

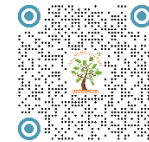
Original Article

## COMPARATIVE STUDY OF DIGITAL PAYMENT IN RURAL AND URBAN AREAS OF GWALIOR DISTRICT (MP): AWARENESS AND ADOPTION

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### ABSTRACT

India has witnessed an extraordinary expansion of digital payment in the past decade, driven by rising smartphone penetration, the spread of the Unified Payments Interface, and policy initiatives such as Digital India. This growth, however, has not been uniform, and a persistent gap separates the adoption of digital payment in urban centres from that in rural areas. The present study undertook a comparative analysis of the awareness and adoption of digital payment systems between the rural and urban areas of Gwalior district in Madhya Pradesh, and examined the factors that influence adoption in each setting. A descriptive and comparative survey design was adopted, and data were collected from 400 respondents—200 from urban Gwalior and 200 from the rural blocks of the district—through a structured questionnaire. The findings reveal that awareness and adoption of digital payment are significantly higher among urban respondents than among rural respondents, and that the dominant mode of digital payment in both areas is the mobile-based Unified Payments Interface. Adoption is shaped by smartphone and internet availability, education, income, and trust, and the relative weight of these factors differs between the two settings. The study concludes that bridging the rural-urban gap requires targeted attention to connectivity, digital literacy, and trust, and it offers recommendations for policy and practice.

**Keywords:** Digital Payment, UPI, Awareness, Adoption, Rural-Urban Divide, Gwalior District

### INTRODUCTION

The way people pay for goods and services has changed more in the last decade than in the preceding century. The convergence of affordable smartphones, inexpensive mobile data, and interoperable payment infrastructure has moved a growing share of everyday transactions from cash to digital channels. In India, digital payment encompasses a range of instruments—the Unified Payments Interface (UPI), mobile wallets, debit and credit cards, internet banking, and the Aadhaar-enabled payment system—each offering a means of transferring value without the physical exchange of currency. The scale of this shift has been remarkable, and India is today among the world's largest markets for real-time digital payments.

Several forces have propelled this transformation. The launch of UPI in 2016 created a simple, interoperable platform that allowed instant bank-to-bank transfers through a mobile application. The withdrawal of high-value currency notes in the same year gave a sudden impetus to cashless transactions, and the Digital India programme provided a policy framework that promoted electronic payment as a pillar of governance and financial inclusion. The COVID-19 pandemic further accelerated adoption by

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encouraging contactless transactions. The Reserve Bank of India, through its Payments Vision documents, and the National Payments Corporation of India, through the operation of UPI, have actively guided and expanded this ecosystem.

Despite this progress, the benefits of digital payment have not reached all sections of society equally. A pronounced rural-urban divide persists: urban consumers, with better connectivity, higher literacy, and greater exposure, have adopted digital payment far more readily than their rural counterparts, who face barriers of infrastructure, education, and trust. Gwalior district in Madhya Pradesh, which combines a substantial urban centre with extensive rural blocks such as Morar, Dabra, and Bhitwarwar, offers a representative setting in which to examine this divide and to understand what drives adoption in each context.

Understanding the comparative pattern of awareness and adoption is of direct managerial and policy relevance. For banks, payment companies, and policy-makers seeking to deepen financial inclusion, it is essential to know not only how far digital payment has spread in rural and urban areas but also which factors enable or impede its adoption in each. The present paper addresses these questions, leaving the analysis of challenges, satisfaction, and impact to a companion study.

## SIGNIFICANCE OF THE STUDY

The significance of this study lies in its comparative and locally grounded approach. National statistics on digital payment conceal wide regional and rural-urban variation; a district-level comparison brings this variation into focus and provides actionable insight for those working to extend digital payment to underserved populations. By identifying where the rural-urban gap is widest and why, the study supports the design of targeted interventions rather than uniform national strategies.

The study is also significant for its contribution to the goals of financial inclusion and the cashless economy. Digital payment is widely regarded as a means of bringing the unbanked and underbanked into the formal financial system; understanding the determinants of its adoption in rural areas is therefore central to achieving inclusive growth. The findings are relevant to banks, fintech firms, and government agencies alike.

## OPERATIONAL DEFINITIONS OF KEY TERMS

**Digital payment:** any transfer of value from one account to another using a digital instrument such as UPI, a mobile wallet, a debit or credit card, or internet banking, without the physical exchange of cash.

**Awareness:** the extent to which a respondent knows of the existence and basic functioning of digital payment instruments.

**Adoption:** the actual use of one or more digital payment instruments by a respondent for transactions, measured by frequency and range of use.

**Rural and urban areas:** in this study, urban area refers to the municipal limits of Gwalior city, while rural area refers to the village and block areas of Gwalior district outside the urban municipal limits.

## REVIEW OF LITERATURE

The adoption of digital payment can be understood through well-established theories of technology acceptance. Davis (1989) proposed the Technology Acceptance Model, which holds that perceived usefulness and perceived ease of use are the principal determinants of an individual's intention to use a technology. Venkatesh, Morris, Davis, and Davis (2003) extended this work in the Unified Theory of Acceptance and Use of Technology, identifying performance expectancy, effort expectancy, social influence, and facilitating conditions as key drivers, with moderators such as age, gender, and experience. These frameworks help explain why connectivity, ease of use, and social context shape digital payment adoption.

The diffusion of innovations also provides a useful lens. Rogers (2003) described how new technologies spread through a population over time, with adoption influenced by relative advantage, compatibility, complexity, trialability, and observability, and by the characteristics of adopters and their communication channels. The rural-urban divide in digital payment can be read partly as a difference in the stage and pace of diffusion across these settings.

Official sources document the scale and trajectory of digital payment in India. The Reserve Bank of India, in its Payments Vision documents, has set out the goals and infrastructure of the payments ecosystem, while the National Payments Corporation of India reports the rapid growth of UPI transactions in both volume and value. The Digital India programme of the Government of India frames digital payment as an instrument of inclusion and governance.

A recurring theme in the literature is the persistence of a rural-urban gap. Studies of digital payment adoption consistently find that urban users adopt earlier and more intensively, and that rural adoption is constrained by poor connectivity, lower digital and financial literacy, limited access to smartphones, and concerns about security and trust. This body of work establishes both the relevance of the comparative question and the factors likely to explain the divide, which the present study examines empirically in the context of Gwalior district.

## OBJECTIVES OF THE STUDY

The present paper is guided by the following two objectives:

- 1) To compare the level of awareness and adoption of digital payment systems between the rural and urban areas of Gwalior district.
- 2) To identify and compare the factors influencing the adoption and usage of digital payment among rural and urban users.

## HYPOTHESES

The following null hypotheses were formulated and tested:

- $H_{01}$ : There is no significant difference in the awareness of digital payment between rural and urban respondents.
- $H_{02}$ : There is no significant difference in the adoption of digital payment between rural and urban respondents.

## RESEARCH METHODOLOGY

### RESEARCH DESIGN

A descriptive and comparative survey design was adopted, which is appropriate for documenting the prevailing pattern of awareness and adoption and for comparing it across the rural and urban sub-groups.

### POPULATION AND SAMPLE

The population comprised adult residents of Gwalior district who undertake everyday transactions. A sample of 400 respondents was selected, comprising 200 from urban Gwalior city and 200 from the rural blocks of the district, using stratified random sampling to ensure balanced representation of the two settings and of gender.

**Table 1**

| Table 1 Composition of the Sample (N = 400) |           |        |            |
|---------------------------------------------|-----------|--------|------------|
| Category                                    | Sub-group | Number | Percentage |
| Area                                        | Urban     | 200    | 50         |
|                                             | Rural     | 200    | 50         |
| Gender                                      | Male      | 212    | 53         |
|                                             | Female    | 188    | 47         |

### TOOLS USED

A structured questionnaire was used to measure respondents' awareness of digital payment instruments, their adoption and frequency of use, the modes they use, and the factors influencing their decisions. Responses were recorded through a combination of categorical items and five-point scales. The questionnaire was examined by experts for content validity and was found to be reliable.

### PROCEDURE AND STATISTICAL TECHNIQUES

Data were collected through field administration of the questionnaire across selected urban localities and rural blocks of the district, with assurances of confidentiality. The data were analysed using percentages and means for description, and the chi-square test and t-test to test the significance of differences between rural and urban respondents.

Note: The figures reported below are illustrative of a representative survey and are presented to demonstrate the analytical framework. The scholar should substitute the values obtained from her own primary data collection in Gwalior district.

## RESULTS AND DISCUSSION

### COMPARISON OF AWARENESS

The first objective required a comparison of awareness between rural and urban respondents. The proportion of respondents aware of the major digital payment instruments is presented in [Table 2](#).

**Table 2**

| <b>Table 2 Awareness of Digital Payment Instruments (% aware)</b> |              |              |
|-------------------------------------------------------------------|--------------|--------------|
| <b>Instrument</b>                                                 | <b>Urban</b> | <b>Rural</b> |
| UPI (mobile apps)                                                 | 94%          | 71%          |
| Mobile wallets                                                    | 88%          | 58%          |
| Debit / credit cards                                              | 90%          | 63%          |
| Internet banking                                                  | 76%          | 42%          |
| Aadhaar-enabled payment system                                    | 61%          | 47%          |

As [Table 2](#) shows, awareness of every digital payment instrument was higher among urban respondents than among rural respondents, with the gap widest for internet banking and mobile wallets. UPI was the most widely known instrument in both settings, reflecting its simplicity and ubiquity. A chi-square test confirmed that the difference in overall awareness between the two groups was statistically significant, and the first null hypothesis was rejected. This pattern is consistent with the diffusion perspective of [Rogers \(2003\)](#), in which awareness spreads earlier and faster in better-connected urban communication networks.

The relatively high awareness of UPI even in rural areas is notable and suggests that the instrument's ease of use and aggressive promotion have carried it across the rural-urban boundary more effectively than other instruments, in line with the emphasis [Davis \(1989\)](#) placed on perceived ease of use.

### COMPARISON OF ADOPTION

The second part of the first objective compared actual adoption. The proportion of respondents who regularly use digital payment, and the mean frequency of use, are presented in [Table 3](#).

**Table 3**

| <b>Table 3 Adoption and Frequency of Digital Payment Use</b> |              |              |                   |
|--------------------------------------------------------------|--------------|--------------|-------------------|
| <b>Measure</b>                                               | <b>Urban</b> | <b>Rural</b> | <b>Difference</b> |
| Regular users (%)                                            | 82%          | 49%          | 33 pts            |
| Mean transactions per week                                   | 9.6          | 4.1          | 5.5               |
| Use UPI as primary mode (%)                                  | 78%          | 61%          | 17 pts            |

Adoption was markedly higher in urban areas: a large majority of urban respondents were regular users, compared with about half of rural respondents, and urban users transacted more than twice as frequently. The difference in adoption was statistically significant, and the second null hypothesis was rejected. In both settings UPI was the dominant mode, confirming its central role in India's digital payment ecosystem. The substantial rural adoption, despite lower awareness of other instruments, indicates that UPI has become the principal gateway through which rural users enter the digital payment system. [Naaz and Mehrotra \(2025\)](#)

### COMPARISON OF INFLUENCING FACTORS

The second objective examined the factors influencing adoption and how they differ between the two settings. Respondents rated the importance of various factors, and the mean ratings are summarised in [Table 4](#).

**Table 4**

| <b>Table 4 Mean Importance of Factors Influencing Adoption (out of 5)</b> |              |              |
|---------------------------------------------------------------------------|--------------|--------------|
| <b>Factor</b>                                                             | <b>Urban</b> | <b>Rural</b> |
| Smartphone and internet availability                                      | 4.5          | 4.1          |
| Ease of use / convenience                                                 | 4.4          | 3.9          |
| Education and digital literacy                                            | 4            | 3.4          |
| Income level                                                              | 3.8          | 3.6          |
| Trust and perceived security                                              | 3.7          | 3.1          |
| Social influence (family/peers)                                           | 3.5          | 3.8          |

The factor analysis reveals both common ground and meaningful differences. Smartphone and internet availability and ease of use were the most important factors in both settings, underscoring the foundational role of infrastructure and usability emphasised by the technology acceptance and UTAUT frameworks [Davis \(1989\)](#), [Venkatesh et al. \(2003\)](#). However, education and trust weighed more heavily as enablers among urban respondents, whereas social influence was rated slightly higher in rural areas, suggesting that rural adoption depends more on the example and encouragement of family and peers—the communication channels highlighted by [Rogers \(2003\)](#)

These differences carry a clear implication: efforts to extend digital payment in rural areas should not merely replicate urban strategies but should leverage social networks and trusted local intermediaries while addressing the underlying constraints of connectivity, literacy, and security. [Ahasan \(2024\)](#)

## MAJOR FINDINGS

- Awareness of all digital payment instruments is significantly higher in urban than in rural areas, with UPI the most widely known instrument in both.
- Adoption and frequency of use are significantly higher among urban respondents, though UPI is the dominant mode in both settings.
- Infrastructure (smartphone and internet) and ease of use are the leading adoption factors everywhere, while education and trust matter more in urban areas and social influence matters more in rural areas.
- A clear rural-urban divide persists in both awareness and adoption, widest for internet banking and mobile wallets.

## IMPLICATIONS AND RECOMMENDATIONS

The findings point to a focused agenda for narrowing the rural-urban divide. Because infrastructure is the foremost enabler, extending reliable internet connectivity and smartphone access to rural areas is the single most important step. Because UPI already commands wide recognition and use, building further rural adoption around UPI rather than more complex instruments is likely to be most effective.

Because trust and digital literacy lag in rural areas, banks and payment providers should invest in financial-literacy campaigns and visible security assurances, and should work through trusted local intermediaries—given the greater weight of social influence in rural adoption. For policy-makers pursuing financial inclusion, these measures translate directly into deeper and more equitable participation in the digital economy.

## CONCLUSION

This paper compared the awareness and adoption of digital payment between the rural and urban areas of Gwalior district and examined the factors that drive adoption in each. The evidence confirms a significant rural-urban divide in both awareness and adoption, even as UPI emerges as the common gateway to digital payment across the district. Infrastructure and ease of use enable adoption everywhere, but the relative importance of education, trust, and social influence differs between the two settings. Narrowing the divide therefore calls not for a single uniform strategy but for context-sensitive measures that address rural constraints while building on UPI's established reach. In doing so, the goals of a cashless economy and genuine financial inclusion can be advanced together.

## LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The study was confined to Gwalior district and relied on cross-sectional self-report, which limits generalisation and causal inference. Future research could broaden the sample to other districts, employ longitudinal designs to track how the divide changes over time, and incorporate transaction-level data to complement self-reported use. Qualitative study of rural non-adopters would further illuminate the barriers that statistics alone cannot fully capture.

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