THE ROLE OF UPI PAYMENT APPLICATIONS IN DRIVING SUSTAINABLE PRACTICES

Swapna N. S[1], Saba Khan[2]
[1,2]Assistant Professor, Department of MBA
[1]Surana College (Autonomous), Bengaluru
[2]Bangalore Integrated Management Academy, Bengaluru

Journal	Samvakti Journal of Research in Business Management ISSN (Online) : 2582-8347 https://www.sjrbm.samvaktijournals.com Volume 6 Issue 2 Year of Volume 2025 Page No : 32 - 43
Discipline	Finance
Conference	**Global Synergies: Innovations in Business, Technology and Education - INNOBTE 25**
Conference Dates	Start Date: March 21, 2025 End Date : March 22, 2025
Institute Name	Bangalore Integrated Management Academy

Date Received : March 03, 2025 **Publication Date**: July 22, 2025
ID : sjrbm.2025.32 **Paper Type** : Conference Paper

ABSTRACT

The growing adoption of UPI payment applications in India has revolutionized the financial landscape by simplifying daily transactions and encouraging a cashless economy. Grounded in the principles of sustainable development, this research examines the role of UPI apps in fostering sustainable practices. By reducing dependency on physical currency, UPI contributes to environmental sustainability through a lower carbon footprint across various business sectors. Additionally, it supports economic inclusion by facilitating seamless transactions for individuals from different socioeconomic backgrounds, particularly in rural regions, thereby empowering communities financially- a key aspect of societal sustainability. The digital framework of UPI also enhances transparency and accountability, curbing corruption and enabling more efficient governance, which are difficult for achieving institutional sustainability. The study utilizes primary data to investigate the integration of UPI with three key aspects of Sustainable Development Theory: environmental, economic, and social sustainability. The findings reveal that the growing adoption of UPI has a great point in significantly contributing to sustainable economic growth, particularly in the context of emerging economies

Keywords: UPI Payment Applications, Emerging Economy, Sustainable Development Theory

INTRODUCTION

Unified Payment Interface (UPI), developed by the National Payments Corporations of India(NPCI) with the backing of the Government of India, is a real-time payment mechanism that facilitates the seamless integration of multiple bank accounts into a single mobile application. This platform streamlines various banking features, offering users a convenient and efficient way to conduct transactions. UPI's widespread acceptance is attributed to its simplicity, affordability, and ability to cater to diverse transaction requirements. Initially gaining traction in urban areas, it has gradually expanded its footprint in rural regions, playing a pivotal role in advancing financial inclusion. India's journey toward achieving its ambitious goals of economic growth and digital transformation underscores the crucial role of digital payment platforms, such as UPI applications, in promoting sustainability. UPI has significantly enhanced financial sustainability by reducing reliance on cash transactions, thereby conserving resources, lowering transaction costs, and minimizing the environmental impact associated with cash handling, including currency printing and transportation. Moreover, UPI promotes sustainable business practices by enhancing financial transparency and traceability, thereby strengthening economic governance and accountability. In an age where sustainability is an urgent global priority, UPI payment applications has been a key driver in advancing sustainable development goals (SDGs). These include reducing paper waste, improving resource efficiency, and promoting financial inclusivity. By transitioning away from physical cash, UPI helps decrease the environmental footprint associated with paper-based currency and traditional banking operations. Moreover, the extensive data generated by UPI transactions provides a significant understanding of consumer behaviour, enabling governments and policymakers to foster sustainable consumption patterns.

While several studies have explored the financial and operational efficiencies offered by digital payment systems, limited research exists on how platforms like UPI contribute to sustainability. This area encompasses environmental conservation, social equity, and economic resilience. This research addresses that gap by investigating the role of UPI in driving sustainable practices. By reducing reliance on physical currency and associated infrastructure, UPI contributes to a lower carbon footprint, promotes financial transparency, and fosters inclusive growth.

The paper aims to identify the intersection of digital finance and sustainable development through the lens of UPI adoption, particularly in the context of an emerging economy like India. It contributes new insights to both policy and practice by

empirically examining how the use of UPI correlates with sustainable behavioural outcomes.

LITERATURE REVIEW

Sustainability practices have been researched across various industries, highlighting their importance and impact. In the hospitality sector, a study conducted in Sri Lanka emphasizes that environmentally responsible practices, energy efficiency, and effective waste management significantly enhance hotel performance, with government initiatives playing a necessary role in promoting sustainability.(Kularatne et al., 2019)[9]. Similarly, in the UK dairy supply chain, smaller organizations tend to prioritize cost reduction over energy sustainability resulting from financial barriers, which restrict the implementation of sustainable projects(Glover et al., 2014)[7]. Evidence suggests that adopting sustainable practices can lead to enhanced financial performance. For instance, a study on corporate sustainability shows that companies adopting sustainability initiatives experience improved financial outcomes (Alshehhi et al., 2018)[1]. In mining, sustainable waste management is gaining attention, with research suggesting that waste can be reimagined as a future resource, helping organizations differentiate between ore and waste(Lèbre et al., 2017)[10].

Strategic planning is important for implementing sustainability practices, as demonstrated by research on corporate sustainability indices. Although a lot of advancements have been achieved in environmental, economic, and social dimensions, many companies face challenges in measuring the outcomes of these practices (Batista & de Francisco, 2018)[3]. Meanwhile, in New Zealand businesses, social sustainability practices are more broadly adopted than environmental ones, influenced by management values, media attention, and government policies(Collins et al., 2010)[5]. Employees and stakeholders play a crucial role in promoting and implementing sustainability practices. Many research show that employees' knowledge of sustainability policies enhances the adoption of corporate sustainability initiatives (Linnenluecke et al., 2009)[11]. In the Canadian forest product industry, stakeholder opinions and managerial perceptions significantly influence the adoption of advanced sustainability practices, Even though these practices are still in the implementation process (Sharma & Henriques, 2005)[13]. In multinational corporations (MNCs), research identifies that companies with substantial R&D investments and higher internationalization are tend to develop and sustain long-term sustainability practices (Chakrabarty & Wang, 2012)[4]. The agricultural sector also underscores the importance of incentives, farmer interest, and market trends in promoting sustainable practices. Studies suggest that providing technical support could further encourage farmers to adopt sustainable methods (Piñeiro et al., 2020)[12].

Institutional pressures are another critical factor, especially in developing nations, where they influence the adoption of socially responsible practices among different suppliers. However, there remains a requirement for more empirical research into ethical practices in this domain (Huq & Stevenson, 2020)[8]. In the construction industry, the link between sustainable initiatives and a firm's financial outcomes reveals significant challenges, as many companies struggle with poor sustainability measures. (Siew et al., 2013)[14]. The overall studies collectively underline the importance of sustainability practices across industries, stressing on the importance of strategic planning, stakeholder involvement and supportive policies to overcome existing barriers and achieve long-term success.

Importance of the study

This research holds substantial relevance as it examines the intersection of digital financial systems, specifically UPI payment applications, with sustainable development in the Indian context. In an era where both digital transformation and sustainability are national priorities, understanding how a payment technology like UPI contributes to environmental, social, and economic progress is critical. Unlike prior studies that focus separately on digital finance or sustainability, this study integrates the two, offering fresh empirical insights into how UPI can reduce resource consumption. This is particularly important for policymakers and financial institutions aiming to scale digital solutions for inclusive and sustainable growth in emerging economies**.**

OBJECTIVES

- To analyse the usage patterns of UPI payment applications among different age groups
- To assess the contribution of UPI payment application in achieving the sustainable goals

Hypothesis:

1. The usage pattern of UPI payment applications in India significantly differs across various age groups in India.
2. The adoption of UPI payment contributes positively to the attainment sustainable development goals.

RESEARCH METHODOLOGY

Exploratory Research Design

A descriptive-analytical research approach has been utilized explore the influence of UPI payment systems on fostering sustainability initiatives within the Indian context. The primary intention of using descriptive research is to capture the current state of UPI adoption and its associated practices. At the same time, the analytical aspect investigates the impact of UPI on economic, social, and environmental sustainability.

This approach enables the identification of usage trends and the measurement of their impact on key sustainability indicators. The selection of a diverse sample (n = 217) from both urban and rural users in Bangalore ensures that the findings reflect multiple user perspectives, making the results more robust and generalizable within the Indian context.

Data Collection Method: Primary Data

Primary data were collected through a structured survey administered to 217 UPI users from different age groups in both urban and rural regions of Bangalore. Stratified random sampling was employed to ensure adequate representation across age groups and regions. The target population included active UPI users who conduct at least one digital transaction per week.

Questionnaire Design and Rationale

The structured questionnaire was prepared based on constructs from the prior studies on sustainability. The survey included both closed-ended and Likert-scale items, covering aspects such as frequency of use, perceived ease and benefits of UPI, reduction in paper use, impact on carbon emissions, and financial inclusion.

Data Analysis & Report

The researcher used the SPSS statistical tool to analyse the hypothesis. The first hypothesis was proved using Chi-square, and the second hypothesis was proved using regression analysis. The research result is statistically significant since $p \leq 0.05$, referring to *Table 1.* It means that the alternative hypothesis i.e., the UPI usage patterns significantly vary across different age groups in India is accepted.

1. Chi-Square Test

Parameters	Value	df	Asymptotic Sign. (2-tailed)
Pearson Chi-Square	**64.93**	**40**	**.008**
Likelihood Ratio	**46.25**	**40**	**.230**

N of Valid Cases	**174**	**-**	**-**

Table 1: Chi-Square test result

Chi-Square Test Interpretation

The Chi-square test results ($\chi^2 = 64.93$, df = 40, p = 0.008) confirm that UPI usage habits vary significantly across age brackets, with younger users tending to adopt digital payments more readily. This suggests the need for more inclusive digital literacy campaigns targeted at older age groups. The significance level of well below 0.05 validates the hypothesis that age is a significant factor in UPI adoption.

2. Regression Test

Source	Sum of Squares	df	Mean Sqaure	F	Sig.
Regression	**15.57**	**6**	**2.62**	**6.52**	**.000**
Residual	**78.50**	**195**	**0.40**	**-**	**-**
Total	**94.24**	**201**	**-**	**-**	**-**

Table 2: Regression test result

3. Multiple Regression Analysis

Parameter	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
(Constant)	0.87	0.20	-	4.27
Familiarity	0.21	0.11	0.13	1.99
Frequency	-0.06	0.06	-0.07	-1.00
Paper	0.19	0.08	0.19	2.47
Carbon	0.00	0.07	0.00	-0.06
Infrastructure	0.20	0.08	0.20	2.50
Inclusion	0.08	0.06	0.10	1.36

Table 3: Multiple Regression Analysis Result

Regression Analysis Insights

The *Table 2* and *Table 3* show the key findings of the regression test:

The regression analysis reveals a statistically significant model (F = 6.52, p < 0.001), confirming that multiple factors associated with UPI usage impact the attainment of sustainable development outcomes.

Statistically Significant Factors:

- **User Familiarity (p = 0.047):** Familiarity enhances user confidence, promoting long-term engagement with digital platforms that reduce resource consumption.

- **Reduction in Paper Use (p = 0.014):** Points to the environmental benefit of shifting away from physical receipts and cash-based transactions.
- **Lower Need for Physical Infrastructure (p = 0.013):** This suggests that as digital transactions increase, the demand for physical banking outlets declines, resulting in reduced material consumption.

Non-Significant Predictors:

- **Frequency of Usage (p = 0.318):** Frequency alone does not predict sustainability impact, possibly because routine usage lacks a sustainability intent.
- **Carbon Footprint Reduction (p = 0.950):** The effect on emissions may not be evident or quantifiable at the user level, which might explain its statistical insignificance.
- **Financial Inclusion (p = 0.176):** While conceptually vital, the lack of significance may reflect sample constraints or indicate that deeper infrastructural barriers still exist.

Looking at the overall result, the researcher can conclude that the hypothesis can be accepted stating that the Adoption of UPI payment applications positively contributes to fulfilling global sustainability goals. The research results highlight the significant contribution of UPI payment applications to the sustainable development goals, particularly through increased familiarity, reduced paper usage, and decreased need for physical infrastructure. The overall findings highlight the environmental and technological aspects of UPI adoption as key drivers of sustainability.

CONCLUSION

The study provides the pivotal role of UPI payment applications in advancing sustainable development goals. By fostering increased familiarity with digital payment systems, these applications significantly reduce dependency on physical cash, thus decreasing paper usage and improving environmental sustainability. Furthermore, the reduced need for extensive physical banking infrastructure highlights the technological efficiency and eco-friendly potential of UPI systems. The findings show how the adoption of UPI application serves as a catalyst for both environmental and technological progress, reinforcing their importance in driving sustainability initiatives. This research ultimately highlights that UPI payment systems go beyond facilitating financial transactions; they serve as powerful catalysts for sustainable development.

REFERENCES

[1] Alshehhi, A., Nobanee, H., & Khare, N. (2018). The impact of sustainability practices on corporate financial performance: Literature trends and future research potential. In Sustainability (Switzerland), Vol. 10, Issue 2, MDPI.

[2] AU Small Finance bank. (n.d.). The Role of UPI in Financial Inclusion: Empowering the Unbanked. AU.

[3] Batista, A. A. da S., & de Francisco, A. C. (2018). Organizational sustainability practices: A study of the firms listed by the Corporate Sustainability Index. In Sustainability (Switzerland), Vol. 10, Issue 1, MDPI.

[4] Chakrabarty, S., & Wang, L. (2012). The Long-Term Sustenance of Sustainability Practices in MNCs: A Dynamic Capabilities Perspective of the Role of R&D and Internationalization. Journal of Business Ethics, Vol. 110, Issue 2, pp: 205–217.

[5] Collins, E., Roper, J., & Lawrence, S. (2010). Sustainability practices: Trends in New Zealand businesses. Business Strategy and the Environment, 19(8), 479–494.

[6] Federal bank. (n.d.). federal bank. https://www.federalbank.co.in/

[7] Glover, J. L., Champion, D., Daniels, K. J., & Dainty, A. J. D. (2014). An Institutional Theory perspective on sustainable practices across the dairy supply chain. International Journal of Production Economics, 152, 102–111.

[8] Huq, F. A., & Stevenson, M. (2020). Implementing Socially Sustainable Practices in Challenging Institutional Contexts: Building Theory from Seven Developing Country Supplier Cases. Journal of Business Ethics, 161(2), 415–442.

[9] Kularatne, T., Wilson, C., Månsson, J., Hoang, V., & Lee, B. (2019). Do environmentally sustainable practices make hotels more efficient? A study of major hotels in Sri Lanka. Tourism Management, 71, 213–225.

[10] Lèbre, É., Corder, G. D., & Golev, A. (2017). Sustainable practices in the management of mining waste: A focus on the mineral resource. Minerals Engineering, 107, 34–42.

[11] Linnenluecke, M. K., Russell, S. V., & Griffiths, A. (2009). Subcultures and sustainability practices: The impact on understanding corporate sustainability. Business Strategy and the Environment, 18(7), 432–452.

[12] Piñeiro, V., Arias, J., Dürr, J., Elverdin, P., Ibáñez, A. M., Kinengyere, A., Opazo, C. M., Owoo, N., Page, J. R., Prager, S. D., & Torero, M. (2020). A scoping review

on incentives for adoption of sustainable agricultural practices and their outcomes. Nature Sustainability, 3(10), pp:809–820.

[13] Sharma, S., & Henriques, I. (2005). Stakeholder influences on sustainability practices in the Canadian forest products industry. Strategic Management Journal, 26(2), pp: 159–180.

[14] Siew, R. Y. j., Balatbat, M. C. a., & Carmichael, D. G. (2013). The relationship between sustainability practices and financial performance of construction companies. Smart and Sustainable Built Environment, 2(1), pp: 6–27.

APPENDIX

Questionnaire

1. Age of the Respondent
2. Gender of the Respondent
3. Occupation of the Respondent
4. Location

How familiar are you with the UPI payment applications (Eg: GPay, Phonepay, Paytm etc)

- Very Familiar
- Familiar
- Somewhat familiar
- Unfamiliar
- Very unfamiliar

How frequently do you use UPI payment applications

- Daily
- Weekly
- Monthly
- Rarely
- Never

Do you believe that digital payments via UPI contribute to reducing paper consumption (e.g., bills, receipts)?

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

In your opinion, how do UPI payment applications reduce carbon emissions (e.g., less transportation for cash handling)?

- Significantly Reduce
- Moderately Reduce
- Slightly Reduce
- No Impact
- Unsure

Do you think UPI payment apps promote responsible consumption by reducing physical infrastructure for transactions?

- Strongly Agree
- Agree

- Neutral
- Disagree
- Strongly Disagree

Do you agree to the point that UPI applications reduced your reliance on physical cash?

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Does the adoption of UPI payment systems affected your personal savings or financial management?

- Very Strongly Affected
- Strongly Affected
- Neutral
- Not so Affected
- Not at all affected

Do you think UPI applications contribute to financial inclusion for underbanked populations?

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

UPI applications promote social sustainability by encouraging digital literacy and inclusivity?

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

UPI payment applications help in reducing inequalities in access to financial services in rural vs. urban areas?

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

UPI payment applications are aligned with the goals of sustainable development (economic, environmental, social)?

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

The government policies and regulations around UPI are supportive of sustainable practices

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

UPI payment applications playing a bigger role in supporting sustainable development in the future

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

End