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From Cash to Clicks: Digital Payment Adoption in Emerging Indian Markets

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Abstract: ***This study explores the adoption and usage patterns of digital payment systems in emerging Indian markets. A total of 250 respondents from various age groups, occupations, and income levels were selected using a random sampling method to ensure representative insights. The research focuses on key adoption factors, preferred payment methods, usage frequency, and challenges faced by users. Results indicate that ease of use, trust, and security are the primary drivers of digital payment adoption. Mobile wallets emerged as the most preferred method, followed by UPI/bank transfers and debit/credit cards. Most respondents reported weekly or daily usage, reflecting high engagement and integration into daily financial activities. However, lack of awareness, technical difficulties, and security concerns remain significant barriers to wider adoption, with limited internet access affecting a smaller proportion of users. Addressing these issues through awareness programs, improved technical support, and enhanced security measures can further promote adoption. The study provides practical insights for policymakers, financial institutions, and service providers aiming to expand digital payment usage in emerging markets.***

Keywords: Digital Payments, Mobile Wallets, Emerging Markets, User Behavior

1. Introduction

The rapid evolution of digital technology has significantly transformed financial systems across the globe, particularly in emerging markets. Traditionally dominated by cash-based transactions, these economies are now witnessing a steady shift toward digital payment modes such as mobile wallets, Unified Payment Interfaces (UPI), internet banking, and QR-code–based transactions. This transition, often described as the movement "from cash to clicks," has been driven by factors including increased smart phone penetration, improved internet connectivity, government-led digitalization initiatives, and the growing need for convenience and transparency in financial transactions. Digital payments have emerged as a powerful tool to enhance transaction efficiency, reduce operational costs, and promote formalization of the economy.

In emerging markets, digital payment adoption also plays a crucial role in advancing financial inclusion and economic development. By enabling secure and accessible financial services, digital payment systems have helped bring unbanked and under banked populations into the formal financial ecosystem. Small businesses, micro-entrepreneurs, and consumers benefit from faster payments, better record-keeping, and improved access to credit opportunities. However, despite rapid growth, challenges such as digital literacy gaps, cyber security concerns, infrastructure limitations, and trust issues continue to affect widespread adoption. Understanding the factors influencing digital payment usage is therefore essential for policymakers, financial institutions, and businesses seeking to build sustainable and inclusive digital economies.

2. Objectives

The objectives framed for the study and as follows:

1) To study the factors that influence people to use digital payment methods instead of cash.
2) To understand how digital payments help in improving financial inclusion and making transactions easier.
3) To identify the problems faced by users while adopting digital payment systems.

3. Problem Statement

Digital payment systems are growing rapidly in emerging markets, but many people still prefer using cash. Lack of awareness, digital skills, and trust in technology creates difficulties in adopting digital payments. Therefore, it is important to study the reasons for low adoption and the challenges faced by users in shifting from cash to digital payment methods.

4. Literature Review

Chetan Gaur & Dr. Sohan Singh Rawat (2025), in their study "Digital Payment Adoption and Consumer Behaviour in Emerging Economies", investigated the determinants of digital payment adoption among consumers in emerging economies. It highlights key factors such as perceived usefulness, ease of use, trust, social influence, government support, and security risk, showing that perceived usefulness and ease of use are the strongest predictors of adoption, whereas security risks serve as deterrents.

Cheng Ma & Ziyue Song (2023), "Digital Payments Adoption in Emerging Markets: The Context of China's Digital Currency Electronic Payment", this study analyses digital wallet adoption in China, identifying performance expectancy, effort expectancy, social influence, perceived risk, and hedonic motivation as significant influencers of user behaviour. It offers insights into how digital wallets integrated with national digital currency affect usage patterns.

Faten Aisyah Ahmad Ramli & Muhammad Iskandar Hamzah (2021), "Mobile Payment and E-Wallet Adoption in

Emerging Economies: A Systematic Literature Review". This literature review synthesises studies on e-wallet and mobile payment adoption across emerging economies, showing gaps in consensus on the predictors of adoption. It emphasizes the technology acceptance models used in prior research and proposes future research directions focusing on multi-stakeholder adoption frameworks.

Putrevu & Mertzanis (2023), "The Adoption of Digital Payments in Emerging Economies: Challenges and Policy Responses", This comprehensive review discusses both technological and policy-related barriers to digital payment adoption. It explores policy design, risk mitigation strategies, and governance measures that can enhance adoption, offering a macro approach to understanding digital payment uptake beyond individual behaviour.

Veena Humbe & D.M. Kolte, in their research paper titled "Study of UPI/BHIM Payment System in India" highlighted on the methodology of UPI and its importance and advantages in Indian market.

Hypothesis:
Following Hypothesis has been framed for the study purpose.

- H_0 (Null Hypothesis): Respondents use all payment methods equally.
- H_1 (Alternative Hypothesis): Respondents do not use payment methods equally.

Sample Size:
For the purpose of this study, a total of 250 respondents were selected from emerging markets to ensure a broad and representative sample. The respondents belonged to different age groups, occupations, and income levels, allowing the study to capture diverse perspectives and usage patterns. By including participants from varied socio-economic backgrounds, the research aims to reflect real-world conditions and provide balanced insights into user behavior and preferences.

A random sampling method was adopted to minimize selection bias and enhance the reliability of the findings. This approach ensured that every individual within the target population had an equal chance of being selected, thereby improving the generalizability of the results. As a result, the data collected offers a fair and objective basis for analyzing trends, challenges, and factors influencing adoption within emerging markets.

Data Collection Method:
For the study purpose, primary data was collected directly from 250 respondents through interviews and questionnaires to understand their use of digital payments, preferred methods, and challenges faced. Secondary data was gathered from books, journals, articles, and online reports to provide background, support the analysis, and compare findings with previous research.

5. Data Analysis

Table 1: Frequency of Digital Payment Usage

Frequency of Use	Number of Respondents	Percentage (%)
Daily	62	25%
Weekly	150	60%
Monthly	25	10%
Rarely/Never	13	5%
Total	250	100%

Source: Questionnaire

The table shows that the majority of respondents use the service on a weekly basis, with 150 respondents (60%) reporting this frequency. This indicates that the service is regularly integrated into users' routines, though not necessarily used every day. Daily usage is reported by 62 respondents (25%), suggesting a substantial group of users who rely on the service for frequent or routine transactions.

On the other hand, monthly users account for 25 respondents (10%), while rarely or never users make up only 13 respondents (5%). These lower figures imply that infrequent usage is relatively uncommon among the respondents. Overall, the data suggests a high level of engagement, with most users interacting with the service either weekly or daily, reflecting its relevance and usefulness in everyday activities.

Table 2: Preferred Digital Payment Method

Payment Method	Number of Respondents	Percentage (%)
Mobile Wallet	112	45%
UPI/Bank Transfer	87	35%
Debit/Credit Card	50	20%
Total	249*	100%

Source: Questionnaire, *Note: 1 respondent did not specify a preference.

The above table indicates that mobile wallets are the most commonly used payment method, preferred by 112 respondents (45%). This suggests that users favor payment options that are fast, convenient, and easily accessible through smart phones. The high usage of mobile wallets reflects growing comfort with app-based digital payments and their integration into everyday transactions.

UPI/Bank transfers, chosen by 87 respondents (35%), are the second most preferred method, showing strong trust in direct bank-linked payment systems. In contrast, debit/credit cards are used by 50 respondents (20%), making them the least preferred option among the three. This may indicate concerns related to security, transaction complexity, or reduced convenience compared to newer digital methods. Overall, the data highlights a clear shift toward modern digital payment solutions, particularly mobile-based platforms. UPI/Bank transfers are the second most preferred method, with 87 respondents (35%), reflecting trust in direct bank-linked payment systems. Debit/Credit cards, selected by 50 respondents (20%), are comparatively less preferred, possibly due to concerns related to security or the additional steps involved in card-based payments. Overall, the findings highlight a clear shift toward digital and mobile-based payment methods, with respondents favoring convenience and efficiency over traditional card usage.

To test whether the distribution of payment methods differs significantly, a Chi-Square Goodness-of-Fit Test is applied. This checks if the observed responses differ from an expected equal distribution among the three payment methods.

Observed and Expected Frequencies
Total respondents = 249
Number of categories = 3
Expected frequency for each category: E=2493=83E = \frac{249}{3} = 83E=3249=83

Chi-Square Calculation Table

Payment Method	Observed (O)	Expected (E)	(O−E)	(O−E)²	(O−E)² / E
Mobile Wallet	112	83	29	841	10.13
UPI / Bank Transfer	87	83	4	16	0.19
Debit/Credit Card	50	83	−33	1089	13.12
Total χ^2	—	—	—	—	23.44

Test Statistics
- Chi-Square value (χ^2) = 23.44
- Degrees of Freedom (df) = k−1=3−1=2k - 1 = 3 - 1 = 2k−1=3−1=2
- p-value ≈ < 0.001

Interpretation
The Chi-square goodness-of-fit test indicates a statistically significant difference in the distribution of preferred payment methods among respondents (χ2=23.44, df=2, p<0.001) (χ^2 = 23.44, df = 2, p < 0.001) (χ2=23.44, df=2, p<0.001). Therefore, the null hypothesis is rejected, suggesting that respondents do not use payment methods equally. Mobile wallets appear to be the most dominant payment mode among the surveyed respondents.

Table 3: Factors Influencing Adoption (Rated as Important/Very Important)

Factor	Number of Respondents	Percentage (%)
Ease of Use	60	24%
Trust	55	22%
Security	50	20%
Convenience	45	18%
Incentives	40	16%
Total	250	100%

Source: Questionnaire

The table shows that Ease of Use is the most influential factor among respondents, with 60 out of 250 respondents (24%) indicating it as their primary consideration. This suggests that users prefer systems or services that are simple, user-friendly, and require minimal effort to operate. Trust (22%) and Security (20%) also account for a significant proportion of responses, highlighting that respondents value reliability and protection of their information when making decisions. While, Convenience (18%) and Incentives (16%) received comparatively lower responses, though they still represent important factors. This indicates that while benefits such as ease of access and rewards play a role, respondents prioritize functionality and safety over additional perks. Overall, the findings imply that improving usability, building trust, and ensuring strong security measures are keys to increasing user acceptance and satisfaction.

Chi-Square Goodness-of-Fit statistical testing checks whether the distribution of factors influencing respondents is significantly different from an equal distribution among the five factors.

Chi-Square Test for Factors Influencing Payment Method
Total Respondents = 250
Number of Categories = 5
Expected frequency for each category : E=2505=50E = \frac{250}{5} = 50E=5250=50

Factor	Observed (O)	Expected (E)	(O−E)	(O−E)²	(O−E)² / E
Ease of Use	60	50	10	100	2.00
Trust	55	50	5	25	0.50
Security	50	50	0	0	0.00
Convenience	45	50	-5	25	0.50
Incentives	40	50	-10	100	2.00
Total χ^2	—	—	—	—	5.00

Test Statistics
- Chi-Square value (χ^2) = 5.00
- Degrees of Freedom (df) = 4
- p-value ≈ 0.287

Interpretation
A Chi-square goodness-of-fit test was conducted to determine whether respondents differed in the factors influencing their payment method choice. The results showed that the distribution of responses across the five factors was not statistically significant, χ2(4) =5.00, p=0.287χ^2 (4) = 5.00, p = 0.287χ2(4)= 5.00, p=0.287. This suggests that ease of use, trust, security, convenience, and incentives are perceived with relatively similar importance among respondents.

Table 4: Challenges Faced by Users

Challenge	Number of Respondents	Percentage (%)
Lack of Awareness	100	40%
Technical Difficulties	75	30%
Security/Fraud Concerns	50	20%
Limited Access to Internet	25	10%
Total	250	100%

Source: Questionnaire

The table 4 indicates that Lack of Awareness is the most significant challenge, reported by 100 respondents (40%). This suggests that a large portion of users are not sufficiently informed or educated about the system or service, which acts as a major barrier to adoption. Technical Difficulties, identified by 75 respondents (30%), represent the second most common challenge, implying that usability issues, system errors, or lack of technical skills hinder effective use.

Additionally, Security and Fraud Concerns were highlighted by 50 respondents (20%), showing that worries about data safety and financial risk continue to affect user confidence. Limited Access to the Internet, although the least reported challenge at 25 respondents (10%), still presents a notable obstacle, especially for users in areas with poor connectivity. Overall, the findings emphasize the need for greater awareness programs, improved technical support, stronger security measures, and better internet accessibility to reduce these challenges and encourage wider adoption.

Chi-Square Goodness-of-Fit statistical analysis for table on challenges faced by respondents determines whether the observed responses significantly differ from an equal distribution among the four challenges**.**

Chi-Square Test for Challenges in Using Digital Payments

Total Respondents = 250
Number of Categories = 4
Expected frequency for each category : E=2504=62.5E = \frac{250}{4} = 62.5E=4250=62.5

Challenge	Observed (O)	Expected (E)	(O−E)	$(O-E)^2$	$(O-E)^2/E$
Lack of Awareness	100	62.5	37.5	1406.25	22.50
Technical Difficulties	75	62.5	12.5	156.25	2.50
Security/Fraud Concerns	50	62.5	-12.5	156.25	2.50
Limited Access to Net	25	62.5	-37.5	1406.25	22.50
Total χ^2	—	—	—	—	50.00

Test Statistics

- Chi-Square value (χ^2) = 50.00
- Degrees of Freedom (df) = 3
- p-value < 0.001

Interpretation

The Chi-square goodness-of-fit test reveals a statistically significant difference in the distribution of challenges faced by respondents when using digital payment systems ($\chi2=50.00$, df=3, p<0.001) ($\chi^2 = 50.00$, df = 3, p < 0.001) ($\chi2=50.00$, df=3, p<0.001). Therefore, the null hypothesis is rejected. This indicates that the challenges are not equally experienced by respondents**,** with lack of awareness emerging as the most prominent challenge (40%)**,** followed by technical difficulties (30%)**,** while limited internet access is the least reported issue (10%).

6. Conclusions Based on the Statistical Interpretations

1) Preference for Digital Payment Methods: The analysis indicates a significant variation in the usage of digital payment methods among respondents. Mobile wallets emerged as the most preferred mode of payment, followed by UPI/bank transfers and debit/credit cards. This suggests that respondents tend to favor faster, more convenient, and mobile-based digital payment platforms over traditional card-based transactions.
2) Factors Influencing Payment Choice: The statistical results reveal no significant difference among the factors influencing the adoption of digital payments. Factors such as ease of use, trust, security, convenience, and incentives are almost equally important to respondents when selecting a payment method. This indicates that digital payment adoption is influenced by a combination of multiple factors rather than a single dominant factor.
3) Challenges in Using Digital Payment Systems: The study found a significant difference in the challenges experienced by respondents. The most commonly reported challenge is lack of awareness, followed by technical difficulties and security concerns. Limited internet access was reported as the least significant challenge. This highlights that user education and digital literacy remain key barriers to wider adoption of digital payment systems.
4) Overall Conclusion: The findings suggest that while digital payment methods are widely adopted and preferred, their effective usage is influenced by several equally important factors. However, lack of awareness and technical challenges continue to hinder seamless adoption. Therefore, increasing digital literacy, improving technological infrastructure, and strengthening security measures could further enhance the adoption and usage of digital payment systems.

7. Suggestions

Based on the findings of the study, it is suggested that digital payment providers and policymakers in emerging markets should focus on awareness and education programs. Many users cited lack of awareness as a major barrier, so initiatives such as workshops, online tutorials, and promotional campaigns can help inform potential users about the benefits, safety, and ease of using digital payment systems. Targeted communication tailored to different age groups and income levels can also make the adoption process smoother and more inclusive.

Additionally, it is recommended to improve technical infrastructure and security measures. Technical difficulties and concerns about fraud or data breaches were identified as significant challenges. By ensuring that platforms are user-friendly, reliable, and secure, providers can build trust and encourage more frequent use. Regular updates, customer support, and easy-to-understand security guidelines can further enhance user confidence. Combining education with robust technology solutions will likely increase adoption

rates and strengthen the overall growth of digital payment systems in emerging markets.

"Ease, Security & Trust are key to digital payment, with mobile wallets as the top choice."

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