limited Operated Systems :- CCIL was set up in 2001 to provide an infrastructure for the clearing and settlement of transactions in Government securities, money market instruments, foreign exchange and other related products. It currently offers settlement services for government securities and in the money market in the

repo and collateralized borrowing and lending obligations (CBLO). In the forex market, it offers guaranteed settlement to all interbank USD/INR forex transactions.

iii) Paper Clearing :- Paper clearing system covers all paper based payment transactions. It constitutes Cheque Truncation System and MICR clearing and non-MICR clearing. Cheque Truncation System enables the clearing of transactions based on cheque images without the physical movement of the instruments. The system is introduced in India in 2010 for increasing the speed of clearing the cheques. MICR code stands for 'Magnetic Ink Character Recognition Code.

This code was introduced by RBI in 1980 on cheques for safe and effective payments across the country. The MICR code has nine digits. The first three are city code, next three bank code and the three are bank branch code. MIC code makes the cheque inactive, readable and thus facilitates automatic clearing process. The non MICR clearing represents manual clearing.

iv) Retail Electronic Clearing :-

Retail electronic clearing includes the following.

a) Electronic Clearing Service (ECS) debit :- ECS Debit facilitates consumers/subscribers of utility companies to make routine payments by mandating bank branches to debit their accounts and pass on the payments to the companies.

b) Electronic Clearing Service (ECS) Credit :- RBI introduced ECS Credit Service to help corporates handle bulk and repetitive payment requirements such as salaries, dividends, interest and so on. The service facilitates credit to the customer accounts by banks on the specified date. During September 2008, RBI has introduced National Electronic Clearing Service (NECS) which allows multiple credits to beneficiary accounts with destination branches across the country against a single debit of the account of the sponsor bank.

c) Electronic Fund Transfer/National Electronic Fund Transfer System :- EFT is the retail fund transfer system introduced in the late 1990s. The system enabled the account holder of a bank to electronically transfer funds to another account holder with any participating bank. Today, a more efficient system i.e. National Electronic Fund Transfer System is available to the general public. NEFT was introduced by RBI in 2005. It is a nationwide payment system providing one to one fund transfer facility (as in EFT). Any individual, firm or corporate, maintaining account with a participating bank, can make or receive payments. However, the transaction amount is limited to Rs. 50,000/- and the settlement is done in hourly batches.

d) Immediate Payment Service (IMPS) :- On 22nd November, 2010, IMPS was launched to provide an instant, 24 X 7 interbank electronic fund transfer service through mobile phones, internet and ATMs.

e) National Automated Clearing House (NACH) :- NACH is a web based solution to facilitate inter-bank, high volume electronic transactions which are repetitive and periodic in nature. It has been launched to provide a centralized system to consolidate multiple ECS systems and to provide single set of rules, standards and practices for electronic transactions. NACH's Aadhaar Payment Bridge System is helping the government in making the Direct Benefit Transfers successfully.

v) **Cards** :- The cards payment system is based upon cards that can be used to withdraw money or pay for goods and services such as debit cards and credit cards. Both debit and credit cards can be used at ATMs or POS. (Point of sales terminals).

vi) **Prepaid payment instruments (PPI)** :- PPIs are instruments such as m-wallet, PPI cards and paper vouchers which facilitate purchase of goods and services and fund transfer against the value stored on them. The PPIs are of recent origin in India and they represent the value paid for by the holder either by cash or debit to bank account or by credit card.

Clearly India payment system has evolved continuously. Today it has structured modern payment and settlement systems with innovative products, instruments and procedures to make payments. Thus, during the last five years, both volume and value in payment transactions have shown significant growth and trend. These growth trends are studied and analyzed in the following section.

Growth Trends In Electronic Payments

In this section, Payment System Indicators have been studied for all the six categories of payment systems mentioned in the previous section. Besides that, growth trends in number of ATMs, number of POSs and number of cards (including both debit cards and credit cards) have also been analyzed. Today, high mobile density in the country is being leveraged to provide a wide range of payment services. Therefore, mobile banking has made its presence felt in the payment landscape. Thus, the growth trends in mobile banking have also been studied.

1) Trends in Volume of Payments :-

Table 1 show the growth trends in volume of payments. Many interesting observations are emerging from Table 1.

i) **Cards** :- Cards (both debit and credit) constitute the main source of number of payment

transactions. In 2011-12, cards have contributed 74.69% of the total payment transactions and which is still at 66.36% at 2015-16.

TABLE 1												
GROWTH IN VOLUME OF PAYMENTS IN INDIA												
(in million)												
PAYMENT SYSTEM	2011-12		2012 - 13		2013 - 14		2014-15		2015-16		CAGR %	
	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total		
1 RTGS	55.05	0.72	68.52	0.8	81.11	0.83	92.78	0.8	98.34	0.65	15.6	
2 CCIL Operating System	1.88	0.22	2.26	0.022	2.56	0.022	3.03	0.022	3.12	0.022	13.5	
3 Paper Clearing	1341.81	17.50	1313.48	15.38	1257.31	12.83	1196.51	10.22	1101.91	7.28	-5	
4 Retail Electronic Clearing	512.45	6.68	694.07	8.126	1108.32	11.31	1687.44	14.4	3141.53	20.768	57.4	
5 Cards	5731.59	74.69	6398.35	74.9	7219.13	73.658	8423.99	71.898	10038.67	66.36	15	
6 Pre-paid payment instrument	30.60	0.40	66.94	0.79	133.63	1.37	314.46	2.68	748.02	4.94	222	
Grand Total :	7673.38	100%	8543.62	100%	9802.06	100%	11718.21	100%	15131.59	100%	18.5	
Source: http://rbi.org.in/scripts/BS_View Bulletin.aspx												

ii) The decrease in the share of cards seems to be mainly because of Retail Electronic Payments. The volume of retail Electronic payments have grown from 512.45 million in 2011-12 to 3141.53 million in 2015-16. Thus, the contribution of retail Electronic Payments which was just 6.67% in 2011-12 rose significantly to 20.76% in 2015-16.

iii) Further, Pre-Paid Payment Instruments share in the volume of total payment transactions has risen from 0.4% in 2011-12 to 4.94% in 2015-16.

iv) It is important to note that Electronic Payment modes are taking over the paper clearing. The volume of cheque clearing transactions have reduced continuously and its share in total payment transactions has become only 7.28% in 2015-16 as compared to 17.5% in 2011-12. The CAGR also shows 5% reduction in the paper clearing transactions over the five years' period under consideration.

v) The contribution of CCIL operating system is negligible at 0.02% throughout the five years' period under consideration. However, the volume of transactions in this category have grown annually by

vi) The volume of RTGS transactions shows compound annual growth rate of 15.6%. However, the share of RTGS transactions in the total transactions have remained less than 1% throughout the five-year period.

vii) The Compound Annual growth rate is highest for pre-paid payment instruments at 222%, followed by Retail Electronic Clearing at 57.4%. Clearly, the new innovative modes of payment such as m-wallet, smart cards, NEFT, IMPS are taking charge of payments in India.

viii) There is an overall compound annual growth of 18.5% in the total payment transactions in India over the last five years.

2) Trends in Value of Payments:- The trends in value of payments are summarized in Table 2. Table 2 provides the following relevant information about the value of payments in India.

i) Unlike volume of payment transactions, RTGS and CCIL operating system have together contributed approximately 88% of the total value of payments. The reason is simple to understand. RTGS and CCIL operating system comprises of large value transactions (in RTGS, minimum transaction amount is Rs. 2,00,000) whereas all other modes of payment mainly represent the Retail payment transactions in India. Besides that, the value of both RTGS and CCIL operating system transactions have shown an upward compound annual growth of 11.2% and 18.8% respectively over the five years' period under study.

TABLE 2												
GROWTH IN VALUE OF PAYMENTS IN INDIA												
(in million)												
	PAYMENT SYSTEM	2011-12		2012 - 13		2013 - 14		2014-15		2015-16		CAGR %
		Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total	
1	RTGS	539307.48	49.90	676841.04	50.9	734252.40	48.3	754032.56	44.8	824578.16	44.9	11.2
2	CCIL Operating System	406071.18	37.60	501598.49	37.8	621569.93	40.9	752000.42	44.7	807370.42	44.1	18.8
3	Paper Clearing	99012.00	9.20	99982.25	7.6	93316.04	6.1	85434.14	6.1	81860.79	4.5	-5
4	Retail Electronic Clearing	20575.61	1.90	31881.14	2.5	47856.29	3.2	65365.51	3.9	91408.14	4.9	45.2
5	Cards	15510.78	1.40	16637.36	1.3	22159.58	1.5	25415.27	1.5	29397.65	1.6	17.3
6	Pre-paid payment instruments	62.01	0.00	79.22	0	81.05	0	213.42	0.001	487.50	0.003	67.5
	Grand Total :	1080539.06	100%	1327019.50	100%	1519235.29	100%	1682461.32	100%	1835102.66	100%	14.2
Source: http://rbi.org.in/scripts/BS_ViewBulletin.aspx												

ii) Like volume trends, the value of paper clearing transactions has shown a 5% annual decline during the last five years.

iii) The compound annual growth rates of Retail Electronic clearing and Pre-payment instruments are very high at 45.2% and 67.5% respectively. However, pre-paid payments still have negligible contribution in total value of payments and the share of retail electronic clearing is just 4.9% in 2015-16 (which has risen from 1.9% in 2011-12).

iv) Cards which constitutes the major chunk of volume of transactions just contribute 1.6% of value of transactions in 2015-16. However, the value of transactions has shown a Compound Annual Growth Rate of 17.3%.

v) Value of Payments have grown at the rate of 14.2% annually.

It is clear that payment and settlement system has registered robust growth during the last five years' period.

3) Growth Trends in Mobile Banking: -

Table 3 shows the volume and value of mobile banking in India over the five years' period 2011-12 to 2015-16.

Table 3 Growth In Mobile Banking

Year	Volume (in million)	Value (in billion)
2011-12	25.56	18.21
2012-13	53.3	59.0
2013-14	94.71	224.18
2014-15	171.92	1035.30
2015-16	389.49	4040.91
CAGR	97.59%	2860%

Source: [https://rbi.org.in/scripts/BS_View Bulletin.aspx](https://rbi.org.in/scripts/BS_ViewBulletin.aspx)

The table clearly brings out the mega growth in mobile payments during the period under study. The Compound Annual Growth rate is 97.57% for volume of mobile banking transactions and for value it is as high as 2860%. Mobile banking helps in providing banking services to people in un-banked and under-banked areas. India has a robust mobile coverage with more than one billion mobile phones in April 2016. No doubt, mobile banking has the capacity to change the future face of payments in India by providing convenience, speed and ease of access.

4) **Growth Trends in Number of ATMs:-**Table 4 records the recent growth in ATMs in India

Table 4 Growth In Atms

Year	Number of ATMS
2011-12	93686
2012-13	114014
2013-14	160056
2014-15	181398
2015-16	212061
CAGR %	22.66%

Source: <http://rbi.org.in/scripts/BS-ViewBulletin.aspx>

The table shows that the number of ATMs have shown compound annual growth rate of 22.66%. The number of ATMs have more than doubled during the study period. ATMS provide the banking facilities at the doorstep of the users and thus enhances the efficiency of the banking and payment system. The ATM card is diffusing the new banking technologies in the remote corners of the country too.

5. Growth Trends in Point of Sales Terminals :-

Table 5 depicts the growth in point of sales terminals in India (POSSs) during the five-year period 2011-12 to 2015-16. The table shows that the point of sales terminals has grown at a compound annual rate of 20.33% during the study period. The number of point of sales terminals have more than doubled in the last five years. Point of Sale Terminals increase ease of operations and create a card acceptance infrastructure thus facilitating the usage of e-payment modes such as debit card, credit card, PPIs, mobile payments by customers.

Table 5 Growth In Point Of Sale Terminals

Year	Number of POSSs
2011-12	660920
2012-13	854290
2013-14	1065984
2014-15	1126735
2015-16	1385668
CAGR	20.33%

Source: http://rbi.org.in/scripts/BS_ViewBulletin.aspx

6. Growth Trends in Number of Cards:-

Table 1 and 2 have shown significant growth in the volume and value of cards usage. In this section, the growth in cards outstanding is studied for both debit and credit cards separately in Table 6.

Table 6 Growth In Cards Outstanding

Year	Number of cards (in million)		
	Debit Cards	Credit Cards	Total
2011-12	319.96	17.65	327.54
2012-13	331.20	19.55	350.75
2013-14	394.42	19.18	413.60
2014-15	553.45	21.11	574.56
2015-16	661.82	24.51	686.33
CAGR %	19.9 %	8.55 %	20.3 %

Source: http://rbi.org.in/scripts/BS_ViewBulletin.aspx

The Table 6 shows issuance of cards have shown a compound annual growth rate of 20.3%. The usage of both debit and credit cards have increased during the study period. However, Debit Cards contribute more than 95% of the cards outstanding in India. It is clearly evident that improvements in the payments infrastructure and internet access have led to steady growth in the adoption of electronic payments by customers in India.

Key Drivers of Trends

The Reserve Bank of India through its multifaceted roles as a regulator, supervisor and harbinger of innovation is the key driver moving the payment system with speed, efficiency and security towards a less cash society.

National Payment Corporation of India is assisting RBI by enabling the people to have access to e-payment services at anytime anywhere through its series of newly launched services such as National Financial Switch, Immediate Payment Service, National Automated Clearing House, Aadhaar Payments Bridge System, Cheque Truncation System, Aadhaar enabled payment system, Ru-pay - domestic card scheme, Unified payments system BHIM app. etc. Banks are also promoting e-payments and mobile payments through promotional schemes.

The new technological advancements and the growing e-commerce segment is also accelerating the demand of e-payment modes. Innovations in payment systems are also being used by government machinery for direct benefit transfers and achieve the goal of financial inclusion. Non-bank players such as telecom companies, business correspondents and pre-paid payment instruments issuers are also facilitating the enhancement of payments net in India. The convergence of digital technology with payments is transforming consumer preferences towards online payments, mobile POS, digital wallets, electronic bill payments and remittances.

Moving Towards Less Cash to Cashless Payment System

No Doubt over the past decade, the Indian government, RBI and National Payment Corporation of India have taken up a series of measures to provide e payment infrastructure, new bank accounts to the unbanked with incentives to encourage their use. However, underutilization of the new infrastructure still posed a challenge. People were found using bank accounts just to withdraw cash for usage. The percentage of Currency circulation in India is found to be around 12% of GDP.

Thus, the government of India took the unexpected measure to disrupt cash by de-monetization of outstanding 500 and 1000 rupee notes on November 8, 2016. Following de-monetization, prime minister, Shri Modi Ji is emphasizing a shift to cashless economy. The government has launched BHIM (Bharat Interface For Money) App, Lucky Grahak Yojna and Digi Dhan Vyapar Yojna. Further, it has provided various incentives to people such as discount on the purchase of petrol/diesel, railway pass, ticket, rail catering and retiring room services for making digital payments. Moreover, insurance cover worth ten lakhs and no service tax on transaction less than 2000 are proposed to be introduced. Efforts are already on to install POS in 1 lakh villages, having a population of less than 10,000. Further, all the farmers holding Kisan credit card would be issued RuPay card so that they can make cashless payments.

Though it is too early to see the concrete results, digital banking is found to be catching up. BHIM App which was launched on 30th December, 2016 to promote digital fund transfer backed by internet and smartphones has already been downloaded by 10 Million people. 2 million transactions have been done through it within three weeks of its launch. Hashtag banking on basic feature phones supported by unstructured supplementary service data (USSD) made a 13-fold jump in volume in December to 94300 transactions from 7000 in Nov.2016. In terms of value these transactions jumped 14 times to 10 crores from 73 lakhs in the preceding month.

Under the Lucky Grahak Yojna, the government has created a fund of Rs. 340 crore to be distributed to lottery winners who are making payments through Rupay cards, Aadhar enabled payment system, USSD and UPI. Around 1.5 crore rupees have already been distributed under this yojna. Further, transaction on UPI platform are on its way to touch Rs. 1000 Crore mark in January as against 90 Crores in November, 2016.

Overview and Conclusion

The growth trends in electronic payments indicates that India in future:

- i) The share of paper-based clearing instruments will continuously reduce.
- ii) Each individual segment of retail electronic payments viz . NEFT, IMPS, Card transactions and mobile banking will grow consistently.
- iii) Significant growth and developments in digital payment infrastructure and products will occur.
- iv) The role of non-banking payment intermediaries and aggregators would become increasingly significant and would require regulatory framework.
- v) PPIs and mobile payments will register significant increase in customer base and thus would lead in payment product innovations.
- vi) With the government emphasis on financial inclusion, an increasing use of Aadhaar in the payment system would be promoted.

However, there are challenges to be addressed by payment service providers, planners, digital innovators and the government in the payment space. A different look also suggests tremendous growth opportunities in the areas less explored and under penetrated.

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