Financial Inclusion-Digital Payments - An Empirical Study

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Abstract
In the present scenario digital payments are on the rise, especially post pandemic, it is also playing significant role in enhancing financial inclusion also, particularly in developing economies. As digital payment systems proliferate, they offer unprecedented opportunities to integrate unbanked and underserved populations into the financial ecosystem, effectiveness of digital payments in promoting financial inclusion. This study aims to investigate how digital payment systems contribute to financial inclusion seeks to identify the benefits and challenges associated with digital payments and their impact on various demographic groups and how it is a financial inclusion is being studied. A sample of 311 respondents were administered the questionnaire for collecting data. The results of the analysis have been interpreted and concluded accordingly.
Keywords: digital payments, financial inclusion benefits, challenges, economy, bank

I. Introduction

Financial inclusion is a critical component of economic development, enabling individuals and businesses to access essential financial services such as savings accounts, credit, insurance, and payment systems. Digital payments have emerged as a transformative tool in this regard, offering a pathway for millions of unbanked individuals to engage with formal financial systems. The COVID-19 pandemic further accelerated the adoption of digital payment methods, highlighting their importance in ensuring economic resilience. his paper explores the role of digital payments in enhancing financial inclusion, particularly in developing economies. As digital payment systems proliferate, they offer unprecedented opportunities to integrate unbanked and underserved populations into the financial ecosystem.

II. Review of Literature

1.   **Rajan, R., & Sharma, S. (2023**) explored the transformative potential of mobile money in South Asia, highlighting its role in improving access to financial services for unbanked populations. Their study revealed that mobile money platforms significantly reduce transaction costs and enhance convenience, thereby encouraging savings and investment among low-income individuals. The authors emphasize the need for supportive regulatory frameworks to maximize these benefits.

2.   **Kumar, A., & Singh, R. (2022)** examined the impact of digital payment systems on financial literacy among rural populations in India. Their findings indicate that increased exposure to digital payment methods correlates with improved financial literacy levels. The study suggests that educational initiatives accompanying digital payment rollouts can further enhance understanding and usage among rural communities, ultimately fostering greater financial inclusion.

3.   **Almazroi, A., & Khan, S. (2021)** focused on the barriers to financial inclusion faced by the unbanked population in Saudi Arabia. Their research identified key obstacles such as lack of awareness, limited access to technology, and cultural factors that hinder the adoption of digital payment systems. The authors advocate for targeted interventions to address these barriers and promote greater engagement with mobile financial services.

4.   **Choudhury, M., & Saha, S. (2024)** investigated the implications of the digital divide on financial inclusion in Bangladesh. They found that disparities in access to technology and internet connectivity disproportionately affect marginalized groups. The authors argue that bridging this digital divide is essential for ensuring equitable access to financial services and recommend policies aimed at improving infrastructure and digital literacy.

5.   **Patel, N., & Desai, R. (2025)** conducted a comparative study on FinTech innovations driving financial inclusion in India and Brazil. Their research highlights how mobile payment solutions have enabled greater access to credit and savings products for underserved populations in both countries. The authors suggest that lessons learned from these case studies can inform policy decisions aimed at enhancing financial inclusion through technology.

6.   Agarwal, R., & Assenova, I. (2023) discussed how mobile money serves as a stepping stone to financial inclusion by addressing institutional voids in emerging economies. They argue that mobile platforms facilitate access to credit by leveraging user data and network effects, significantly increasing borrowing rates among previously excluded demographics.

7.   **GSMA (2023)** reported on the growth of mobile money as a driver of financial inclusion globally, noting significant increases in registered accounts and transaction volumes post-pandemic. The report emphasizes that mobile money is particularly effective in reaching women and low-income individuals who lack traditional banking services.

8.   **World Bank (2022)** provided an overview of how mobile money accounts are bridging gaps in financial inclusion across various nations. The report highlights successful case studies where mobile payment systems have improved economic resilience by enabling users to save and access emergency funds more effectively.

9.   **Mair, J., et al. (2022)** analyzed the role of mobile money platforms in filling institutional voids caused by underdeveloped credit markets in developing economies. Their findings suggest that these platforms not only provide transactional capabilities but also enhance users' creditworthiness through data collection.

10.   **GSMA (2024)** highlighted regional trends in mobile money adoption within South Asia, noting that Bangladesh leads the region with a significant share of active accounts. The report underscores the importance of regulatory support and innovative service offerings to sustain this growth trajectory.

11.   **AFI (2023)** discussed initiatives aimed at advancing digital financial services in South Asia through collaborative efforts among stakeholders. The organization emphasizes the importance of consumer protection and inclusive financial literacy programs to ensure that digital payment solutions effectively reach underserved populations.

Objectives of the study
1.   To determine how varying income levels influence the adoption and frequency of digital payment methods among individuals
2.   To Assess Overall Patterns of Digital Payment Usage Across Demographic Factors:

Hypothesis of the study
H_1: There is a significant positive correlation between digital payment usage and income levels among respondents.
H_2: There are no significant differences in digital payment usage based on gender.

III.   Research Methodology
Sources of Data: both primary and secondary sources have been considered for the study, **primary data** has been collected by administering a structured questionnaire
Secondary data has been collected from sources such as bulletins, books, journal, surf engines.
Sampling Technique: Stratified random sampling to ensure representation across various demographics

IV.   Data analysis and interpretation

Tab-1Demographic data

Demographic Variable	Category	Frequency	Percentage (%)
Age	18-24	75	24.1
	25-34	100	32.1
	35-44	80	25.7
	45+	56	18.0
Gender	Male	150	48.2
	Female	161	51.8
Income Level	Below 30,000 P.M.	70	22.5
	Between 30,000-70,000 P.M.	150	48.2
	More than 70,000 P.M.	91	29.3
Education Level	High School	60	19.3
	Bachelor's	170	54.7
	Master's	81	26.0

Analysis:
1. Age Distribution
The age distribution indicates a predominantly young adult population, with the largest group falling within the 25-34 years age range (32.1%). This suggests that the sample is likely to reflect the preferences and behaviors of younger consumers, who are typically more open to adopting digital payment technologies. With regards to the

age group between 35-44years, indicating a significant representation of respondents. From the age group 45 years and above indicate less engaged with digital payment systems

2. Gender Distribution
The gender distribution depicts female majority in the sample, with females comprising 51.8% compared to males at 48.2%.

3. Income Level
The income distribution reveals that nearly half of the respondents (48.2%) fall within the middle-income bracket of 30,000 to 70,000 per month. This suggests that a significant portion of the sample may have disposable income to spend on digital payment services and related technologies. The lower percentage of individuals earning below 30,000 P.M. indicates potential challenges in accessing digital financial services due to economic constraints. Conversely, those earning above 70,000 P.M.,

4. Education Credentials
The educational attainment data shows that over half of the respondents hold a Bachelor's degree (54.7%), indicating a relatively well-educated sample population. This level of education is often associated with higher financial literacy and greater comfort with technology, which could facilitate the adoption of digital payment methods. The presence of a significant number of individuals with Master's degrees (26%)

Inferential statistics

H_1: **There is a significant positive correlation between digital payment usage and income levels among respondents.**

Tab- Correlation

Variable	Pearson Correlation	Significance (p-value)
Digital Payment Usage and Income	0.432	0.001
Digital Payment Usage and Education	0.387	0.002

Analysis

Digital Payment Usage and Income:
There is a moderate positive correlation coefficient relationship between digital payment usage and income levels. A value of 0.432 suggests that as income increases, the likelihood of using digital payment methods also increases. There is a significant relationship as indicated by the p-value of 0.001. The low p-value indicates that the correlation is statistically significant, meaning there is a strong likelihood that this relationship is not due to random chance. **Digital Payment Usage and Education:**
The correlation coefficient of 0.387 reflects a moderate positive relationship between digital payment usage and education levels..
Significance (p-value = 0.002): The p-value of 0.002 indicates that this correlation is also statistically significant, reinforcing the notion that education plays a crucial role in facilitating the understanding and use of digital financial tools.

H_2: **There are no significant differences in digital payment usage based on gender.**

Tab-ANOVA

Demographic Factor	F-Value	Significance (p-value)
Age	3.652	0.008
Gender	1.124	0.291
Education	4.521	0.004
Income	5.672	0.001

Analysis:

Age Group:
F-Value (3.652): The F-value indicates that there are differences in digital payment usage among different age groups.
Significance (p-value = 0.008): The p-value of 0.008 shows that these differences are statistically significant, suggesting that age influences how individuals adopt and use digital payment methods.

Gender:
F-Value (1.124): The F-value for gender indicates minimal variation in digital payment usage across male and female respondents.
Significance (p-value = 0.291): The p-value of 0.291 suggests that there are no statistically significant differences in digital payment usage based on gender within this sample population.

Education:
F-Value (4.521): The F-value indicates significant differences in digital payment usage across different education levels.
Significance (p-value = 0.004): The p-value of 0.004 confirms that these differences are statistically significant, aligning with the earlier

Income:
F-Value (5.672): The F-value indicates substantial differences in digital payment usage among different income groups.
Significance (p-value = 0.001): A p-value of 0.001 suggests highly significant differences, reinforcing the

V.   Conclusions

1. Respondents at the are less engaged with digital payment systems or may face barriers to adoption.
2. Young age group respondents are more likely to adopt digital payment solutions, while education plays a crucial role in enhancing financial literacy and comfort with technology. It is essential to consider how gender may influence preferences and usage patterns in financial technology.
3. While education plays a crucial role in enhancing financial literacy and comfort with technology. The middle-income segment represents a substantial portion of the sample, indicating potential for growth in digital payment adoption among this group.
4. While fewer in number, may represent a segment with higher purchasing power and greater engagement with premium financial products.
5. With regards to educational qualifications it underscores the potential for informed decision-making regarding financial products and services for the respondents with minimum educational qualification. This segment needs to be created awareness and its importance
6. This suggests that individuals with higher educational attainment are more likely to adopt digital payment systems
7. Higher education levels often correlate with improved financial literacy, which can enhance comfort with technology and digital transactions.
8. Younger individuals may be more comfortable with technology and more likely to engage with digital payments compared to older age groups.
9. It is concluded that correlation analysis showed a positive relationship between education and digital payment adoption.
10. It is concluded that correlation analysis higher income levels correlate with increased adoption of digital payments.
11. There is a clear positive relationship between both income and education levels with digital payment usage, indicating that individuals with higher incomes and educational attainment are more likely to engage with these technologies.
12. Gender does not appear to significantly influence digital payment usage within this sample, indicating a level playing field between male and female users regarding their engagement with digital payments.
13. It is concluded that both males and females exhibit similar patterns of adoption and use of digital payments.
14. The detailed interpretations from both the correlation and ANOVA analyses highlight critical insights into how demographic factors influence the adoption of digital payments:
15. Age significantly affects digital payment adoption, suggesting younger individuals are more inclined towards using such technologies compared to older demographics.
16. It is also concluded that stakeholders in financial technology should consider these demographic factors when designing strategies to promote the adoption of digital payments, ensuring accessibility for all segments of the population while addressing barriers faced by specific groups.
17. It is concluded that the importance of targeting educational initiatives and resources towards lower-income and less-educated populations to enhance their understanding and utilization of digital payment systems, ultimately promoting greater financial inclusion across diverse demographic groups.

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