

Growth Analysis of Per Capita Digital Retail Payment in Financial Inclusion – A Study in India during Post Demonetisation Period

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Abstract

One of the aspirational goals of Indian economy is to achieve inclusive financial ecosystem i.e. financial inclusion. The rapid development and robust progress of digital banking and more specifically digital retail payment has been a game changer for the achievement of financial inclusion in India during post-demonetisation period. The more people are made aligned to digital banking transaction, the more society will be financially included from digital banking development. The present study has focussed on the financial inclusion from the lens of per capita digital retail payment in India during post demonetisation period. It is observed that multiples digital devices, platform, technology, infrastructure and overall digital retail payment ecosystem has augmented the usage, access and quality of financial services of banking in digital means which are fundamental to the financial inclusion to the unbanked community. With the help of UPI, credit transfer per capita has increased both in value and volume with strong growth figure in terms of AYGR, CAGR and SAGR. People want to be financially included by switching from card based transaction to online payment transaction.

Keywords: Financial Inclusion, Post-Demonetisation, Digital Banking, Digital Retail Payment, UPI, AYGR, CAGR and SAGR.

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Introduction

In India, people can carry bank in his pocket. Smart phone has become the cheapest means to the smart digital banking. This digital banking has financially included many unbanked sections of people of this country. Digital retail payment system as an integral part of the digital banking gets people more connected with retail banking that forces financial inclusion. By the term financial inclusion, it is understood to provide equal opportunity and availability to every individual of financial services **(Wikipedia)**. Financial inclusion is also a method of providing banking financial services to individuals whatever their income or savings **(Business Standard)**. Accessibility to retail banking is the fundamental way of achieving financial inclusion. Digital retail payment is a substantially important segment of financial services that be ensured by the digital retail payment system.

The **World Bank** has suggested four basic components of Digital Financial Inclusion:

- ✓ **Digital Financial Platform**- It acts as a fund receiver and transferor electronically and permits to store value electronically.
- ✓ **Devices**- It includes digital devices and digital instruments that are connected to banking network. Digital devices include smart phone, computer, Tablet etc. and digital instruments include Cards, QR Code etc.
- ✓ **Retail Agents**- It includes the all such institutions which are connected to the communication infrastructure that helps to receive digital information of fund transfer;
- ✓ **Additional Financial Services**- It includes other financial services like Insurance, Credit etc.

Digital retail payments are all those online payment system that an individual can initiate through his bank account. Introduction of UPI and other existence of other fintech solution like Gpay or PhonePe or Paytm have accelerated the usage of UPI in majority of digital transactions which thereby increasing the velocity of financial inclusion digitally. According to the financial index calculation methodology as formulated by the RBI, it can be understood from three aspects: Access, Usage and Quality. Digital retail payment systems can improve all the three aspects.

Table 1: Financial Inclusion (FI) Index

Year	Access	Usage	Quality	FI-Index
Mar-17	61.7	30.8	48.5	43.4
Mar-18	63.9	33.7	51.4	46
Mar-19	67.5	38.7	52.6	49.9
Mar-20	71.6	42	53.8	53.1
Mar-21	73.3	43	50.7	53.9

Source: RBI Bulletin

Table 2: Relation of Digital Retail Payment System with Financial Inclusion

FI Segments	Implications of Digital Retail Payment System
Access	<p>1. System of Payment: UPI, ECS, Cards, NEFT, RTGS, IMPS, E-Wallets, AEPS, etc.</p> <p>2. Means of Payment: QR Code Scan, Gpay, Phone Pe, Paytm, BHIM, Debit Card, Credit Card, Bank Transfer, Whatsapp Pay etc.</p>
Usage	Digital transaction over the year has increased at huge rate. Both the value and volume of digital transaction have increased.

Table 3: Digital Transaction in India		
Year	Volume (in Crore)	Value (Rs. in Lakh Crore)
2017-18	2,071	1,962
2018-19	3,134	2,482
2019-20	4,572	2,953
2020-21	5,554	3,000
2021-22	8,840	3,021

Source: Ministry of Electronics & IT

From the above table 3, it is established fact that on macro sense, digital transaction in value and volume has been increasing. It reveals that usage of digital transaction can increase the usage of financial services.

Quality	<p>1. Digital Infrastructure: POS Terminals, ATM, Micro ATM Kiosks, M-Banking, Internet Banking Card Swiping Machines, QR Code, UPI led ATM etc.</p> <p>2. Digital Technology: Contact Less Payment, Artificial Intelligence, Machine Learning, Robotics, Block Chain Technology, Cloud Computing.</p>
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The above table 2 signifies that digital retail payment can impact all the three segments of FI and the continuous innovation in digital retail payment can increase the financial inclusion to the highest extent possible.

In India, demonetisation on 8th November 2016 was a great monetary shock that eventually augmented the digital retail payment intensity and acceptance. UPI as notable innovation of NPCI has built the empire of voluminous digital transaction in India and achieved the long cherished goal of financial inclusion. According to the Bank of International Settlement, Digital retail payment in India has different segments such as: Credit Transfer, Debit Transfer, Debit Card, Credit Card and E-Money Payment. These five are building block of digital retail payment and financial inclusion ecosystem.

Thus the usage and transactions through digital retail payment system can be taken as an strong indicator of fundamental financial inclusion since easy access to banking and finance is the first order condition of complete financial inclusion and ensures digital inclusion as well as inclusive growth of banking and economy in India.

Review of Literature

In India financial inclusion comes after series of successive actions taken both by financial players and Government initiatives. The most societies of people are excluded financially and from the ambit of banking. **Bagli and Dutta (2012)** have stated that indicators of financial inclusion are not at all commendable and livelihood of marginal people is mostly deprived of financial inclusion and banks could not bring these sections of people under the ambit of financial inclusion. After understanding the need of financial inclusion as an engine to financial growth of an economy, policy makers have positively given priority to this issue and banks have augmented the delivery of financial services. **Jain (2016)** has described that the progress of financial inclusion in India has been found and banks have progressed in opening branches in unbanked rural areas, KCC cards loan, branch automation, branch coverage etc. Though physical branches are opened in large number with effective steps taken by the banks, the number of financial transactions has not increased in substantial manner. **Iqbal and Sami (2017)** have recommended for increasing in customers' awareness on e-banking, financially literacy programmes are to be organised. Online payment has associated people much with online banking and accelerated the growth of financial inclusion. Improvement in banking technology and Financial technology (fintech) have kept positive role in enhancing the reach in banking corridor to the different corners of this country as well as complimenting the entire eco-system of financial inclusion (**Malladi et al., 2021**). Financial inclusion has helped in getting finance digitally and raised the issue of digital finance. Digital finance (DF) is an alternative cheaper source of easy credit to include people under the purview of financial services and **Narmadha (2021)** in this context, has asserted that DF can be

predicted to bring a positive impact on financial inclusion at affordable cost and can increase rural financial inclusion as well. E-commerce enabled financial inclusion is a key to digital financial inclusion and milestone role has also been played by the fintech in enhancing digital financial inclusion (**Parvez, 2022**). Fintech as part of digital banking has great potentiality to achieve full inclusion in society and **Asif et al. (2023)** has stated that such fintech business has helped financial inclusion in India and helped specially the middle class of people in the country.

Objectives and Research Gap

The title of the study itself suggests the major objective of the study which are bifurcated into following objectives:

- To understand the interconnection of digital retail payment system and financial inclusion in India;
- To study per capita view of financial inclusion through five segments of digital retail payment system in India;

Financial inclusion is an attempt to the inclusion of each individual who are unbanked. Tracking of transaction and usage of financial services at individual level is the best understanding of the position of financial inclusion. But after extensive review of past studies, most of them have studied different digital payment methods in total not in per capita way. The present will meet up the gap and use per capital aspect of digital retail payment segment wise to understand the level of financial inclusion.

Research Methodology

Nature- The present study is descriptive and theoretical in nature.

Variable- five types of digital retail payment are used such as Credit Transfer, Debit Transfer, Credit Card, Debit Card and E-money Payment.

Source of Data and Period- secondary source of data have been collected from Bank of International Settlement (BIS) website for the period from

2016-2021. Other data have been collected from different open access websites, journal and magazines.

Test- Statistical tables and charts are used to the present the data. Descriptive statistics like Mean, Standard deviation and Relative Standard Deviation (RSD) are used. Three growth parameters like SYGR, AYGR and CAGR have been measured such as:

- Average Year on Year Growth Rate (AYGR) %- $\sum \text{YoY Growth Rates} \div n$; [n= number of years].
- Compound Annual Growth Rate (CAGR) %- $[\text{EV} \div \text{BV}]^{1/n} - 1$; [EV= End Value, BV= Beginning Value].
- Simple Annual Growth Rate (SAGR) %- $[(\text{EV}-\text{BV}) \div \text{BV}] \times 100 \div n$.

Data Analysis and Findings

This segment will analyse the five different part of digital retail payment in India from per capita view in average amount. The analysis reveals a picture of digital financial inclusion and involvement of individual in India.

Table 4: Average Volume (in Number) of Digital Retail Payments per Inhabitant in India

Year	Credit Transfers	Direct Debits	Card with Debit Function	Card with Credit Function	E-Money Payments
2016	3	0.3	1.8	0.8	1.5
2017	4.5	0.3	2.5	1.1	2.6
2018	8.9	0.4	3.3	1.3	3.5
2019	13.8	0.6	3.7	1.6	3.9
2020	20.6	0.7	3.1	1.3	3.7
2021	36.4	0.9	3	1.6	4.5
Mean	14.53	0.53	2.9	1.28	3.28
SD	11.41	0.22	0.61	0.28	0.98
RSD (%)	78.5	41.46	20.97	21.77	29.76

- ✚ From the above table 4, it is obvious that the above five areas of digital retail payment except Debit Card have shown a rising trend from 2016 to 2021 except the year 2020 where Covid-19 Pandemic set in.

average volume i.e. number of transactions per inhabitant are increasing.

- ✚ Average volume of credit transfer per inhabitant has been rising continuously from 3 units in 2016 to 36.4 units in 2021. It has also shown the highest RSD of 78.5% among the others which reveals that the data set has greatest volatility as shown from the table 4 itself. Debit transfer though increased but still remained at very low level per inhabitant.
- ✚ Average volume of credit card and e-money payment have been increasing from 2016-2021 except in the year of 2020 and Average volume of debit card has been increasing from 2016-2019 but thereafter it decreases.
- ✚ Thus, credit transfer has influenced the growth of financial inclusion of individual to the digital retail banking financial services in India. E-money payment has the future potentiality in to increase it more.

Table 5: Average Value (in USD) of Cashless Payments per Inhabitant in India

Year	Credit Transfers	Direct Debits	Card with Debit Function	Card with Credit Function	E-Money Payments
2016	1474	42	42	38	10
2017	2198	46	58	54	17
2018	2873	62	70	66	23
2019	3006	83	76	75	23
2020	3108	85	66	61	19
2021	3954	98	75	88	26
Mean	2768.83	69.33	64.5	63.67	19.67
SD	773.43	20.81	11.72	15.73	5.21
RSD (%)	27.93	30.02	18.16	24.71	26.53

- ✚ From the above table 5, it is seen that average value of credit transfer has been increasing throughout the period at increasing rate. It has USD 1474 in 2016 which is increased to USD 3954 in 2021. Average value of credit transfer per inhabitant has shown the highest value among the others.

- ✚ Average value of direct debit has also shown the continuous rising trend from 2016-2021. But it has the highest RSD i.e. 30.02% which signifies the greatest volatility in the data set.
- ✚ Average value of debit card, credit card and E-money payment have been rising except in 2020 i.e. the year of pandemic. But in 2021, the value has recovered and except debit card, it crossed the value of 2019 i.e. pre pandemic value per inhabitant.

Table 6: Comparative Growth of Digital Retail Payment

Growth Parameters	Credit Transfers		Direct Debits		Card with Debit Function		Card with Credit Function		E-Money Payments	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
AYGR ₅ (%)	65.76	23.01	25.71	19.18	12.71	13.57	16.62	20.71	27.17	24.95
SAGR ₅ (%)	1113.33	168.25	200.00	133.33	66.67	78.57	100.00	131.58	200.00	160.00
CAGR ₅ (%)	64.74	21.82	24.57	18.47	10.76	12.30	14.87	18.29	24.57	21.06

- ✚ Of the above, Credit transfer has grown tremendously from 2016 to 2021 at CAGR of 64.74% and AYGR of 65.76% and SAGR shows an extreme increase from 2016 at 1113.33% which suggests that people have involved in Credit transfer at a rapid speed. This happens due to the start of UPI system of payment in India.
- ✚ It is also found that in case of credit transfer, debit transfer and e-money payment, growth parameters in average volume is much higher than that of growth in value per inhabitant. But in case of debit and credit card it is opposite. Thus it can be stated that people are switching from card based financial inclusiveness to online financial inclusiveness in India in performing the financial transactions.

Concluding Remarks

Digital retail banking has no doubt made a praiseworthy positive impact in Indian banking growth and economic development. It has helped in

achieving the long cherished quest of financial inclusion and providing the inclusive banking services to all unbanked. With the innovation of financial technology and digital payment infrastructure development, digital retail payment system in India has influenced the access, usage and quality of financial inclusion. Introduction of UPI has made tremendous growth in volume of credit transfer by the individuals that has made them financially inclusive with the digital retail banking but direct debit transfer has not yet made much progress per inhabitant. The role of card in financial inclusion during post demonetisation has seen a decreasing trend in financial inclusion. Since the preference for credit transfer through UPI has been increased, banks and Government should promote it more to have succeeded in seeing India 'a digitally financial inclusive economy'.

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