ISSUES IN NETWORKED DIGITAL PAYMENT METHODS IN INDIA

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Abstract
Since the decision to demonetize the high value currencies, the shortage of cash resulted in enormous difficulties to common man. As a result of this, government promoted digital payments to help transactions. The network, affordability and availability of mobile and internet helped this drive to go further. This paper attempts to review the digital payment scenario and various options for the same. It also critically assesses the barriers to reach a complete cashless economy. Though, digital payments have many advantages, closing eyes on the barriers will not help neither trade nor the common man.
Index Terms: Banking Transactions, Cashless Economy, Demonetization, Digital Payments.

I. INTRODUCTION

Ever since the announcement of demonetization on 8th November 2016 declaring thousand rupee notes and 500 rupee notes are no longer valid legal tender resulted in unprecedented cash shortage in India. Over 86% of the cash circulated went out of circulation especially of the high value denominations. As part of managing the flushed out the high value notes and to ease the cash shortage, the central government and RBI encouraged and promoted using plastic money and other forms of digital payments. With 41% of the population have bank accounts and 37 crores people having mobile internet connections, India had tremendous potential to use digital payments as a method to counter the cash shortage. In India, GDP to cash ratio is also very high in comparison with other economies. There are direct and indirect benefits to being cashless economy. The direct benefits include the financial inclusion transparency in the financial records and to a lesser extent, the lower transaction cost involved between buyer and seller{Citation}.

This paper is organized into two parts. The first part is a review of all the digital payment options available in India. The second part tries to review the barriers and infrastructure ecosystem connected to the cashless payment system.

II. LITERATURE SURVEY

Daru pointed out that 70% of the Indian citizens are from urban areas and if government takes step to make the country as cashless, it will be a huge gain. But In India some are highly educated and some are really thumb users. The idea of cashless economy is great, but the government should ensure the safety and security of cash transactions[1]. Surveys and reports suggests the immense advantages of card payment systems due to the expense caused for printing notes. Since the life of notes is about 3 to 4 years, the average expense incurred for printing the notes are 2,000 to 2,300 crores per year[2].

RBI statistics shows that 80% of monetary circulation in India consisted of Rs. 500 notes and Rs. 1000 notes. The effect of demonetization in November 2016 were studied and it reveals that the ordinary people were most adversely affected. With the aim of achieving financial

inclusion in India, efforts have to made the technology should reach to the bottom level of the pyramid[3]. A detailed study on the empirical understanding on the role of mobile money in replacing cash among the migrant workers in south India finds four outcomes which explains why both the parties trust the system[4].

III. DIGITAL PAYMENT METHODS USED IN INDIA

A. Banking Cards (Debit / Credit / Cash / Travel / Others)

Banking cards offer consumers more security, convenience, and control than any other payment method. The wide variety of cards available – including credit, debit and prepaid – offers enormous flexibility, as well. These cards provide 2 factor authentication for secure payments e.g secure PIN and OTP. RuPay, Visa, MasterCard are some of the example of card payment systems. Payment cards give people the power to purchase items in stores, on the Internet, through mail-order catalogues and over the telephone. They save both customers and merchants' time and money, and thus enable them for ease of transaction.

B. Unstructured Supplementary Service Data (USSD)

The innovative payment service *99# works on Unstructured Supplementary Service Data (USSD) channel. This service allows mobile banking transactions using basic feature mobile phone, there is no need to have mobile internet data facility for using USSD based mobile banking. It is envisioned to provide financial deepening and inclusion of underbanked society in the mainstream banking services.

*99# service has been launched to take the banking services to every common man across the country. Banking customers can avail this service by dialling *99#, a "Common number across all Telecom Service Providers (TSPs)" on their mobile phone and transact through an interactive menu displayed on the mobile screen. Key services offered under *99# service include, interbank account to account fund transfer, balance enquiry, mini statement besides host of other services. *99# service is currently offered by 51 leading banks & all GSM service providers and can be accessed in 12 different languages including Hindi & English as on 30.11.2016 (Source: NPCI). *99# service is a unique interoperable direct to consumer service that brings together the diverse ecosystem partners such as Banks & TSPs (Telecom Service Providers).

C. Aadhaar System Enabled Payment (AEPS)

AEPS is a bank led model which allows online interoperable financial transaction at PoS (Point of Sale / Micro ATM) through the Business Correspondent (BC)/Bank Mitra of any bank using the Aadhaar authentication.

D. Unified Payments Interface (UPI)

Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood. It also caters to the "Peer to Peer" collect request which can be scheduled and paid as per requirement and convenience. Each Bank provides its own UPI App for Android, Windows and iOS mobile platform(s).

E. Mobile Wallets

A mobile wallet is a way to carry cash in digital format. You can link your credit card or debit card information in mobile device to mobile wallet application or you can transfer money online to mobile wallet. Instead of using your physical plastic card to make purchases, you can pay with your smartphone, tablet, or smart watch. An individual's account is required to be linked to the digital wallet to load money in it. Most banks have their e-wallets and some private companies. e.g. Paytm, Freecharge, Mobikwik, Oxigen, mRuppee, Airtel Money, Jio Money, SBI Buddy, itz Cash, Citrus Pay, Vodafone M-Pesa, Axis Bank Lime, ICICI Pockets, SpeedPay etc

F. Point of Sale

A point of sale (PoS) is the place where sales are made. On a macro level, a PoS may be a mall, a market or a city. On a micro level, retailers consider a PoS to be the area where a customer completes a transaction, such as a checkout counter. It is also known as a point of purchase.

G. Internet Banking

Internet banking, also known as online banking, e-banking or virtual banking, is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website.

Different types of online financial transactions are:

National Electronic Fund Transfer (NEFT)

National Electronic Funds Transfer (NEFT) is a nation-wide payment system facilitating one-to-one funds transfer. Under this Scheme, individuals, firms and corporates can electronically transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country participating in the Scheme. Individuals, firms or corporates maintaining accounts with a bank branch can transfer funds using NEFT. Even such individuals who do not have a bank account (walk-in customers) can also deposit cash at the NEFT-enabled branches with instructions to transfer funds using NEFT. However, such cash remittances will be restricted to a maximum of Rs.50,000/- per transaction. NEFT, thus, facilitates originators or remitters to initiate funds transfer transactions even without having a bank account. Presently, NEFT operates in hourly batches - there are twelve settlements from 8 am to 7 pm on week days (Monday through Friday) and six settlements from 8 am to 1 pm on Saturdays.

Real Time Gross Settlement(RTGS)

RTGS is defined as the continuous (real-time) settlement of funds transfers individually on an order by order basis (without netting). 'Real Time' means the processing of instructions at the time they are received rather than at some later time; 'Gross Settlement' means the settlement of funds transfer instructions occurs individually (on an instruction by instruction basis). Considering that the funds settlement takes place in the books of the Reserve Bank of India, the payments are final and irrevocable. The RTGS system is primarily meant for large value transactions. The minimum amount to be remitted through RTGS is 2 lakh. There is no upper ceiling for RTGS transactions. The RTGS service for customer's transactions is available to banks from 9.00 hours to 16.30 hours on week days and from 9.00 hours to 14:00 hours on Saturdays for settlement at the RBI end. However, the timings that the banks follow may vary depending on the customer timings of the bank branches.

Electronic Clearing System (ECS)

ECS is an alternative method for effecting payment transactions in respect of the utility-bill-payments such as telephone bills, electricity bills, insurance premia, card payments and loan repayments, etc., which would obviate the need for issuing and handling paper instruments and thereby facilitate improved customer service by banks / companies / corporations / government departments, etc., collecting / receiving the payments.

Immediate Payment Service (IMPS)

IMPS offers an instant, 24X7, interbank electronic fund transfer service through mobile phones. IMPS is an emphatic tool to transfer money instantly within banks across India through mobile, internet and ATM which is not only safe but also economical both in financial and non-financial perspectives.

Objectives of IMPS:

- To enable bank customers to use mobile instruments as a channel for accessing their banks accounts and remit funds
- Making payment simpler just with the mobile number of the beneficiary
- To sub-serve the goal of Reserve Bank of India (RBI) in electronification of retail payments
- To facilitate mobile payment systems already introduced in India with the Reserve Bank of India Mobile Payment Guidelines 2008 to be inter – operable across banks and mobile operators in a safe and secured manner

H. Mobile Banking

Mobile banking is a service provided by a bank or other financial institution that allows its customers to conduct different types of financial transactions remotely using a mobile device such as a mobile phone or tablet. It uses software, usually called an app, provided by the banks or financial institution for the purpose. Each Bank provides its own mobile banking App for Android, Windows and iOS mobile platform(s).

I. Micro ATMs

Micro ATM meant to be a device that is used by a million Business Correspondents (BC) to deliver basic banking services. The platform will enable Business Correspondents (who could be a local kirana shop owner and will act as ‘micro ATM’) to conduct instant transactions.

The micro platform will enable function through low cost devices (micro ATMs) that will be connected to banks across the country. This would enable a person to instantly deposit or withdraw funds regardless of the bank associated with a particular BC. This device will be based on a mobile phone connection and would be

made available at every BC. Customers would just have to get their identity authenticated and withdraw or put money into their bank accounts. This money will come from the cash drawer of the BC. Essentially, BCs will act as bank for the customers and all they need to do is verify the authenticity of customer using customers' UID. The basic transaction types, to be supported by micro ATM, are Deposit, Withdrawal, Fund transfer and Balance enquiry.

METHOD	TRANSACTION COST	NO. OF OPERATORS
BANKING CARD	NIL to customer for merchant transactions. Annual fee and limits on ATM transaction by banks discretion. 0.50% to 2.25% paid by merchant Cash-out charged to customer in case of credit cards @ 1% to 3.5% of transaction value.	751 banks Interoperable
USSD	NIL by system Rs. 0.50 charged to customer	51 banks Interoperable
AEPS	NIL to customer Merchant or BC may get charged or paid based on bank's discretion	118 banks Interoperable
UPI	NIL to customer by most Banks Customer pays for data charges	30 banks Interoperable
MOBILE WALLET	Customer pays for remittances to bank a/c @ 0.5%-2.5% of fixed fee. May pay for data charges in self-service mode.	40 companies No Cash-Out Non-interoperable

Table 1. Comparison of Digital Payment Methods

Table 1. shows the comparison of transaction cost and number of operators of banking card, USSD, AEPS, UPI and mobile wallet. The table explains only 40 companies in India provides the application for mobile wallet. There are only 30 banks which helps the customers for UPI transactions. But in India 751 banks supply banking cards for their customers.

IV. BARRIERS OF DIGITAL PAYMENTS

Number of citizens on mobile- All Indians do not have mobiles. The latest figures from the Indian telecom regulator TRAI show that India had a tele density of 83%. Of the 1,034.23 million connections, 88.88% are only active.

Number of mobile users who are connected to the Internet: The internet connects were estimated to reach 342.65 million Internet connections by the end of March 2016, of which 20.44 million were wired connections. In India a total of 149.75 million have broadband (3G + 4G + wired broadband) and 192.9 million have "Narrowband" connections.

Availability of reliable connectivity: In many parts of the country the quality of internet connectivity is very poor and this will sure discourage people to use digital payments.

Availability of user devices: There are currently over a billion mobile phones in India, around 850 million feature/smart phones and 150 million LTE enabled phones. Out of this only 40 to 50 percent only have smart phones.

Merchant acceptance: India had 712.5 million debit cards, and 130.53 million transactions, as of August 2016. That's around 18 transactions for every 100 cards.

Payment and mobile network capacity: The banks and/or payment gateways were not in a position to handle the increased usage of credit and debit cards. Failed transactions are definitely a concern to users.

Security issues: Many are not aware of keeping the confidentiality of the PIN and OTP. Moreover, people do not change their passwords often due to their digital illiteracy.

No privacy with cashless: A switch to cashless means that each and every transaction is tracked and documented. This is great for governance, with taxation, but there is no protection for citizens, as to who owns that data, whom they can share it with, and how it will be utilized.

Language compatibility: Paytm has recently updated their application with some features where mobile handsets don't have an Indian language interface. Ola is available in Indian languages only for drivers, not passengers. Apart from Snapdeal, no ecommerce company tried going for the Indian language way. There's a part of the population in India which still isn't able to read and write.

Interoperability issues (between payment systems): Cash is interchangeable. There is a situation where State Bank of India doesn't allow payment into a Paytm wallet via netbanking, or wallet to wallet transfer isn't allowed. There's the

Unified Payments Interface, set up by the bank owned group NPCI, where the Reserve Bank of India has not allowed wallet to wallet transfers.

Merchant costs: Merchants need a working Internet connection to accept digital payments. They need to pay a monthly rental for a machine, or a Smartphone with an application to accept payments. On Credit cards, merchants are charged a merchant discount rate (MDR), an inter-bank exchange fee, of 2.5-1.7% per transaction. On debit cards, they need to pay 0.75% per transaction below Rs 2000 and 1% for transactions above Rs 2,000. For UPI, merchants are charged 0.75% per transaction plus other costs (on par as debit cards.):

V. CONCLUSION

There are at present less than 3 percent of people using the digital payment systems. The main problem being the banking illiteracy of people and concern on the safety of their deposits. This concern cannot be ruled out in a country like India which has not taken any known precautions against such frauds. Usage of plastic money and internet banking will be an intrusion on the privacy of people. It can reveal what a person buys and sells. Besides this, 43 percent of the bank accounts are dormant. The internet speed and availability is another area of problem that needs attention. Finally the costs that have to be shared by the merchants will discourage them to use POS material helping digital payments. Number of citizens use mobiles, also has to go up to reach the ideal phase of complete cashless economy.

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