



From Cash To Digital: Examining Payment Adoption Among Small Retailers In India

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Abstract

The rapid growth of digital payment systems in India, particularly the widespread adoption of Unified Payments Interface (UPI), has significantly transformed the transaction landscape for small-scale retailers. This study aims to examine the factors influencing digital payment adoption among small retail vendors in Bangalore, with a specific focus on behavioural intention and the continued relevance of traditional payment methods. Primary data were collected from small-scale retail business vendors using a structured questionnaire, focusing on their usage, perception, and adoption of UPI-based payment systems. The study employs Partial Least Squares Structural Equation Modelling (PLS-SEM) to analyse the measurement and structural models. Reliability and validity assessments indicate strong internal consistency, with Cronbach's Alpha and Composite Reliability values exceeding the recommended thresholds, and Average Variance Extracted (AVE) confirming adequate convergent validity. The structural model results reveal a significant positive relationship between traditional payment methods and digital payment adoption ($\beta = 0.393$, $p < 0.001$), suggesting a complementary coexistence rather than substitution. Interestingly, behavioural intention shows a significant but negative relationship with digital payment adoption ($\beta = -0.174$, $p <$

0.05), indicating a potential intention–behaviour gap among retailers. Furthermore, the relationship between traditional payment methods and behavioural intention is found to be statistically insignificant ($p > 0.05$). The findings highlight that while UPI adoption is increasing, actual usage behaviour among small retailers is influenced more by practical and contextual factors than by intention alone. The study contributes to the growing literature on digital financial inclusion by emphasizing the hybrid nature of payment systems in emerging markets. It also provides implications for policymakers and fintech stakeholders to focus on infrastructure development, trust-building, and user-centric solutions to enhance digital payment adoption.

Key Words: Digital Payment, UPI, Small Business Vendors, Digital India

Introduction

Despite the widespread prevalence of cash transactions, digital payment systems have gained substantial traction in India due to their inherent speed, ease of use, and convenience, particularly accelerated by the COVID-19 pandemic (Sah et al., 2024). This shift has prompted considerable interest in understanding the factors driving the adoption of digital payment technologies among small retailers, who constitute a significant portion of the Indian economy (Devi, 2025; Thanigan et al., 2025). Previous research has indicated that various determinants, including transactional practices, business scope, type of goods sold, trust, and the comfort and familiarity levels of vendors, influence the adoption of digital technologies in daily business operations (Ravikumar & Prakash, 2022). Specifically, prior studies have identified owner age, firm age, education, and internet access as crucial factors influencing the integration of digital tools within small businesses (Ahmad & Dixit, 2025). However, despite the evident progress, the continued prominence of cash usage in India necessitates a deeper investigation into the individual-level factors influencing payment decisions (Shree et al., 2021). This study therefore aims to dissect the nuanced interplay between individual retailer characteristics and the broader ecosystem of digital payment infrastructure, thereby elucidating the specific impediments and facilitators to broader digital payment assimilation within this critical economic sector. This exploration is particularly salient given the rapid adoption of app-based payment technologies like GooglePay, which offer transformative solutions for retailers in India by providing convenience and a competitive edge (Hautamäki et al., 2024, p. 1090). Nonetheless, the overarching impact of these digital payment modalities on the well-being of subsistence consumers remains an under-researched domain (Kadić-Maglajlić et al., 2024, p. 977). This research addresses this lacuna by examining the factors influencing digital payment adoption among small retailers in India, considering both supply-side technological infrastructure and demand-side behavioral aspects (Ranjith, 2021, p. 3310). The Technology-Organization-Environment framework is particularly pertinent for hypothesizing the influence of relative advantage, perceived barriers, firm size, and firm scope on the adoption of cashless payment systems among small retailers (Srinivasan et al., 2024). This aligns with the Reserve Bank of India's Payments Vision 2025, which strategically aims to enhance digital payment inclusivity and accessibility, further emphasizing the need to understand micro-level adoption dynamics (Devi et al., 2025, p. 4). Drawing on the Technology-Organization-Environment framework, this study investigates how technological readiness, organizational capability, and environmental influences collectively shape retailers' adoption behaviors in emerging markets (Islam & Ferrer, 2025). Specifically, the resource-based view of firms also offers a robust theoretical lens to explore how the adoption of digital payment technologies can enhance the economic performance of unorganized retailers

(Adhikary et al., 2021). This theoretical approach underscores the strategic advantages derived from integrating digital payment systems, enabling these retailers to compete more effectively against omnichannel and multi-channel competitors (Ram et al., 2023, p. 96). This performance enhancement is further amplified by technological investments made by retailers, whereas readily available credit facilities can attenuate this effect (Adhikary et al., 2021). However, the application of various theoretical frameworks like the Technology Acceptance Model and Unified Theory of Acceptance and Use of Technology to understand digital payment adoption among micro-entrepreneurs in emerging markets necessitates modifications to account for unique socio-economic contexts (Supritha, 2025, p. 2698). Consequently, this research delves into the specific drivers of technology adoption within India's unorganized retail sector, particularly focusing on mobile application adoption and its transformative impact on this segment (Ram et al., 2023, p. 96). Furthermore, understanding the determinants of digitalization in unorganized localized retail outlets is crucial, with factors such as cost, compatibility, perceived ease of use, and perceived usefulness significantly influencing the intention to digitalize (Bhattacharjee et al., 2024). Despite these identified factors, the specific challenges and opportunities for small retailers in adopting digital payment systems, particularly in the context of India's rapid demonetization efforts, remain underexplored (Thanigan et al., 2025). Moreover, the extant literature reveals a gap in understanding how e-payment systems might specifically enhance economic opportunities for small and medium-sized enterprises by reducing transaction costs and capitalizing on increased sales, especially in environments transitioning towards "phygital" retail experiences (Malone & Thomsen, 2025, p. 1). This study endeavors to bridge this knowledge gap by providing a comprehensive analysis of the factors influencing digital payment adoption among small retailers in India, considering both the macro-environmental forces and micro-level behavioral determinants (Bhattacharjee et al., 2024). Specifically, this research investigates how perceived benefits, perceived risks, and external pressures influence the sustained engagement of small retailers with digital payment platforms, thereby contributing to a more granular understanding of persistent cash reliance in specific segments (Wiredu et al., 2024, p. 5). The security implications and potential for cyber-fraud associated with these platforms also warrant detailed examination, as they represent significant impediments to broader adoption and trust among small businesses (Ranjith, 2021, p. 3310; Saxena & Murzello, 2026). Conversely, the role of financial literacy, service quality, and privacy in influencing the adoption and sustained usage of digital payments among this demographic also merits focused inquiry (Patnaik et al., 2023). Moreover, the influence of social factors and the presence of a pervasive cash culture further complicate the transition to digital payment systems among street vendors and hawkers, particularly in Tier 3 and Tier 4 cities (Bakhshi et al., 2024, p. 232). Given that women street vendors constitute a significant portion of this informal workforce, understanding their specific barriers to adoption is particularly crucial for inclusive digital transformation (Devi et al., 2025, p. 2). This study posits that an integrated framework incorporating technological, organizational, and environmental factors, alongside individual perceptions of benefits and risks, is necessary to fully comprehend the multifaceted nature of digital payment adoption within this context (Devi et al., 2025, p. 7). Such a framework would allow for a nuanced analysis of the hierarchical barriers that impede effective fintech adoption among these informal sector participants (Bakhshi et al., 2024, p. 232). This study therefore aims to investigate the factors influencing digital payment adoption among small retailers in India by developing an integrated model that accounts for the unique socio-economic landscape and regulatory environment (Thanigan et al., 2025). This research further examines how trust and awareness, as well as perceived ease of use and perceived benefit, are critical in



shaping the intention to adopt and continuously use digital payment systems among small retailers (Bakhshi et al., 2024, p. 231; Patnaik et al., 2023, p. 2587; Thanigan et al., 2025). This comprehensive approach will contribute to the understanding of the complex interplay of factors driving or hindering digital payment integration within this vital economic segment. It will also explore the mediating role of financial literacy and perceived service quality in fostering sustained behavioral intention towards these digital platforms (Patnaik et al., 2023). Furthermore, the study will analyze how a higher financial literacy among small retailers correlates with increased frequency of digital payment service utilization (Rashid et al., 2024). Additionally, this research will assess how social influence and facilitating conditions modulate the perceived utility and ease of integration of digital payment solutions, subsequently impacting actual usage rates among this demographic (Bakhshi et al., 2024, p. 237; Devi et al., 2025, p. 1). Finally, this research will also consider how the accelerated adoption of digital technologies during the COVID-19 pandemic may have influenced the perspectives and behaviors of small retailers regarding digital payment systems (Bakhshi et al., 2024, p. 231). This includes examining the sustainability of these crisis-induced technology adoptions and retailers' intentions for continued usage (Thanigan et al., 2025). The manuscript is structured to systematically address these inquiries, beginning with a comprehensive review of relevant literature to establish the theoretical foundation for hypothesis formulation (Taneja et al., 2024, p. 10866). Subsequently, the methodology section will detail the research design, data collection procedures, and analytical techniques employed to rigorously test the proposed hypotheses and achieve the study's objectives. The findings derived from this investigation will offer valuable insights for policymakers, financial institutions, and technology providers aiming to enhance digital payment infrastructure and foster greater financial inclusion within India's informal retail sector.

1. Objectives:

The primary objectives of this research are to investigate the core factors influencing the behavioral intention of small retailers in India to adopt digital payment platforms, and to analyze how these intentions translate into sustained usage within the post-pandemic economic landscape (Jena, 2022). Specifically, this study seeks to ascertain the impact of various demographic variables on financial technology acceptance behaviors among MSMEs in India (Gupta et al., 2022, p. 194). It also aims to evaluate the efficacy of government policies and educational campaigns in promoting digital payment adoption among these entities, particularly in rural and underserved areas (Joon et al., 2025). Furthermore, this research endeavors to identify specific barriers impeding the widespread adoption of digital payment solutions in these regions, proposing targeted interventions for overcoming them. Additionally, it will explore the evolving digital payments ecosystem and emerging trends such as UPI and digital wallets, considering their influence on small retailer adoption (Ghadge, 2026).

2. Literature Review

The extant literature offers varied perspectives on the drivers and impediments to digital payment adoption, particularly in developing economies (Jayarathne et al., 2022, p. 2). Much of this research has historically concentrated on consumer-centric adoption models and broader economic implications, with less emphasis on the unique challenges faced by small retailers (Krishnan, 2025, p. 88). For instance, studies often examine digital payment use in relation to overall financial inclusion or the general digital revolution (Dixit, 2024; Sadarsopewale & Kadam, 2026), without deeply exploring the specific business success outcomes for micro-entrepreneurs (Supritha, 2025, p. 2697). However, recent scholarship has begun to address the determinants inhibiting digital payment system adoption, specifically from an Indian



perspective (Hussain et al., 2024). For instance, one study highlighted the increasing digital payment adoption by small retailers as a significant opportunity for financial service providers and emphasized the need for further research in this area to gain insights beneficial to the economy (Jain & Jain, 2024). Other research has examined factors influencing digital payment adoption among specific demographics such as rural women in India, highlighting the scarcity of studies in this area despite its importance for economic transformation (Pandey & Kushwaha, 2025). Indeed, the growing digitization of India's economic ecosystem, particularly within the Micro, Small, and Medium Enterprises sector, underscores the urgency of such investigations, as digital solutions are increasingly pivotal for their operational efficiency and broader economic development (Agarwal, 2023; Raju & Peri, 2023, p. 74). However, extant literature frequently overlooks the specific challenges and opportunities for digital payment acceptance within the informal sector of MSMEs, which constitutes a substantial portion of the Indian economy (Allen et al., 2022, p. 2). This gap in research is critical, as numerous challenges, such as cyber security concerns, inconsistent internet access, and low digital literacy, persist in hindering the widespread adoption and effective utilization of digital payment systems, especially in rural areas (Jayan, 2024, p. 1649; Usmani*, 2025). Despite the recognized importance of digital financial inclusion for micro-enterprises in emerging economies like India, research on the determinants and impact of such inclusion remains limited (Johri et al., 2024, p. 3). This underscores the need for a comprehensive framework that addresses these multifaceted issues, particularly concerning Unified Payments Interface adoption and its financial implications for India's micro and small business sector (Bisht, 2025). Specifically, the rapid growth of the Unified Payments Interface and digital wallets has significantly reshaped entrepreneurial finance and operations within India, necessitating deeper examination into their role in fostering financial inclusion and enterprise growth among MSMEs (Bankar et al., 2026). Therefore, a robust analytical framework is essential to dissect the complexities of digital payment integration, considering both the macro-level policy interventions and micro-level behavioral adaptations required for widespread adoption among Indian MSMEs (Johri et al., 2024, p. 2). This paper aims to bridge this gap by examining the interplay of entrepreneurs' awareness, perception, and intention in driving digitalization among small retailers, thereby contributing to a more nuanced understanding of digital adoption in this critical economic sector (Shama et al., 2024, p. 61). This research will contribute to a more comprehensive understanding of the dynamics of digital payment adoption by investigating the awareness, perception, and intention of small retailers regarding digital payment platforms. This investigation will specifically focus on how these factors collectively influence the sustained engagement with and utilization of digital payment solutions, particularly in the context of India's evolving digital financial ecosystem (Shama et al., 2024, p. 63). The study further investigates the growth of small and medium enterprises through various government schemes and highlights the importance of digital platforms such as ONDC, OCEAN, and NDEAR in enhancing productivity and e-commerce functionality (Agarwal, 2023). This critical examination will also consider the impact of Digital Public Infrastructure on supply chain dynamics for MSMEs, particularly addressing challenges related to digital access, financing, and multimodal connectivity (Dhiman & Madan, 2025). Such infrastructure, by integrating platforms like ONDC and UPI, aims to create inclusive and technology-driven ecosystems, thereby strengthening supply chain dynamics and improving credit access for these enterprises (Dhiman & Madan, 2025). This digital transformation is crucial for MSME growth, positioning Digital Public Infrastructure as a catalyst for inclusive and sustainable industrial expansion in alignment with the broader vision of Viksit Bharat 2047 (Dhiman & Madan, 2025). Despite these advancements, the uneven adoption and

integration of these systems across fragmented MSME clusters present ongoing challenges that necessitate further empirical investigation (Dhiman & Madan, 2025). This study posits that successful integration of such digital frameworks, coupled with policy interventions and innovative private sector practices, can significantly facilitate the digital transformation of the MSME segment (Agarwal, 2023). This research, therefore, endeavors to provide a granular analysis of how perceived usefulness and perceived ease of use specifically shape the intention of small and medium-sized enterprises to adopt and effectively utilize digital payment technologies (Chakraborty et al., 2025). Specifically, this study will employ a theoretical framework that integrates the Technology Acceptance Model with constructs relevant to the Indian socio-economic context, such as governmental support and trust in digital infrastructure, to offer a comprehensive understanding of adoption drivers among small retailers (Kesavan & Srinivasan, 2023, p. 4). This holistic approach will illuminate the nuanced interplay between technological perceptions, policy environments, and socio-cultural factors influencing digital payment uptake in this vital sector (Chakraborty et al., 2025; Supritha, 2025, p. 2695). Furthermore, it will explore how enhanced digital literacy and targeted governmental initiatives can mitigate barriers to adoption, thereby accelerating the financial inclusion of these enterprises (Shama et al., 2024, p. 60). This investigation will also consider how the demonetization event of 2016 in India impacted technology adoption rates and perceptions of digital payment systems among small retailers, providing a historical context for current adoption trends (Krishnan, 2025, p. 17).

3. Research Framework:

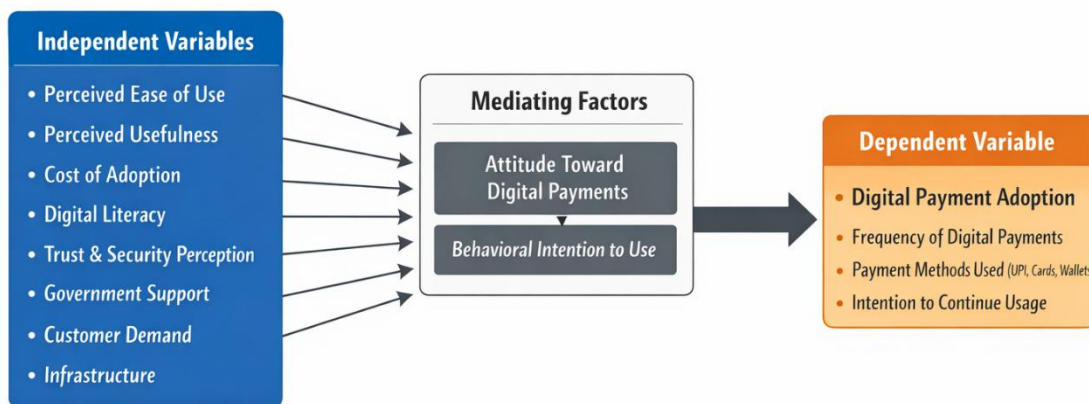


Image 1 the research framework with perceived ease of use to mediating factor of attitude toward digital payment on digital payment adopting

According to the image 1 research framework the independent variable which are the main factors influencing adoption. Perceived Ease of Use, Perceived Usefulness, Adoption Cost, Digital Literacy, Perception of Trust and Security, Government Support, Customer Demand, and Infrastructure are some of these. Together, these factors reflect the economic, behavioural, technical, and environmental factors influencing merchants' choices. Mediating factors, which serve as an intermediary mechanism describing how the independent variables affect the ultimate result, are introduced at the heart of the framework. Behavioural Intention to Use and Attitude Toward Digital Payments are these mediators. This section is theoretically grounded in models such as the Technology Acceptance Model (TAM), which emphasizes the importance of user perception and intention in the adoption of technology. Digital Payment Adoption is the Dependent Variable displayed on the right.

4. Methodology

To rigorously address these research objectives, a quantitative research approach will be employed, combining quantitative surveys to capture both the breadth and depth of digital payment adoption phenomena. The quantitative research design will utilize a structured survey instrument administered to a representative sample of small retailers across diverse geographical regions in India, enabling statistical analysis of adoption determinants. This will allow for the identification of significant variables influencing digital payment adoption and their impact on the financial performance and operational efficiency of these businesses (Meher et al., 2021, p. 20). This methodological approach will permit the examination of factors such as perceived usefulness, perceived ease of use, and trust, which are critical in the context of technology acceptance (Bhattarai et al., 2023; Jahangir & Segumpan, 2025), to discern their correlation with actual adoption rates and subsequent business outcomes. The integration of the Technology Acceptance Model into this framework is crucial, as it provides a robust theoretical lens to evaluate how perceived usefulness and perceived ease of use influence technology acceptance among small retailers (Sinaga et al., 2023, p. 424). This study will adapt existing scales for measuring constructs such as attitude, effort expectancy, performance expectancy, facilitating conditions, social influence, hedonic motivation, perceived value, and behavioural intention, ensuring contextual relevance through exploratory interviews with Indian entrepreneurs.

5. Data analysis

The questionnaires are prepared using Likert five point i.e., 5 point- Strongly Agree, 1- Strongly Disagree.

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Behavioural Intention	0.965	1.008	0.969	0.756
Digital Payment	0.874	0.913	0.903	0.584
Traditional Payment	0.965	0.975	0.969	0.760

The measurement model was assessed using **Cronbach's Alpha**, **rho_A**, **Composite Reliability (CR)**, and **Average Variance Extracted (AVE)** to ensure internal consistency and convergent validity of the constructs.

1. Behavioural Intention

The construct *Behavioural Intention* demonstrates **excellent internal consistency**, with a Cronbach's Alpha of **0.965**, which is well above the recommended threshold of 0.70. The **Composite Reliability (0.969)** further confirms a high level of reliability. The **rho_A value (1.008)**, slightly above 1, indicates very high indicator consistency, which may suggest minor multicollinearity but remains acceptable in PLS-SEM contexts. Additionally, the **AVE value of 0.756** exceeds the minimum threshold of 0.50, confirming strong **convergent validity**, meaning that the indicators adequately explain the construct.

2. Digital Payment

The construct *Digital Payment* shows **good reliability and validity**. The Cronbach's Alpha value of **0.874** indicates strong internal consistency among the measurement items. The **Composite Reliability (0.903)** supports this finding, confirming that the construct is reliably

measured. The **rho_A value (0.913)** is within an acceptable range, further validating consistency. The **AVE value of 0.584** exceeds the threshold of 0.50, indicating satisfactory **convergent validity** and that the construct explains a sufficient portion of variance in its indicators.

3. Traditional Payment

The *Traditional Payment* construct also exhibits **excellent reliability**, with a Cronbach’s Alpha of **0.965** and Composite Reliability of **0.969**, both indicating a very high level of internal consistency. The **rho_A value (0.975)** further confirms the robustness of the construct. The **AVE value of 0.760** is substantially above the recommended level, demonstrating strong **convergent validity** and indicating that the indicators are highly representative of the construct.

Hypothesis Statement: The relationship between Traditional payments process (Case) towards the mediating variable of retailer and customer behaviour towards the digital payments i.e., UPI

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Behavioural Intention -> Digital Payment	-0.174	-0.166	0.079	2.197	0.028
Traditional Payment -> Behavioural Intention	0.163	0.167	0.116	1.404	0.161
Traditional Payment -> Digital Payment	0.393	0.388	0.032	12.118	0.000

Behavioural Intention → Digital Payment

The relationship between *Behavioural Intention* and *Digital Payment* is found to be negative and statistically significant ($\beta = -0.174$, $t = 2.197$, $p = 0.028$).

This indicates that, contrary to conventional expectations, an increase in behavioural intention is associated with a decrease in digital payment adoption. While the relationship is statistically significant ($p < 0.05$), the negative direction suggests a counterintuitive finding, which may be attributed to:

- Possible resistance despite intention (intention–behaviour gap)
- External constraints such as infrastructure or trust issues
- Measurement or contextual factors specific to small retailers

This result calls for deeper investigation and theoretical justification.

Traditional Payment → Behavioural Intention

The path from *Traditional Payment* to *Behavioural Intention* is positive but not statistically significant ($\beta = 0.163$, $t = 1.404$, $p = 0.161$). This suggests that reliance on traditional payment methods does not significantly influence the intention to adopt digital payments. Although the direction is positive, the lack of significance ($p > 0.05$) indicates that traditional payment habits may not strongly shape behavioural intention in this context.

Traditional Payment → Digital Payment

The relationship between *Traditional Payment* and *Digital Payment* is positive and highly significant ($\beta = 0.393$, $t = 12.118$, $p = 0.000$). This implies that retailers who actively use



traditional payment methods are also likely to adopt digital payment systems. The strong significance ($p < 0.001$) suggests a complementary relationship, rather than a substitution effect, where both payment modes coexist.

The model reveals a mixed pattern of relationships. *Traditional Payment* plays a significant direct role in influencing digital payment adoption. *Behavioural Intention*, although significant, shows a negative effect, indicating a potential gap between intention and actual usage. The non-significant effect of traditional payment on behavioural intention suggests that intention formation may be influenced by other factors not included in the model.

6. Results

Given these considerations, a mixed-methods approach encompassing quantitative surveys and qualitative interviews will be employed to gather data from a representative sample of small retailers across diverse geographical regions in India (Devi, 2025). This methodology aligns with previous studies investigating technology adoption in MSMEs (Chakraborty et al., 2025), allowing for a comprehensive analysis of both the statistical trends and the underlying perceptions driving digital payment integration (Raju & Peri, 2023, p. 75). Specifically, the quantitative phase will utilize a structured questionnaire to assess perceived usefulness, perceived ease of use, and behavioral intention derived from the Technology Acceptance Model (Chakraborty et al., 2025; Mahdi et al., 2025), while the qualitative phase will delve into the experiential insights of retailers regarding digital payment challenges and opportunities (Chan et al., 2023, p. 3004; Gupta et al., 2022, p. 200). Such an approach ensures a robust understanding of the factors influencing the adoption of digital payment technologies among MSMEs, consistent with findings from studies on QRIS adoption in Indonesia (Asmara et al., 2023; Sholihah & Nurhapsari, 2023, p. 1). Additionally, in-depth interviews with key stakeholders, including policymakers and financial institution representatives, will provide a deeper understanding of the challenges and opportunities associated with digital payment adoption in the Indian retail sector (Ed-Daoudy & Chakir, 2024, p. 846). The qualitative data gathered through these interviews will be subjected to thematic analysis to identify overarching themes and sub-themes that explain factors influencing adoption or non-adoption of digital payment systems (Hussain et al., 2024). This multi-faceted methodology aims to provide a granular perspective on the socio-technical factors influencing digital payment uptake, thereby informing policy recommendations and strategic interventions tailored to the specific needs of small Indian retailers (Islam & Ferrer, 2025; Jayarathne et al., 2022, p. 7). The study will also include a comparative analysis of digital payment adoption rates and attitudes between urban and rural retailers, considering infrastructure disparities and varying levels of digital literacy (Farukh et al., 2025; Kumar, 2025, p. 6962). This comprehensive research design, integrating both quantitative and qualitative techniques, strengthens the validity of the findings by blending statistical evidence with subjective experiences of rural and urban entrepreneurs, consistent with established mixed-methodological frameworks (Sharma et al., 2025). The sequential exploratory design employed herein will leverage qualitative insights from initial interviews to inform and refine the quantitative survey instruments, thereby maximizing the relevance and comprehensiveness of the data collected (Joshi, 2024, p. 63). This will allow for a more nuanced understanding of the factors influencing digital payment adoption among small Indian retailers, particularly in underrepresented rural areas (Beura et al., 2023, p. 21). Ultimately, this comprehensive investigation aims to contribute actionable insights for policymakers and financial service providers seeking to foster inclusive digital payment ecosystems within the Indian small retail sector. The study will specifically address the role of digital innovation in MSME growth, particularly considering the post-COVID

recovery period and the associated shifts in digital adoption trends (Pandey, 2026). To achieve these objectives, the research will adopt a multi-case study design, as this qualitative approach is particularly adept at developing theoretical insights from detailed individual experiences within specific contexts (Hardik, 2023, p. 33).

7. Discussion

This design will facilitate an in-depth exploration of the unique challenges and opportunities faced by small retailers in adopting digital payment solutions, thereby enriching the understanding of technology diffusion in emerging economies (Alifah & Hidayat, 2025). This approach will allow for the identification of context-specific factors influencing adoption, providing valuable insights for policy formulation aimed at aligning digital innovation with inclusive economic growth (Rampaul, 2025). Moreover, the iterative nature of the qualitative research allows for emergent themes and novel phenomena to be thoroughly investigated as they arise during the data collection process, enhancing the robustness of the theoretical contributions (Sala-Vilar, 2024, p. 223). The application of an instrumental variable probit model within this framework will further establish causal links between mobile money adoption and business performance, while mitigating endogeneity concerns (Cisagara, 2025). This comprehensive methodological framework will enable a robust analysis of the various determinants influencing digital payment adoption among small retailers, thereby contributing to both theoretical advancements in technology diffusion and practical implications for financial inclusion policies. The insights gained will be crucial for understanding how government policies impact MSME internationalization, particularly concerning their engagement with e-commerce platforms (Singh et al., 2022, p. 98). Specifically, this research will explore how regulatory frameworks and governmental initiatives, such as those promoting digital financial inclusion, influence the propensity of small retailers to adopt and effectively utilize digital payment systems (Dhore, 2022; Singh et al., 2022, p. 111). This focus is particularly pertinent given the substantial body of literature on how institutional logics shape regulatory policy and technological infrastructures, which in turn affect economic empowerment for informal businesses (Senyo et al., 2022, p. 160). Therefore, this study will also investigate the interplay between formal regulatory structures and the informal economic activities prevalent among small retailers, examining how these dynamics impact the scalability and sustainability of digital payment adoption within this sector. This will involve analyzing the effectiveness of existing policy interventions and identifying potential areas for improvement to foster a more inclusive and robust digital payment ecosystem for small retailers in India (Altundağ, 2025, p. 3).

8. Conclusion

The findings will contribute to a deeper understanding of how digital payment systems facilitate financial inclusion and foster small business growth in developing economies (Minarni, 2025), particularly by examining the impacts on operational efficiency and market accessibility. Furthermore, the study will explore how increased access to data and advanced analytics, facilitated by digital payments, can be adapted as a computational framework for the design, implementation, and monitoring of sustainable development initiatives for micro, small, and medium-sized enterprises (Cordes & Маринова, 2023, p. 19). This will inherently involve examining how digital financial inclusivity measures can provide valuable insights into the operational dynamics of SMEs, thus encouraging financial institutions to develop tailored products and services that address their specific financing requirements (Johri et al., 2024, p. 3). This research will therefore not only advance academic knowledge on how digital innovation

supports the growth of the MSME sector, but also provide critical insights for policymakers to create more effective programs and policies (Achmad, 2023, p. 470). This comprehensive analysis will thus bridge theoretical gaps regarding technology adoption in emerging markets and offer practical guidance for fostering economic resilience and operational enhancement within the Indian small retail sector (Obiki-Osafiele et al., 2024, p. 1487). The study addresses existing literature gaps by demonstrating how regulatory interventions act as catalysts for digital payment adoption, while perceived social benefits and utility drive sustained usage (Thanigan et al., 2025). This investigation underscores the critical need for a comprehensive understanding of diverse stakeholder roles in shaping India's cashless landscape, ranging from primary policy designers to recipients with limited voice (Sam et al., 2021, p. 102178). Future research should therefore focus on the longitudinal impacts of digital payment systems on financial behavior and business operations among marginalized populations (Devi et al., 2025, p. 24). Additionally, future studies could incorporate structured interviews and observational techniques to garner deeper insights into consumer perceptions and the socio-technical dynamics influencing adoption (Ranjith, 2021, p. 3312). Moreover, exploring the long-term implications of digital financial services on the growth trajectory of Micro, Small, and Medium Enterprises in semi-urban areas of India would be a crucial next step, considering the limited prior research in this specific domain (Meher et al., 2021, p. 20). This would involve examining how digital readiness and supportive schemes can mitigate risks and encourage entrepreneurs to embark on their digital transformation journey (Shama et al., 2024, p. 70). Further research could also evaluate the effectiveness of various digital financial inclusion initiatives on SME funding constraints through comprehensive empirical studies, potentially uncovering nuanced observations and disparities across different geographic areas and sectors (Lei & Liu, 2024; Shree et al., 2021). Longitudinal studies, sector-specific analyses, and the integration of emerging technologies like artificial intelligence and blockchain into SME operations would further enrich the understanding of digital transformation in this sector (Pawenang et al., 2024). An investigation into the comparative efficacy of different digital payment platforms and their respective adoption rates across varied retail formats, from kirana stores to specialized boutiques, would also yield valuable insights into optimizing digital payment infrastructure. This would necessitate a comparative analysis of the behavioral economics underlying the adoption choices of different merchant segments, particularly given the noted gaps in longitudinal studies and the underrepresentation of rural and gender-specific research in this domain (Bala & Sharma, 2025; Rout & Ray, 2024). Such studies could also delve into the macroeconomic impacts of widespread digital payment adoption, considering variables such as GDP and savings (Kesavan & Srinivasan, 2023, p. 20). Furthermore, an exploration into how digital payment adoption influences financial and digital literacy across diverse demographic groups, alongside its impact on the shadow economy and tax compliance, presents a significant avenue for future investigation (Birigozzi et al., 2025; Ly & Ly, 2024). Moreover, it is imperative to investigate how the principles of Industry 5.0, particularly sustainable and human-centric approaches, can be integrated into digital payment ecosystems to enhance both environmental and social outcomes for small retailers in emerging markets (Pingali et al., 2023). Additionally, the nexus between digital transformation and innovation within SMEs, especially non-R&D and sustainable innovation, warrants further investigation to understand how resource constraints are circumvented and sustainability objectives are met through technological leveraging (Gao et al., 2026). Further research could also examine the potential negative externalities of widespread digital payment adoption, such as heightened digital divide issues and increased vulnerability to cyber threats for small businesses operating with limited technological infrastructure (Sharma et al., 2023). Another promising avenue involves



assessing the impact of digital literacy training programs and government policies on facilitating e-commerce adoption and overall digital proficiency among small retailers (Leogrande, 2024, p. 7). Additionally, future research could consider developing a comprehensive categorization model that integrates various drivers of payment adoption, leveraging deep learning methods and neural networks to handle the complexity of societal factors like preferences for card payments (Vandak & Goodell, 2024, p. 28).

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