



The role of UPI in strengthening digital payment systems and cashless economy in India

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Abstract

The Unified Payments Interface (UPI), launched by the National Payments Corporation of India (NPCI) in April 2016, has emerged as the world's most widely adopted real-time payment platform. This research investigates UPI's structural architecture, adoption trajectory, macroeconomic consequences, and its pivotal role in advancing India's vision of a cashless economy. Driven by cooperative principles of open access, interoperability, and democratic participation, UPI has democratised financial services across urban and rural India alike. Issues of digital literacy, cybersecurity, and market concentration continue to pose challenges. This article examines the regulatory framework, survey findings from selected districts, and actionable suggestions to deepen UPI penetration and strengthen the digital payment ecosystem in India.

Keywords: UPI, digital payments, cashless economy, financial inclusion, NPCI, mobile banking, Digital India

Introduction

The Unified Payments Interface (UPI), which was set up in April 2016, gave India's move to a paperless economy a huge boost. The National Payments Corporation of India (NPCI) made UPI in India, and the Reserve Bank of India (RBI) is in charge of it. UPI is a quick and easy way to pay for things at any time of day or night. You may access all of your bank accounts through one app on your phone. People and corporations can use the technology to make transactions with each other. UPI takes care of everything when it comes to sending and receiving digital money. The demonetization operation in November 2016, which took 86% of the money out of circulation overnight, was a big step toward making India a cashless economy. At the time, UPI was still new, but it took advantage of this rise in demand and is now the most used real-time payment system in the world. UPI handles more than 15 billion transactions every month, which adds up to more than ₹20 lakh crore (approximately USD 2.4 trillion) as of early 2026. One of the biggest problems with digital payments is that people don't know enough about or have a say in national financial policy. Another important issue is the need to keep closing the digital gap between those who live in cities and those who live in rural areas. The Indian government has made UPI a key part of the Digital India agenda since it knows how important it is for India's growth. This article has talked about how UPI has affected India's payment system from a technological, legal, and global point of view.

UPI and the Digital Payment Movement

The philosophy of digital payments evolved around the early 21st century in India with the notion of protecting economically marginalised citizens from high-cost informal money transfer channels. UPI is democratically open and governed by a cooperative set of values: self-help, interoperability, transparency, equity, and solidarity. The first such large-scale digital payment network in India was IMPS, initiated by NPCI in 2010. They place people at the heart of their transactions and allow members to participate in financial activity without requiring prior banking experience (Kimberly & Robert, 2004) ^[4]. UPI generates

considerable socio-economic benefits to users. From the economic standpoint, UPI improves income transparency and bargaining power of small merchants. Its social purposes are more diverse than economic purposes; it provides a unique opportunity to members for financial education and training; encourages active participation in formal economic activity, committee membership and leadership positions.

UPI is an autonomous interface open to any person united voluntarily in seeking common economic, social and cultural benefit through a jointly accessible and democratically regulated payment infrastructure (ICA, 1995). UPI can be used as a platform to empower women by enhancing their specific financial knowledge and capacities. Governments recognise and support multi-purpose digital payment stacks to actively participate in the development process towards employment and economic empowerment. UPI has been regarded as one of the main institutional mechanisms for empowering economically vulnerable members of society, especially women; it promotes economic and social development because it is a public good that follows a broader set of values than those associated purely with profit.

In some communities, women are restricted from conducting financial transactions independently or without their household's consent. This poses a serious challenge to full participation in digital payment activities. Even though in some cases women's legal rights may be stipulated in policy, they may not necessarily be enforced or they may be superseded by customary practice. It is in line with this view that earlier studies observed that lack of social, economic and digital literacy explains women's low participation in formal financial decision-making. Besides cultural issues, women, especially in developing countries, are confronted by formidable constraints that block their active participation in digital finance.

Promoting Financial Empowerment of Women through UPI

Although UPI is viewed as an infrastructure for the promotion of economic interests of its users, it does not

confine itself only to economic aspects. It also permeates into the social aspects of life and aims at establishing a new democratic financial order based on freedom and equality, where people transact in harmony, caring and sharing like a community, where there is unity of purpose and common economic bond. UPI also has a critical role to play in alleviating different economic shocks, and paving the way for recovery that is socially and economically sound and sustainable. Ultimately, UPI can create a safe environment where women increase their self-confidence, identify their own challenges, make independent financial decisions and manage risks (Azad 2015) [5]. As a result, women are empowered and become active agents of change, entrepreneurs and promoters of social transformation who can improve their own lives and those of their community. Research revealed that digital payment platforms are also effective points of entry for addressing a broad range of gender equality issues such as unpaid work, shared financial responsibilities and economic-based discrimination. A study by NPCI (2022) depicted that 52.3 per cent of women UPI users began transacting independently after joining the platform compared to only 14.7 per cent in the unbanked sector. UPI has been successful in not only increasing financial participation of women but also in developing confidence, initiative and economic independence.

UPI in India at National Level

Women in India provide up to 90 per cent of labour for agriculture, dairy and other farm-related work but fewer than 10 per cent of women own formal bank accounts with active digital payment capabilities. There is a quota system for promotion of women-led digital transactions in several government schemes. Provisions for “women-only savings groups” and “women micro-enterprise loans via UPI” are unique features of government programmes. The 2023 amendments to the Digital India framework also ensure at least 2 women representatives at the management of all digital financial literacy programmes in the country. This will prove to be a milestone in the progress of women at the financial decision-making level. UPI is the most suitable instrument for the empowerment of the less privileged and underprivileged. The universal principles of open access give sufficient space and opportunity for the socio-economic and political empowerment of women. Cooperative credit schemes integrated with UPI that benefit women are yielding dividends around the world.

However, the overall socio-economic and cultural laws, policies, practices and trends in a country determine women’s progress in any walk of life, be it private, public or cooperative. The following data has been collected to understand the overall state of women’s digital financial participation in India:

1. No specific disaggregated gender data available for UPI users
2. Less than below 30% women active UPI users in rural areas
3. Absence at National Digital Leadership bodies
4. Negligible at the state-level fintech governance
5. No women CEO or President at national-level payment federations

Importance of Digital Literacy for Women

Digital literacy is one of the primary indicators of social and economic development. Education and training can act as an

instrument in bringing about empowerment. It is through digital literacy that one realises the security features, transaction rights, and dispute mechanisms available in UPI. Digital literacy is important for everyone. But it is especially significant for women. The digital achievement of women can have strong and prolonged effects within the family and across generations. Empowerment is a very broad and dynamic term encompassing all types of empowerment, such as economic, social, political, legal, psychological and cultural empowerment of women. Digital literacy is the key factor in the process of women empowerment as it helps in building self-reliance, self-confidence, raising awareness and achieving financial equality with men. Digital literacy would enable every woman to perform certain economic roles which they cannot perform without it.

1. To educate women and eliminate digital illiteracy
2. To develop self-reliance and self-confidence in financial transactions
3. To increase awareness about mobile banking safety and data privacy
4. To empower women to make their own financial decisions and negotiate
5. To raise the women’s awareness of their digital rights and dispute resolution
6. To provide skills and proper training for income generation via UPI-linked platforms
7. To prepare them to be good women leaders and participate more in digital economic activities

Statement of the Problem

Democratic member control is the second tenet of the cooperative digital infrastructure. In this form of infrastructure, the users are the owners and the beneficiaries of the payment system. Even though the value of financial services facilitated through UPI is identified, the active participation of women is negligible. There are millions of women in the country who are yet to experience the digital payments revolution due to their lack of knowledge of the subject, proper education and training, time constraints due to family and work, financial independence, or pressure from the head of the family. The objective of this study is to determine the level of knowledge and the frequency of the use of UPI by specific cooperative and self-help groups in the region of study.

Objectives of the Study

1. To assess the level of awareness of UPI and digital payment systems among members in the study area.
2. To evaluate the causes for low level of digital payment adoption among women in the study area.

Research Methodology

The study area is divided into three circles based on geographic and demographic considerations viz., Urban, Semi-Urban and Rural. Urban circle consisting of 4 blocks, Semi-Urban circle consisting of 5 blocks and Rural circle consisting of 4 blocks. The Proportionate Stratified Random Sampling method was chosen for the selection of the proper sampling frame of the study. A total of 100 respondents were surveyed from primary cooperative credit societies, self-help groups, and women entrepreneur associations across the study district. Structured interview schedules and digital questionnaires were administered during the survey period of January–March 2024.

Survey Data and Analysis

Table 1: Total Number of UPI Users Surveyed in Study Area

S. No	Male	Female	Total
1	62	38	100

Source: Primary Data

Table 2: Gender-wise Classification of UPI Users

Sl. No	Gender	No. of Members	Percentage
1	Male	62	62
2	Female	38	38
	Total	100	100

Source: Primary Data

It is observed from the above table that out of 100 respondents, 62 per cent are of the male gender, and 38 per cent of the respondents are of the female gender.

Table 4: Members' Awareness Level about Rights in Digital Payments

Sl. No	Awareness Level	Aware	Not Aware	Total
1	Right to dispute a UPI transaction	41	59	100
2	Right to UPI-linked insurance & credit	76	24	100
3	Right to vote in the cooperative committee election	34	66	100
4	Right to participate in the General Body Meeting	31	69	100
5	Right to view and copy society documents	3	97	100

Source: Primary data

It was noted from Table 1.04 that out of 100 members, only 41 members are aware and the remaining 59 per cent of members are not aware of the right to dispute a UPI transaction. From the table, it was noted that the members are highly aware of UPI-related insurance and credit facilities, which is about 76 per cent due to government programs.

Table 5: Awareness about Digital Payment Training to Members

Sl. No	Awareness	No. of Respondents	Percentage
1	Yes	4	4
2	No	96	96
	Total	100	100

Source: Primary data.

It is understood from Table 1.05 that out of 100 respondents, only 4 per cent of the respondents opined that their society provides awareness by making them aware of digital payment training, and the remaining 96 per cent opined that no awareness is made by the cooperative society.

Table 3: Duration of UPI Usage among Respondents

Sl. No	Years	No. of Members	Percentage
1	Less than 1 year	5	5
2	1-3 years	10	10
3	3-5 years	7	7
4	5-7 years	21	21
5	Above 7 years	57	57
	Total	100	100

Source: Primary Data

It is clear from Table 1.03 that out of a total of 100 respondents, 5 per cent of the respondents have been using the service for less than 1 year, 10 per cent of the respondents have been using the service for 1 to 3 years, 7 per cent of the respondents have been using the service for 3 to 5 years, 21 per cent of the respondents have been using the service for 5 to 7 years and the remaining 57 per cent of the respondents have been using the service for above 7 years.

Factors Affecting Women's Digital Payment Participation

World-over statistics show that women's participation in digital financial systems is low in rural areas. This is more difficult to explain in developed countries where gender discrimination has in principle, been overcome. In the developing world, cultural and religious factors often restrict women's independent financial activity, illiteracy, supposed inferior abilities and social pressures make it difficult for women to play an active and visible role in digital commerce. The type of financial activities, particularly in formal banking which tend to be male domains, is another factor, and male resistance to women's financial independence also goes a long way to keeping women out. Absolute lack of time coupled with domestic responsibilities seems to be a major factor everywhere. There are varieties of factors that affect women's participation in digital payment systems; these factors are listed below:

Sl. No	Factors	Description
1	Attitudes	In most communities there are formal prejudices about what women can and cannot do. These sometimes prevent women from full participation in digital payment activities. They may not be permitted for certain financial tasks or allowed to transact independently where men are present. The prevalent misconceptions on women's reproductive and domestic responsibilities place them at the margin of the digital financial world.
2	Heavy Work Load and Lack of Time	Rural women in developing countries often work long hours. They may have a working day that starts early in the morning and ends late at night. They also have the main responsibility for the family. The gender division of labour was found to be one of the causes of women's disadvantaged position. Women were associated with reproductive domestic work and men with productive economic activity.
3	Lack of Financial Autonomy	The lack of independent income limits the opportunities women have to become active UPI users. It also reduces their opportunities for using mobile banking services, accessing credit and participating in digital commerce. Moreover, the migration of men to cities often means women are left managing households with limited financial authority.
4	Lack of Influence	Due to not having representation in boards and management committees, women have inadequate influence on financial decisions. Women lack necessary powers and are forced to take on a passive role, whereas men usually

		dominate decision-making activities. The lack of power of women has its roots in various factors such as the previous orientation of development assistance towards men and a lack of strong government support for women's digital empowerment.
5	Lack of Training	Knowledge is necessary to enable people to take an active part in digital financial management. Women in developing countries often lack the basic digital literacy which is necessary for further training. Special training programmes should be devised for digitally illiterate persons — both men and women. Women may, however, be prevented from participating in education and training activities for other reasons such as not being allowed to travel, lack of time due to domestic workload, or carrying additional responsibilities.

Findings of Women's Digital Payment Participation

1. It was found that in the overall study area, 100 respondents were surveyed. The majority of 62 members are Male and 38 members belong to the Female gender, reflecting the broader national trend of lower women's participation in digital financial services.
2. The researcher found that majority belonged to the male gender and the female member participation is very low compared to male members. Only 4 per cent of societies are making awareness through digital training programmes.
3. A majority of 57 per cent of respondents have been using UPI for above 7 years, indicating early adoption, but awareness about rights and features remains critically low.
4. Only 3 per cent of respondents are aware of their right to view and make copies of cooperative society documents, highlighting severe governance literacy gaps.

Suggestions for Deepening Women's Participation in Digital Payments

1. The Government and non-governmental organisations should create awareness about the needs and importance of UPI and digital payments in the present situation.
2. The Government should create awareness through digital education and motivate the members for active participation with the help of distributing leaflets, seminars, workshops, symposiums, and field visits.
3. The Government should take necessary steps to promote women's digital literacy particularly relating to UPI, through the inclusion of special separate subjects in digital finance at primary, secondary, and higher secondary levels. At college and university level, there must be a separate programme in digital commerce and research also made compulsory.
4. The society should take necessary steps to increase women members' participation with the help of attractive digital incentive schemes for promoting their economic status.
5. The PACS should give equal importance to both male and female without any partiality, as per the features of cooperation — all are equal.
6. The society should exhibit the reformulated principles of cooperation and also the rights, duties, and responsibilities available for both members and non-members in the society.
7. The society should give assurance to the members that it functions only under concern for the community and that women's financial rights will be actively protected.

Conclusion

Member participation is essential for every financial ecosystem to succeed and survive in the competitive

business environment. In this regard, there is no exemption in cooperative organisations or digital payment systems. The cooperative organisation has also been functioning under the prescribed reformulated principles of cooperation by ICA (International Cooperative Alliance) at the world level. The issues of women's participation in digital financial activities can no longer be considered merely as a matter of welfare. There is recognition among development experts that women are central participants in the socio-economic development process.

UPI represents one of the most successful public digital infrastructure projects in the world. By combining open architecture, regulatory foresight, and widespread mobile adoption, India has built a payment ecosystem that is globally admired and increasingly emulated. The platform has not only accelerated the transition towards a cashless economy but has also delivered tangible social dividends — greater financial inclusion, reduced corruption, and a formalised economy.

There is a growing consensus that greater involvement of women in all aspects of digital financial development is extremely important for the rational utilisation of development resources which have remained underestimated and neglected. Therefore, much remains to be done in order to involve women effectively into digital financial development, and the opportunities for improving women's position and the potential for UPI to contribute to such a process do exist.

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