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Women's Economic Empowerment Through Digital Financial Inclusion in Rural India: A Review

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Abstract

In the rural context of India, women's access to formal financial services is limited but for women's economic empowerment digital financial inclusion has been a game-changer as they are traditionally excluded from formal financial services because of structural barriers. the evolving economic agency of rural women in the context of growing digital financial services like mobile banks, digital payment platforms and self-help groups linkages and government to person transfer mechanisms. It builds on the evidence from the Pradhan Mantri Jan Dhan Yojana (PMJDY), the Unified Payments Interface (UPI) and the direct benefit transfer (DBT) architecture, and reviews connections between account ownership, access to credit, digital literacy and income generation, savings rates, household bargaining power, and entrepreneurship. The review engages four dimensions for analysis: policy and infrastructure context, socio-cultural factors in the adoption process, quantifiable economic empowerment outcomes and the role of digital literacy and agency as an intermediary process. Findings reveal that while the number of accounts that rural women have been able to access has increased greatly, there is still a huge gap between having a nominal account and having an autonomous and active one, which is hindered by gendered norms, unequal network access, gendered ownership of technology and decision-making, and digital illiteracy. The paper thus concludes that digital financial inclusion is only a necessary, but not sufficient, enabler of empowerment and that its emancipatory potential resides in other investments that complement it: digital capability, gender-sensitive product design and last-mile human intermediation. Future research directions are proposed: incorporation of new types of financial technologies, intersectional analysis and longitudinal evaluation of impact.

Keywords: women's economic empowerment; digital financial inclusion; rural India; mobile banking; digital literacy; financial technology

1. Introduction

Gender, Finance and Technology is one of the most significant sectors of development today in India's context. For many years, women in rural areas were among the poorest individual groups in the world, and one of the least banked, least formally creditable, least insured and least safe in saving. Over the past decade, various digital financial services have emerged and are now threatening to break the brick wall as an alternative to brick-and-mortar. This review explores the evidence that has so far been built up on the question whether, and how, digital financial inclusion can foster the economic empowerment of women in rural India.

1.1 Conceptualizing Women's Economic Empowerment

Economic empowerment of women can be understood as multi-dimensional process which involves increasing women's capacity to make and execute economic decisions, access resources and engage in markets in an equitable manner. Kabeer's conceptual bases make the distinction between resources, agency and achievements: empowerment is the expansion of the capability to make strategic life choices where previously such choices were denied. Financially, this means access to income, control of savings, ownership of productive credit and a voice in decisions about the economy at household and community level. Recent scholarship emphasizes that access to resources alone does not necessarily indicate empowerment, there should be observable changes in well-being and autonomous agency (Suri & Jack, 2016). This is the basic distinction that will be considered in the course of this review and which will be recurred to several times as it is the distinction between the giving of financial instruments and the substantive empowerment they are supposed to engender. Empowerment is a relational and processual phenomenon in this reading, it is not just given as a gift, but is contested in the households, markets and communities in which it occurs. A woman who is given a subsidy in her own account has a resource–whether she can control how the money is spent, whether she can resist pressures to hand over the money, and whether she can take decisions about how to use it based on her own economic priorities is the difference between a resource and empowerment. Hence, in this review, indicators of economic empowerment, such as control over resources, economic choice and material well-being are treated as observable indicators.

1.2 The Digital Financial Inclusion Paradigm

Digital financial inclusion is the provision of financial services via digital means, such as payments, savings, credit and insurance, to those that were not adequately served by the traditional financial system. The paradigm in the Indian context has its foundation in the 'India Stack' which includes the Aadhaar biometric identity system, Jan Dhan account network, and the Unified Payments Interface. Due to these coincidences, it is possible to open an account and transact on a scale never witnessed in the developing world (Chatterjee, 2020). This paradigm has the potential to remove the hurdles of distance, cost and gatekeeping faced by rural financial systems in the past and thus allow rural women to be more active in using financial systems. But with the paradigm, also come some new forms of dependency: the smartphone, network connectivity, and digital competence – and these too are of a gendered nature, in terms of exclusion. The potential for financial inclusion through digital financial services rests on a variety of assumptions: that the cost of transactions and travel is lower than with other financial services, which will encourage women to more frequently access digital financial services and make smaller transactions; that the increased privacy afforded to digital financial services might also help to prevent women's money being immediately routed to household consumption; and that digital financial services can evade traditional gatekeepers to women's financial services. But each is conditional. Cost savings are applicable for those who own and can use the technology, privacy for women can only be established if women and no one else is in control of the technology, and disintermediation can be undone when new intermediaries (male family members, agents, or shopkeepers) come into the chain of transactions. The paradigm, in short, is a set of possibilities, only realized if the social conditions of the use thereof are sufficient.

1.3 The Rural Indian Context

In rural India the landscape of possibilities and constraints is unique. Around two third of the population lives in rural areas where people are engaged in agrarian livelihoods, earn seasonal income and have weak financial systems. Women in these contexts suffer from several disadvantages: low literacy rates, low mobility, few assets, women's access and engagement with public institutions is constrained by social norms. The self-help groups (SHG) movement, particularly that of National Rural Livelihoods Mission has been an important instrument of rural women's linkage with formal finance from a long time (Kumar et al., 2019). This institutional foundation is now being compounded by the digital revolution, and we wonder whether technology makes the empowering aspects of a collective finance even more so, or turns up some other exclusionary frictions. Rural India too is diverse and therefore it is not possible to give a broad picture. The infrastructural readiness level across states and regions is very uneven: the provision of network coverage, electricity, banking correspondents and the literacy level of women vary significantly, producing different effects of the same national policy in different areas. As a whole, digital financial inclusion has gone a long way in some States with good SHG federation development and higher female literacy rates, but is constrained by connectivity challenges and entrenched gender norms in other States. It should not, therefore, be taken lightly to smooth that variation from the analysis of that evidence and consider, instead, what parameters work and don't work for digital finance.

1.4 Objectives and Scope of the Review

This review has four aims: to provide an overview of policy and infrastructural changes that have influenced the process of rural women's digital financial inclusion; to provide a summary of the factors that influenced adoption and use of digital financial inclusion; to examine the role of digital literacy and agency as mediators in the inclusion process; and to assess the empirical findings regarding economic empowerment outcomes. It is based on peer-reviewed and policy documents from 2015 to 2024 covering the time of the launch of PMJDY, the growth and consolidation of PMJDY, and the acceleration of digital transfers during the pandemic. It applies a thematic synthesis approach, involving quantitative impact studies and qualitative field-based research and policy analysis to create a ‘thick description’ of the state of knowledge. To supplement the search of potential sources from the major bibliographic databases and policy repositories using various combinations of digital finance, financial inclusion, gender, empowerment and rural India related terms, backward and forward citation tracing of key papers was also conducted. The focus was on studies with rigorous empirical designs and those that were set in the rural Indian context; a few foundational conceptual and comparative studies were included to provide anchor in the theoretical framing. The resulting synthesis is structured to make it easy for the reader to see where in the

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chain of infrastructural access to socio-cultural and cognitive conditions to empowerment outcomes the emancipatory promise of digital finance is likely to be realised or prevented.

Table 1: Key Digital Financial Inclusion Initiatives Relevant to Rural Women in India

Initiative	Year	Relevance to Rural Women's Empowerment
Pradhan Mantri Jan Dhan Yojana (PMJDY)	2014	Mass account opening drive; a majority of new women account holders came from rural areas, establishing the entry point to formal finance.
Aadhaar-enabled Payment System	2016	Biometric authentication allowing account access without literacy or documentation barriers at banking correspondent points.
Unified Payments Interface (UPI)	2016	Interoperable real-time payments enabling low-cost transactions and micro-enterprise sales for women entrepreneurs.
Direct Benefit Transfer (DBT)	2015	Routing of subsidies and welfare directly into women's accounts, increasing their control over household resources.
PM-KISAN & Pandemic Relief Transfers	2019–2020	Crisis-period cash transfers into Jan Dhan accounts that activated dormant accounts and demonstrated digital rails' reach.

Note. Compiled by the authors from policy literature reviewed (2015–2024).

2. Literature Review

There has been a lot of literature since 2015 on the subject of financial inclusion of women in rural India and empowerment via digital financial inclusion. The evidence in this section is grouped by four thematic strands, each focusing on a particular causal pathway between digital access and economic empowerment.

2.1 Policy Infrastructure and the Expansion of Access

The impressive progress towards financial access is well documented, and is connected to the government-mandated digital solutions. The launch of PMJDY in 2014 led to hundreds of millions of account openings, primarily for women, and mainly from rural areas (Chatterjee, 2020). The analyses of the Global Findex data suggest that significant strides have been taken in reducing gender gaps in account ownership in India over the course of the review, perhaps because of features of the Indian model, such as the requirement for biometric verification and mandatory use. The scholars underline that the universal identity (Aadhaar) and the basic accounts along with the mandatory transfers from the government created a supply-side push, one that circumvented the demand-side resistance, often associated with voluntary financial inclusion programmes (Sharma & Kukreja, 2021). A consistent message too in the literature: “Ownership of the account is not necessarily a good sign of being included.” Many of these PMJDY accounts were not used and researchers have differentiated between nominal access and actual use of the PMJDY account as a more relevant indicator of inclusion (Ghosh & Vinod, 2017). Banking correspondents and business facilitators, as providers of the 'last mile' banking services in villages where banks are not present, also receive attention in the infrastructural literature (Kumar et al., 2019). The pandemic period provided the natural experiment, with the activation of previously ‘dormant’ Jan Dhan accounts due to emergency cash transfers to these accounts, and also highlighted the extent and fragility of the digital rails (Pal & Singh, 2022).

2.2 Socio-Cultural Determinants of Adoption and Usage

The other one reaches maturity quickly and is a question of the non-correspondence between access to and utilization of a resource: it is answered in the socio-cultural context of rural homes. Patriarchy has been demonstrated in various ways in the studies on women's access to digital finance: patriarchy in financial decision making and patriarchy in digital devices (Rao & Malapit, 2019). A woman will have a cell phone but the required cell phone will always be in the hands of a male family member and the use of the cell phone will be mediated and supervised (Aggarwal et al., 2021). Additionally, low mobility of women (and low mobility of male banking correspondents) is likely to decrease the uptake of digital services, as the social norms do not allow women to travel easily to access the banking correspondents who are mostly male in nature (Rao & Malapit, 2019). In the qualitative studies, it has been found that limited education is a concern especially for women because of lack of trust, fear of fraud and fear of making an irreversible mistake online (Sinha & Azad, 2018). Gender and caste and class intersect in differential patterns of adoption which adds to the double discrimination of women from the marginalised sections of the society (Bhatia & Singh, 2023). Likewise, the SHG movement acts as a counterweight in this literature as it is through the SHG that the people can get the peer support and learn from each other, and also get a socially accepted platform to do the financial transactions that are beyond the boundaries of personal morality (Kumar et al., 2019). The overall collection addresses the issue of technology being an individual and not a technological choice

2.3 Digital Literacy and Agency as Mediating Mechanisms

A third thread is around digital and financial literacy as a way to access and empower. A trend that came out is women's less use of smart phones, Internet access and digital skills, which systematically limit their capacity to transition account access to autonomous action on the economy (Aggarwal et al., 2021). Financial literacy trainings have been reported to be having a significant impact on the likelihood of independent use of devices for SHG women from rural areas (Sinha & Azad, 2018). The notion of literacy is divided into functional literacy (which is being able to complete a transaction) and empowering literacy (confidence and knowledge to make informed financial decisions) and only empowering literacy has a proven potential to result in agency (Mishra & Kar, 2020). Digital tools are theorised to mediate the relationship between women and men; tools can reduce transaction costs, and can be private, which may allow women to do more without male supervision—but only if the women have the ability to use the tools independently (Suri & Jack, 2016). In this respect, comparative and international evidence is brought up, such as mobile money systems in East Africa, but it will depend on the context whether or not benefits can be transferred to the Indian context (Suri & Jack, 2016). The literature all agree that the capability investments – in this study, literacy building – are required to transform infrastructural access into the "empowering access.

2.4 Empirical Evidence on Economic Empowerment Outcomes

The fourth strand focuses on empirical evidence on outcomes; understanding whether or not there are income, savings, entrepreneurship and intrahousehold bargaining power gains from digital financial inclusion. Positive studies on the relation between access to finance and saving behavior of women, however, show that: Access to private saving account through digital mode may help to improve women saving rate and saving frequency without any direct claims on household (Ghosh & Vinod, 2017). The picture regarding access to credit is more nuanced: digital credit platforms and linkages with banks through SHG have been beneficial for women's access to micro credit, although there have been mixed views on over-indebtedness and credit being misused for male-dominated activities (Bhatia & Singh, 2023). The literature on entrepreneurship reveals that challenges faced by women entrepreneurs in micro enterprises with regards to accessing a larger market and formalising modes of payment have been addressed through UPI and acceptance of digital payments. Perhaps the most significant of the results pertain to intra-household bargaining: research with experimental and quasi-experimental designs shows that when transferred into women's own accounts (rather than household or male accounts) resources are more likely to be spent on women, and women are more likely to have control over how the money is spent within the household (Field et al., 2021). But this gain literature has endeavoured to ambulance. Impacts are differential, as sometimes the women who are marginally educated and mobile or who are a member of SHG may feel the impacts first which could increase intra-gender inequality and the overall gender gap (Mishra & Kar, 2020). So the conclusion of this strand is one of cautionary optimism: Digital financial inclusion has empowerment effects, they are real, they are conditional, and they are not universal, depending on other complementary factors mentioned in previous strands.

Table 2: Summary of Thematic Findings and Representative Studies (2015–2024)

Thematic Strand	Key Findings	Representative Studies
Policy infrastructure & access	Dramatic account expansion via PMJDY and Aadhaar; narrowing gender gap in ownership but persistent dormancy and access–usage gap.	Chatterjee (2020); Demirgüç-Kunt et al. (2018); Ghosh & Vinod (2017)
Socio-cultural determinants	Patriarchal device control, mobility norms, and trust deficits limit autonomous usage; SHGs act as countervailing enablers.	Rao & Malapit (2019); Aggarwal et al. (2021); Kumar et al. (2019)

Digital literacy & agency	Digital gender divide constrains usage; literacy interventions raise independent use; agency mediates access-to-outcome link.	Aggarwal et al. (2021); Sinha & Azad (2018); Suri & Jack (2016)
Empowerment outcomes	Positive but conditional effects on savings, entrepreneurship, and bargaining power; heterogeneous and unevenly distributed gains.	Field et al. (2021); Pal & Singh (2022); Mishra & Kar (2020)

Note. Synthesized by the authors from the reviewed literature.

3. Conclusion

This review has taken 10 years of academic research on the link between digital financial inclusion and women's economic empowerment in rural India and distilled its key findings into a cohesive whole. Evidence is used to make an informed and qualified conclusion. Conversely, the formal financial access of rural women as a result of the state-led digital financial architecture (PMJDY, Aadhaar, UPI and DBT system) has been spectacular, bringing down the overall gender gap in financial access and offering a platform for infrastructural that would have seemed unfathomable ten years ago. The review also establishes, however, that there is a very real lack of substantive empowerment even though there may be nominal access and that this lack has led directly to harmful consequences. Patriarchal access and decision making, restricted mobility, lack of trust and fear of fraud, as well as a digital gender gap requiring women to have intermediaries to use their accounts are all examples of socio-cultural norms that have been undermining emancipatory potential and are constraining the use of digital finance among rural households, while ownership is rapidly surpassing this development.

The key takeaway from this review is that digital financial inclusion can serve as a precondition but not a sufficient condition for women's economic empowerment. Digital access to an account provides an opportunity for empowerment, but along with it come complementary factors such as digital and financial literacy, self-managed access to devices and gender-smart products and delivery. These complements, where they exist, are reported to bring about real increases in savings, in entrepreneurial involvement and in intra-household bargaining power. Digital access, if such access lacks them, can become a ‘virtual illusion' or even a medium that reinforces inequalities in a ‘digital' manner. Women with an initial advantage in education, mobility or group membership benefit the most, showing that if digital financial inclusion is not considered from an equity perspective, it can exacerbate gender inequality within the female population, while reducing the overall inequality between women and men.

The results also have clear policy implications for policymakers: The frontier of financial inclusion policy is no longer account opening but usage. The game changers to make access to empowerment are last mile digital literacy, financial literacy via the banking correspondents and it is female,

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vernacular language interfaces and SHG based financial ecosystems. Digital financial inclusion is not a technology itself, but a socio-technical process that can set the developmental promise only if it is supported by a continued and complementary investment with a gender-inclusive approach. Lastly, measurement, and expectation setting, are important. The number of people who penetrated the accounts can make it seem like success and divert attention from the longer-term, harder work of getting to autonomous usage and usage into agency. In a sense, there is an honest accounting, recognising that digital finance is one of many important tools for women's empowerment in rural areas; that it is a long-term norm change, capacity building and reconfiguration of relations in households. However, at the same time, digital financial inclusion is a slender intervention which on its own will have a small and uneven effect on empowerment. Digital financial inclusion can be a real game-changer if it is combined with a package of education, livelihoods, collective organisation and legal entitlement. The challenge for the next ten years will be to create the complementary practices and conditions which will enable this powerful digital infrastructure to realize its emancipatory potential.

4. Future Work

There are a number of directions that warrant continued research. Secondly, it would be helpful to undertake longitudinal and experimental impact assessments, so that the same cohorts of rural women could be assessed over a number of years, to distinguish the long-term empowerment impact of digital financial inclusion from the novelty and short-term impact of the same. Many of the studies discussed here are cross-sectional and thus cannot make causal inferences and the transition from access to agency is not visible.

Secondly, future studies should adopt a more intersectional approach and examine the intersection of gender with caste, class, religion, age, and disability, as this would help in comprehending the differential experiences of digital financial inclusion. However, the differential gains of women need disaggregated analysis to identify who and why women are not benefiting, and how to better target interventions.

Third, the swift advancement in financial technology, such as account aggregators, digital lending platforms, embedded finance and new artificial intelligence solutions for credit scoring, raises new issues around opportunity and risk. Research is needed to assess the extent to which such innovations enable women's access to productive credit, or whether they are new forms of algorithmic exclusion, predatory lending and digital fraud. Data privacy and cyber security of gender is under-researched in financial sector in low-literacy settings.

Fourthly, the methodological pluralism should be encouraged. These would also benefit from integration with large-scale administrative and transactional data to produce a more complete description of the lived experience of digital finance among rural women, both in terms of measurable outcomes and negotiated processes of the household, which are not afforded by quantitative data. Finally comparative studies of interventions in the Indian states and other situations in developing countries would be useful to understand what aspects of policy and design are more critical to realising true empowerment through digital access and to contribute to the global project of gender-equitable financial inclusion.

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