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Role of E-Transactions in Financial Inclusion of Rural India: Focusing on NPCI and UPI Efforts

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Financial inclusion is defined as the availability and equality of opportunities to access financial services including banking, loan, equity, and insurance products. Financial inclusion efforts typically target those who are unbanked and underbanked, and directs sustainable financial services to them. Having more inclusive financial systems has been linked to stronger, sustainable economic development.

Achieving financial inclusion is a priority for most countries. In India also such efforts have been taken by government in different times. Committee on Financial Inclusion (CFI) was set up by the Govt. of India under the Chairmanship of Dr C. Rangarajan in 2006, It submitted its report in 2008. This Committee on Financial Inclusion (Rangarajan, 2008) defined Financial Inclusion as: "process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low-Income groups at affordable costs. Committee on Financial Inclusion (CFI) was set up by the Government of India under the Chairmanship of Dr. C. Rangarajan in 2006. It submitted its report in 2009. Around 86.6 per cent of payments were made through cash in India in the F.Y 2012. According to the report of Phonepe and Boston Consulting group in F.Y 2021-22 digital payments worth $3 trillion was processed in India. The study says currently more than 40 per cent of all transactions are done digitally.

As per the World Bank's report 2017, India is the second largest telecommunication market. Under RBI and Indian bank's Association supervision, 10 of India's leading banks invested $14 million to create NPCI in Dec 2008. NPCI Officially began operation in January 2010. RuPay is the first-of-its-kind domestic card payment network of India launched in March 2012, targeting Indian mass. In addition to the basic cards, RuPay Classic, Platinum and Select variant cards are designed for the masses and affluent customers. *99# service is currently offered by 83 leading banks and all Global System for Mobile Communication service providers and can be accessed in 13 different languages.

Unified Payments Interface (UPI) was launched on 11th April 2016 with 21member banks. UPI is a system that powers multiple bank accounts into a single mobile application merging several banking features, seamless fund routing and merchant payments into one hood. Single Click 2 Factor Authentication. Google Pay, Phonepe, BHIM app, Amazon Pay, Paytm, Mobikwick all apps are UPI based platforms. These apps customize the UPI interface according to their convenience and today through their UPI adoption they have grown gigantically.

NPCI & its several products to bring financial inclusion

NPCI (National Payments Corporation of India) birth: In earlier days after LPG (Liberalization, Privatization, and Globalization) reforms, though different efforts were initiated like URR (Uniform Rules for Bank-to-Bank Reimbursements), IDBRT (Institute for Development and Research in Banking Technology), INFINET (Indian Financial Network), there were still no formal government oversight and regulation of payments. In 2007, the Payment and Settlement System Act came to fill several gaps in payment systems and regulation. The Act clearly outlined the rights and duties of various actors in the payments ecosystem, provided clearer legal context on topics such as dispute resolution, and provided for a separate nongovernmental institution to operate retail payment systems. India's leading 10 banks (6 PSBs, 2 private banks & 2 foreign banks) were recruited by IBA (Indian Banks' Association) under RBI supervision. Each Invested US$14 million and take a 10 per cent share in NPCI. So, Government of India held indirect control through majority share in public banks. IDRBT's NFS/ Euronet switch, that was handling most of the card transactions in the country at the time, was transferred to NPCI at book value in November 2009. NPCI officially began operation in January 2010. After NFS (National Financial Switch) acquiring, NPCI began developing the Immediate Payment System (IMPS), a real time payment platform, and NPCINET, which would eventually replace the INFINET network. In 2011, RBI transferred India's CTS (Cheque Transaction System) to NPCI. Gradually it enlarged its area of operations.

Products Umbrella

At different times NPCI have introduced different products in the market for facilitating digital transactions. The list of products which are under NPCI's control are listed below:
RuPay, UPI, BHIM, APBS, AePS, NACH, *99#, NETC, Aadhar Pay, BBPS, IMPS, CTS, NFS, Bharat QR etc.

RuPay (Rupee and Payment): It is the first-of-its-kind domestic card payment network of India, targeting the Indian mass population. It was launched by NPCI in March 2012. Earlier foreign card providers (VISA, Master Card) were only options left. They charged very high fees & all the profits went out of India. From the start, personal insurance was a part of Ru Pay. Any customer who performed at least one transaction in a three- month period with the card was covered for up to Rs 1 lac in accident, life, and permanent disability insurance. All accounts under PMJDY were provided with RuPay cards. Over 461.1 million bank accounts have been opened up to January 2022 as part of the PMJDY.

CTS (Cheque truncation system): The full form is Cheque truncation system (launched in Feb 1, 2008 & transferred to NPCI in January 2011). The technology was about replacing a physical paper cheque with an electronic image during the clearing process. Here cheque images and MICR data are captured at the collecting bank branch and transmitted electronically. Without cheque truncation, the settlement period took several days & at high processing cost. Today all banks are mandatorily using CTS

BHIM app: Its full form is Bharat Interface for Money (BHIM). It is an app that let us make simple, quick payment transactions using UPI. Smaller banks usually do not have the technical expertise to develop sophisticated banking apps. So through this BHIM app, they can also provide online facilities to their customers. In July, 2022, 24.32 million transactions happened through BHIM amounting to Rs. 7,806.30 crore. But due to its public good nature it could not grow gigantically compared to other UPI service providers.

NACH (National Automated Clearing House) & APBs (Aadhaar Payment Bridge): NPCI has implemented "**National Automated Clearing House** (NACH)" to facilitate interbank, high volume, electronic transactions which are repetitive & periodic in nature. NACH System can be used for making bulk transactions towards distribution of subsidies, dividends, interest, salary, pension etc. and towards collection of payments pertaining to telephone, electricity, water, loans, investments in mutual funds, insurance premium etc. Today, CTS and NACH are only two NPCI services that are mandatory for all banks to use.

NACH's **Aadhaar Payment Bridge** (APBS) System, developed by NPCI has been helping the Government in making the Direct Benefit Transfer scheme a success. APB System has been successfully channelizing the Government subsidies and benefits to the intended beneficiaries using the Aadhaar numbers.

IMPS (Immediate Payment Service): Its full form is Immediate Payment Service (IMPS). Till 2010, only NEFT & RTGS were available to user for fund transfer and that was only during banking hours. Any such 24*7*365 real-time interbank facility was not there. With the above context, NPCI conducted a pilot study in August & Immediate Payment Service (IMPS) was launched on 22nd November 2010 .It provides a robust & real time fund transfer which offers an instant, 24X7, interbank electronic fund transfer service. It could be accessed on multiple channels like Mobile, Internet, ATM, SMS. Currently on IMPS, 647 members are live which includes banks & PPIs (Prepaid Payment Instruments, like vouchers). This facility is provided by NPCI through its existing NFS switch.

UPI (Unified Payments interface) 2.0

UPI 2.0 was released in August 2018. UPI 2.0 was released in August 2018. The new version included overdraft and the ability to pay later, among other features. Originally, UPI 2.0 was to use biometrics; however, this feature ultimately was not approved by RBI. UPI 2.0 omitted an earlier feature whereby an Aadhaar number could be used as a payment address. UPI is now wholly separate from the Aadhaar infrastructure and related payment schemes that NPCI operates under AePS and APBS.

1. International expansions: UPI has seen rapid growth due to the growing ecosystem encouraged by banks and added payment service players and added cumulative adoption by the users, NPCI launched an advanced version of UPI called UPI 2.0. Improvements in August 2018 with security, ease of use for clients open new se cases for industries and expand the UPI ecology. The Est global transactions initiated using the BHIM UPI was executed in Singapore on 15th Nov, 2020. After that UAE, Nepal, Bhutan joined hands with NPCI to welcome UPI in their countries. In 2020, RBI and NPCI established NPCI International Payment Limited (NIPL) as the latter's subsidiary to expand the deployment of UPI and RuPay solutions outside India. NPCI launched UPI lite-On-Device wallet to enable small-value transactions in offline mode. Similarly, it introduced the 123Pay UPI service to bring UPI to feature phone users

2. Rural backlogs: Acc. to a study by the Internet and Mobile Association of India (IMAI), around 16 per cent of the rural users access the internet for digital transactions, as compared to nearly 45per cent of the urban users. In 2022, a field research was done by 1 Bridge, one of India's leading village commerce networks (presence in over 10000 villages), to understand the preference and usage of UPI payment patterns in rural areas. According to the survey, a mere 3-7per cent of rural India actively uses any UPI platform to make payments. Only 15per cent of all transactions accounted for are online payments. 11per cent of the digital transactions are loans or repayments between individuals.

Tele connectivity across the states

Telephone and internet connectivity is an important determinant of electronic transactions as well as financial inclusion. In India most internet users are mobile wireless users. Telephone density or Tele density is the number of telephone connections for every 100 people living within an area.Telephone density has significant correlation with the per capita GDP of the area. Rural tele density of India is 60.27per cent. While among states Kerala & Himachal Pradesh are only states with >100 rural tele density. This rural tele density will be used in regression analysis of electronic transactions.

Highlights of Telecom Subscription data as per 31 December, 2024 of India

Particulars	Wireless	Wireline	Total (Wireless+ Wireline)
Broadband Subscribers (Million)	866.19	38.35	904.54
Urban Telephone Subscribers (Million)	633.44	29.12	662.56
Net Addition in December, 2024(Million)	2.72	0.26	2.98
Monthly Growth Rate	0.43per cent	0.89per cent	0.45per cent

Categorization of states according to tele density

Based on the data of rural tele density the states can be classified into different groups.

High rural tele density states (>70):Kerala, Himachal Pradesh, Andhra Pradesh, Telangana, Gujarat, Punjab, Karnataka, Haryana

Medium rural tele density states (55 to 70): Goa, Maharashtra, Tamil Nadu, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Odisha, Rajasthan, Jammu & Kashmir, West Bengal

Low rural tele density states (<55): Assam, Uttar Pradesh, Uttarakhand, Bihar, Jharkhand

E-payments in Agri sector

Here are few schemes through which government transfers online money to bank account of beneficiaries (DBT). To include only agriculture, these can be referred. Like PM KISAN scheme there are various state government schemes also for example, Krishak Bandhu scheme of West Bengal, Rythu Bharosa scheme of Andhra Pradesh, electricity subsidy DBTschemes of Punjab, Telangana etc.

Farmers also get online payments from traders after sale of their produce through online portal like -NAM, AGMARKNET, Rashtriya e Market Services Private Limited (ReMS) etc.

Policy suggestions to improve the present status

1. **Improvement in infrastructure**: Low-cost smartphones are to be designed especially for rural areas with regional languages. Speedy implementation of the policies like Bharat Net Project should be focused for improvement in banking services especially online services. Electricity in far-fledged villages should be ensured.
2. **Digital literacy**: Digital literacy is one of the biggest hurdles in transition toward cashless economy. Common Service Centre (CSC) should be spread across the country, computer education in schools promoted, self-help groups (SHGs) should be trained and encouraged to spread digital literacy.

Trust building & incentivization: Though trust building takes time, suitable advertisement strategies and promotion of cashless economy can help. Retailers and distributors must be encouraged to use digitalization more. Government Incentives such as 'Lucky Grahak Yojana' and 'Digi-Dhan Vyapar Yojana'.

Conclusion

The Unified Payments Interface (UPI) and NPCI (National Payments Corporation of India) has emerged as a powerful tool in promoting financial inclusion and empowering the unbanked population in India. By providing a simple, accessible, and affordable payment solution, UPI has empowered millions of unbanked and underbanked individuals to participate in the formal financial system. NPCI has launched the RuPay card payment scheme, which has increased the accessibility of financial services across the country. By providing basic banking facilities such as savings accounts, remittance services, and insurance products, SFBs have empowered individuals in rural areas to participate in the formal economy. This inclusion helps rural communities overcome financial barriers, build assets, and secure their financial future.

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