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Assessing the Role of Unified Payment Interface (UPI) in Shaping Spending Patterns: Evidence from Gangtok City, Sikkim

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Abstract

This study investigates the role of the Unified Payment Interface (UPI) in influencing the spending habits of individuals in Gangtok City, Sikkim. UPI, as a real-time payment system developed by the National Payments Corporation of India (NPCI), has significantly transformed digital transactions and consumer behaviour across India. The research adopts a descriptive and analytical approach, using primary data collected through a structured questionnaire from 252 respondents. Statistical analyses, including regression and two-way ANOVA, were applied to examine the relationships between UPI usage, spending habits, and moderating variables like psychological and risk factors. The findings reveal that UPI usage significantly affects spending behaviour, explaining 45.8% of the variance in spending patterns. Gender, income, education, and age were found to be relevant demographic influencers. While UPI usage had a strong positive impact, psychological and risk factors did not significantly moderate this relationship. The study contributes to the understanding of digital financial behaviour in a semi-urban Indian context and offers insights for policy formulation aimed at promoting financial inclusion and responsible digital spending.rns Evidence from Gangtok City, Sikkim

Keywords: *Unified Payment Interface (UPI), Digital Payments, Spending Habits, Consumer Behaviour, Financial Technology.*

1. Introduction

India has witnessed a significant transformation in its financial ecosystem with the rapid integration of digital payment systems. Among these, the Unified Payment Interface (UPI) has emerged as one of the most revolutionary platforms for facilitating real-time, secure, and user-friendly financial transactions. Introduced in 2016 by the National Payments Corporation of India (NPCI) under the regulation of the Reserve Bank of India (RBI), UPI enables users to transfer funds between bank accounts through mobile applications, requiring minimal details and providing maximum accessibility (Gochhwal, 2017). Unlike older systems such as NEFT and RTGS, which were relatively rigid, UPI operates on the Immediate Payment System (IMPS) and allows instant transactions 24/7, even on holidays (Tiwari et al., 2019).

The growth of UPI has been further bolstered by socio-political factors such as the 2016 demonetization, the Digital India campaign, and the COVID-19 pandemic, all of which collectively pushed millions of individuals toward digital payment adoption. According to Goyal et al. (2022), UPI's convenience, speed, and security have made it a preferred mode of payment, enabling consumers to transact "anytime and anywhere" using simple interfaces. UPI 2.0, with enhancements like AutoPay, offline payments (UPI Lite), and linkages to overdraft accounts, has further accelerated its integration into everyday financial life (Philip, 2019). The technological shift has also led to behavioral changes in spending patterns. Rana, et.al(2023) emphasized the role of technological factors such as ease of use and trust in service on consumer adoption, noting that the perceived speed and reliability of UPI applications encourage users to engage in more frequent, and often impulsive, transactions. This transition toward cashless behavior is further reinforced by government policies aimed at enhancing transparency, reducing fraud, and boosting financial inclusion (Kakadel et al., 2017).

1.1 Rationale of the Study

While UPI's success in metropolitan cities like Delhi, Mumbai, and Bengaluru is well-documented, smaller cities and urban regions such as Gangtok, the capital of Sikkim have received limited academic attention. This study addresses this research

gap by exploring the impact of UPI on individual spending habits in Gangtok, a city with distinct socio-cultural and demographic characteristics. According to Murari et al. (2020), demographic factors like age, education, and income significantly affect preferences for cashless payments, and these variables can behave differently across regions.

Sikkim, a north-eastern Indian state known for its cultural diversity and expanding digital infrastructure, has seen remarkable growth in mobile payments. As reported by Kanimozhi et al. (2021), individuals from various professional backgrounds i.e. students, private employees, self-employed workers demonstrate different levels of digital literacy, which in turn affect their patterns of UPI usage. In a similar study, Sakhiya et al. (2024) found that youth and higher-income individuals in Ahmedabad were more likely to engage in frequent UPI transactions due to perceived convenience and trust. In Gangtok, male users predominantly utilize UPI for business and large-value transactions, while female users employ it for managing household budgets (Sharma, 2025). Age-wise, younger individuals (18–25) and students use UPI more actively, often for low-value but frequent payments such as food delivery, shopping, and mobile recharges. These patterns highlight UPI's role in normalizing small, habitual expenditures and point to a shift in financial behaviour.

While UPI brings unmatched ease and efficiency, there is growing concern over its psychological implications. Studies such as Pandey (2022) argue that psychological traits like impulsivity, low self-control, and promotional offers like cashbacks may encourage users to overspend, undermining long-term financial planning. The current study investigates whether such behavioural effects are observable in Gangtok's consumers as well.

1.2 Regional Context and Justification

Sikkim, though smaller in population and geography, represents a fast-growing digital economy. As highlighted by Murari et al. (2020), cashless transactions have gained traction in Sikkim due to improved internet infrastructure and the increasing penetration of smartphones. Pala (2024), in a study on digital payments in Turkey, observed that adoption significantly influenced both consumption and savings behaviours, suggesting similar outcomes

could be anticipated in India's semi-urban regions. Furthermore, demographic-specific research is crucial. Zohmingthanga et al. (2024) reported a moderate positive correlation between UPI use and personal finance behavior among Mizoram residents, a population with similarities to Sikkim in terms of scale and economic activity. Balamurugan et al. (2024) emphasized the importance of analysing seasonal, situational, and socio-economic differences in UPI usage to understand behavioural shifts more comprehensively.

The study's uniqueness lies in focusing on a location often ignored in national surveys. It investigates the dynamics of how education levels, employment types, age groups, and income brackets within Gangtok interact with digital finance platforms to create new norms of consumption. The insights derived could be instrumental in designing more inclusive fintech products and guiding local policy interventions to promote responsible digital finance.

1.3 Research Problem and Questions

Given this context, the central research problem is to understand how UPI usage affects the spending habits of individuals in Gangtok and whether this effect is moderated by psychological and risk-related variables. Jain (2025) revealed that urban users often exceed their intended budgets due to the seamless nature of UPI payments, while rural users tend to be more conservative. Similarly, Lalchhanhimi (2024) found that UPI users primarily spend on daily essentials and show tendencies toward impulsive buying when digital convenience is high.

Thus, the study aims to answer the following research questions:

1. How has the emergence of UPI influenced the spending habits of individuals in Gangtok, Sikkim?
2. To what extent do psychological and risk-related traits modify this influence?

The structure of this chapter unfolds in a coherent sequence to explore the influence of UPI on spending habits within the context of Gangtok, Sikkim. It begins with the Introduction, which sets the broader context for the study by discussing the rise of digital payments in India and the growing relevance of

UPI. It also highlights the significance of regional-level analysis and outlines the rationale for focusing on a semi-urban area like Gangtok. The next section, Review of Literature, provides a comprehensive synthesis of existing scholarly works related to UPI adoption, consumer behaviour, digital trust, risk perception, and demographic influences, all drawn from previously cited research. The Methodology section follows, describing the research design, sampling approach, data sources, Hypothesis of the study, and the statistical tools used to analyse the collected data. The Data Analysis and Discussion section presents the empirical results from the regression and ANOVA analyses, supported by demographic insights and interpretations linked to existing literature. This is followed by the Findings and Implications section, which summarizes the key results and offers practical insights for digital financial behaviour and policy. The chapter concludes with a Conclusion and Future Scope section, highlighting the study's contributions, limitations, and areas for future research in the domain of digital payments and consumer finance.

2. Review of Literature

The story of digital transformation in India would be incomplete without the mention of the Unified Payments Interface (UPI). Introduced in 2016, UPI was more than just a technical innovation; it was a financial revolution that fundamentally changed how Indian consumers approached money, spending, and banking. In the years since, scholars, economists, and technology experts have turned their attention to understanding what UPI means for India not just at the macroeconomic level but in terms of everyday behaviour. The literature surrounding UPI is rich, diverse, and growing, and paints a vivid picture of a society negotiating the shift from cash to digital, from traditional habits to instant gratification, and from financial exclusion to inclusion.

At the heart of the UPI story lies the question of behaviour. How does this simple tap-and-pay technology influence the way people think about spending? Dev et al. (2024)explored this very intersection, where technology meets psychology. Their mixed-method study, using both thematic and survey-based analysis, revealed that UPI has a noticeable impact on individual spending

behaviour, largely due to its seamless and frictionless interface. What used to be a thoughtful decision pulling out a wallet, counting notes, handing over cash has now become a few seconds of screen time. And with that ease, comes an increase in spontaneous spending. Yet, the benefits of UPI are undeniable. Gochhwal (2017), one of the early chroniclers of UPI's ascent, likened the platform to a "digital bridge" that connects consumers to the banking world with security and speed. His analysis emphasized UPI's superiority over older payment systems—highlighting its end-to-end encryption, real-time transfer ability, and multi-layer authentication. These technical strengths, he argued, created the foundation for its massive adoption. Similarly, Kakadel et al. (2017) focused on the user experience, noting that UPI, unlike net banking or card payments, does not require entering lengthy account details or worrying about network delays. It is, in their words, "fast, cost-effective, and consumer-friendly."

As adoption spread, researchers turned their attention to what influenced that adoption. Goyal et al. (2022) examined consumer attitudes toward UPI and found that ease of access, anytime-anywhere banking, and improved service experiences were crucial. Their study used ANOVA to establish a significant relationship between consumers' perceptions of UPI and their likelihood of adopting it. The ability to transact from home, office, or even in transit had become a game-changer—especially for the younger generation. It was this young demographic that fascinated researchers like Sakhiya et al. (2024), who conducted a city-level study in Ahmedabad. Their research found that UPI usage varied significantly by age and income. Younger respondents were more likely to use UPI for casual and frequent purchases, while older adults showed a preference for traditional methods. Their findings echoed those of Swamynathan (2018), who conducted a nationwide survey and concluded that urban, educated, and younger populations showed higher UPI adoption, often linked to better digital literacy and trust in online systems. But it wasn't just about age. Occupation, education, and income also played a role. Kanimozhi et al. (2021) noted that salaried employees and students were more likely to use UPI frequently, while homemakers and retired individuals showed lower engagement. Their study, based on primary data, highlighted

how income and employment status influenced perceptions of security, convenience, and usefulness of the platform.

Trust, especially in the context of financial risk was another recurring theme. Pandey (2022) emphasized the role of perception and personal experience. His study found that past encounters with digital fraud or transaction errors had a lasting impact on how individuals viewed UPI and their willingness to use it for large payments. However, those with positive experiences were more likely to view UPI as trustworthy and secure. This was in line with findings by Singh &Shanmugam(2024), who explored how self-control and promotional offers interacted with consumer fintech use. Their research suggested that while UPI facilitates financial management for some, it encourages overspending in others—especially when cashback rewards and limited-time discounts are involved. Moving beyond individual behaviour, researchers have also explored broader economic implications. Pala (2024), in a cross-country study in Turkey, demonstrated that digital payment systems had a direct impact on household consumption and savings rates. While his findings were contextually different, they hinted at a universal trend: digital payments tend to encourage more spending, sometimes at the cost of personal savings. This mirrors findings in India, where researchers like Jain (2025) observed that urban UPI users frequently exceeded their budgets. In contrast, rural users maintained a more disciplined approach, relying on cash for essential expenditures and prioritizing savings.

The idea that UPI enables impulsive spending is reinforced in studies by Lalchhanhimi (2024). Lalchhanhimi, working with a smaller sample in Mizoram, noted that UPI was mainly used for groceries and everyday expenses, but that its ease often led to overspending on shopping and takeout. Both studies suggest that while UPI promotes financial access, it may also require digital financial literacy to help users manage their budgets. Government initiatives and policy interventions have also been an important part of the narrative. According to Vidhya and Sankar (2023), awareness campaigns and digital training programs have significantly improved consumer trust in UPI, especially in semi-urban areas. Similarly, Balamurugan et al. (2024) argued that UPI has contributed not just to financial inclusion but also to

behavioural change shifting consumers from planned cash-based transactions to more frequent, digital, and spontaneous ones.

The gendered dimension of UPI use also deserves mention. Akilesh et al. (2023) conducted a study showing that gender and income levels significantly influenced spending behavior. While both men and women used UPI, the purposes differed—men were more likely to use it for business and investments, while women favored it for household and daily spending. This aligns with observations from Murari et al. (2020), who found that digital payment preferences varied significantly across gender, age, and education levels in Sikkim. Interestingly, multiple studies also explored the role of psychological and risk factors. For example, Zohmingthanga et al. (2024) observed a moderate positive correlation between UPI usage and improved personal finance management, particularly when users felt in control of their digital habits. However, when perceived risk was high—such as fear of fraud or loss of data—users became more cautious. Similarly, the study by Purshotam and Beniwal (2023) focused on user preferences and safety concerns, concluding that while most users appreciated UPI's efficiency, a notable segment still preferred cash due to perceived security. Lastly, the intersection of technology and behavior is perhaps best captured by More (2023), who studied the interaction between demographic variables and technological trust. His findings indicate that while digital readiness is spreading, perceptions of trust and convenience remain subjective, influenced by everything from app design to network reliability.

Taken together, the existing body of literature on the Unified Payments Interface (UPI) offers valuable insights into its adoption, technical efficiency, and behavioural implications across various regions in India. Studies such as those by Gochhwal (2017), Kakadel et al. (2017), and Goyal et al. (2022) have extensively examined the technological advantages of UPI and the factors influencing its acceptance among consumers. Other research, including Sakhiya et al. (2024) and Swamynathan (2018), has emphasized demographic determinants like age, education, and income in shaping adoption patterns. Moreover, work by Pandey (2022), has highlighted the psychological and behavioural consequences of

UPI usage, including impulsive spending and reduced budgetary control. However, three notable gaps emerge from the review.

First, regional and city-specific studies are limited. While some research covers the northeastern states (Murari et al., 2020; Zohmingthanga et al., 2024), detailed analyses focusing on semi-urban cities like Gangtok, with their distinct socio-cultural and economic profiles, are scarce. Second, most prior studies emphasize adoption rather than spending behaviour. There is comparatively little empirical evidence linking UPI usage directly to measurable changes in individual spending habits, particularly in smaller cities. Third, micro-level primary data from under-researched locations is lacking. Many existing works rely on broad national surveys or focus on metropolitan areas, which may not reflect the financial behaviours of populations in smaller urban centres with different income patterns, occupational structures, and access to technology. This study addresses these gaps by conducting a focused, primary-data-based investigation of UPI usage and its influence on spending habits among residents of Gangtok, Sikkim, thereby contributing region-specific insights to the growing literature on digital payments in India.

3. Research Methodology

The methodology adopted in this study was designed to systematically investigate the influence of Unified Payment Interface (UPI) usage on the spending habits of individuals in Gangtok, Sikkim. A descriptive and analytical approach was employed to collect, process, and analyse data in order to address the research problem effectively. The descriptive framework allowed the researcher to capture respondents' demographic profiles, frequency and purpose of UPI usage, and perceived changes in their spending behaviour. In addition, elements of analytical research design were incorporated to establish statistical relationships between UPI usage and spending habits, using tools such as correlation and regression analysis.

3.1 Study Area, Population and Sampling Frame

The research was conducted in Gangtok City, the capital of Sikkim. Gangtok was chosen due to its increasing penetration of digital payment systems, diverse socio-economic demographics,

and its status as a semi-urban location where UPI adoption has grown rapidly in recent years. The city provides a unique context, combining elements of urban infrastructure with the behavioural and cultural traits of smaller-town populations. The target population consisted of UPI users residing in Gangtok City, spanning various age groups, educational backgrounds, occupational categories, and income levels. The sampling frame included individuals who actively used UPI for personal or household transactions within the last six months.

3.2 Sampling Technique, Sample Size and Sources of Data

The study employed a random sampling technique to ensure that all respondents were active UPI users. The final sample consisted of 252 respondents, determined based on feasibility, resource availability, and the need for sufficient data to conduct statistical analyses. This sample size was considered adequate for regression analysis and ANOVA testing, ensuring reliable and valid results. Primary Data were collected directly from respondents through a structured questionnaire. The questionnaire was designed to capture demographic details, patterns of UPI usage, and perceived changes in spending habits.

A structured questionnaire was used as the main instrument for primary data collection. It comprised both closed-ended and scaled questions. The questionnaire was divided into three sections, ***Section A:*** Demographic profile of respondents (age, gender, education, occupation, income, etc.). Where ***Section B:*** UPI usage patterns (duration of use, transaction frequency, purposes of usage, preferred UPI applications, etc.). Lastly ***Section C***: Statements measuring the influence of UPI on spending behaviour, rated using a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).Data collection was carried out through face-to-face interactions and online surveys. Face-to-face surveys ensured coverage of respondents without consistent internet access, while online distribution via Google Forms facilitated reaching tech-savvy users. The researcher ensured voluntary participation and anonymity, following ethical guidelines.

3.3 Variables of the Study

The present study is centred on exploring how the usage of the Unified Payment Interface (UPI) influences the spending habits of individuals in Gangtok, Sikkim. In this context, UPI usage serves as the independent variable, while spending habits form the dependent variable. Additionally, a set of demographic characteristics—such as gender, age, education, occupation, and monthly income—are considered control variables, helping to interpret variations in spending behaviour across different segments of the population.

The independent variable, UPI usage, is operationalized through multiple dimensions, including the duration of use, frequency of transactions, and the purposes for which UPI is employed (e.g., bill payments, online shopping, peer-to-peer transfers, and business transactions). Previous studies have highlighted that these dimensions are critical in understanding digital payment adoption and its consequences. For example, Sakhiya et al. (2024) found that frequency of use is strongly related to perceived convenience and trust, while Kanimozhi et al. (2021) observed that the diversity of purposes—ranging from essential purchases to leisure spending—shapes consumers' overall satisfaction with UPI.

The dependent variable, spending habits, reflects changes in individual purchasing patterns after adopting UPI. This includes variations in budget discipline, tendencies toward impulsive buying, and changes in the volume and value of transactions. Earlier works such as Pandey (2022) and Singh et al. (2024) have shown that digital payment platforms can influence spending behaviour by making transactions seamless and psychologically less tangible than cash payments, thereby increasing the likelihood of unplanned purchases. Similarly, Lalchhanhimi (2024) observed that UPI users often spend more frequently on small-ticket items due to the ease of mobile payments.

The control variables, demographic factors such as gender, age, education, occupation, and income are important because they often shape how individuals perceive and use digital payment technologies. Murari et al. (2020) demonstrated that younger, educated, and higher-income individuals tend to adopt UPI

earlier and use it more frequently, while Balamurugan et al. (2024) highlighted that occupation and income levels can affect both the frequency and purpose of digital transactions. Including these variables ensures that the relationship between UPI usage and spending habits is not interpreted in isolation but in light of socio-economic and demographic contexts.

3.4 Statistical Tools and Techniques

The analysis of the collected data was conducted using a combination of descriptive and inferential statistical techniques to ensure a comprehensive understanding of the study variables. Descriptive statistics, including frequency distributions, percentages, mean values, and standard deviations, were used to summarize the demographic characteristics of respondents, patterns of UPI usage, and perceived changes in spending behaviour. These measures provided a clear overview of the general trends within the sample.

For examining the relationships between variables, correlation analysis was employed to assess the strength and direction of the association between UPI usage and spending habits. To further investigate the predictive relationship, simple linear regression analysis was applied, enabling the identification of the extent to which UPI usage influences variations in spending behaviour. Additionally, two-way Analysis of Variance (ANOVA) was used to determine whether spending habits differed significantly across demographic groups such as gender, age, education, occupation, and income. This method allowed for the comparison of group means and provided insights into demographic influences on spending behaviour in relation to UPI usage.

All statistical analyses were carried out using the Statistical Package for the Social Sciences (SPSS), ensuring accuracy, reliability, and effective interpretation of results. The combination of descriptive and inferential techniques allowed the study to both describe observed trends and test relationships in a statistically robust manner.

4. Data Analysis and Interpretation

The primary data collected from 252 respondents in Gangtok City was analysed to examine the influence of UPI usage on spending

habits. The analysis integrates descriptive statistics to summarize patterns and inferential statistics to establish relationships between variables. The results are presented in a logical sequence, starting with demographic characteristics, followed by UPI usage patterns, and then statistical tests examining the relationship between UPI usage and spending behaviour.

4.1 Demographic Profile of Respondents

Table 1 shows that out of 252 respondents, the gender distribution is nearly balanced, with males constituting 50.8% and females 49.2%. The largest age group is 21–30 years (44.4%), followed by 31–40 years (26.2%), indicating a relatively young, economically active respondent base. Educational attainment is high, with 42.9% being undergraduates and 37.3% postgraduates, suggesting strong digital literacy among the sample. Occupation-wise, salaried employees (38.1%) form the largest group, followed by students (24.6%) and self-employed individuals (21.4%). Monthly income distribution reveals that almost half of the respondents earn between ₹15,001 and ₹35,000, representing a middle-income segment with stable purchasing power.The demographic composition reflects a digitally aware, relatively young, and economically active population in Gangtok, which is consistent with higher adoption and frequent use of UPI. The predominance of middle-income earners suggests affordability and willingness to engage in digital transactions without significant financial constraints.

Table 1: Demographic Profile of Respondents (n = 252)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	128	50.8
	Female	124	49.2
Age Group (Years)	Below 20	32	12.7
	21–30	112	44.4
	31–40	66	26.2
	Above 40	42	16.7

Education Level	Higher Secondary	28	11.1
	Undergraduate Degree	108	42.9
	Postgraduate Degree	94	37.3
	Other	22	8.7
Occupation	Student	62	24.6
	Salaried Employee	96	38.1
	Business/Self-Employed	54	21.4
	Homemaker	40	15.9
Monthly Income (₹)	Below 15,000	46	18.3
	15,001–35,000	118	46.8
	35,001–50,000	54	21.4
	Above 50,000	34	13.5

Source: Author's Analysis based on Primary data

4.2 Patterns of UPI Usage

Table 2 indicates that a majority of respondents (59.5%) have been using UPI for more than two years, showing strong familiarity with the platform. Transaction frequency is high, with 36.5% making daily transactions and 42.9% weekly transactions, demonstrating that UPI has become an integral part of routine financial activities. Grocery purchases (74.6%) and bill payments (63.5%) are the most common purposes, followed by online shopping (57.1%), mobile/DTH recharges (51.6%), and peer-to-peer transfers (43.7%). Google Pay is the most preferred app (54.8%), followed by PhonePe (31.0%) and Paytm (14.3%). The dominance of essential purchases and bill payments as primary uses suggests that UPI has replaced cash transactions for routine needs. The high transaction frequency indicates habitual use, while the preference for Google Pay shows the impact of app interface design, trust, and promotional incentives on consumer choice.

Table 2: Patterns of UPI Usage

Usage Dimension	Category	Frequency	Percentage (%)
Duration of Use	Less than 1 year	28	11.1
	1–2 years	74	29.4
	More than 2 years	150	59.5
Transaction Frequency	Daily	92	36.5
	Weekly	108	42.9
	Monthly	52	20.6
Purpose of Usage	Grocery Purchases	188	74.6
	Bill Payments	160	63.5
	Online Shopping	144	57.1
	Mobile/DTH Recharge	130	51.6
	Peer-to-Peer Transfer	110	43.7
Preferred UPI App	Google Pay	138	54.8
	PhonePe	78	31.0
	Paytm	36	14.3

Source: Author's Analysis based on Primary data

4.3 Spending Habit Changes after UPI Adoption

Table 3 reveals that 72.6% of respondents report an increase in small-value transactions, indicating that UPI reduces the psychological resistance to spending smaller amounts. A significant portion (68.3%) is more willing to shop online, and 65.1% admit to making unplanned purchases more often. The

reduced use of cash for daily expenses (77.0%) and preference for digital payments even for low-value items (70.2%) suggest a behavioural shift toward cashless convenience. UPI adoption appears to influence both transactional and psychological aspects of spending. While convenience is the main driver, the data also suggests a tendency toward impulsive spending, particularly in low-value purchases, as cashless payments reduce the immediate sense of money loss.

Table 3: Spending Habit Changes after UPI Adoption

Spending Habit Indicator	**Agree/Strongly Agree (%)**
Increase in small-value transactions	72.6
Greater willingness to shop online	68.3
Tendency to make unplanned purchases	65.1
Reduced use of cash for daily expenses	77.0
Preference for digital transactions even for low values	70.2

Source: Author's Analysis based on Primary data

4.4 Correlation between UPI Usage and Spending Habits

Table 4 shows a positive and statistically significant correlation ($r = 0.624$, $p < 0.01$) between UPI usage and spending habits. This indicates that higher frequency and diversity of UPI usage are associated with more noticeable changes in spending behaviour. The strength of the correlation suggests that UPI is not just a payment tool but also a behavioural driver. Increased usage correlates with higher spending frequency and possibly changes in budgeting discipline, highlighting its role in shaping modern consumer patterns.

Table 4: Correlation between UPI Usage and Spending Habits

Variables	Pearson Correlation (r)	p-value
UPI Usage	0.624**	0.000

Source: Author's Analysis based on Primary data

Note: Correlation is significant at the 0.01 level (2-tailed).

4.5 Regression Analysis

Table 5 indicates that UPI usage has a significant positive impact on spending habits, with a regression coefficient (B) of 0.678 ($p < 0.01$). The model explains 38.9% of the variance in spending behavior ($R^2 = 0.389$), which is substantial for behavioral studies. The positive coefficient means that as UPI usage increases, spending habit scores also increase. The regression results confirm that UPI usage is a strong predictor of changes in spending habits. While other factors such as demographics may influence behaviour, UPI itself plays a central role in shaping how consumers spend, making it a transformative element in personal finance.

Table 5: Regression Analysis Results

Model	Coefficient (B)	Std. Error	Beta	t-value	p-value
(Constant)	1.482	0.216	–	6.861	0.000
UPI Usage	0.678	0.062	0.624	10.935	0.000
Model Summary	$R^2 = 0.389$, Adjusted $R^2 = 0.386$, $F = 119.535$, $p < 0.01$				

Source: Author's Analysis based on Primary data

4.6 Result of Two-way ANOVA

Table 6 highlight the Two-Way ANOVA results demonstrate that spending habits in relation to UPI usage vary significantly across several demographic factors. Gender shows a statistically significant difference ($F = 6.218$, $p < 0.05$), indicating that male and female respondents exhibit distinct patterns in how UPI usage affects their spending. Age group differences are highly significant ($F = 4.758$, $p < 0.01$), with younger respondents particularly those aged 21–30—displaying more frequent and varied spending changes compared to older respondents. Monthly income also has a highly significant impact ($F = 4.317$, $p < 0.01$), suggesting that individuals with higher income levels tend to engage more in frequent and higher-value UPI transactions. Occupation is moderately significant ($F = 3.071$, $p < 0.05$), with salaried

employees and business owners showing greater behavioural shifts compared to students and homemakers.

On the other hand, education level does not show a statistically significant difference ($F = 1.435$, $p > 0.05$). This finding implies that once basic digital literacy is achieved, the educational background of respondents does not substantially alter the way UPI usage influences spending behavior. Overall, these results emphasize that while UPI adoption has a measurable influence on spending habits, the extent of its impact is shaped by specific demographic characteristics, with age, income, gender, and occupation being the most influential.

Table 6: Two-Way ANOVA – Differences in Spending Habits across Demographic Groups

Source of Variation	Sum of Squares	df	Mean Square	F-value	p-value
Gender	4.256	1	4.256	6.218	0.013*
Age Group	9.784	3	3.261	4.758	0.003**
Education Level	2.945	3	0.982	1.435	0.232
Occupation	6.314	3	2.105	3.071	0.028*
Monthly Income	8.862	3	2.954	4.317	0.005**
Error	162.248	238	0.682	—	—
Total	194.409	251	—	—	—

Source: Author's Analysis based on Primary data

Note: *$p < 0.05$ (Significant), $p < 0.01$ (Highly Significant)

5. Findings and Discussion

The findings of this study reveal important insights into the relationship between Unified Payment Interface (UPI) usage

and consumer spending habits in Gangtok City, Sikkim. The demographic analysis suggests that UPI adoption is widespread among younger and middle-aged adults with relatively high levels of education. This aligns with the observations of Singh and Rana (2020), who found that digital payment adoption in India is more pronounced among younger, digitally literate populations. The predominance of middle-income earners in this study echoes the patterns reported by Saxena & Punekar (2021), indicating that affordability and moderate disposable incomes support consistent UPI usage.

The patterns of UPI usage identified in this study—particularly the preference for grocery purchases, bill payments, and online shopping—are consistent with the findings of Purohit and Srivastava (2021), noted that daily utility payments form the backbone of digital payment transactions in India. The strong preference for Google Pay mirrors the results of Sharma and Chandel (2022), emphasized the role of user-friendly interfaces and promotional cashback offers in shaping app preferences. The observed behavioural shifts, including increased frequency of small-value transactions and higher incidence of impulsive purchases, resonate with the arguments of Kaur and Walia (2021), suggested that the convenience and immediacy of UPI can lower the psychological barriers to spending. Similarly, Khurana (2021) reported that instant payment systems encourage greater consumer participation in discretionary spending. The reduction in cash usage for everyday transactions supports earlier findings by Meena and Sharma (2020), highlighted the gradual movement toward a cashless economy facilitated by UPI.

The correlation and regression results in this study further reinforce the role of UPI as a driver of behavioural change. The positive and significant relationship between UPI usage and spending habits aligns with the work of Verma and Sharma (2021), found that increased digital transaction frequency is associated with more dynamic consumption patterns. The R^2 value of 0.389 in the regression model indicates that UPI usage explains a substantial portion of the variance in spending behaviour, which is higher than the predictive strength reported by Zohmingthanga et al. (2024) in their regional analysis. This suggests that in semi-

urban contexts like Gangtok, UPI adoption may exert a stronger behavioural influence than in more urbanized or rural settings.

The Two-Way ANOVA results highlight demographic variations in spending behavior, with gender, age, occupation, and income showing significant differences. The age effect is particularly pronounced, supporting the findings of Goyal et al. (2022), noted that younger consumers adapt more readily to digital payment systems and are more inclined toward online purchases. The significant income effect echoes the conclusions of Balamurugan et al. (2024), observed that higher-income consumers engage in more frequent and higher-value digital transactions. The non-significant education effect in this study contrasts with Kanimozhi et al. (2021), found education to be a significant determinant of digital payment adoption, suggesting that in Gangtok, once basic digital literacy is achieved, further educational attainment does not substantially influence UPI-driven spending behaviour.

Overall, the findings reinforce the growing body of evidence that UPI is not only a payment mechanism but also a behavioural catalyst, reshaping the way consumers plan, execute, and reflect on their spending. This study's contribution lies in its focus on a semi-urban context in the Northeast region of India, an area that has received less scholarly attention compared to major metropolitan markets. The results support the argument that while UPI adoption trends are broadly consistent across India, regional and demographic factors can modulate its behavioural impact.

6. Conclusion and Policy Implications

This study examined the influence of Unified Payment Interface (UPI) usage on consumer spending habits in Gangtok City, Sikkim, using primary data from 252 respondents. The results demonstrate that UPI adoption is deeply embedded in the daily lives of consumers, particularly among younger and middle-aged, digitally literate individuals. Patterns of usage reveal a strong inclination toward essential purchases, bill payments, and online shopping, with Google Pay emerging as the most preferred platform. The behavioural implications of UPI adoption are evident in increased frequency of small-value transactions, greater willingness to engage in online purchases, and a higher

incidence of impulsive spending. Statistical analysis confirms a significant and positive relationship between UPI usage and spending habits, with demographic factors such as gender, age, income, and occupation influencing the magnitude of behavioural changes. Education level, however, does not appear to significantly differentiate spending behaviour once digital literacy is achieved. These findings underscore the dual nature of UPI's impact: it enhances transactional convenience while also potentially encouraging less restrained spending patterns. In the context of Gangtok, where the digital payment ecosystem is expanding rapidly, UPI serves not only as a technological innovation but also as a behavioural catalyst that shapes consumption practices.

The findings of this study have important policy implications for both financial authorities and digital payment stakeholders. While UPI adoption enhances transactional convenience, the tendency toward impulsive and frequent low-value spending suggests the need for targeted financial literacy initiatives. Government agencies, banks, and fintech companies should collaborate on awareness campaigns that promote responsible digital spending and budgeting practices. Moreover, given the unique demographic and usage patterns observed in semi-urban Gangtok, fintech service providers can develop customized solutions, such as expense tracking tools, spending alerts, and localized offers, to encourage more mindful financial behaviour. At the policy level, the integration of cashless economy goals into regional development plans in Sikkim could help accelerate digital adoption by ensuring improvements in infrastructure, internet connectivity, and merchant training. Simultaneously, as digital transaction volumes grow, robust cyber security protocols and consumer education on fraud prevention become crucial to maintaining trust and safeguarding users. Finally, UPI's growing popularity presents an opportunity to strengthen micro-entrepreneurship by equipping small businesses and street vendors with affordable, accessible QR-based payment systems, supported by targeted subsidies or incentives. Such measures could enhance financial inclusion and contribute to a more transparent, efficient, and digitally integrated local economy.

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