

## Adoption of Unified Payments Interface in the Rural Livelihoods of Tenkasi District.

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### ABSTRACT

India's transition from a physical-centric to a digital-centric society has been significantly accelerated by the Digital India Programme, with the Unified Payments Interface (UPI) emerging as one of its most transformative outcomes. Introduced in 2016, UPI has revolutionized financial transactions by enabling instant, secure, and interoperable payments across banks and platforms, positioning India as a global leader in digital payments. This study, conducted in Tenkasi District, examines the adoption of UPI in rural livelihoods, focusing on its role in enhancing financial inclusion, reducing dependence on cash, and integrating marginalized communities into the formal economy. Using purposive sampling, data were collected from 230 respondents and analyzed through descriptive statistics. The findings reveal that UPI is widely adopted for daily financial transactions, savings, and money transfers, while weaker adoption is observed in areas such as selling products, accessing government subsidies, and trust in reliability. Barriers such as limited digital literacy, inadequate institutional support, technical glitches, and language accessibility further restrict usage. The study concludes that while UPI has rapidly expanded and become essential in rural financial practices, strengthening trust, usability, institutional integration, and awareness is crucial to ensure inclusive, reliable, and sustainable adoption in rural Tamil Nadu..

**Keywords:** Digital India Programme, UPI, Digitalization

### INTRODUCTION

India has witnessed a remarkable transformation from a predominantly physical-centric to a digital-centric society, a shift largely driven by the launch of the Digital India Programme in 2015. Launched with the vision of empowering citizens and fostering a knowledge-based economy, this initiative has laid the foundation for inclusive growth by integrating technology into governance, education, healthcare, and financial systems. Among its most transformative outcomes the Unified Payments Interface (UPI), introduced in 2016 by the National Payments Corporation of India, which has revolutionized financial transactions by enabling instant, secure, and interoperable payments across banks and platforms. India has emerged as a global leader in fast payments, with the International Monetary Fund recognizing its pioneering role in digital transactions. In 2025 alone, the UPI processed an extraordinary ₹24 lakh crore through 18.39 billion transactions, underscoring its scale and efficiency. Today, UPI powers nearly 85% of India's digital payments and contributes to almost half of global digital transactions, reflecting its unparalleled adoption and impact. With the capacity to handle over 640 million transactions daily, UPI has even surpassed traditional card networks, positioning India at the forefront of financial innovation and digital inclusion worldwide. Today, UPI processes billions of transactions monthly, surpassing debit and credit card usage, and has become a cornerstone of financial inclusion by integrating rural households and small enterprises into the formal economy. In India, 63.1 percent of population still live in rural areas. In early 2000s, the rural population has faced challenges in accessing timely governance, economic opportunities and essential services due to infrastructural and administrative limitations. The launch of the Digital India Programme was envisioned as a transformative initiative to bridge these gaps. For rural population, UPI adoption is not merely a technological advancement but a catalyst for livelihood transformation. Farmers, small vendors, self-help groups, and entrepreneurs increasingly rely on UPI for transparent, low-cost, and efficient financial transactions. This adoption strengthens financial inclusion by integrating marginalized populations into the formal economy, while simultaneously fostering trust, reducing transaction costs, and enhancing access to government welfare transfers.

**Research Objectives**

- To assess the adoption level of Unified Payments Interface among rural population.
- To identify the barriers of Unified Payments Interface adoption.
- To offer suggestions for strengthening Unified Payments Interface adoption in rural livelihoods.

**Research Design**

The study consists of both primary and secondary data. The primary data were collected from respondents of Tenkasi District. The secondary data were collected from journals, websites and magazines.

The sampling method adopted for this research is purposive sampling method. 230 samples of UPI users in Tenkasi District were taken for this study. Statistical tools used for the analysis are Descriptive statistics.

**Research Analysis and Discussion****Demographic profile of the respondents**

Particulars	No. of respondents	Percentage
<b>Gender</b>		
Male	127	55.2
Female	103	44.8
<b>Age</b>		
Below 30 years	80	34.8
30 years – 40 years	84	36.5
Above 40 years	66	28.7
<b>Marital Status</b>		
Married	183	79.6
Unmarried	47	20.4
<b>Educational Qualification</b>		
Up to SSLC	23	10
HSC	45	19.6
Diploma/UG	99	43
PG and above	63	27.4
<b>Occupation</b>		
Student	33	14.3
Agriculturist	50	21.7
Business Person	55	23.9
Government Employee	22	9.6
Private Employee	37	16.1
Home Maker	33	14.3
<b>Monthly Family Income</b>		
Below Rs.10,000	43	18.7

Rs.10,000 – 20,000	48	20.9
Rs. 20,001 – 30,000	100	43.5
Above Rs.30,000	39	17.0
<b>Years of using UPI</b>		
1 to 3 years	141	61.3
3 to 6 years	68	29.6
6 to 9 years	21	9.1

### Interpretation

From the above table it is inferred that, respondents reveal a balanced representation across gender, with males accounting for 55.2 percent and females 44.8 percent. Age distribution shows that the majority belong to the 30–40 years category (36.5 percent), followed closely by those below 30 years (34.8 percent), while respondents above 40 years constitute 28.7 percent, indicating that adoption is more prominent among younger and middle-aged groups. Marital status highlights that a significant proportion of respondents are married (79.6 percent), suggesting that family responsibilities may influence digital payment usage. Educational qualifications reflect that most respondents are well educated, with 43 percent holding Diploma/UG degrees and 27.4 percent having postgraduate qualifications, while only 10 percent fall under the SSLC category, pointing to a strong correlation between education and digital literacy. Occupational distribution shows that business persons (23.9 percent) and agriculturists (21.7 percent) dominate, followed by students and homemakers (14.3 percent each), with government and private employees forming smaller segments, thereby illustrating adoption across diverse occupational groups. Income levels reveal that the majority (43.5 percent) belong to the ₹20,001–30,000 bracket, representing middle-income households, while lower-income groups together form 39.6 percent and higher-income households account for 17 percent, confirming that adoption is widespread across income categories. Finally, years of usage indicate that most respondents (61.3 percent) have adopted the system within the last 1–3 years, 29.6 percent have used it for 3–6 years, and only 9.1 percent for more than 6 years, reflecting that adoption is a relatively recent phenomenon and has rapidly expanded in rural Tamil Nadu. Overall, the profile demonstrates that younger, educated, middle-income, and occupationally diverse groups are driving adoption, with recent years marking significant growth in usage.

### Adoption level of Unified Payments Interface among rural population

S.No	Factors	Mean	Std.Dev	Variance
1	Financial transactions in daily life are regularly carried out	4.291	0.951	0.906
2	Cash-based transactions have been significantly replaced	4.247	0.784	0.615
3	Considered easy to operate for routine payments	3.497	1.151	1.325
4	Utilized for purchasing products	2.917	1.068	1.142
5	Adopted for selling products	2.295	1.291	1.668
6	Government subsidies and welfare benefits are accessed through this system	1.682	1.069	1.143
7	Preferred over debit and credit card transactions	4.013	1.138	1.297
8	Utility bills such as electricity and water are paid	2.917	1.173	1.377
9	Mobile and DTH recharges are paid	3.291	1.453	2.111

10	Money transfers to family and friends are facilitated	3.860	1.072	1.151
11	Transactions are perceived as trustworthy and reliable	2.530	1.269	1.613
12	Used for small savings purposes	3.660	1.120	1.256
13	Access to financial services has improved through adoption	3.852	1.258	1.585
14	Business-related transactions are increasingly conducted	3.234	1.526	2.329
15	An essential component of rural livelihoods	3.430	1.254	1.574

**Interpretation**

From the analysis of mean values, the highest level of adoption is seen in **"Financial transactions in daily life are regularly carried out"** (mean 4.29) and **"Cash-based transactions have been significantly replaced "** (mean 4.24), reflecting strong confidence and consistent usage. This is followed by **"Preferred over debit and credit card transactions"** (mean 4.01) and **"Money transfers to family and friends are facilitated"** (mean 3.86), which highlight the system’s role as a trusted alternative to traditional payment modes. **"Access to financial services has improved through adoption"** (mean 3.85) and **"Used for small savings purposes"** (mean 3.66) also rank high, showing that adoption is expanding into both personal and financial domains.

At a moderate level, **"Considered easy to operate for routine payments"** (mean 3.49), **"An essential component of rural livelihoods"** (mean 3.43), **"Mobile and DTH recharges are paid"** (mean 3.29), and **"Business-related transactions are increasingly conducted"** (mean 3.23) reflect partial adoption, suggesting that while these services are used, they are not yet universal. **"Utility bills such as electricity and water are paid"** (mean 2.91) and **"Utilized for purchasing products"** (mean 2.91) also fall in the moderate range, pointing to usability challenges.

At the lower end, **"Transactions are perceived as trustworthy and reliable"** (mean 2.53), **"Adopted for selling products"** (mean 2.29), and **"Government subsidies and welfare benefits are accessed through this system"** (mean 1.68) highlight weaker areas of adoption, indicating gaps in trust, commercial integration, and institutional support.

Overall, the interpretation from high to low levels shows that routine financial transactions, savings, and transfers are the strongest areas of adoption, while institutional services, selling activities, and trust factors remain weaker. This pattern reflects both the rapid growth of digital payments in rural livelihoods and the critical areas requiring improvement to ensure inclusive, reliable, and widespread usage.

**Barriers of Unified Payments Interface adoption**

S.No	Factors	Mean	Std.Dev	Variance
1	Limited digital literacy restricts effective use	3.969	0.689	0.475
2	Poor internet connectivity hinders adoption	3.482	1.280	1.639
3	Fear of fraud and cybercrime discourages usage	3.534	1.255	1.577
4	Difficulty in remembering PINs	2.995	1.496	2.240
5	Technical glitches during transactions undermine confidence	3.682	1.125	1.266
6	Instructions and processes in applications are complex	3.543	1.165	1.358
7	Inadequate support from bank staff affects usage	3.813	1.220	1.489
8	Concerns about hidden charges discourage transactions	2.860	1.330	1.771

9	Language barriers make applications difficult to navigate	3.569	1.278	1.635
10	Frequent updates of applications create difficulties for users	3.704	1.214	1.476

### Interpretation

From the analysis of mean values, the highest barrier is **"Limited digital literacy restricts effective use"** (mean 3.97), highlighting it as the most critical challenge. This is followed by **"Inadequate support from bank staff affects usage"** (mean 3.81) and **"Frequent updates of applications create difficulties for users"** (mean 3.70), indicating that institutional assistance and technical stability are major concerns. **"Technical glitches during transactions undermine confidence"** (mean 3.68), **"Language barriers make applications difficult to navigate"** (mean 3.57), and **"Instructions and processes in applications are complex"** (mean 3.54) also rank high, pointing to usability issues that reduce accessibility and confidence. At a moderate level, **"Fear of fraud and cybercrime discourages usage"** (mean 3.53) and **"Poor internet connectivity hinders adoption"** (mean 3.48) reflect concerns about security and infrastructure, both of which are significant but slightly less dominant compared to literacy and institutional support. At the lower end, **"Difficulty in remembering PINs"** (mean 2.99) and **"Concerns about hidden charges discourage transactions"** (mean 2.86) are relatively less critical, though they still affect ease of use and trust.

Overall, the interpretation from high to low levels demonstrates that barriers are primarily concentrated around digital literacy, institutional support, technical stability, and language accessibility, while PIN management and hidden charges remain secondary but variable concerns. This pattern underscores the need for comprehensive strategies that combine education, infrastructure improvement, user-friendly design, and trust-building measures to overcome barriers and ensure inclusive adoption.

### Suggestions

To strengthen the adoption of Unified Payments Interface among rural populations, trust-building measures must be prioritized through enhanced security, awareness campaigns, fraud-prevention mechanisms, and transparent grievance redressal systems; commercial integration should be expanded by incentivizing vendors and farmers to accept UPI for selling products, while institutional support can be improved by ensuring government subsidies and welfare benefits are consistently routed through UPI platforms. At the moderate level, usability challenges can be reduced by simplifying application interfaces, offering vernacular language options, and providing targeted digital literacy training, thereby making routine payments, utility bill settlements, and business transactions more accessible. To further strengthen the already widespread use of UPI in everyday financial transactions, cashless payments, and peer-to-peer transfers, ongoing support through community-led demonstrations, social influence, and integration with micro-savings and financial inclusion programs can help to maintain user trust and expand UPI adoption into wider areas of livelihood enhancement and empowerment. To overcome the barriers to Unified Payments Interface adoption among rural populations, priority must be given to enhance digital literacy through structured training programs, community workshops, and vernacular-based tutorials, as this remains the most critical challenge. Institutional support should be strengthened by equipping bank staff with customer-friendly guidance and dedicated helpdesks, while technical stability can be improved by minimizing frequent application updates and ensuring backward compatibility. Addressing usability concerns requires reducing transaction glitches, incorporating multilingual interfaces, and simplifying instructions to make applications more intuitive. Security fears and infrastructure

gaps can be mitigated through awareness campaigns on safe digital practices, robust fraud-prevention mechanisms, and investment in reliable internet connectivity. Finally, ease of use and trust can be further supported by introducing user-friendly PIN management options, such as biometric or OTP-based alternatives, and ensuring transparency in fee structures to dispel concerns about hidden charges.

## Conclusion

The study examining the use of Unified Payments Interface (UPI) in the rural livelihoods of Tenkasi District emphasizes both the significant opportunities it offers for transformation and the persistent challenges that still exist. The findings reveal that UPI has become a preferred mode for routine financial transactions, savings, and money transfers, thereby strengthening financial inclusion and reducing dependence on cash-based systems. The role of UPI in enhancing access to financial services and providing a trusted alternative to debit and credit cards demonstrates its growing significance in rural economies. However, weaker adoption in areas such as selling products through this system, accessing government subsidies, and trustworthiness of transactions indicates gaps in institutional integration and user confidence. On the barrier side, limited digital literacy, inadequate support from bank staff, technical glitches, and language accessibility emerge as critical challenges, while concerns about hidden charges and difficulty in remembering PINs reflect secondary but notable issues. These findings underscore the need for comprehensive strategies that combine digital literacy initiatives, infrastructure improvements, simplified application design, transparent fee structures, and stronger institutional support. Thus, study concludes that UPI has rapidly expanded in rural Tamil Nadu and is reshaping livelihoods by integrating marginalized groups into the formal economy. Strengthening trust, usability, and institutional linkages will be essential to ensure inclusive, reliable, and widespread adoption, thereby consolidating UPI's role as a cornerstone of digital empowerment and financial inclusion in rural India.

## REFERENCES

1. Vermani, R., & Arora, N. (2025). Unravelling the dynamics: A theoretical exploration of the role of unified payment Interface (UPI) in digital inclusion. <https://www.emerald.com/books/edited-volume/16975/chapter/93967832>
2. Vidani, J. (2024). A study on the rise and recent development in unified payments interface. Available at SSRN 4849785. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4849785](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4849785)
3. Balakrishnan, M. (2023). The Unified Payment Interface and the growth of digital payments in India: An analysis. *Journal of Payments Strategy & Systems*, 17(3), 250–270.
4. Mahesh, A., & Bhat, G. (2022). A systematic review and research agenda of digital payment system with reference to unified payment interface. *International Journal of Management, Technology, and Social Sciences*, 7(2), 679–709. [https://www.academia.edu/download/100478920/38\\_A\\_Systematic\\_Review\\_and\\_Research\\_Agenda\\_of\\_Digital\\_Payment.pdf](https://www.academia.edu/download/100478920/38_A_Systematic_Review_and_Research_Agenda_of_Digital_Payment.pdf)
5. Goyal, M., & Monga, N. (2022). An Empirical Study On Perception And Attitude Of Consumers Towards Unified Payment Interface (UPI). *Journal of Applied School Psychology*, 6, 518–525.
6. Fahad, & Shahid, M. (2022). Exploring the determinants of adoption of Unified Payment Interface (UPI) in India: A study based on diffusion of innovation theory. *Digital Business*, 2(2), 100040. <https://doi.org/10.1016/j.digbus.2022.100040>
7. Madwana, Y., Khadse, M., & Chandavarkar, B. R. (2021). Security issues of unified payments interface and challenges: Case study. 2021 2nd International Conference on Secure Cyber Computing and Communications (ICSCCC), 150–154. <https://ieeexplore.ieee.org/abstract/document/9478078/>
8. Indoria, D., & Devi, K. (2021). An Analysis On The Consumers Perception Towards Upi (Unified Payments Interface). *Int. J. of Aquatic Science*, 12(2), 1967–1976. [https://www.journal-aquaticscience.com/article\\_136177\\_a9ba9888d719f672ea1262a51aa0fd8f.pdf](https://www.journal-aquaticscience.com/article_136177_a9ba9888d719f672ea1262a51aa0fd8f.pdf)
9. Devi, K., & Indoria, D. (2021). Digital Payment Service In India: A Review On Unified Payment Interface. 12(03).
10. Bhardwaj, S., & Kaushik, M. (2018). Unified Payment Interface—A Way Ahead for Demonetization in India. In S. C. Satapathy, V. Bhateja, & S. Das (Eds.), *Smart Computing and Informatics* (Vol. 78, pp. 273–280). Springer Singapore. [https://doi.org/10.1007/978-981-10-5547-8\\_29](https://doi.org/10.1007/978-981-10-5547-8_29)
11. Mohapatra, S. (2017). Unified Payment Interface (UPI): A Cashless Indian e-Transaction Process. *International Journal of Applied Science and Engineering*, 5(1), 29–42. <https://indianjournals.com/article/ijase-5-1-004>
12. Sharma, A. (2016). Unified payments interface: The recent Indian financial innovation demystified. *Apeejay Journal of Management & Technology*, 11(2), 17–27. <https://ajmt.apeejay.edu/docs/volume11/Number-2/article-2-aarti-sharma-online.pdf>
13. UPI: Unified Payments Interface - Instant Mobile Payments | NPCI. (n.d.). Retrieved April 24, 2026, from <https://www.npci.org.in/product/upi>
14. Unified Payment Interface—Taking India to the next generation in payments—Arthi MC, Kavitha Shanmugam,

2024. (n.d.). Retrieved April 23, 2026, from <https://journals.sagepub.com/doi/abs/10.1177/20438869231178843>  
15. PIB Headquarters. (n.d.). Retrieved April 24, 2026, from  
<http://www.pib.gov.in/PressNoteDetails.aspx?NoteId=154912>.