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Digital Rails, Uneven Gains: Digital Finance Adoption and Long-Term MSME Growth in India

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Abstract

India has built a wide digital finance network for its micro, small, and medium enterprises (MSMEs), including instant payments, mobile banking, e-invoicing, consent-based data sharing, and online government portals. This study examines whether these tools translate into lasting business growth and why their benefits do not reach every firm in the same way. It reviews secondary sources, including reports from the Reserve Bank of India (RBI), National Payments Corporation of India (NPCI), Ministry of MSME, World Bank Enterprise Survey evidence, and peer-reviewed studies published between 2019 and 2026. The discussion brings the evidence together around three outcomes: operational efficiency and growth, access to formal finance, resilience, and inclusion. The review indicates that digital finance can accelerate working-capital flows, create useful financial records, and reduce some of the practical costs of formalization. However, these benefits are not guaranteed. Device and subscription charges, fraud, network failures, and credit models that overlook seasonal income can leave the smallest firms in a worse position. Therefore, this study treats digital finance as business infrastructure, not simply as a replacement for cash. Long-term gains will depend on affordable access, dependable connectivity, financial and cyber literacy, responsible data use, and credit assessment that reflects the diversity of MSMEs in India. As this is an interpretive review, its conclusions should be tested using firm-level longitudinal data.

Keywords: Digital finance, MSMEs, UPI, financial inclusion, digital public infrastructure, sustainable growth.

1. Introduction

Micro, small, and medium enterprises are woven into India's economic life. They employ a large number of people, supply local markets, and provide many families with a way to earn a living without leaving their district. Their small scale also makes them vulnerable. Many operate with thin reserves, informal accounts, and a small group of regular customers; thus, late payment, a fall in demand, or the loss of one supplier can quickly become a crisis. The formal classification of these firms by investment and turnover (Ministry of Micro, Small, and Medium Enterprises, 2020) does not capture the very different conditions in which they operate.

Access to finance remains one of the most challenging constraints for these firms. Banks generally ask for collateral, audited accounts, tax records, and repayment history; from a lender's perspective, these

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requirements are understandable. However, they exclude young, seasonal, informal, and remote enterprises. Many owners are caught in a familiar loop: without records, affordable credit is difficult to obtain; without credit, the business cannot grow or formalize; and without formalization, it does not produce the records a lender wants (International Finance Corporation, 2021; Reserve Bank of India, 2019).

Digital finance can alleviate this constraint. A merchant QR code, banking app, or electronic invoice settles a sale, but regular use also creates records of sales and payments. This record can help an owner follow cash flow, show a lender that the business is active, or support registration on a government portal, for example. India's digital public infrastructure has lowered the entry barrier for some of these services. The Unified Payments Interface (UPI) provides an interoperable payment rail, while bank accounts, digital identities, and consent-based data sharing can connect small firms to other financial services. Rails are useful only when firms can reach and afford to use them.

The benefits are not even shared. A shopkeeper with an unstable connection may experience a failed payment, resulting in a lost sale. A seasonal producer may be marked as risky by a credit model that does not understand the farming or festival cycle. A street vendor may save time by accepting digital payments but lose that savings to a monthly soundbox rental. Existing studies often count the number of firms that have adopted digital tools, but few ask whether adoption helps firms survive and grow. This study addresses this question in the Indian context: when digital rails are available in principle, who benefits, by how much, and for how long? It considers the roles of affordability, trust, and capability and connects the discussion with the conference sub-themes of entrepreneurship and MSMEs, banking and financial inclusion, and the digital economy.

2. Objectives

This study addresses four questions:-

- Examine the influence of digital-finance tools on operational efficiency, payment cycles, and working-capital management among Indian MSMEs.
- Assess how digital records and consent-based data sharing contribute to financial inclusion and access to formal credit.
- Identify the risks of digital dependence, including platform costs, cyber fraud, technical failure, and algorithmic exclusion.
- Analyze how continued digital integration may shape formalization, resilience, and long-term enterprise growth, and why the gains differ across firm types.

3. Methodology

This study uses a structured review of secondary sources. The materials included institutional reports, policy documents, and empirical studies published mainly between 2019 and 2026. Institutional sources include RBI reports and regulatory guidelines, NPCI material on digital payment growth, MSME classification and registration documents, and World Bank Enterprise Survey data. Academic sources include peer-reviewed articles and conference papers on digital finance and small firm performance. Studies were included if they focused on India, concerned MSMEs or small merchants, and examined digital payments, lending, records, or online public platforms.

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To organize the material, the review was carried out in three steps. First, the literature was grouped by mechanisms: digital payments, digital bookkeeping and invoicing, alternative-data lending, account aggregator services, the Trade Receivables Discounting System (TReDS), and online government platforms. Second, the findings were grouped by outcome: operational efficiency, credit access, formalization, resilience, and risk. Third, the findings were compared across types of firms. A neighborhood retailer using a QR code, a rural service provider, and a small manufacturing supplier do not use digital finance in the same way. The analysis therefore asks who receives the gains and under what conditions, rather than treating adoption as one uniform activity.

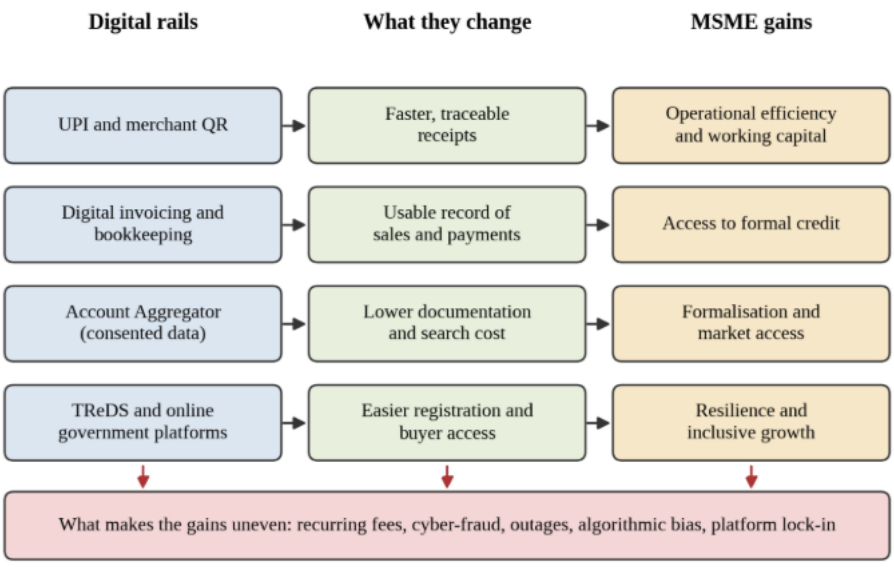
The evidence is interpreted cautiously. This paper does not produce a new econometric estimate and does not claim that digital adoption alone causes growth. Demand, management skills, infrastructure, sector conditions, and public policy also matter. Payment-volume data show how widespread digital activity has become, but they cannot tell us whether a particular firm has become more profitable or more durable. The pathways discussed below should therefore be read as recurring and plausible patterns in the evidence, not as proven causal effects. Firm-level longitudinal research is still needed to test them.

4. Discussion/Analysis

Figure 1 presents the pathways used in this study. Digital rails change how firms receive payments, keep records, and interact with institutions. These changes can lead to four outcomes, but risks affect each of them and help explain why the gains differ from one firm to another.

Figure 1

From Digital Rails to MSME Gains: Where Benefits Become Uneven



Note. The authors developed this conceptual framework based on the literature reviewed in this study.

4.1 Digital payments and working-capital management

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For many small firms, the first practical benefit is quicker and more traceable payments. UPI and QR-based payments reduce the need to count, carry, and deposit cash, and allow a seller to accept money from a customer who is not in the shop. Timing matters. For a micro-enterprise, receiving payment today rather than next week can determine whether it restocks on time, pays a supplier without a penalty, or avoids an expensive informal loan.

A digital receipt is also a small record of how the business is doing. Even a basic payment history can show an owner which days sell best, which customers still owe money, and how much was received in a month. Digital invoices and bank statements reduce reliance on memory and loose paper. They do not make a firm well managed by themselves, but they give the owner a better starting point for bookkeeping and inventory decisions (Goel, 2025; Verma et al., 2024).

The pandemic has highlighted the practical value of these tools. Firms that could take orders by phone and collect payments digitally had more scope to continue trading when movement was restricted. Customers and suppliers also became more comfortable with contactless payments. The important question now is whether these practices continue after the emergency. The literature suggests that many have remained, especially in urban and semi-urban markets; however, the benefit still depends on reliable networks, customer preferences, and the cost of maintaining devices and accounts.

4.2 From collateral-based lending to cash-flow information

Digital finance can also reduce the information gap between a small firm and a lender. Bank transactions, invoices, GST records, and marketplace sales give lenders some view of business activity when audited statements are not available. The Account Aggregator framework allows a borrower to share financial data through consent-based channels instead of submitting the same documents repeatedly. TReDS allows eligible suppliers to convert accepted invoices into cash, thereby reducing the damage caused by late payments from large buyers. Earlier work on digital lending identified this potential for small enterprises (Damodaran et al., 2019).

These tools can, in principle, shift lending away from physical collateral and towards cash flow. A firm with modest assets, but regular sales may receive a fairer assessment, and application and verification may take less time. Speed alone does not make a loan fair. The product may still be expensive, poorly suited to the business, or based on an inaccurate profile.

Algorithmic underwriting brings new responsibilities for lenders and regulators. A model trained mainly on transaction frequency may favor a shop with steady daily sales and mark a seasonal enterprise, cash-heavy trade, or business in an area with weak connectivity. Earlier exclusion can then be carried into the data used for later decisions. Borrowers should be able to understand the broad basis of a decision, correct inaccurate data, and receive meaningful responses to complaints. The RBI's digital lending guidelines point in this direction (Reserve Bank of India, 2022), and evidence on small firms and financial inclusion raises the same concern (Johri et al., 2024; Reserve Bank of India, 2024).

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4.3 Formalization and access to wider markets

A dependable digital trail can make formalization less difficult in practice. When receipts, bank activity, and identity documents already exist in digital form, registration may feel more manageable. The Udyam and Udyam Assist platforms matter here because recognition as an MSME can open access to information, credit support, and government programs. A registered firm may also find it easier to deal with larger buyers, sell through e-commerce channels, and participate in public procurement.

Formalization should not be treated only as a compliance exercise. For a small business, it can bring more stable relationships with buyers and access to institutional support. However, registration without capability can create new burdens. A firm that becomes visible to the formal system still needs help with accounts, tax procedures, data security, and timely credit. Digital onboarding should therefore be supported by local enterprise centers, accountants, banks, and industry associations. The link with long-term growth is built through these practical steps. Faster cash, better records, cheaper credit, and wider markets can help a firm invest and expand, but only when they strengthen one another over time.

4.4 Risks, costs and new forms of exclusion: where the gains turn uneven

These benefits are not free. Some merchants pay recurring charges for soundboxes, point-of-sale terminals, software subscriptions, and mobile data. Each charge may look small, but the total can matter to a business with low and uncertain margins. Competition and clear pricing are needed so that the smallest users do not carry a disproportionate share of the cost of digital infrastructure

Security risks are equally important. Phishing, fake customer-care calls, swapped QR codes, and unauthorized debit requests can cause direct losses. Failed transactions and slow reversals can also tie up working capital. A digital system is inclusive only when users can obtain a timely remedy after something goes wrong. Financial-literacy programs should therefore teach safe practices, not only how to operate an app.

Reliance on one provider creates another risk. A firm that depends on a single payment app, lender, or marketplace is exposed if that service fails or changes its terms. Interoperability, data portability, and clear fee disclosure can reduce this exposure. Small firms should also retain simple fallback methods for taking orders, recording sales, and settling disputes.

Digital tools do not, by themselves, remove structural inequality. Women-owned firms, rural enterprises, older entrepreneurs, and businesses run by persons with disabilities may face greater barriers to devices, connectivity, language support, and training. A serious digital-finance policy must measure who is still being left out, rather than counting only the number of transactions processed.

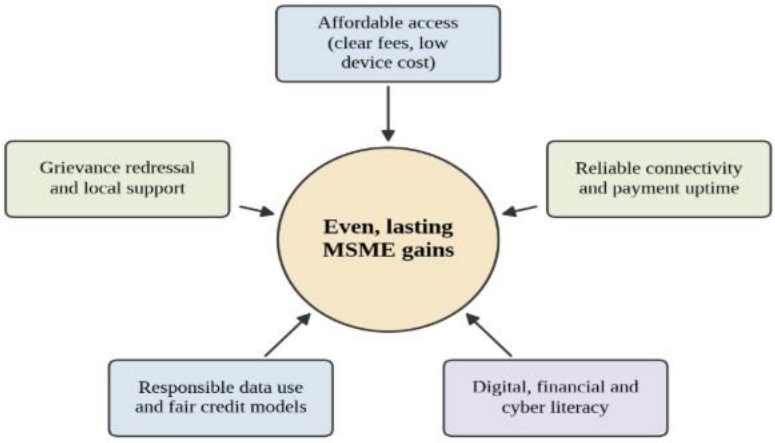
4.5 Why the gains are uneven across firms

The same digital rail does not produce the same result for every firm. For a QR-based neighborhood retailer, the main gain may be quicker settlement and fewer trips to the bank. For a rural provider, connectivity and trust may be the main constraints, so the benefit arrives later and more slowly. For a small manufacturing supplier selling to a corporate buyer, invoice finance and timely settlement matter more than retail payments; this is where TReDS and e-invoicing become relevant. Figure 2 therefore places the enabling conditions, rather than technology alone, at the center of the analysis.

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Figure 2

Conditions That Make Digital-Finance Gains Even and Lasting



Note. This is the author's synthesis based on the literature reviewed and the institutional frameworks discussed in this paper.

5. Findings

The review points to five main findings, which are summarized in Table 1. Together, they show that India has laid much of the digital infrastructure, but that the resulting gains still depend on the conditions in which firms use it.

The review highlights several recurring themes. Faster payment settlement improves liquidity for many enterprises by reducing the delay between a sale and the availability of funds. Digital transaction histories and invoicing records can improve lender visibility, although safeguards remain necessary to prevent unfair outcomes and unsuitable credit products. The evidence also suggests that digital finance can support formalization and market participation when registration processes and enterprise support services are accessible. At the same time, adoption introduces new challenges, including recurring costs, cyber risks, transaction failures, and dispute-resolution concerns. Ultimately, firms appear to benefit the most when digital tools are supported by reliable connectivity, strong record-keeping practices, financial awareness, cybersecurity readiness, and responsive institutions.

Table 1

Summary of Findings

Dimension	Main mechanism	Implication for MSMEs
Payment efficiency	QR and mobile payments make receipts faster and easier to trace	Better daily liquidity; less time spent handling and depositing cash

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Credit visibility	Transaction, invoice, and consented account data show business activity	Wider access to formal credit, if underwriting is responsible
Formalization	Digital identity and online registration lower administrative barriers	Easier access to schemes, larger buyers, and public procurement
Resilience	Remote ordering, digital settlement, and more than one sales channel	More options during local or economy-wide disruption
New vulnerability	Fees, fraud, outages, and opaque algorithms	Need for fee transparency, data portability, and effective grievance redress

Note. Compiled by the authors from the reviewed studies.

6. Conclusion

Looking across the available evidence, digital finance appears less like a standalone technology and more like a practical business utility that shapes how MSMEs receive payments, maintain records, access credit, and engage with markets. For many enterprises, these capabilities contribute to smoother cash-flow management, improved visibility within the formal financial system, and greater resilience during periods of disruption. The long-term value of digital finance therefore lies not only in technological adoption but also in how effectively these tools support everyday business decisions and growth opportunities.

At the same time, the gains are not automatic or evenly distributed. A costly, unreliable, or difficult-to-challenge payment system can weaken a vulnerable enterprise. A credit model that rewards regular digital activity while ignoring the business context can reproduce exclusion in a more technical form. Therefore, the development value of digital finance should be judged by the quality and reach of its outcomes, not simply by the number of transactions processed.

Four practical policy priorities emerge from the review. First, regulators and service providers should make merchant fees, device rentals, and lending costs clear and easy to compare. Second, digital-credit models should be subject to governance and audit, with practical routes for correcting errors and appealing decisions. Third, district-level MSME support systems should provide continuing training in digital bookkeeping, cybersecurity, and financial planning in local languages. Fourth, platforms such as TReDS and public-procurement portals should be easier for small suppliers to use, so that the liquidity benefits of digital infrastructure reach firms that are not already digitally advanced.

The findings should be interpreted with caution because they are based on secondary evidence rather than direct observation of firms over an extended period. As a result, the review identifies recurring patterns and plausible relationships without claiming definitive causal effects. Future research could strengthen these conclusions by tracking the same enterprises over time, comparing performance across sectors and regions, and paying greater attention to groups that are often underrepresented in adoption studies, including women-owned and rural businesses. Digital finance is most useful when treated as public-interest business infrastructure. Building the rails is the easier task; ensuring that small, seasonal, rural, and women-owned

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firms can use them at a fair cost and remain connected to them is harder. When access is affordable and supported by trust, skills, connectivity, and responsible regulation, digital finance can contribute to sustainable and inclusive MSME growth in India.

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