



DIGITAL PAYMENT ADOPTION, FINANCIAL INCLUSION OUTCOMES, AND ONLINE BUYING BEHAVIOUR IN EMERGING URBAN CENTRES: A THEORETICAL REVIEW

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ABSTRACT

Emerging urban centres in India comprising tier-2 and tier-3 cities are rapidly transforming into digital economy hubs, driven by expanding internet penetration, smartphone adoption, and government-led financial inclusion initiatives. This review paper synthesises theoretical and empirical literature on three interrelated domains: digital payment adoption drivers, financial inclusion outcomes, and online buying behaviour patterns in these urban contexts. Drawing on Technology Acceptance Model extensions, behavioural economics insights, and consumer behaviour frameworks, the paper identifies conceptual linkages, empirical evidence, and research gaps in understanding how digital payments reshape financial access and consumption patterns. The review proposes an integrated conceptual framework linking adoption determinants to inclusion quality and online purchasing behaviour, suitable for empirical investigation in heterogeneous consumer segments across emerging urban markets. Findings indicate that while digital payment adoption in smaller cities has surged with in-store digital transactions rising from 42% to 50% between 2024 and 2025 significant variations persist across income groups, digital literacy levels, and local infrastructure availability. The paper concludes by highlighting critical research gaps and implications for policy, practice, and future scholarship.

KEYWORDS: Digital Payments, Financial Inclusion, Online Buying Behaviour, Emerging Urban Centres, Tier-2 Cities, Tier-3 Cities, UPI Adoption, Consumer Behaviour

1. INTRODUCTION

India's transition toward a digital economy has been marked by unprecedented growth in digital payment adoption, financial inclusion initiatives, and e-commerce expansion over the past decade[1][2][3]. Policy interventions such as Digital India, Jan Dhan Aadhaar Mobile (JAM) trinity, Pradhan Mantri Jan Dhan Yojana (PMJDY), and the 2016 demonetisation exercise significantly accelerated the shift from cash-based to digital transactions[4][5]. The launch of the Unified Payments Interface (UPI) in 2016 marked a structural transformation, enabling instant, interoperable, low-cost digital transfers that catalysed adoption across diverse socio-economic segments[2][6]

[7].

While initial digital payment growth concentrated in metropolitan centres, recent evidence demonstrates rapid expansion into emerging urban centres tier-2 and tier-3 cities which now represent critical growth frontiers for digital finance and e-commerce ecosystems[8][9][10]. These cities, characterised by populations between 50,000 and 1 million, distinctive socio-economic profiles, improving digital infrastructure, and rising aspirational consumption, exhibit unique patterns of digital payment adoption and online purchasing behaviour that differ substantially from both metro cities and rural areas[8][11][12].

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National-level data reveal that digital payments for in-store purchases in small towns increased from 42% in fiscal year 2024 to 50% in fiscal year 2025, compared with 62% adoption in metro cities, signalling both rapid progress and persistent gaps[8]. Cities such as Lucknow, Jaipur, Kochi, and Bhubaneswar have emerged as leaders in digital payment adoption among tier-2 centres, driven by young professionals, women entrepreneurs, and expanding merchant acceptance networks[8][9]. Yet challenges including inadequate digital infrastructure, cybersecurity concerns, financial and digital literacy gaps, and trust deficits continue to constrain inclusive growth[4][13][14].

Simultaneously, the e-commerce sector has increasingly focused on emerging urban markets, recognising their substantial consumer base, untapped purchasing power, and distinct buying behaviour patterns[11][15][16]. Research indicates that small-town consumers exhibit different determinants of online impulse buying including hedonic motivation, marketing stimulus, and situational triggers compared with metro consumers, necessitating tailored marketing and service delivery strategies[11][15]. The intersection of digital payment adoption and online buying behaviour presents important questions regarding how payment modes influence purchasing decisions, expenditure patterns, and financial wellbeing in these markets.

Financial inclusion outcomes measured not merely by account ownership but by active usage, service diversity, and quality of access are increasingly mediated by digital payment channels[17][18][19]. Emerging urban centres present heterogeneous inclusion profiles: while formal account penetration has expanded substantially under PMJDY, usage intensity, cash reliance, and access to credit, insurance, and savings products vary considerably across income groups, genders, and occupational categories[18][20][21].

Despite growing scholarly and policy attention to digital payments, financial inclusion, and online consumption separately, limited research systematically integrates these three domains within the specific context of emerging urban centres[22][23][24]. This review addresses that gap by synthesising

theoretical frameworks, empirical evidence, and conceptual linkages, thereby building a foundation for integrated empirical investigation.

1.1 Objectives of the Review

This review paper aims to:

1. Synthesise theoretical perspectives on digital payment adoption, financial inclusion outcomes, and online buying behaviour relevant to emerging urban contexts.
2. Review empirical evidence on adoption patterns, inclusion quality, and consumer behaviour in tier-2 and tier-3 cities.
3. Identify conceptual linkages and interdependencies among digital payment use, financial access, and online purchasing.
4. Highlight critical research gaps and propose an integrated conceptual framework for future empirical investigation.
5. Discuss implications for policy, practice, and scholarship in the context of India's evolving digital economy.

2. EVOLUTION OF DIGITAL PAYMENTS IN EMERGING URBAN CENTRES

2.1 National Digital Payment Landscape

India's digital payment ecosystem evolved through card-based systems, mobile wallets, and the transformative Unified Payments Interface (UPI) launched in 2016[2][6][7]. UPI enabled instant, interoperable, account-based payments with near-zero costs, democratising digital transactions[2][6][7]. By 2024, UPI accounted for over 80% of urban digital payment volumes, growing 35% year-on-year[4][8]. Government initiatives including PMJDY, Aadhaar authentication, and Direct Benefit Transfer schemes created enabling infrastructure[5][17][18].

2.2 Diffusion to Emerging Urban Centres

Digital payment adoption in tier-2 and tier-3 cities accelerated due to smartphone proliferation, internet connectivity, merchant acceptance expansion, and policy support[8][9][10][26]. Adoption for in-store purchases in small towns rose from 42% (FY2024) to 50% (FY2025), though below metro levels at 62%[8]. Key drivers include affordable smartphones and data, QR code payment infrastructure, young professionals and women entrepreneurs, and government digital initiatives[8][9][10][21][26]. Challenges persist:

infrastructure gaps, cybersecurity risks, trust deficits, and uneven adoption across income and education levels[4][13][14][20][26][28].

3. THEORETICAL PERSPECTIVES ON DIGITAL PAYMENT ADOPTION

Understanding digital payment adoption requires integrating insights from technology adoption theories, behavioural economics, and consumer psychology[22][23][29][30].

3.1 Technology Acceptance Model and Extensions

The Technology Acceptance Model (TAM) identifies perceived usefulness (PU) and perceived ease of use (PEOU) as primary adoption determinants[22][30][31]. Empirical studies confirm both significantly predict digital payment adoption in India[22][30][32]. The Unified Theory of Acceptance and Use of Technology (UTAUT) adds social influence, facilitating conditions, and hedonic motivation particularly relevant in emerging urban centres[22][30][33]. Social influence from peers and merchants affects adoption, especially among first-time users[30][33]. Facilitating conditions like smartphone ownership and connectivity serve as critical enablers[30][32][33].

3.2 Perceived Risk, Trust, and Security

Perceived risk and trust are central to digital payment adoption[13][14][30][31]. Concerns about fraud, data breaches, and transaction failures create barriers, particularly among less-educated and lower-income segments[4][13][14]. Failed transactions and poor customer support erode trust[14][26]. In emerging urban centres, trust builds through local networks and experiential learning[30][32].

3.3 Behavioural Economics and Payment Choice

Digital payments reduce transaction salience compared to cash, potentially increasing discretionary spending[34][35]. Research shows digital adoption correlates with higher household consumption even after cash availability normalises[34]. This raises welfare questions for households with limited financial literacy[34][35].

4. FINANCIAL INCLUSION IN EMERGING URBAN CENTRES

Financial inclusion defined as universal access to

and active usage of affordable, appropriate, and responsible formal financial services has been a central policy priority in India since the launch of PMJDY in 2014[17][18][19].

4.1 Access, Usage, and Quality Dimensions

Financial inclusion encompasses access, usage, and quality dimensions[18][19][20]. While PMJDY opened over 500 million accounts, many remained dormant until digital channels and DBT created transaction flows[17][18][27]. Digital payments activate accounts through recurring transactions, reduce costs by eliminating branch visits, and facilitate credit access via transaction history data[17][18][19][26][27][36].

4.2 Financial Inclusion in Emerging Urban Centres

Tier-2 and tier-3 cities show heterogeneous inclusion profiles[18][20][21]. Most households hold accounts, but usage intensity varies[18][20][27]. Women face greater barriers due to lower employment, restricted mobility, and limited digital literacy[21][37]. Higher-income, educated households show greater digital adoption and financial service engagement[18][20][28]. Digital divide risks persist for households lacking smartphones or literacy[13][14][28]. Policy initiatives include financial literacy programmes and regional-language interfaces[21][37][38].

Digital payments deepen inclusion by activating accounts and enabling credit access through transaction data[17][18][19][27][36]. However, infrastructure gaps, literacy barriers, and trust deficits limit outcomes[13][14][28]. Coordinated efforts in infrastructure, education, and consumer protection are essential[21][37][38].

5. ONLINE BUYING BEHAVIOUR IN EMERGING URBAN CENTRES

The e-commerce sector in India has expanded rapidly from metro-centric roots to encompass tier-2 and tier-3 cities, which now represent critical growth markets[11][15][16][39].

5.1 E-Commerce in Emerging Urban Centres

Tier-2 and tier-3 cities contribute increasing online transaction volumes, driven by improved logistics, regional-language interfaces, and digital payment expansion[16][39][40]. Small-town consumers show

distinct patterns: higher price sensitivity and deal-seeking, value-for-money orientation, hedonic and impulse buying tendencies, and gradual shift from cash-on-delivery to prepaid modes[11][15][16][40].

5.2 Determinants of Online Buying Behaviour

Research identifies five determinants of online impulse buying: hedonic motivation (enjoyment, excitement), marketing stimulus (discounts, offers), impulse buying tendency, situational stimulus (mood, time pressure), and platform features (interface, checkout ease)[11][15][16]. Small-town patterns differ from metro behaviour, requiring differentiated platform strategies[11][15][16].

5.3 Digital Payments and Online Shopping

Digital payment availability reduces transaction friction and risk, influencing purchase completion and satisfaction[4][16][40]. Payment mode diversity increases conversion[16][40]. UPI adoption accelerates prepaid transactions among younger consumers[8][16][40]. Payment incentives shape behaviour and loyalty[8][16][40]. Transaction failures and refund delays erode trust[14][26][40]. Positive payment experiences reinforce online shopping and financial inclusion[16][40].

6. INTEGRATING DIGITAL PAYMENT ADOPTION, FINANCIAL INCLUSION, AND ONLINE BUYING BEHAVIOUR

While substantial literature exists on each domain separately, few studies systematically integrate digital payment adoption, financial inclusion outcomes, and online buying behaviour within emerging urban contexts[22][23][24][41].

6.1 Conceptual Linkages

Digital payment adoption, financial inclusion, and online buying behaviour are not isolated phenomena but dynamically interconnected processes[22][23][24][41]:

- **Digital payment adoption as inclusion enabler:** Access to and usage of digital payment instruments can activate dormant accounts, increase transaction frequency, facilitate credit access, and integrate households into formal financial systems[17][18][19][27].
- **Financial inclusion as adoption foundation:** Formal account ownership, banking

relationships, and financial literacy provide foundational conditions that enable digital payment adoption[18][20][28].

- **Online buying as adoption driver:** Frequent online shopping creates demand for convenient, secure digital payment methods, motivating technology learning and platform trial[11][15][16][40].
- **Digital payments as online shopping facilitators:** Availability of trusted, easy-to-use digital payment options reduces transaction friction, perceived risk, and cart abandonment, thereby encouraging online purchases[4][16][40].
- **Behavioural interdependencies:** Digital payment adoption may reduce spending salience, increasing discretionary consumption and impulse buying, particularly when combined with marketing incentives and instant checkout[34][35][11][15].

6.2 Household-Level Outcomes and Segmentation

Household-level analysis examines financial inclusion depth (active service usage beyond account ownership), consumption patterns (online versus offline, necessity versus discretionary), and financial wellbeing (managing volatility, debt burdens)[18][19][20][27][28][34][35][11][15].

Critical segments include: high-income digitally literate households with extensive digital adoption; middle-income households with selective adoption; lower-income households with limited adoption due to access barriers; and women facing restricted autonomy and literacy constraints[18][20][21][28][37]. Understanding these segments enables targeted interventions and product strategies[21][37][38].

6.3 Emerging Urban Centres as Research Settings

Tier-2 and tier-3 cities offer advantages: rapid digital transformation enabling study of behavioural transitions, heterogeneous populations enabling comparative analysis, policy relevance for inclusion strategies, and practical significance for fintech and e-commerce product design[8][9][10][11][15][16][18][20][21][26][28][37][38][39].

7. RESEARCH GAPS AND FUTURE DIRECTIONS

7.1 Limited Integrated Empirical Studies

Most existing research treats digital payment adoption, financial inclusion, or online buying behaviour separately, focusing on one domain at a time[22][23][24][41]. Few studies model these dimensions jointly to examine reciprocal influences, mediation pathways, or moderating conditions[22][41]. Future research should employ integrated frameworks such as structural equation models combining adoption constructs, inclusion indicators, and consumption behaviour variables to test conceptual linkages empirically[22][41].

7.2 Underrepresentation of Tier-2 and Tier-3 Cities

While national-level and metro-focused studies are abundant, tier-2 and tier-3 cities remain underrepresented in the literature[8][9][10][26]. These cities exhibit distinct infrastructural, economic, and socio-cultural contexts that shape adoption patterns and outcomes[8][12][16][39]. Granular, city-specific empirical studies are needed to capture intra-urban heterogeneity and inform localised policy and practice[8][12][21][38].

7.3 Quality and Behavioural Dimensions of Financial Inclusion

Financial inclusion research often relies on access metrics (account ownership, card issuance) rather than probing usage intensity, service diversity, or quality dimensions such as affordability, appropriateness, and consumer protection[18][19][20]. Integrating digital payment and online consumption data with inclusion indicators can provide richer insights into behavioural outcomes, spending patterns, and financial resilience[18][19][27].

7.4 Consumer Protection, Literacy, and Trust

Trust deficits, security concerns, grievance redressal gaps, and digital literacy barriers remain critical challenges, yet many studies treat these as peripheral factors[13][14][26][28]. Research that centres trust-building mechanisms, financial and digital literacy interventions, and consumer protection frameworks can inform more inclusive and sustainable digital finance strategies[13][14][21][37].

7.5 Longitudinal and Causal Designs

Much of the existing evidence relies on cross-sectional surveys, limiting causal inference[22][30][41]. Longitudinal studies tracking households over time, quasi-experimental designs exploiting policy shocks or infrastructure rollouts, and randomised controlled trials of literacy or trust interventions can strengthen causal understanding[34][41].

7.6 Gender and Social Inclusion

Gender disparities in digital payment adoption and financial inclusion are well-documented, but mechanisms and interventions remain underexplored[21][37]. Research examining how digital platforms, financial products, and literacy programmes can empower women and marginalised groups in tier-2 and tier-3 cities is urgently needed[21][37][38].

8. PROPOSED CONCEPTUAL FRAMEWORK

Building on the reviewed literature, we propose an integrated conceptual framework for investigating digital payment adoption, financial inclusion outcomes, and online buying behaviour in emerging urban centres.

8.1 Core Constructs and Relationships

Antecedents of Digital Payment Adoption:

- Perceived usefulness, perceived ease of use[22][30][31]
- Perceived risk, trust[13][14][30][31]
- Social influence, facilitating conditions[22][30][33]
- Hedonic motivation, habit[22][30]
- **Digital Payment Adoption:**
- Frequency and diversity of digital payment usage across contexts (merchant payments, bill payments, remittances, online shopping)[18][27]

Financial Inclusion Outcomes:

- Account activity (transaction frequency, balance usage)[18][27]
- Service diversity (savings, credit, insurance uptake)[18][19][20]
- Cash reliance (proportion of transactions in cash versus digital modes)[4][20][27]
- Credit access (formal loan availability, fintech credit usage)[19][27][36]

Online Buying Behaviour:

- Online shopping frequency and expenditure[15][16][40]
- Impulse buying behaviour (hedonic motivation, marketing stimulus responsiveness, situational triggers)[11][15]
- Payment mode preferences (prepaid versus COD)[16][40]

Moderating and Mediating Variables:

- Socio-demographic factors (income, education, age, gender, occupation)[18][20][21][28]
- Digital and financial literacy[13][14][21][28]
- Local ecosystem characteristics (infrastructure quality, merchant acceptance, agent availability)[8][26][33]
- Trust in institutions and platforms[14][30][31]

8.2 Research Propositions

Based on the conceptual framework, several testable propositions emerge:

1. Perceived usefulness and ease of use positively influence digital payment adoption among emerging urban consumers[22][30][31].
2. Digital payment adoption increases financial inclusion depth by activating accounts, diversifying service usage, and enabling credit access[17][18][19][27].
3. Digital payment adoption facilitates online buying behaviour by reducing transaction friction and perceived risk[4][16][40].
4. Online shopping frequency positively influences digital payment adoption through repeated exposure and experiential learning[11][15][16][40].
5. Digital payment adoption increases impulse buying behaviour by reducing spending salience and enabling instant checkout[34][35][11][15].
6. Financial and digital literacy moderate the relationships between adoption, inclusion, and buying behaviour, strengthening positive outcomes and mitigating risks[13][14][21][28].
7. Trust mediates the relationship between perceived risk and digital payment adoption[13][14][30][31].
8. Facilitating conditions (infrastructure, merchant acceptance) moderate adoption determinants, with stronger effects in well-connected urban wards[8][26][33].

8.3 Methodological Approaches

Empirical investigation of the proposed framework could employ:

- **Cross-sectional household surveys:** Structured questionnaires measuring adoption constructs, inclusion indicators, and online buying behaviour using validated scales[11][15][22][30].
- **Structural equation modelling:** Testing hypothesised relationships, mediation pathways, and moderating effects[22][41].
- **Comparative analysis:** Examining variations across cities, income groups, and demographic segments[18][20][21][28].
- **Mixed methods:** Integrating quantitative surveys with qualitative interviews to interpret statistical patterns and capture lived experiences[41].

9. Implications for Policy, Practice, and Research**9.1 Policy Implications**

1. **Infrastructure prioritisation:** Accelerate digital infrastructure development broadband, electricity, agent networks in peripheral urban wards to reduce adoption barriers[8][26][33].
2. **Financial literacy programmes:** Design targeted interventions addressing digital and financial literacy gaps, especially for women, elderly, and low-income households[13][14][21][28][37].
3. **Consumer protection frameworks:** Strengthen grievance redressal mechanisms, cybersecurity standards, and regulatory oversight to build trust and safeguard vulnerable users[13][14][26].
4. **Inclusive product design:** Encourage fintech platforms and banks to develop simple, affordable, regionally customised products that meet diverse consumer needs[21][37][38].
5. **Gender inclusion strategies:** Implement programmes empowering women through financial access, literacy, and entrepreneurship support in tier-2 and tier-3 cities[21][37].

9.2 Managerial Implications

1. **Segmentation strategies:** E-commerce platforms and payment providers should segment emerging urban markets by income, literacy, and usage patterns, tailoring offerings accordingly[11][15][16][39].
2. **Trust-building initiatives:** Invest in customer support, transparent refund policies, secure transaction protocols, and educational content to

build confidence among first-time users[13][14][16][40].

3. **Payment mode diversity:** Offer multiple payment options UPI, wallets, cards, COD to accommodate heterogeneous consumer preferences and risk profiles[16][40].
4. **Regional customisation:** Develop regional-language interfaces, locally relevant marketing campaigns, and culturally appropriate product positioning[16][39][40].
5. **Responsible lending:** Fintech lenders leveraging digital payment data for credit scoring should adopt responsible underwriting practices and transparent terms to prevent over-indebtedness[19][27][36].

9.3 Research Implications

1. **Integrated frameworks:** Future research should model digital payment adoption, financial inclusion, and online buying behaviour jointly, examining reciprocal influences and multi-dimensional outcomes[22][23][24][41].
2. **Longitudinal designs:** Track households over time to understand adoption trajectories, behavioural changes, and long-term inclusion and wellbeing outcomes[34][41].
3. **Causal inference:** Exploit quasi-experimental designs, natural experiments, or randomised interventions to establish causal relationships[34][41].
4. **Granular geographic focus:** Conduct city-specific and intra-city studies to capture contextual heterogeneity and inform localised strategies[8][12][21][38].
5. **Intersectional analysis:** Examine how gender, age, income, and education intersect to shape adoption pathways and outcomes, identifying vulnerable sub-groups requiring targeted support[18][20][21][28][37].

10. CONCLUSION

Emerging urban centres in India are experiencing rapid digital transformation, characterised by accelerating digital payment adoption, expanding financial inclusion, and growing online consumption. This review synthesises theoretical frameworks—including TAM, UTAUT, behavioural economics, and consumer behaviour models—and empirical evidence documenting adoption patterns, inclusion

outcomes, and buying behaviours in tier-2 and tier-3 cities.

The literature reveals that digital payment adoption in emerging urban centres is shaped by perceived usefulness, ease of use, trust, social influence, and facilitating conditions, with adoption rates rising from 42% to 50% in small towns between fiscal years 2024 and 2025, yet remaining below metro levels at 62%[8]. Digital payments serve as critical enablers of financial inclusion by activating dormant accounts, diversifying service usage, and facilitating access to credit, particularly for previously under-served segments[17][18][19][27]. Simultaneously, online buying behaviour in smaller cities exhibits distinct characteristics including higher price sensitivity, hedonic motivation, and impulse buying tendencies that differ from metro patterns and are closely linked to digital payment availability and experience quality[11][15][16][40].

Despite substantial progress, significant gaps persist: infrastructure constraints, digital literacy deficits, trust barriers, gender disparities, and consumer protection weaknesses continue to limit inclusive growth[4][13][14][21][26][28][37].

Moreover, limited research integrates digital payment adoption, financial inclusion, and online buying behaviour within unified empirical frameworks, particularly at the household level in emerging urban contexts[22][23][24][41].

The proposed conceptual framework positions digital payment adoption as both an outcome of enabling conditions (perceived benefits, trust, infrastructure) and a driver of inclusion outcomes (account activity, service diversity, credit access) and online consumption patterns (shopping frequency, impulse buying). Testing this framework through rigorous empirical investigation in tier-2 and tier-3 cities can yield actionable insights for policymakers, financial service providers, e-commerce platforms, and researchers seeking to harness digital transformation for inclusive economic growth.

As India advances toward its \$7 trillion digital economy vision, ensuring that emerging urban centres and the diverse households within them—

benefit equitably from digital payment innovation, financial inclusion, and e-commerce opportunities remains a critical challenge and opportunity for the coming decade.

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