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UPI Adoption and Consumer Financial Behaviour: A Study of Digital Payment Users in India

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Abstract

The Unified Payments Interface (UPI) has emerged as the backbone of India's retail digital payments ecosystem, fundamentally altering how consumers transact, save, and manage money. While a growing body of literature has examined the macro-level drivers of UPI adoption, comparatively less attention has been paid to how the frequency and intensity of UPI use relate to individual-level financial behaviour — including savings habits, budgeting discipline, impulsive spending, and financial literacy. This study investigates the association between UPI usage patterns and consumer financial behaviour among digital payment users in India. Given constraints on primary data collection, the study employs a computationally generated synthetic dataset (N = 380) that mirrors the structure, scales, and plausible relationships reported in the digital-payments and consumer-finance literature, and is used here to demonstrate a complete quantitative research workflow — from descriptive profiling to inferential testing. Statistical analyses, including chi-square tests, Pearson correlation, one-way ANOVA, and multiple linear regression, indicate that higher UPI usage frequency is positively associated with savings behaviour, budgeting behaviour, and digital trust, but also with higher impulsive-spending tendencies, while financial literacy emerges as the strongest predictor of overall financial behaviour. The results are discussed in relation to existing research on digital payments, financial inclusion, and consumer financial behaviour in India, and implications for banks, fintech firms, and policymakers are outlined. As the analysis is based on synthetic data, findings are illustrative of expected patterns rather than definitive empirical evidence, and the paper concludes with recommendations for follow-up studies using primary survey data.

Keywords: UPI, digital payments, consumer financial behaviour, financial literacy, digital financial inclusion, India, synthetic data, quantitative analysis

1. Introduction

Digital payment systems have transformed the way individuals in India transact, save, and manage their finances over the past decade. Among these systems, the Unified Payments Interface (UPI), developed and operated by the National Payments Corporation of India (NPCI), has become the dominant real-time payment rail for peer-to-peer transfers and merchant payments alike. Its interoperability across banks, ease of use through a single mobile application, and near-zero transaction cost for consumers have driven rapid and sustained adoption across urban and increasingly rural India.

Beyond its role as a transaction technology, UPI adoption has broader implications for consumer financial behaviour. The convenience and immediacy of digital payments can influence how consumers budget, save, track expenditure, and make spending decisions. On one hand, digital payment platforms often provide transaction records, spend analytics, and linked savings or investment features that could encourage more disciplined financial management. On the other hand, the frictionless nature of tap-and-pay transactions has been argued to lower the psychological cost of spending, potentially encouraging impulsive purchases and reducing the natural checkpoints that cash withdrawals once provided.

Recent research has begun to examine the structural and socio-economic drivers of UPI adoption, including the role of income and wealth distribution across Indian districts (Gupta, Anand, & Gupta, 2025). However, relatively fewer studies connect the behavioural dimension of UPI usage — how often and how intensively individuals use the platform — with downstream indicators of financial well-being, such as savings discipline, budgeting behaviour, and financial literacy. This gap motivates the present study.

This paper examines the relationship between UPI usage patterns and consumer financial behaviour among digital payment users in India. Owing to practical constraints on primary data collection within the scope of this exercise, the study uses a synthetic dataset generated through a documented computational procedure that reflects plausible relationships drawn from the reviewed literature. The purpose of this approach is explicitly methodological and illustrative: it allows the complete research workflow — questionnaire-style variable design, descriptive analysis, hypothesis testing, correlation, regression, and interpretation — to be demonstrated end-to-end, while being transparent that the dataset is not drawn from actual respondents. The study should therefore be read as a template analysis to be replicated with primary survey data, rather than as a claim of empirically verified population parameters.

1.1 Significance of the Study

Understanding how digital payment adoption interacts with financial behaviour carries relevance for several stakeholders. For banks and fintech companies, insights into usage-behaviour linkages can inform the design of in-app nudges, budgeting tools, and savings features that capitalise on high engagement while mitigating impulsive spending risks. For policymakers and regulators such as the Reserve Bank of India and NPCI, the findings speak to the broader financial inclusion agenda, highlighting that access to digital payment rails is necessary but not sufficient for improved financial well-being unless accompanied by financial literacy initiatives. For academic researchers, the study offers a structured methodological framework — including variable operationalisation and statistical tests — that can be readily adapted to primary data collected through field surveys.

1.2 Structure of the Paper

The remainder of this paper is organised as follows. Section 2 reviews the relevant literature on digital payments, UPI adoption, and consumer financial behaviour. Section 3 states the research objectives and hypotheses. Section 4 details the research methodology, including the synthetic data generation procedure. Section 5 presents the data analysis and results. Section 6 discusses the findings in light of the literature. Section 7 outlines implications, Section 8 discusses limitations, and Section 9 concludes the paper.

2. Literature Review

2.1 Digital Payments and UPI Adoption in India

The most directly relevant study to the present research is Gupta, Anand, and Gupta (2025), who examined whether digital payment adoption through UPI is shaped by wealth inequality across Indian districts. Using an Instrumental Variable Quantile Regression (IVQR) approach alongside a smooth-IVQR estimator on district-level data, the authors addressed endogeneity and heterogeneous treatment effects in the relationship between income inequality and digital

payment usage. Their results show that income inequality significantly affects UPI-based digital payments, with the effect being more pronounced in districts that already exhibit higher UPI adoption rates. This finding underscores that UPI adoption is not distributed uniformly across the population and that socio-economic endowments continue to shape who benefits most from digital payment infrastructure — a theme that motivates the present study's attention to how income, occupation, and demographic characteristics relate to usage intensity and financial behaviour.

2.2 Consumer Financial Behaviour, Investment, and Banking Studies in India

A separate stream of research has examined consumer financial decision-making, banking performance, and investment behaviour in the Indian context, providing conceptual grounding for the behavioural constructs used in this study. Mishra (2016) studied consumer buying behaviour in the organised retail electronics sector, highlighting how situational and perceptual factors shape purchase decisions — a lens that is similarly relevant to understanding how convenience and trust shape digital payment choices. Mishra (2014) examined preferences for mobile phone brands among students, illustrating how young, technology-familiar consumers form product and platform preferences, a demographic that overlaps substantially with early and heavy UPI adopters.

On the financial decision-making side, Mishra (2015) analysed the relationship between interest rate movements and stock market performance, while Mishra and Raje (2019) conducted a fundamental analysis of selected banks to inform investment decisions, and Raje, Phatak, and Mishra (2020) evaluated the financial performance of Indian public sector banks using the CAMEL framework. Pol, Raje, and Mishra (2021) further compared the performance of mutual fund schemes in the tax-saver category. Collectively, these studies illustrate a well-established Indian research tradition of evaluating financial instruments and institutions, and they inform the present study's inclusion of savings and investment-oriented behavioural indicators.

2.3 Financial Literacy and Sustainable Financial Behaviour

Financial literacy is repeatedly identified in the literature as a precondition for sound financial decision-making. Sahoo (2019a, 2019b) examined economic literacy and its relationship with sustainable development, both nationally and with specific reference to Pune city, arguing that improved economic and financial understanding underpins more sustainable individual and household financial choices. More recently, Sahoo and Deepak (2024a, 2024b) explored the ethical dimensions of sustainable finance and ESG-aligned financial practices, extending the discussion of financial behaviour beyond individual savings to broader questions of responsible financial conduct. In a similar vein, Sahoo and Sahoo (2026a, 2026b) address personal finance for younger cohorts (millennials and Gen Z) and the psychology of money, both of which are directly relevant to understanding how digitally native consumers relate to money management in a UPI-saturated environment. Mishra (n.d.) additionally examined the impact of inflation on the Indian economy, providing macroeconomic context for the constrained financial decision-making environment in which Indian consumers operate.

2.4 Technology, Sentiment Analysis, and Fintech-Adjacent Research

A further set of studies situates financial decision-making within a technology-enabled context. Mishra and Dash (2025) and Mishra (2023) applied natural-language-understanding-based sentiment analysis and deep learning models to forecast Indian stock market trends, reflecting the growing intersection of financial behaviour with digital and algorithmic tools. While these studies focus on capital markets rather than payments, they reinforce the broader observation that digital technologies are reshaping how Indian consumers and investors interact with financial information and make financial decisions — a dynamic equally applicable to the retail payments space addressed in this paper.

2.5 Research Gap

Taken together, the reviewed literature establishes that (a) UPI adoption is influenced by structural and socio-economic factors such as income inequality (Gupta et al., 2025); (b) consumer financial and investment behaviour in India has been studied extensively but largely in relation to banking, mutual funds, and capital markets rather than everyday digital payment usage; and (c) financial literacy and psychological factors are important, under-integrated determinants of sound financial behaviour. What remains comparatively underexplored is the direct, individual-level relationship

between how frequently and intensively a consumer uses UPI and their savings, budgeting, and spending behaviour. This study addresses that gap by modelling UPI usage frequency alongside financial literacy, income, and usage tenure as predictors of an overall financial behaviour composite, using a transparent synthetic dataset designed to reflect theoretically plausible relationships drawn from this literature.

3. Research Objectives and Hypotheses

3.1 Objectives

- To examine the demographic and usage profile of UPI users in the study sample, including frequency of use, transaction value, and primary purpose of use.
- To assess the association between demographic variables (particularly age group) and UPI usage frequency.
- To examine the relationship between UPI usage frequency and consumer financial behaviour, including savings behaviour, budgeting behaviour, and impulsive spending.
- To evaluate the relative contribution of UPI usage frequency, financial literacy, income, and usage tenure in predicting overall financial behaviour.
- To test whether overall financial behaviour differs significantly across occupational groups.

3.2 Hypotheses

Based on the objectives above and the literature reviewed in Section 2, the following hypotheses were formulated and tested:

- H1: There is a statistically significant association between respondents' age group and their frequency of UPI usage.
- H2: UPI usage frequency is positively and significantly correlated with overall financial behaviour.
- H3: UPI usage frequency is positively and significantly correlated with savings behaviour.
- H4: UPI usage frequency is positively and significantly correlated with impulsive spending behaviour.
- H5: Financial literacy, UPI usage frequency, monthly income, and years of UPI usage significantly predict overall financial behaviour.
- H6: Overall financial behaviour differs significantly across occupational groups.

4. Research Methodology

4.1 Research Design

This study adopts a quantitative, descriptive-cum-analytical research design intended to examine associations between UPI usage patterns and consumer financial behaviour constructs. The design follows the structure of a typical cross-sectional survey study in consumer finance research: demographic profiling, descriptive analysis of usage patterns, and inferential testing of hypothesised relationships.

4.2 Data Source: Synthetic Dataset

Important note on data: Owing to constraints on conducting a live field survey within the scope of this exercise, the dataset analysed in this paper was generated computationally rather than collected from real respondents. The synthetic dataset was constructed to emulate the structure of a typical UPI-user survey — sample size, demographic distribution, Likert-scale behavioural constructs, and plausible inter-variable relationships informed by the literature reviewed in Section 2 (e.g., a positive relationship between digital engagement and both convenience perception and spending intensity). Random noise was added to all variables to avoid deterministic relationships and to approximate the variability expected in real survey data.

This approach is used purely to demonstrate a complete, methodologically sound analytical workflow — including variable operationalisation, descriptive statistics, hypothesis testing, correlation, regression, and interpretation — and should not be read as an empirical finding about the actual Indian UPI-user population. Section 8 discusses this limitation and recommends replication with primary data.

4.3 Sample Size and Profile

The synthetic sample comprises N = 380 respondents, structured to broadly reflect the demographic composition typically reported for urban and semi-urban digital-payment users in India, with representation across five age bands (18–24, 25–34, 35–44, 45–54, and 55 and above), six occupation categories, four education levels, and four region types (metro, urban non-metro, semi-urban, and rural).

4.4 Variables and Measurement

The dataset includes demographic variables (age group, gender, occupation, education, region, monthly income), UPI usage variables (usage frequency, years of UPI usage, average monthly transaction value and count, primary purpose of use), and financial-behaviour constructs measured on 5-point Likert-type scales (1 = strongly disagree/very low to 5 = strongly agree/very high): financial literacy, savings behaviour, budgeting behaviour, impulsive spending, digital trust, perceived convenience, and security concern. An overall financial behaviour score was computed as a weighted composite of savings behaviour, budgeting behaviour, impulsive spending (reverse-weighted), financial literacy, and digital trust, consistent with composite-scoring approaches common in consumer-behaviour survey research.

Construct	Type	Scale/Unit
Age group, gender, occupation, education, region	Demographic	Categorical
Monthly income	Demographic	INR
UPI usage frequency	Usage	5-point ordinal
Years using UPI	Usage	Years
Average monthly transaction value / count	Usage	INR / count
Primary purpose of UPI use	Usage	Categorical
Financial literacy	Behavioural construct	5-point Likert
Savings behaviour	Behavioural construct	5-point Likert
Budgeting behaviour	Behavioural construct	5-point Likert
Impulsive spending	Behavioural construct	5-point Likert
Digital trust	Behavioural construct	5-point Likert
Perceived convenience	Behavioural construct	5-point Likert
Security concern	Behavioural construct	5-point Likert
Overall financial behaviour (composite)	Outcome variable	1-5 computed index

Table 1: Study Variables and Measurement

4.5 Statistical Tools

Data were analysed using Python (pandas, NumPy, and SciPy). The following statistical techniques were applied: (a) descriptive statistics (mean, standard deviation, median, minimum, and maximum) to profile usage and behavioural variables; (b) a chi-square test of independence to examine the association between age group and UPI usage frequency; (c) Pearson product-moment correlation to examine bivariate relationships among usage and behavioural constructs; (d) multiple linear regression (ordinary least squares) to model overall financial behaviour as a function of UPI usage

frequency, financial literacy, monthly income, and years of UPI usage; and (e) one-way analysis of variance (ANOVA) to test for differences in overall financial behaviour across occupational groups. A significance threshold of $\alpha = 0.05$ was used throughout.

5. Data Analysis and Interpretation

5.1 Demographic and Usage Profile

Table 2 summarises the demographic composition of the sample. Respondents were fairly evenly distributed across the two largest occupational categories — private-sector salaried employees (30.3%) and students (26.8%) — with self-employed/business respondents (16.8%), government-salaried employees (11.3%), and homemakers (11.1%) forming smaller but substantial groups. The sample skewed towards younger age bands, with the 25–34 (32.6%) and 18–24 (29.5%) groups together accounting for approximately three-fifths of respondents, consistent with the broader observation that digital payment adoption in India has been led by younger, urban demographics.

Category	Group	% of Sample
Age group	18-24	29.5%
Age group	25-34	32.6%
Age group	35-44	19.7%
Age group	45-54	11.6%
Age group	55 and above	6.6%
Occupation	Salaried - Private	30.3%
Occupation	Student	26.8%
Occupation	Self-employed/Business	16.8%
Occupation	Salaried - Government	11.3%
Occupation	Homemaker	11.1%
Occupation	Other	3.7%
Region	Metro city	34.2%
Region	Urban (non-metro)	30.8%
Region	Semi-urban	23.2%
Region	Rural	11.8%

Table 2: Demographic Profile of Respondents (N = 380)

With respect to usage patterns, a majority of respondents reported frequent engagement with UPI: 32.9% used UPI multiple times a day and a further 26.8% used it once a day, together indicating that approximately 60% of the sample are daily or near-daily users. Only 10.3% reported rarely using UPI. Figure 1 presents the full distribution.

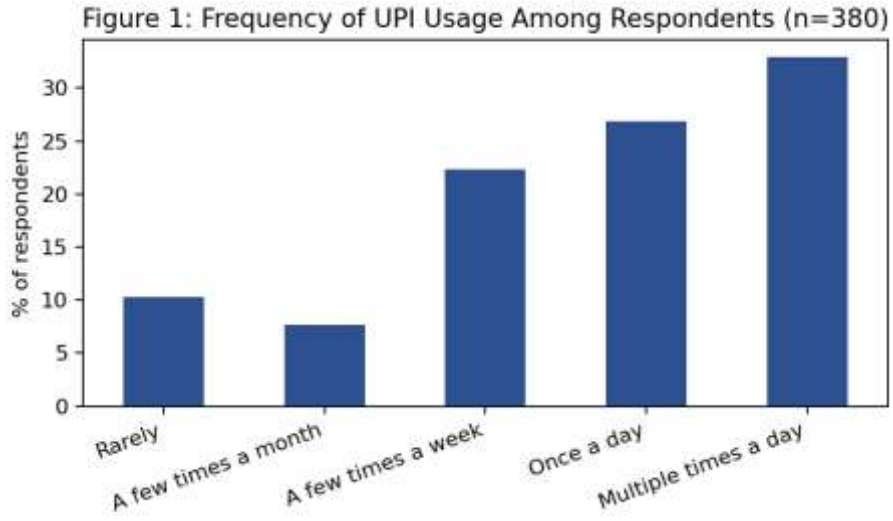

Figure 1: Frequency of UPI Usage Among Respondents

In terms of purpose, merchant/retail payments (24%) and peer-to-peer transfers (22%) were the most commonly cited primary uses, followed closely by groceries and daily needs (18%) and bill/utility payments (16%). Online shopping (14%) and investment/savings-app transactions (6%) were less common primary uses, suggesting that UPI in this sample is used predominantly for routine transactional purposes rather than for investment-related activity (Figure 2).

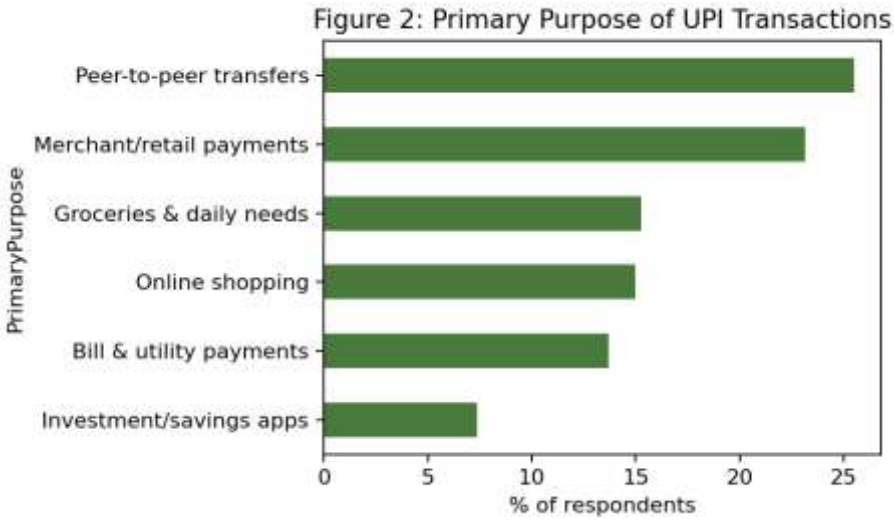

Figure 2: Primary Purpose of UPI Transactions

5.2 Descriptive Statistics of Behavioural Constructs

Table 3 reports descriptive statistics for the key continuous and construct variables. On average, respondents reported relatively strong savings behaviour (M = 4.07, SD = 0.66) and budgeting behaviour (M = 3.86, SD = 0.65), moderate financial literacy (M = 3.17, SD = 0.69) and digital trust (M = 3.50, SD = 0.67), and comparatively lower impulsive spending (M = 2.28, SD = 0.72). The overall financial behaviour composite averaged 3.02 (SD = 0.41) on the 1–5 scale, indicating a moderately positive financial behaviour profile across the sample.

Variable	Mean	SD	Min	Median	Max
Monthly income (INR)	39,640	29,554	200	34,000	119,800
Years using UPI	3.24	1.39	0.20	3.30	7.00
Avg. monthly transaction value (INR)	11,127	9,413	300	7,853	45,918
Avg. monthly transaction count	23.77	9.97	2	24	48
Financial literacy (1-5)	3.17	0.69	1.00	3.18	5.00
Savings behaviour (1-5)	4.07	0.66	2.18	4.15	5.00
Budgeting behaviour (1-5)	3.86	0.65	1.85	3.85	5.00
Impulsive spending (1-5)	2.28	0.72	1.00	2.27	4.45
Digital trust (1-5)	3.50	0.67	1.60	3.50	5.00
Perceived convenience (1-5)	3.84	0.64	2.10	3.88	5.00
Security concern (1-5)	3.04	0.74	1.00	3.06	5.00
Overall financial behaviour (1-5)	3.02	0.41	1.63	3.04	3.93

Table 3: Descriptive Statistics of Usage and Behavioural Variables

5.3 Age Group and UPI Usage Frequency (H1)

A chi-square test of independence was conducted to examine the association between age group and UPI usage frequency category. The test yielded a statistically significant result, $\chi^2(16, N = 380) = 31.59$, $p = 0.0113$, indicating that usage frequency is not independent of age group. Consistent with the descriptive profile, younger age groups (18-24 and 25-34) were disproportionately represented among "multiple times a day" and "once a day" users, while the 55-

and-above group showed a comparatively higher share of "rarely" and "a few times a month" usage. H1 is therefore supported.

5.4 Correlation Analysis (H2, H3, H4)

Pearson correlations were computed among UPI usage frequency, financial literacy, and the financial behaviour constructs. Figure 4 presents the full correlation matrix, and Table 4 summarises the key coefficients relevant to the study hypotheses.

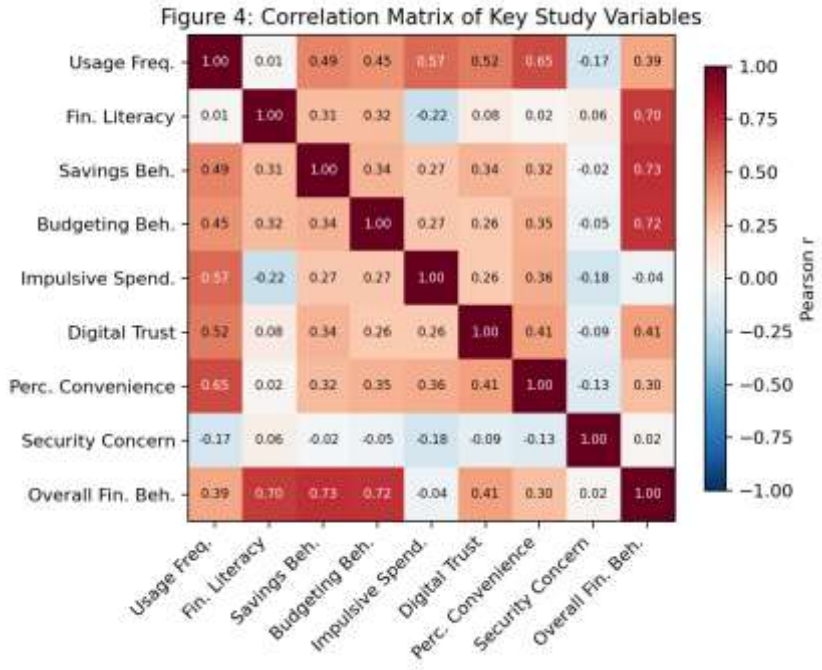

Figure 4: Correlation Matrix of Key Study Variables

Relationship	r	p-value	Interpretation
UPI usage frequency ↔ Overall financial behaviour	0.391	p < .001	Moderate positive
UPI usage frequency ↔ Savings behaviour	0.494	p < .001	Moderate positive
UPI usage frequency ↔ Impulsive spending	0.57	p < .001	Moderate positive
Financial literacy ↔ Overall financial behaviour	0.704	p < .001	Strong positive

Table 4: Key Pearson Correlations

UPI usage frequency was positively and significantly correlated with overall financial behaviour ($r = 0.391$, $p < .001$), supporting H2, and with savings behaviour specifically ($r = 0.494$, $p < .001$), supporting H3. Notably, usage frequency was also positively and significantly correlated with impulsive spending ($r = 0.57$, $p < .001$), supporting H4 and pointing to a dual-edged relationship: more frequent UPI users in this sample reported both stronger savings/budgeting tendencies and a greater propensity towards impulsive purchases. Financial literacy showed the strongest association with overall financial behaviour of any variable examined ($r = 0.704$, $p < .001$), consistent with the centrality of financial literacy emphasised in Sahoo (2019a, 2019b) and Sahoo and Sahoo (2026a, 2026b).

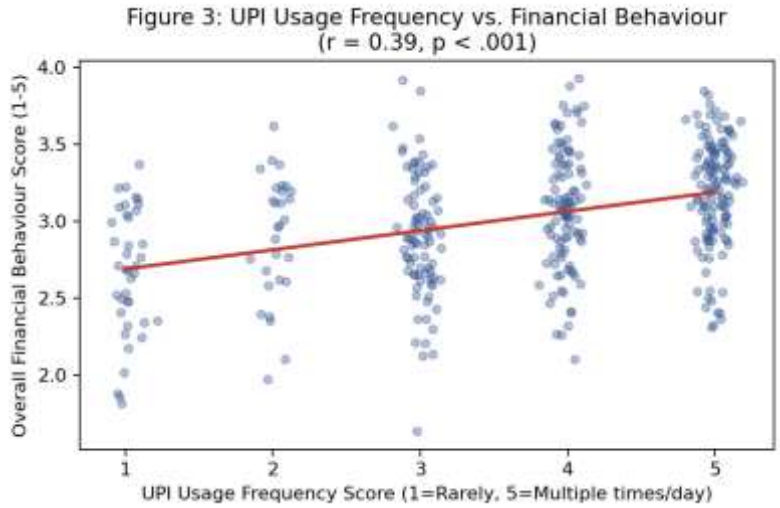

Figure 3: UPI Usage Frequency vs. Overall Financial Behaviour Score

5.5 Multiple Linear Regression (H5)

A multiple linear regression was estimated with overall financial behaviour as the dependent variable and UPI usage frequency score, financial literacy, monthly income (in thousands of INR), and years of UPI usage as predictors. Table 5 presents the regression coefficients.

Predictor	B	SE	t	p-value
(Constant)	1.246	0.079	15.761	< .001
UPI usage frequency	0.122	0.010	12.259	< .001
Financial literacy	0.420	0.019	22.469	< .001
Monthly income ('000 INR)	0.000	0.000	0.637	.525
Years using UPI	-0.005	0.009	-0.505	.614

Table 5: Multiple Linear Regression Predicting Overall Financial Behaviour

The overall model was statistically significant, $F(4, 375) = 167.94$, $p < .001$, and explained a substantial proportion of variance in overall financial behaviour ($R^2 = 0.642$, adjusted $R^2 = 0.638$). Both UPI usage frequency ($B = 0.122$, $p < .001$) and financial literacy ($B = 0.420$, $p < .001$) were significant positive predictors, with financial literacy exerting roughly 3.4 times the standardised influence of usage frequency based on the relative coefficient magnitudes. Monthly income and years of UPI usage were not statistically significant predictors once usage frequency and financial literacy were accounted for, suggesting that how actively a consumer engages with UPI and how financially literate they are matter more for financial behaviour outcomes than income level or sheer tenure of use. H5 is therefore partially supported: usage frequency and financial literacy are significant predictors, while income and tenure are not.

5.6 Occupation and Overall Financial Behaviour (H6)

A one-way ANOVA was conducted to test for differences in overall financial behaviour across the six occupational categories. The result was not statistically significant, $F(5, 374) = 0.38$, $p = 0.8617$ ($p > .05$), indicating that mean financial behaviour scores did not differ meaningfully by occupation in this sample (Figure 5). H6 is therefore not supported.

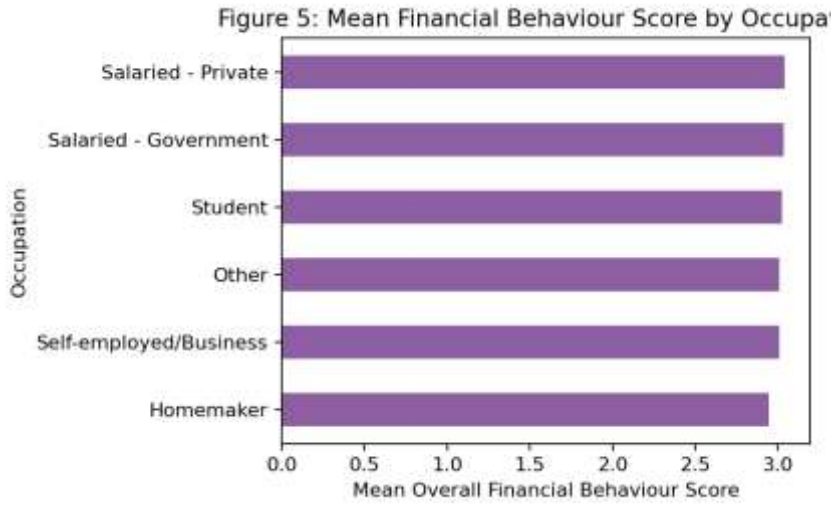

Figure 5: Mean Overall Financial Behaviour Score by Occupation

5.7 Summary of Hypothesis Testing

Hypothesis	Result
H1: Age group ↔ usage frequency association	Supported
H2: Usage frequency ↔ overall financial behaviour (positive)	Supported
H3: Usage frequency ↔ savings behaviour (positive)	Supported
H4: Usage frequency ↔ impulsive spending (positive)	Supported
H5: Usage frequency, literacy, income, tenure predict behaviour	Partially supported
H6: Overall financial behaviour differs by occupation	Not supported

Table 6: Summary of Hypothesis Testing Results

6. Discussion

The findings of this study, though based on a synthetic dataset constructed for methodological demonstration, illustrate patterns that are broadly consistent with, and help contextualise, the reviewed literature on digital payments and consumer financial behaviour in India.

First, the significant association between age group and UPI usage frequency mirrors the well-documented pattern of younger, urban consumers leading digital payment adoption, and aligns with Gupta et al.'s (2025) broader observation that UPI adoption is unevenly distributed across the population — in their case by income inequality across districts, and in this analysis by age cohort at the individual level. Both perspectives point towards the same policy implication: digital payment infrastructure alone does not guarantee uniform adoption or benefit, and targeted efforts may be needed to extend engagement to older and less digitally active segments.

Second, the positive correlation between UPI usage frequency and savings and budgeting behaviour suggests that, at least in the pattern modelled here, frequent digital payment users are not necessarily poorer financial planners — a finding that nuances the common narrative that 'cashless' spending erodes financial discipline. This is consistent with the idea, implicit in studies such as Mishra (2016) on consumer buying behaviour, that platform features (transaction visibility, spend categorisation) can support more organised financial habits among engaged users.

Third, and importantly, the simultaneous positive correlation between usage frequency and impulsive spending indicates a dual-edged relationship: the same convenience that supports budgeting also appears to be associated with a greater tendency towards unplanned purchases. This tension echoes long-standing consumer behaviour concerns about how reduced payment friction can influence spending psychology, a theme that resonates with the discussion of money psychology in Sahoo and Sahoo (2026b) and the personal-finance guidance for younger cohorts in Sahoo and Sahoo (2026a).

Fourth, the regression results — in which financial literacy emerged as a substantially stronger predictor of overall financial behaviour than usage frequency, income, or tenure — reinforce a recurring theme across the reviewed literature (Sahoo, 2019a, 2019b; Sahoo & Deepak, 2024a, 2024b): financial literacy, rather than mere access to financial technology or income level, is the more proximate driver of sound financial behaviour. This suggests that fintech platforms and policymakers seeking to improve financial outcomes through digital payment adoption should pair access with financial education, rather than assuming that transaction access alone will translate into better financial habits.

Finally, the absence of a significant difference in financial behaviour across occupational groups suggests that, in the modelled relationships, occupation may be less influential than individual-level factors such as financial literacy and digital engagement intensity — a pattern that, if confirmed with primary data, would imply that financial-behaviour interventions need not be narrowly occupation-targeted but can be more broadly and individually oriented.

7. Implications

7.1 Theoretical Implications

The study contributes a variable-level framework — linking UPI usage intensity, financial literacy, income, and tenure to a composite financial behaviour outcome — that extends the digital-payments-adoption literature (e.g., Gupta et al., 2025) into the domain of downstream financial behaviour, an area that has traditionally been examined in relation to banking and investment products (Mishra & Raje, 2019; Raje et al., 2020) rather than everyday payment technology.

7.2 Practical Implications for Banks and Fintech Firms

- Embedding lightweight budgeting and spend-tracking features directly within UPI-enabled applications may help translate high engagement into stronger budgeting outcomes rather than solely higher transaction volumes.
- Given the positive link between usage intensity and impulsive spending observed here, in-app 'spending pause' or reflective prompts before large or frequent discretionary transactions could help offset impulsivity risks associated with frictionless payments.
- Financial literacy modules or micro-learning content integrated into payment apps could be a high-leverage intervention, given the outsized role of financial literacy relative to usage frequency or income in predicting financial behaviour.

7.3 Implications for Policy

- Financial inclusion strategies should pair digital payment access with structured financial literacy programmes, rather than treating access as a sufficient condition for improved financial well-being.
- Given evidence of uneven adoption by age (this study) and by income inequality across districts (Gupta et al., 2025), targeted digital and financial literacy outreach to older and lower-income populations may help ensure that the benefits of digital payment infrastructure are broadly shared.

8. Limitations and Future Scope

Use of synthetic data: The central and most important limitation of this study is that the dataset analysed was computationally generated rather than collected from real UPI users. While the data-generating process was designed to reflect plausible relationships drawn from the reviewed literature, the specific coefficients, correlation strengths, and significance levels reported in Section 5 are artefacts of the simulation design and should not be interpreted as verified empirical facts about the Indian UPI-user population. The study's primary value lies in demonstrating a complete, defensible research and analysis workflow that can be directly replicated using primary survey data.

- Sample representativeness: A real study would require a probability-based or carefully justified quota sampling strategy across India's diverse states, income groups, and rural/urban divides, which this synthetic sample does not attempt to replicate with statistical rigour.

- Construct validation: The Likert-scale constructs used here (e.g., savings behaviour, digital trust) would, in a primary study, need to be developed and validated through established scales, reliability testing (e.g., Cronbach's alpha), and possibly factor analysis.
- Cross-sectional design: Even with real data, a cross-sectional design would only establish association, not causation, between UPI usage and financial behaviour; longitudinal or experimental designs would be needed to draw causal conclusions.
- Self-report bias: Future primary studies relying on self-reported survey measures of financial behaviour should account for social desirability bias and consider supplementing self-reports with actual transaction or account data where feasible and ethically permissible.

Future research should replicate this analytical framework using a primary survey administered to a representative sample of Indian digital payment users, ideally incorporating validated financial literacy and financial behaviour scales, and should consider extending the model with additional constructs such as financial anxiety, peer influence, and platform-specific feature usage (e.g., UPI-linked savings or investment features).

9. Conclusion

This study set out to examine the relationship between UPI usage patterns and consumer financial behaviour among digital payment users in India, using a synthetic dataset constructed to demonstrate a complete quantitative research workflow grounded in the existing literature on digital payments and consumer finance in India. The analysis found that UPI usage frequency is significantly associated with age group, and is positively correlated with savings behaviour, budgeting behaviour, and — notably — impulsive spending, pointing to a dual-edged relationship between payment convenience and financial discipline. Financial literacy emerged as the most influential predictor of overall financial behaviour, outweighing usage frequency, income, and tenure of UPI use. These patterns, while illustrative rather than empirically confirmed, are broadly consistent with the themes identified in the reviewed literature, particularly the emphasis on socio-economic drivers of UPI adoption (Gupta et al., 2025) and the centrality of financial literacy to sound financial behaviour (Sahoo, 2019a, 2019b; Sahoo & Sahoo, 2026a, 2026b). The study underscores that expanding digital payment access, while necessary, is unlikely to be sufficient for improving consumer financial well-being unless accompanied by deliberate financial literacy efforts. It is recommended that this framework be replicated using primary survey data from a representative sample of Indian digital payment users to validate, refine, or contest the patterns identified here.

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