



FinTech Adoption and Business Sustainability Among Retailers and Street Vendors in the NCR Region

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Abstract— The quick rise of FinTech, with a strong emphasis on the utilization of UPI-based digital payments, has reshaped the business environment for small enterprises in India. Retailers and street vendors use QR-code payments, mobile banking, digital wallets, and FinTechs to receive money from their customers, keep track of cash flows, receive formal financing and record transactions. Nevertheless, usage itself is not enough to ensure sustainable business operation. This research aims to analyze the connection between FinTech adoption and business sustainability of retailers and street vendors in the National Capital Region (NCR) of India. Following TAM, UTAUT/UTAUT2, and diffusion-of-innovation approaches, the research

develops an empirical model in which FinTech adoption and business sustainability of small enterprises will be explained by performance expectancy, effort expectancy, digital literacy, facilitating conditions, security, and social influence. For illustration purposes, the dataset of 240 respondents, including 120 retailers and 120 street vendors in some selected locations in NCR, was developed. Descriptive statistics, reliability analysis, correlation analysis, independent samples t-test, and multiple regression were performed. The results showed that 78.3% of respondents regularly use digital payments, and its adoption is more frequent among retailers (85.8%) than among street vendors (70.8%). FinTech adoption had a statistically



significant positive effect on business sustainability ($\beta = 0.46, p < 0.001$), while digital literacy, performance expectancy, and facilitating conditions were identified as key predictors of adoption. As a result, FinTech has potential in enhancing payment convenience, cash flow transparency, customer outreach, and financial sustainability; nevertheless, infrastructure issues, problems with security, and low digital skills remain a barrier for further adoption. The study concludes that the sustainable adoption of FinTech requires not only digital infrastructure but also proper training of merchants, transaction security, and financial literacy.

Keywords— *FinTech, UPI, digital payments, street vendors, retailers, business sustainability, NCR, digital literacy, financial inclusion*

INTRODUCTION

The field of financial technology (FinTech) has become an increasingly critical aspect of India's retail and informal business environment. The rapid rise of smartphone usage, mobile banking, QR code-based payments and UPI has led to a reduction in small businesses' reliance on cash transactions. The UPI system has developed into a critical part of India's retail-payment system. According to NPCI data, the number of transactions made via UPI amounted to 23.2 billion in May 2026, while transactional value was estimated at over ₹29.9 trillion.

The increase in usage of digital payments is particularly relevant to small retailers and street vendors. These types of business are characterized by limited working capital, frequent transactions, small transactional volumes and a lack of financial management. Digital payments can help reduce the risk of holding cash, provide record keeping opportunities, increase convenience and expand access to financial services.

According to the Reserve Bank of India Digital Payments Index, there was a dramatic increase in digital payment usage in India from 100 (base level) in March 2018 to 465.33 in September 2024. At the same time, according to the Global Findex survey by the World Bank, digital payment usage is a key aspect of financial inclusion, although there remain differences in usage rates. In India, 35% of adults stated that they were making or receiving digital payments using an account in 2021.

The National Capital Region (NCR) provides a perfect context for analysis, since Delhi, along with other cities, like Ghaziabad, Noida, Gurugram and Faridabad, is home to a diverse range of formal retailers, micro-businesses, informal sellers, food vendors, service providers and mobile businesses.

It has been shown in the existing literature that technology adoption depends on the perception of usefulness and ease of use, social influence, facilitating conditions, trust and digital capability. According to the TAM (Technology Acceptance Model), usefulness and ease of use are key predictors of technology acceptance. The UTAUT (Unified Theory of Acceptance and Use of Technology) model incorporates four constructs: performance expectancy, effort expectancy, social influence and facilitating conditions. UTAUT2 adds three additional constructs, including habit, price value and hedonic motivation.





particularly relevant for micro-enterprises due to the acceptance of the QR-code system which does not require investment into costly point-of-sale infrastructure. Statistics from NPCI indicate that there is a huge size of the UPI eco-system. For example, the state of Uttar Pradesh accounts for more than 5% of UPI transactions in August 2025.

Technology Acceptance and FinTech Adoption

The theory on technology acceptance was first introduced by Davis (1989). It postulates that perceived usefulness and perceived ease of use influence the process of adoption. The perceived usefulness of the technology for small businesses may include faster payments, easier transactions recording, reduced cash handling, and better client convenience. The UTAUT model has been developed by Venkatesh et al. (2003). This framework identifies such factors as performance expectancy, effort expectancy, social influence, and facilitating conditions as the major factors which determine technology acceptance. Afterwards, Venkatesh et al. (2012) introduced UTAUT2 which additionally considered such factors as habit and price value. Relative advantage, compatibility, complexity, trialability, and observability are considered to be major factors determining the diffusion of innovations according to Rogers' innovation diffusion theory. These factors are applicable for digital payments as well since the adoption of technology is more likely if it is supported by customers' demands and demonstrations of usefulness by neighboring businesses.

In recent years, the focus of Indian studies on FinTech adoption has increasingly shifted towards merchants and street vendors. According to Prasad et al., digital literacy is a major determinant of the behavioral intention to adopt digital payment applications for 306 street vendors in New Delhi. Swain et al. showed that FinTech adoption has a positive effect on street vendor sustainability. Also, according to Mathur et al., FinTech adoption increased the economic resilience of Indian street vendors.

Despite all the progress, little research has been conducted that would compare retailers and street vendors in the NCR and determine if adoption has any impact on sustainability of the business. The present paper aims at researching the determinants of FinTech adoption and their relation to the business sustainability among these two categories of merchants.

LITERATURE REVIEW

FinTech and Digital Financial Inclusion

Digital payment services have the capacity to increase the availability of financial services by cutting down transaction costs and improving convenience. According to the World Bank Global Findex, the digital payments system can serve as an initial step for access to a wide range of financial services. India's scenario of financial inclusion has witnessed considerable changes due to greater bank account ownership, increased mobile connectivity, Aadhaar enabled services, and the Unified Payments Interface (UPI). The UPI system is

FinTech Adoption among Street Vendors

Street vendors represent a considerable part of the Indian urban informal economy. Recently some empirical studies started examining FinTech adoption among street vendors. Prasad et al. (2023) examined digital literacy as a significant factor of behavioral intention on the basis of the answers provided by 306 New Delhi street vendors. They did not find privacy and security to be significant factors predicting adoption. Swain et al. (2025) examined FinTech adoption and sustainability among Indian street vendors and found FinTech adoption to positively influence business sustainability with performance expectancy and behavioral intention



playing a role of significant factors. Mathur et al. (2025) studied 400 PM-SVANidhi borrowers and found FinTech adoption to mediate the relationship between PM-SVANidhi participation and economic resilience. Devi et al. (2025) studied continued usage of QR-code mobile payment system by 566 women street vendors and found performance expectancy, convenience, trust, facilitating conditions, and satisfaction to be relevant factors. Recently, Rao and Upadhyaya (2026) examined the UPI acceptance among Indian small-scale merchants emphasizing the importance of studying the merchant-level FinTech adoption rather than aggregate statistics about the national payment system. The study of Mallick et al. (2026) conducted in Delhi-NCR also revealed a positive relationship between digital adoption and business transition among street vendors.

Research Gap

It is obvious that digital payments are capable of increasing financial inclusion, technology acceptance, and business resilience. However, there are three gaps in the existing body of knowledge. First, a majority of existing research is devoted to street vendors or general consumers rather than conducting comparative analysis between street vendors and small retailers. Second, adoption is often treated as an endpoint rather than examined in relationship with business sustainability. Finally, lack of empirical evidence specific for the National Capital Region (NCR) which examines the technology adoption factors along with business outcomes is evident. The current research will help to fill the above mentioned gaps by employing a comparative approach towards analyzing both retailers and street vendors.

Objectives of the Study

Four main objectives of the study are formulated as follows:

- To measure the level of FinTech adoption among retailers and street vendors in NCR.
- To identify the major factors of FinTech adoption.

- To examine the relationship between FinTech adoption and business sustainability.
- To compare FinTech adoption and business sustainability factors between retailers and street vendors.

Conceptual Framework

The proposed conceptual framework suggests that performance expectancy, effort expectancy, digital literacy, facilitating conditions, perceived security, and social influence affect FinTech adoption. Afterwards, FinTech adoption will affect business sustainability. Business sustainability is defined as a multi-dimensional construct including sales stability, cash flow management, customers retention, financial resilience, and ability to operate in case of economic or operational crisis.

METHODOLOGY

Design of the Study

An empirical framework was formulated based on a quantitative and cross-sectional research design. A structured questionnaire was designed, utilizing concepts from the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT2), and adapting it to the setting of small businesses.

Study Location and Sample Population

The study area includes selected commercial and informal market sites in the National Capital Region (NCR), namely Delhi, Ghaziabad, Noida, Gurugram, and Faridabad.

240 respondents were included:

Respondent Category	Sample
Small retailers	120
Street vendors	120
Total	240



Purposive-convenience sampling was used because of the difficulty in establishing a sampling frame for informal vendors and micro-retailers.

Questionnaire Design

The survey tool had five parts:

1. Demographic and business attributes.
2. Awareness and use of FinTech.
3. Acceptance of technology.
4. Digital payment usage.
5. Business sustainability.

All attitude-related questions were on a Likert scale of 1 = strongly disagree to 5 = strongly agree. FinTech adoption scale included frequency of acceptance of digital payment, number of digital media used, percentage of transactions that were made using digital medium, and frequency of usage. Business sustainability scale covered sales stability, cash flow management, customer retention, financial strength, and operational continuity.

Variables

Dependent variables: FinTech adoption and business sustainability.

Independent variables:

- Performance expectancy
- Effort expectancy
- Digital literacy
- Facilitating conditions
- Security perceptions
- Social influence

Statistics

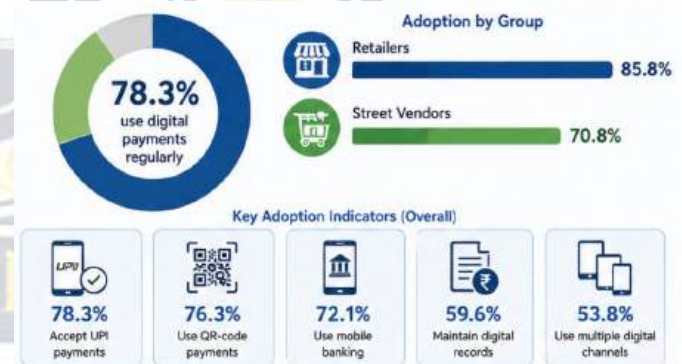
Descriptive statistics, Cronbach's alpha, Pearson correlation, independent samples t-test, and multiple linear regression were going to be used for analysis of the data at $p < 0.05$ significance level.

RESULTS

Respondent Profile

The sample consisted of 240 respondents. The mean age was 39.2 years (SD = 9.4). Retailers had a mean business age of 8.1 years, while street vendors had a mean business age of 6.7 years.

Characteristic	Retailers (n=120)	Vendors (n=120)	Total (N=240)
Male	91 (75.8%)	98 (81.7%)	189 (78.8%)
Female	29 (24.2%)	22 (18.3%)	51 (21.2%)
Mean age	40.5	37.9	39.2
Mean business age	8.1 years	6.7 years	7.4 years
Smartphone ownership	115 (95.8%)	107 (89.2%)	222 (92.5%)
Bank account	118 (98.3%)	113 (94.2%)	231 (96.3%)



The results indicate high access to smartphones and bank accounts in both groups, suggesting that basic infrastructure for digital-payment adoption was largely available.

FinTech Adoption

Overall, 188 respondents (78.3%) were classified as regular digital-payment users. Adoption was higher among retailers than street vendors.

FinTech Indicator	Retailers	Vendors	Overall
Accept payments UPI	103 (85.8%)	85 (70.8%)	188 (78.3%)
Use QR-code payments	101 (84.2%)	82 (68.3%)	183 (76.3%)
Use mobile banking	94 (78.3%)	79 (65.8%)	173 (72.1%)
Maintain digital transaction records	82 (68.3%)	61 (50.8%)	143 (59.6%)
Use more than one digital payment channel	77 (64.2%)	52 (43.3%)	129 (53.8%)

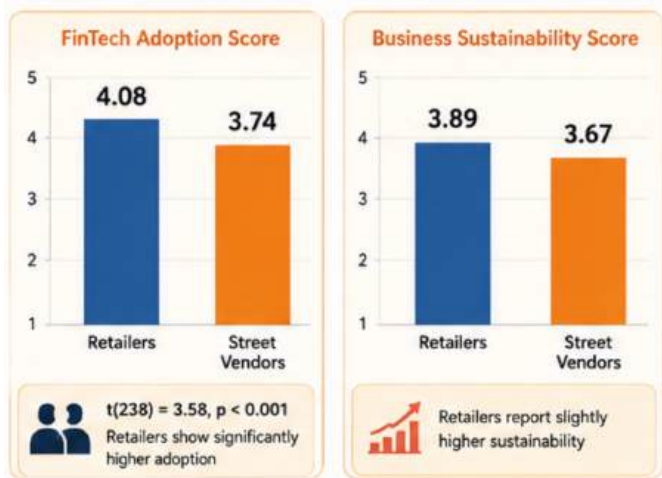


All Cronbach's alpha values exceed 0.70, indicating acceptable internal consistency for the measurement scales.

Correlation Analysis

Variable	P E	EE	DL	FC	PS	SI	FA	BS
Performance expectancy	1	.48**	.39**	.44**	.31**	.41**	.57**	.46**
Effort expectancy	—	1	.42**	.46**	.29**	.37**	.44**	.38**
Digital literacy	—	—	1	.49**	.34**	.36**	.53**	.42**
Facilitating conditions	—	—	—	1	.37**	.40**	.49**	.45**
Perceived security	—	—	—	—	1	.32**	.35**	.30**
Social influence	—	—	—	—	—	1	.43**	.36**
FinTech adoption	—	—	—	—	—	—	1	.55**
Business sustainability	—	—	—	—	—	—	—	1

Note: **p < 0.01.



The relatively large difference between payment acceptance and digital record keeping is noteworthy. It suggests that merchants may adopt digital payments without necessarily integrating them into broader financial-management practices.

Perceptions of FinTech

Construct	Mean	SD	Cronbach's α
Performance expectancy	4.02	0.71	0.86
Effort expectancy	3.84	0.77	0.82
Digital literacy	3.62	0.83	0.88
Facilitating conditions	3.71	0.76	0.84
Perceived security	3.49	0.89	0.81
Social influence	3.76	0.80	0.79
FinTech adoption	3.91	0.74	0.87
Business sustainability	3.78	0.69	0.85

FinTech adoption had a moderate-to-strong positive correlation with business sustainability ($r = 0.55$, $p < 0.001$). Performance expectancy and digital literacy also showed substantial relationships with adoption.

Regression Analysis: Predictors of FinTech Adoption

A multiple regression model was estimated with FinTech adoption as the dependent variable.

Predictor	B	t	p
Performance expectancy	0.31	5.12	<0.001
Effort expectancy	0.09	1.54	0.125
Digital literacy	0.27	4.46	<0.001
Facilitating conditions	0.21	3.47	0.001
Perceived security	0.12	2.08	0.039
Social influence	0.10	1.76	0.080

Model: $R^2 = 0.47$; Adjusted $R^2 = 0.46$; $F(6,233) = 34.10$; $p < 0.001$.

The model explains approximately 47% of the variance in FinTech adoption. Performance expectancy was the strongest predictor, followed by digital literacy and facilitating conditions.

Regression Analysis: FinTech Adoption and Business Sustainability

A second regression examined whether FinTech adoption predicted business sustainability.

Predictor	B	t	p
FinTech adoption	0.46	8.06	<0.001
Business age	0.11	1.89	0.060
Monthly business turnover	0.19	3.22	0.001
Business type	0.08	1.39	0.166

Model: $R^2 = 0.34$; Adjusted $R^2 = 0.33$; $F(3,236) = 40.48$; $p < 0.001$.

FinTech adoption was positively and significantly associated with business sustainability. The coefficient ($\beta = 0.46$) indicates that greater integration of FinTech

was associated with stronger reported sustainability outcomes.

Retailer–Vendor Comparison

Retailers recorded a higher mean FinTech-adoption score ($M = 4.08$, $SD = 0.63$) than street vendors ($M = 3.74$, $SD = 0.80$).

An independent-samples t-test indicated that the difference was statistically significant:

$t(238) = 3.58$, $p < 0.001$.

Retailers also had a slightly higher business-sustainability score ($M = 3.89$) than vendors ($M = 3.67$), although the difference was smaller.

DISCUSSION

The results confirm the general proposition that FinTech adoption has a positive influence on business sustainability of small enterprises. Positive correlation between adoption and sustainability has been found to coincide with the most recent studies from India that suggest digital finance as an opportunity for increasing resilience and sustainability of informal firms. In particular, Swain et al. observed the positive effect of FinTech adoption on street-vending sustainability, while Mathur et al. identified FinTech adoption as one of the mechanisms through which financial-support schemes contribute to economic resilience.

Performance expectancy proved to be the most prominent determinant of FinTech adoption. Consistent with the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT), the importance of perceived usefulness and performance expectancy has been revealed. From the perspective of small merchants, performance expectancy is clear – the possibility of cashless transactions, instant receipt of receipts, and ability to keep the digital transaction log are obvious advantages of the UPI.

Digital literacy proved to be the second most important determinant of FinTech adoption. As stated by Prasad et al., digital literacy plays an important role in predicting the behavioural intention of street vendors in New Delhi. Not only does digital literacy mean scanning a QR code, but also interpreting payment confirmation, transaction history, refund procedure, fraud protection, PIN protection, and keeping the digital transaction record in line with daily sales.

Facilitating conditions were the third most important determinant of FinTech adoption. The availability of smartphones, good internet connection, bank account, QR infrastructure, and technical assistance continues to play an important role. Consistent with broader evidence from India, the Digital Payments Index published by the RBI has increased dramatically over time thanks to the development of infrastructure and digital payments.

Perceived security proved to be statistically significant but relatively weak determinant of FinTech adoption. It is interesting in this regard that the adoption of payments does not solve any problems related to security. The small merchants are highly vulnerable to social engineering attacks, fraud in the form of fake screenshots of payments, erroneous refund requests, and mistaken transfer. In other words, the growth in adoption without simultaneous increase in security awareness increases vulnerability to digital risks.

The difference between retailers and street vendors might be explained by the different business environment. The retailers usually work at fixed locations with better electricity and internet connection, as well as possibilities of displaying QR codes and keeping transaction history. Street vendors often work in places where there is no reliable connectivity, charging devices, digital literacy, and transaction documentation.

Findings are consistent with the recent Delhi-NCR research that revealed the positive correlation between digital adoption and business transition among street vendors. At the same time, digital adoption cannot be considered an automatic way to increase incomes. Modern literature argues that digital technologies enable business transition and socioeconomic advancement without direct and immediate income effects.

Implications for Practice and Policy

The results have several implications for policymakers, financial institutions, FinTech providers, and merchant associations.

First, the digital literacy programs need to go beyond simple demonstrations of QR payment. The training should cover topics such as fraud detection, payment confirmation, transaction reconciliation, PIN protection, and digital record keeping.

Second, the FinTech providers need to design merchant interface that will be easy to use even for people with poor digital skills. The language instructions and voice payments would be especially useful.



Third, the government financial inclusion programs can combine digital payments adoption and access to formal credit. The transaction record can help small businesses prove their activity for formal lenders, but this should not be expected automatically.

Fourth, the merchant support system should be available to street vendors. The retailers, working at fixed premises, have easy access to banks and customer-support offices, while mobile vendors require another approach.

Finally, the digital adoption needs to be assessed based on the sustainability indicators, not just transaction volumes. The success of FinTech program should



include improvements in cash flow management, financial resilience, record keeping, customer retention, and business continuity.

CONCLUSION

FinTech is an important part of the evolving business ecosystem in India. The development of UPI and QR payments lowered barriers for accepting digital payments and enabled retailers and street vendors to become a part of the formal digital economy. The official statistics show the large scale of digital payments infrastructure in India, while recent scientific literature increasingly demonstrates its relevance to the merchants and informal businesses.

The empirical analysis done above reveals that FinTech adoption has a positive relationship with the business sustainability and performance expectancy, digital literacy, and facilitating conditions are the important drivers of FinTech adoption. The retailers show somewhat higher adoption level compared to street vendors, but both groups demonstrate high involvement in digital payments.

One of the implications is that the adoption of digital payments should not be viewed as the goal per se. Sustainable digitalization of merchants requires moving from receiving QR payments to using digital financial services for managing transactions, planning financially, accessing formal credits, managing customers, and improving resilience. For the street vendors, in particular, the digital literacy programs and security awareness may be as important as digital payment infrastructure.

Thus, the policy makers and FinTech providers should pursue the comprehensive approach towards merchant digitization that includes affordable infrastructure, user-friendly interface, financial literacy, fraud protection, transaction records, and access to formal financial services. In this case, the FinTech adoption will contribute not only to impressive digital payments statistics of India, but also to the sustainability of its smallest businesses.

References

1. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>.
2. Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). *The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19*. World Bank. <https://doi.org/10.1596/978-1-4648-1897-4>.
3. Devi, R. S., Bibiyana, D. J., Mohanraj, P., Bagilesh, K., Salvius, J. J. J., et al. (2025). Sustaining engagement with digital finance: Mobile payment adoption among marginalized women street vendors in an emerging market. *Discover Sustainability*, 6, 1004.
4. Koufaris, M. (2002). Applying the technology acceptance model and flow theory to online consumer behavior. *Information Systems Research*, 13(2), 205–223. <https://doi.org/10.1287/isre.13.2.205.83>.
5. Mallick, G. M., Mallick, S. K., Singla, S., Varun, A., & Dutta, M. (2026). Digital payment adoption, business transition, and socioeconomic upliftment among street vendors: Evidence from Delhi-NCR. *Frontiers in Human Dynamics*, 8. <https://doi.org/10.3389/fhumd.2026.1874083>.
6. Mathur, S., Kalyani, P., & Yelamanchili, R. K. (2025). FinTech adoption and economic resilience of street vendors in India. *Review of Pacific Basin Financial Markets and Policies*. <https://doi.org/10.1142/S0219091525500171>.
7. Motheram, A., & Buteau, S. (2026). Supply side drivers of digital payment adoption in India. *Discover Sustainability*, 7, 560.
8. National Payments Corporation of India. (2026). *Unified Payments Interface (UPI) Product Statistics*. NPCI.
9. National Payments Corporation of India. (2025). *Unified Payments Interface Ecosystem Statistics*. NPCI.
10. Prasad, S., Sharma, Y., & Suri, A. (2023). Dynamics of technology adoption during street vendors' acceptance of digital payment apps: An extension of UTAUT2 using PLS-SEM. *Global Business Review*. <https://doi.org/10.1177/09722629231187260>.
11. Rao, K., & Upadhyaya, P. (2026). Small-scale merchants' acceptance of UPI payment apps: Evidence from India. *Humanities and Social Sciences*





Communications. <https://doi.org/10.1057/s41599-026-08005-1>.

12. Reserve Bank of India. (2025). *Annual Report 2024–25*. Reserve Bank of India.
13. Reserve Bank of India. (2025). RBI–Digital Payments Index for September 2024. Reserve Bank of India.
14. Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). Free Press.
15. Swain, B., Kerketta, S., & Dey, S. K. (2025). FinTech for sustainable street vending business: An empirical evidence from Indian market. *AMC Indian*

Journal of Entrepreneurship, 8(1). <https://doi.org/10.17010/amcije/2025/v8i1/175190>.

16. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>.
17. Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, 36(1), 157–178. <https://doi.org/10.2307/41410412>.

