International Journal of Social Science and Economic Research

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

Digital Payment Adaptability and User Perception: A Comparative Study of India and the United States

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DOI: 10.46609/IJSSER.2026.v11i06.024 URL: https://doi.org/10.46609/IJSSER.2026.v11i06.024

Received: 20 May 2025 / Accepted: 12 June 2026 / Published: 30 June 2026

ABSTRACT

This paper explores various aspects of digital payment adaptability in India and the US based on a comparative analysis between the digital payment infrastructure and perception of users in India and the United States. A structured survey instrument consisting of 16 questions covering the usage behaviour, demographic background and the attitudinal dimensions examined if there are statistically significant differences between the two groups with respect to six key perceptual constructs: ease of use, trust, safety perception, regulatory confidence, cashback motivation and overall satisfaction. The Mann-Whitney U test, Shapiro-Wilk normality test, Fisher's Exact Test, Cronbach's Alpha, and Spearman rank correlation tests were used to analyse the data. All these variables were found to be uniform, and no statistically significant differences were found across the six likert scale questions (all $p > 0.05$). There was a relatively higher level of reward based incentive driven platform selection for cashback influence, with a small proportion of US users indicating a more extreme feeling of reward from choosing a platform over Indian users. . Secondary data on incentives indicate that this is the approach being followed in India to build up adaptability similar to the US. Both Indian and US users reported high ease of use and satisfaction with their respective platforms. The results suggest that despite operating in markedly different sociological and regulatory contexts, these digital payment ecosystems have achieved uniformity in adoption in world's largest economies which can be attributed to uniformisation of payment experience due to structural separation of payment industry from Banking.

Keywords: Digital Payments, UPI, Fintech Adoption, Cross-cultural Comparison, User Perception, Cashback Rewards, Normality Tests, Parametric Tests

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

Introduction

With the increasing number of mobile and internet-based payment options, financial relationships and systems across the world have undergone a significant change. The digitalisation of India's banking and payment sector can be traced back to the launch of Unified Payments Interface (UPI), by the National Payments Corporation of India (NPCI) in 2016. The effort was further spurred by the demonetisation policy of Prime Minister Narendra Modi in November 2016 which facilitated the unprecedented shift from cash economy to digital economy in India. In 2024, UPI had facilitated more than 13 billion transactions per month, solidifying India as one of the largest digital payments markets in the world in terms of the number of transactions[1]. While the experience of digitalisation in India has been uniform, Digital payment adoption in the United States has been more varied, fueled largely by competition among platforms like PayPal, Venmo, Zelle, Apple Pay and credit card rewards and surging in the wake of the COVID-19 pandemic. Notwithstanding the huge volume of digital payments in both markets, there is very little comparative research on consumer perceptions about and reactions to digital payments in these two countries.

The existing literature on digital payment adoption has been shaped predominantly by two theoretical frameworks: the Technology Acceptance Model (TAM), originally proposed by Davis (1989), and the Unified Theory of Acceptance and Use of Technology (UTAUT), introduced by Venkatesh et al. (2003). TAM posits that technology adoption is governed by two central constructs: perceived usefulness, defined as the degree to which a user believes that using a particular system would enhance their performance, and perceived ease of use, defined as the degree to which use of a system is expected to be free of effort. UTAUT synthesised eight competing acceptance models into a unified framework identifying four key determinants of behavioural intention viz. performance expectancy, effort expectancy, social influence, and facilitating conditions and was found to explain up to 70 percent of variance in technology use intentions, outperforming each of the eight constituent models individually. Both frameworks have been extensively and productively applied to digital payment contexts globally (Sahu et al., 2020). However, a critical limitation of the resulting literature is its geographic concentration. A comprehensive review of mobile technology adoption literature found that researchers have predominantly employed TAM and UTAUT as their theoretical lens, with the majority of existing studies limited to the location of the researcher, focusing on countries such as the United States and China, with existing research models and findings from these contexts not being readily applicable to other markets. In the Indian context specifically, the UTAUT model and its variants have been most frequently employed to examine adoption intention and behaviour

[1] See *UPI Completes 10 Glorious Years, Emerges as World's Largest Real-Time Payments Platform, Anchoring India's Digital Economy*, n.d.

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

toward UPI, with studies applying extended versions incorporating additional constructs such as perceived trust, perceived promotional benefits, and add-on services (Kiran & Vedala, 2025; (Thakur & Srivastava, 2014)). What remains notably absent from the literature is research that moves beyond adoption intent within a single market to examine how users who have already adopted digital payments compare in their perceptions and adaptability across distinct national ecosystems. This paper aims to address this gap directly by comparing experienced digital payment users in India and the United States: two markets that represent contrasting models of digital payment infrastructure on a set of perceptual dimensions that extend beyond adoption intent to include trust, safety perception, regulatory confidence, reward motivation, and satisfaction.

Not much work has been done so far on the perceptual dimensions of digital payment users in India and the United States, with an explicit focus on the behaviour and trust of the consumers. This paper attempts to fill this gap by surveying users across India and US, relying primarily on user feedback data, and conducting statistical tests on the responses generated on the various aspects of digital payment to identify similarities and differences. The research design is grounded in a larger research question: Do users end up with similar or different perceptions of digital payment platforms in two countries, one developed and one under-developed, with very different digital payment ecosystems? The implications of the answer are not purely academic, but have practical relevance for platform developers, the policy environment and financial literacy programmes that can be implemented in both markets.

The following section of the paper is structured as follows. In the research objectives & questions we explain the overall research objective section, in the volume of digital payment in India and US, we explore the ongoing trends in the payment sector of these two countries. In the Data collection and methodology the primary research design, sampling procedures, direction of scales, and statistical tests used are described. The outputs of the tests are presented in the results section. The discussion section is an interpretation of the findings in context and relates them to existing literature. The results and implications of the study are identified in the conclusion.

Research Objectives & Questions

This study is motivated by a gap in the existing literature on digital payment adoption: while much prior work has examined the factors driving adoption within individual countries using established theoretical frameworks, comparatively little research has examined how users who have already adopted digital payments perceive and experience these platforms across different national ecosystems. This study addresses that gap by conducting a direct cross-national comparison of digital payment adaptability and user perception between India and the United States.

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

The study has three specific objectives. First, to profile the digital payment usage behaviour of respondents in India and the United States across dimensions including frequency of use, platform preference, and proportion of digital transactions. Second, to compare user perceptions across six attitudinal dimensions — ease of use, platform trust, safety from fraud, confidence in government regulation, susceptibility to cashback incentives, and overall satisfaction — using appropriate statistical methods. Third, to examine the internal structure of these perceptual dimensions within each country by identifying which constructs are most strongly associated with overall satisfaction.

Research Questions

The study is organised around four research questions.

RQ1: How do the digital payment usage behaviours of Indian and US respondents differ in terms of frequency, platform preference, and proportion of digital transactions?

RQ2: Do statistically significant differences exist between Indian and US digital payment users in their perceptions of ease of use, platform trust, safety from fraud, regulatory confidence, cashback motivation, and overall satisfaction?

RQ3: Which perceptual dimensions are most strongly associated with overall satisfaction within each country, and do these relationships differ across the two national contexts?

Scope and delimitations

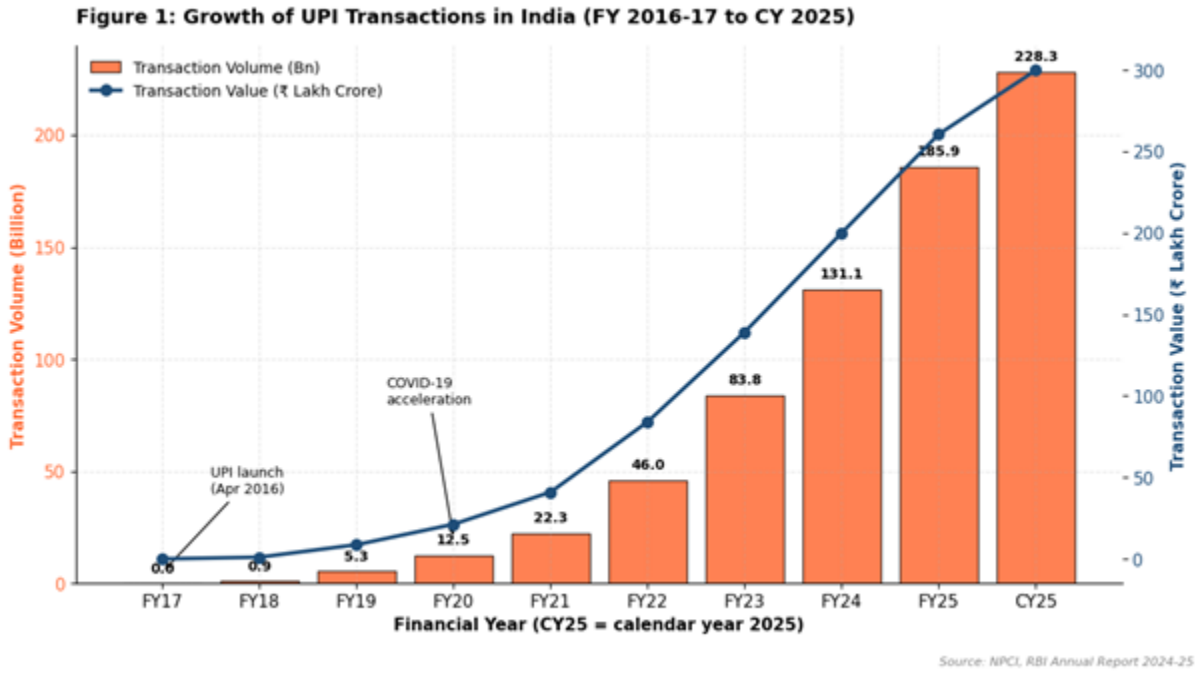
Six attitudinal dimensions are investigated in the study, which were identified in the survey instrument; the perceived ease of use, the platform trust, the safety perception, the confidence in government regulation, the susceptibility to cashback and reward incentives, and the overall satisfaction with the platform. The dimensions were chosen as they were common in the literature on fintech adoption and appeared relevant to the Indian and American digital payments landscape. The study is delimited to adult respondents who are active digital payment users in India and the United States. It does not seek to explain adoption intent; both samples consist of individuals who have already adopted digital payments; hence, it only examines the perceptual and attitudinal dimensions of that experience. The study is cross-sectional in design and does not claim to capture how perceptions evolve over time. Findings are limited to the demographic profile of the samples collected, which skews toward educated, middle-aged, higher-income adults in both countries, and should not be generalised to the broader national populations of either country.

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

Macro Perspectives on Volume and Scale of Digitalisation of Payments in India and US

The two countries represent structurally distinct models of digital payment development. India's ecosystem was built on government-mandated public infrastructure through the Unified Payments Interface, with adoption accelerated by policy interventions and driven primarily by convenience and interoperability. The United States, by contrast, developed its digital payment landscape through private-sector competition among platforms such as PayPal, Venmo, Zelle, and Apple Pay, with adoption historically linked to reward incentivisation and integration with existing credit infrastructure. Despite these structural differences, both countries now host large, experienced digital payment user populations, making them a productive pairing for comparative perceptual analysis. The scale and pace of digital payment adoption in India and the United States diverge substantially, reflecting the structural and policy differences between the two ecosystems that motivate the comparative design of this study. Figures 1, 2, and 3 were constructed by the author using Python (Matplotlib/Seaborn libraries) based on data sourced from NPCI and the RBI Annual Report 2024-25 (Figure 1), the Federal Reserve Bank Diary of Consumer Payment Choice 2016-2024 (Figure 2), and ACI Worldwide, IMF, eMarketer, and Capital One Research (Figure 3). Data visualisation code is available from the author on request.



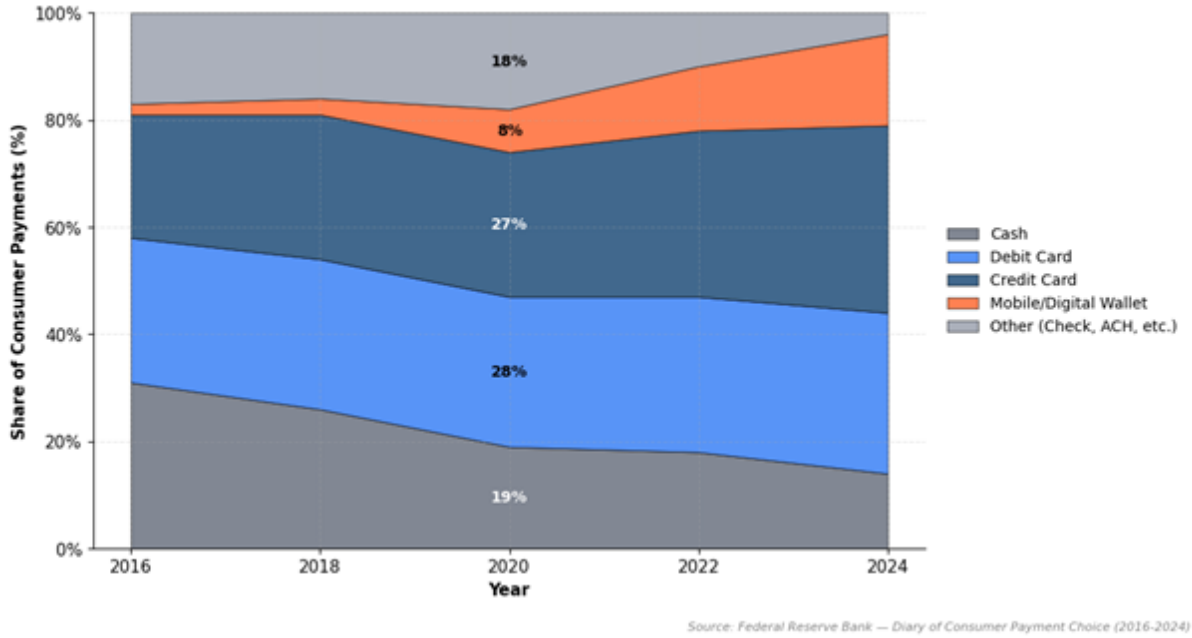
In India, the trajectory of digital payment growth has been exponential and largely discontinuous, marked by two decisive inflection points. As shown in Figure 1, UPI transaction volume stood at 0.6 billion in FY 2016-17, the first year following the platform's launch in April

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

2016. Growth was initially gradual, reaching 5.3 billion transactions by FY19. The COVID-19 pandemic produced a more dramatic acceleration: transaction volumes more than doubled between FY20 and FY21, rising from 12.5 to 22.3 billion, as physical cash handling became socially and practically constrained. The trajectory did not normalise post-pandemic. According to the Reserve Bank of India's annual report for FY25, UPI recorded 185.8 billion transactions during the year, a 41.7 percent increase from 131.1 billion transactions processed in FY24, with UPI's contribution to the payments ecosystem's volume growing to 83.4 percent. By calendar year 2025, total UPI volume reached 228.3 billion transactions (NPCI, 2025). The RBI noted that the success of UPI placed India in a leadership position with a share of 48.5 percent in global real-time payments by volume. This growth curve is characteristic of a platform that shifted from a convenience option to an infrastructural necessity, embedded in everyday transactions across merchant payments, peer-to-peer transfers, utility bills, and government disbursements (IANS, 2025).

Figure 2: Evolution of US Consumer Payment Mix (2016-2024)



Source: Federal Reserve Bank — Diary of Consumer Payment Choice (2016-2024)

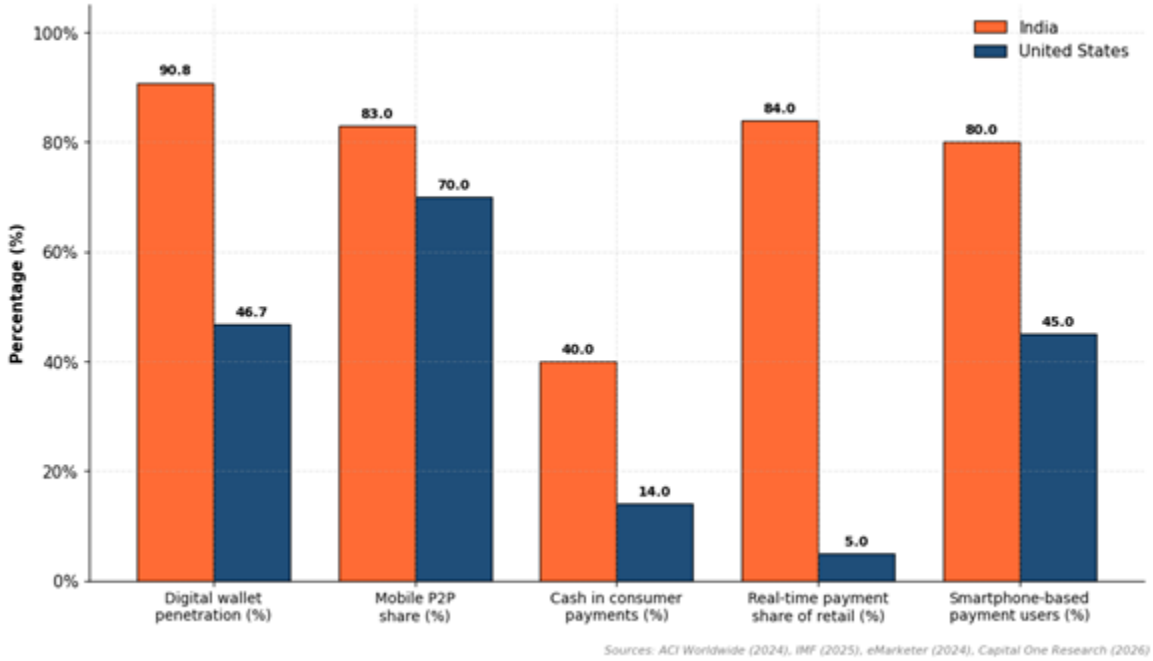
The United States presents a contrasting pattern. As shown in Figure 2, the evolution of the US consumer payment mix between 2016 and 2024 was gradual and additive rather than disruptive. The shares of payments made with cash declined significantly by two percentage points from 16 percent in 2023 to 14 percent in 2024, while payment cards retained their dominance, representing two-thirds of payments by number. Mobile and digital wallet payments fuelled growth in the overall number of payments, though within this evolving landscape cash use

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

remained stable at an average of seven payments per month, a number unchanged since 2020. Digital wallets in the US supplemented an existing diverse ecosystem — credit cards, debit cards, ACH transfers, and cheques — rather than replacing cash as the primary alternative, as UPI did in India (2025 Diary of Consumer Payment Choice | Federal Reserve Financial Services, n.d.). The US transition is best characterised as gradual portfolio diversification driven by consumer preference and private-sector competition, rather than infrastructure-level disruption or policy mandate.

Figure 3: India vs USA — Digital Payment Indicators (2024)



The structural consequences of these divergent trajectories are visible in the 2024 cross-sectional comparison presented in Figure 3. India's digital wallet penetration stands at 90.8 percent against the United States' 46.7 percent (ACI Worldwide, 2024; eMarketer, 2024). India's real-time payments had an 82.1 percent share of all electronic payments, reflecting the fact that UPI operates as an interoperable real-time rail available to all banks and platforms, whereas real-time payment infrastructure in the US remains fragmented, accounting for just 5 percent of retail transactions (ACI Worldwide, 2024). The one indicator on which the US records a lower value in a directionally positive sense is cash in consumer payments, at 14 percent against India's 40 percent, which reflects the longer historical penetration of card-based payment infrastructure in the American market rather than greater digital payment maturity per se (IMF, 2025; 2025 Diary of Consumer Payment Choice | Federal Reserve Financial Services, n.d.).

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

Taken together, these three figures establish the empirical context for this study. India has achieved greater digital payment penetration by volume, velocity, and infrastructural ubiquity within a shorter timeframe, driven by a government-built, interoperability-first platform. The United States has achieved significant but more gradually distributed digital payment adoption, shaped by decades of private-sector infrastructure and consumer-driven platform competition. Both countries now host large populations of experienced digital payment users, the population this study targets, but the experience of using digital payments, the platforms involved, the policy environment, and the incentive structures differ substantially. The central question this study asks is whether these structural differences translate into measurable differences in how users perceive their digital payment platforms, or whether the convergent experience of routine digital payment use produces comparable perceptual profiles regardless of the ecosystem in which that experience occurs.

Data Collection and Methodology

The design of this study was quantitative (survey) with a cross-sectional approach. The primary data was gathered from the 61 respondents in two countries; 31 respondents were from India and 30 respondents were from the U.S.A. The data collection process was carried out by using a structured questionnaire which was provided in the form of a Google Form questionnaire and distributed using the snowball sampling technique both personally and professionally. Targeted response included a diversity in sample. The survey was carried out from February 2026 to April 2026. The questionnaire consisted of 16 questions in two categories. The first section had four questions and gathered information on age group, annual household income, education level, and geographic region. Questions 5–9 explored digital payment usage behaviour, including frequency of use, platform preference, main use cases, percentage of transactions made digitally and duration of digital payments adoption. Each of the six perceptual items (ten to sixteen) on the five-point Likert scale and the binary Yes/No question was the perceptual core of the survey. The six Likert items were used to measure the following constructs: ease of use (Q10), trust in platforms (Q11), concern about fraud and data privacy (Q12), confidence in government rules and regulations (Q13), influence of cashbacks and rewards on platform choice for payments (Q14), and overall satisfaction with the digital payment ecosystem (Q15). Respondents were asked Q16 whether or not they had stopped using a platform due to some negative experience, including fraud or technical issues. To avoid the possibility of uniformity in response style, the direction of the anchor labels was reversed in two of the six Likert items in this study. On question Q13 (Do you feel safer because of government policies and regulations?): Higher raw scores on this question indicated distrust rather than trust in government policies and regulations, with 1 = I trust the protections in government policies and regulations and 5 = I feel unsafe, even with the protections in government policies and regulations. Q14 (Does cashback and rewards

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

influence your platform choice?) had a 1 = Yes and a 5 = No, with higher raw scores representing lower cashback motivation. In the directionality of all six items towards data cleaning, it was ensured by reverse scoring Q13 and Q14 with the formula: adjusted score = 6 – raw score. This transformation maintains the ordinal structure of the data, but makes each of the six items consistent so that a score of 5 indicates the most positive or affirming response. Adjusted scores were used for all subsequent analyses of Q13 and Q14.

Tests Performed on the Primary Data

Normality test: All six Likert items were tested for normality for both groups before selection of a comparison test. This test was chosen because it is a suitable test for small to medium sample sizes. The null hypothesis for each test was normality of the data. The distribution of all twelve tests was found to be significantly different from normal distribution (all p values < 0.05) in both groups. This is consistent with the nature of the Likert scale data, which often suffers from ceiling/floor effects and generally doesn't have a bell curve distribution. Based on the results of these outcomes, parametric tests like independent samples t-test were not used. Comparisons were made between the responses of India and US on each of the six Likert items using the following main comparison tests.

Mann-Whitney U test. Mann-Whitney U test is a non-parametric test of the independent samples t-test based on the hypothesis that the ranks in one group are systematically higher than the ranks in the other group. N1 and N2 were the sample sizes for the two groups; the sum of the ranks for the first group (R1) was used in the calculation of the test statistic U, which was defined as n1 times n2 plus n1 times (n1 plus 1) divided by 2 minus R1. Throughout the entire study, a two-sided alternative hypothesis was employed, and a criterion of $p < 0.05$ was set as the level of significance. Effect size was determined by the formula for the rank-biserial correlation r = 1 - 2U/n1*n2. Effect sizes were interpreted as negligible (below 0.10), small (0.10 to 0.29), medium (0.30 to 0.49), or large (0.50 and above). In doing so, the Chi-Square test would have been unreliable, as the expected cell size for at least one cell was smaller than 5, in this case the size of the cell for the variable bad experience. For this reason, **Fisher's Exact Test** was used instead of the Chi-Square test for analysis of the binary bad experience variable (from Q16). Fisher's Exact Test calculates the exact p-value of the table or a more extreme table given the null hypothesis of independence. Internal consistency was measured using **Cronbach's Alpha Test** for the six item Likert scale to determine the reliability of the items as a composite scale. The internal consistency threshold is normally considered at 0.70. If a value is less than this, the items are not measuring the same construct and should not be summed into one index. Further, the pairwise relationship of the six Likert items across the countries was analysed using **Spearman rank correlation**. Spearman's rho is a correlation measure for ordinal data, and uses ranks instead of the data values.

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

Results

The demographic profile of the Indian sample showed that 74 per cent of the respondents belonged to the 45-60 year, 87 per cent said that their annual family income was more than 50 lakhs and 90 per cent said they had some qualification up to graduate level. 55% of all Indian respondents said that over 75% of their transactions were conducted digitally, while 100% of them said they use digital payments daily. Google Pay and Paytm were the two most popular platforms. The profile of the US sample was: 47 percent 45-60 years, 43 percent 35-44 years, 67 percent had an annual income of more than five lakh dollars and 93 percent had a graduate education. 50% of US respondents used digital payments every day, while the other half used them weekly or less often. Apple Pay, Zelle, Venmo and PayPal were the most popular platforms. The above demographic factors suggest that this sample was a convenience sample of middle aged upper middle class individuals and that the results may not be generalizable to national populations. All results of the statistical tests are detailed in tables 1 to 7 in the statistics section attached. Summaries of the important findings from each test are provided in the following paragraphs. Table 1 reports the mean, standard deviation, and median for each of the six adjusted Likert items disaggregated by country.

Table 1: Descriptive Statistics (Mean, Median & Standard Deviations)

Question	India Mean	India SD	India Median	US Mean	US SD	US Median
Q10 Ease of use	4.806	0.749	5.0	4.700	0.877	5.0
Q11 Trust in platforms	4.065	1.031	4.0	4.233	1.006	5.0
Q12 Safety from fraud	3.194	1.223	3.0	3.433	1.040	3.0
Q13 Regulatory confidence (adj.)	2.935	1.093	3.0	3.167	1.341	3.0
Q14 Cashback influence (adj.)	2.323	1.447	2.0	3.000	1.554	3.0
Q15 Overall satisfaction	4.548	0.506	5.0	4.400	0.770	5.0

Note. SD = Standard Deviation. Adjusted means are reported for Q13 and Q14. All items on a 1 to 5 scale where 5 is most positive.

Means scores in both groups are at a high level for ease of use (India 4.806, US 4.700) and overall satisfaction (India 4.548, US 4.400), suggesting respondents in both countries are generally comfortable with and satisfied with their payment methods. Both groups had moderate

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

to high levels of trust (India 4.065; US 4.233). Safety perception scores were moderate (India 3.194, US 3.433); regulatory confidence scores were slightly below the midpoint of the scale for India (2.935), indicating some level of uncertainty about the protective impact of government policy. The biggest mean difference was for cashback influence, with the adjusted mean for India being 2.323 compared to 3.000 for the US, suggesting that cashback incentives were less important when choosing a platform in India. The Shapiro-Wilk test was applied to each of the six Likert items in both groups before selecting a comparison test. It determines whether data follows a normal distribution, which governs the choice between parametric and non-parametric tests.

Table 2: Shapiro-Wilk Normality Tests

Question	India W	India p	Normal?	US W	US p	Normal?
Q10 Ease of use	0.287	< 0.001	No	0.400	< 0.001	No
Q11 Trust in platforms	0.795	< 0.001	No	0.750	< 0.001	No
Q12 Safety from fraud	0.907	0.011	No	0.910	0.015	No
Q13 Regulatory confidence	0.910	0.013	No	0.905	0.011	No
Q14 Cashback influence	0.818	< 0.001	No	0.860	0.001	No
Q15 Overall satisfaction	0.635	< 0.001	No	0.724	< 0.001	No

Note. W = Shapiro-Wilk statistic. Significance threshold p < 0.05. H0: data is normally distributed. All 12 tests rejected H0.

All twelve normality tests yielded p values < 0.05 and all six Likert items did not follow a normal distribution in either group (Table 2). However it is this finding which means that it is appropriate to use Mann-Whitney U test for comparing all other pairs. The Shapiro-Wilk test produces a statistic W between 0 and 1. W close to 1 indicates near-normal data. If $p < 0.05$, normality is rejected and non-parametric tests must be used. All 12 tests returned $p < 0.05$, confirming non-normality across all questions and both groups. This is expected for 1 to 5 rating scale data, which is discrete and bounded and typically produces skewed distributions rather than bell curves. This finding conclusively justifies using the Mann-Whitney U test rather than the independent samples t-test for all group comparisons. The Mann-Whitney U test compares the two groups by ranking all 61 combined observations and evaluating whether one group's ranks

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

are systematically higher than the other's. It was selected because all Shapiro-Wilk tests in Table 2 returned $p < 0.05$, ruling out parametric alternatives.

Table 3: Mann-Whitney U Test — India vs US

Question	India adj. mean	US adj. mean	U statistic	p-value	Significant?	Effect r	Effect size
Q10 Ease of use	4.806	4.700	483.5	0.639	No	−0.040	Negligible
Q11 Trust in platforms	4.065	4.233	418.0	0.468	No	0.101	Small
Q12 Safety from fraud	3.194	3.433	407.5	0.396	No	0.124	Small
Q13 Regulatory confidence	2.935	3.167	413.0	0.445	No	0.112	Small
Q14 Cashback influence	2.323	3.000	347.0	0.081	No	0.254	Small
Q15 Overall satisfaction	4.548	4.400	491.5	0.671	No	−0.057	Negligible

Note. Adjusted means reported for all questions. Significance threshold $p < 0.05$. Effect size r = 1 minus 2U divided by n1 times n2. Interpretation: $|r| < 0.10$ negligible, 0.10 to 0.29 small, 0.30 to 0.49 medium, 0.50 and above large. Negative r indicates US scores higher after adjustment.

Table 3 shows the Mann-Whitney U tests for the six comparisons; none of these were significant at the $p < 0.05$ level. The tests gave the following results. Q10 ease of use: U = 483.5, p = 0.639, r = minus 0.040 (negligible effect). Q11 trust: U = 418.0, p = 0.468, r = 0.101 (small effect). Q12 safety from fraud: U = 407.5, p = 0.396, r = 0.124 (small effect). Q13 regulatory confidence: U = 413.0, p = 0.445, r = 0.112 (small effect). Q14 cashback influence: U = 347.0, p = 0.081, r = 0.254 (small effect, approaching significance). Q15 overall satisfaction: U = 491.5, p = 0.671, r = minus 0.057 (negligible effect). For each of the six questions, the null hypothesis was not rejected.

The U statistic measures how many times an India observation outranked a US observation. A U near the midpoint of 465 indicates no difference. Effect size r captures the practical magnitude of the difference independent of sample size. The null hypothesis was not rejected for any of the six questions. The closest result to significance was Q14 (p = 0.081, r = 0.254), indicating a

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

directional trend where US respondents appear more influenced by cashback rewards than Indian respondents. This did not reach significance at the current sample size but is the most contextually meaningful finding of the study.

Table 4: Q16 Bad Experience — Fisher's Exact Test

Q16 is a binary Yes or No variable. Fisher's Exact Test was used rather than Chi-Square because expected cell frequencies fell below 5, making the Chi-Square approximation unreliable.

	No bad experience	Bad experience	Row total	Bad experience rate
India (n = 31)	28	3	31	9.7%
US (n = 30)	24	6	30	20.0%
Column total	52	9	61	14.8%

Note. Expected frequency for bad experience cells: India = 4.57, US = 4.43. Both below 5. Fisher's Exact Test p = 0.301. H0 not rejected.

Three (9.7 percent) of the 31 Indian respondents and six (20.0 percent) of the 30 US respondents indicated that a negative experience made them discontinue their usage of a platform, according to the data in Q16 bad experience (Table 4). Fisher's exact test gave a p value of 0.301, shown as being not statistically significant. The null hypothesis, that there was no difference in bad experience rates between the two countries, was not rejected.

Table 5: Cronbach's Alpha — Internal Consistency

Cronbach's Alpha assesses whether the six Likert items collectively form a reliable unified scale. Values above 0.70 indicate acceptable internal consistency.

Group	Cronbach alpha	Threshold	Assessment	Implication
India (n = 31)	0.514	0.70	Below threshold	Analyse each item independently. Do not aggregate.
US (n = 30)	0.246	0.70	Below threshold	Analyse each item independently. Do not

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

Group	Cronbach alpha	Threshold	Assessment	Implication
				aggregate.

Note. Formula: alpha = k/(k-1) times (1 minus sum of item variances divided by total score variance), where k = 6.

Cronbach's Alpha (Table 5): India got 0.514 and the US got 0.246. The six Likert items do not provide a reliable composite scale, since both of these values are less than the conventional 0.70. In each of the items in this study we interpret different constructs.

Table 6: Spearman Rank Correlation — India (n = 31)

Spearman's rho measures the strength and direction of the relationship between pairs of ordinal variables. Values range from minus 1 to plus 1. Spearman is used rather than Pearson because Likert data is ordinal and non-normal.

India	Q10	Q11	Q12	Q13r	Q14r	Q15
Q10 Ease of use	1.000	0.461	0.244	−0.057	0.227	0.127
Q11 Trust	0.461	1.000	0.518	0.024	0.297	0.202
Q12 Safety	0.244	0.518	1.000	0.197	−0.157	0.418
Q13r Regulatory conf.	−0.057	0.024	0.197	1.000	−0.014	0.218
Q14r Cashback	0.227	0.297	−0.157	−0.014	1.000	−0.004
Q15 Satisfaction	0.127	0.202	0.418	0.218	−0.004	1.000

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

Table 7: Spearman Rank Correlation — United States (n = 30)

US	Q10	Q11	Q12	Q13r	Q14r	Q15
Q10 Ease of use	1.000	0.393	−0.144	−0.092	0.038	0.130
Q11 Trust	0.393	1.000	0.237	−0.051	−0.006	0.263
Q12 Safety	−0.144	0.237	1.000	0.158	−0.287	0.459
Q13r Regulatory conf.	−0.092	−0.051	0.158	1.000	0.342	−0.014
Q14r Cashback	0.038	−0.006	−0.287	0.342	1.000	−0.347
Q15 Satisfaction	0.130	0.263	0.459	−0.014	−0.347	1.000

Note. Notable correlations (|rho| > 0.30): Q10 and Q11 = 0.393; Q12 and Q15 = 0.459; Q13r and Q14r = 0.342; Q14r and Q15 = minus 0.347.

Spearman correlations (Tables 6 and 7): In Indian samples, there were significant positive correlations between ease of use and trust (rho = 0.461); trust and safety perception (rho = 0.518); and, safety perception and satisfaction (rho = 0.418). In the US sample, there were some notable correlations, such as ease of use and trust (rho = 0.393), safety perception and satisfaction (rho = 0.459), and a significant negative correlation between cashback influence and satisfaction (rho = minus 0.347). This is the last finding that is discussed further in the discussion section.

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

Table 8: Summary of Hypothesis Test Outcomes

The table below consolidates all seven null hypotheses, the test used, the key statistic, and the outcome.

Question	Null hypothesis (H0)	Test used	Statistic	p-value	Decision
Q10 Ease of use	No difference in ease of use between India and US	Mann-Whitney U	U = 483.5	0.639	H0 not rejected
Q11 Trust	No difference in platform trust between India and US	Mann-Whitney U	U = 418.0	0.468	H0 not rejected
Q12 Safety	No difference in safety perception between India and US	Mann-Whitney U	U = 407.5	0.396	H0 not rejected
Q13 Regulatory confidence	No difference in regulatory confidence between India and US	Mann-Whitney U	U = 413.0	0.445	H0 not rejected
Q14 Cashback influence	No difference in cashback motivation between India and US	Mann-Whitney U	U = 347.0	0.081	H0 not rejected. Directional trend observed.
Q15 Overall satisfaction	No difference in satisfaction between India and US	Mann-Whitney U	U = 491.5	0.671	H0 not rejected
Q16 Bad experience rate	No difference in bad experience rates between India and US	Fisher's Exact	—	0.301	H0 not rejected

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

Discussion

This study's key finding is that the digital payment users in India and the US are not that different from one another when it comes to the six perceptual dimensions measured in this study. While the payment systems are quite different and based on UPI in India, and a more fragmented, private industry-driven system in the United States, respondents in both countries indicated similar scores for ease of use, trust, perception of safety, regulatory confidence, and overall satisfaction. No Mann-Whitney U comparisons were significant at $p<0.05$, so the null hypothesis was not rejected in any.

This is consistent with the wider argument in fintech adoption literature that once a critical percentage of adoption is reached, perceptions of the maturity of digital payment platforms start to coalesce across different markets. As users grow more familiar with the platform, many have been using digital payments for over five years, with a majority of Indian users (52 per cent) and US users (63 per cent) reporting that they were experienced users, usability and satisfaction levels reach similar levels across different platform architectures. Supporting this interpretation, the mean scores on ease of use (India 4.806, US 4.700) and satisfaction (India 4.548, US 4.400) were found to be nearly identical.

The most theoretically interesting finding is that the cashback and rewards influence is different across directions on Q14. This difference was not statistically significant ($p = 0.081$), the adjusted mean difference between the US (3.000) and India (2.323) is the maximum mean difference for all six constructs. More US respondents said cashback and rewards affected their decision to use a digital payment platform. This is an observation that falls within the context. The rewards programmes, cashback incentives and the integration with the existing credit infrastructure have historically been a key part of how competition has been fueled by digital payment providers such as credit card networks, PayPal, Venmo, Zelle and Apple Pay in the United States. Perhaps it's fair to say that in the United States, people base some of their assessments of financial products on the rewards they receive for them. In contrast, India's UPI ecosystem has been designed as a public infrastructure project and is built around interoperability and accessibility, with a convenience factor being a primary consideration, rather than around competition for rewards. Policy-level change, like demonetising, also helped to accelerate the uptake of UPI by making it necessary for users and adding infrastructure, rather than incentivising it.

This is complicated by the negative correlation between cashback influence and satisfaction in the US sample (rho = minus 0.347). The US respondents who said that cashback was more of an

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

influence on their decision tended to say they were less satisfied overall. A potential theory is that users who are motivated by rewards use a more critical evaluative lens to their platforms, and demand higher performance as a result of the incentives they have from users. The other interpretation is that users show reward-driven switching behaviour i.e. users are switching from one platform to another in order to get a better reward, which can lead to lower satisfaction levels with any particular platform. This relationship is not seen in the Indian sample (rho = minus 0.004), and as platform choice is less reward-contingent, it might not be reflected in this relationship.

The safety dimension and the regulatory confidence dimension had the lowest average scores in both groups. The India regulatory confidence score (adjusted mean 2.935) was also somewhat low in comparison to the scale midpoint of 3, meaning respondents in the country were somewhat uncertain of the protection they received from government policies and regulations with respect to their use of digital payments. The US score (3.167) was just slightly higher than the middle point. These results indicate that regulatory trust is a relatively immature aspect of satisfaction with digital payments across the two markets and is potentially an area for policy action. This aligns with existing literature that points out perceived regulatory protection is a major barrier to continued fintech adoption especially in emerging markets but one that is often not met.

The "bad experience" data for the Q16 is not statistically significant, but a direction should be noted. 20% of the US respondents had a negative experience that resulted in their discontinuing a platform, versus 9.7% of Indian respondents. The observation would suggest that the multiple payment platforms, which have different levels of security, and the fragmented payment system in the United States is an environment that poses a greater risk of bad payment experiences to users than a more standardised system like UPI in India. At this sample size, however, this observation does not lead to any causal or generalisable conclusion as the Fisher's Exact result is $p = 0.301$.

The Spearman correlation results show a consistent structural finding in both countries, namely that satisfaction with overall service (Q15) has the greatest positive correlation with safety knowledge (Q12) for both India (rho = 0.418) and the U.S. (rho = 0.459). In both cultural and infrastructural settings, the safety of the user using a digital payment platform is the top determinant of the user's satisfaction. For platform developers and regulators, this means that investment in a visible and well-communicated security measure could return more user satisfaction than investment in extra features, or reward programmes, alone. The correlation between trust and ease of use is also similar across both groups (India rho = 0.461 and the US rho = 0.393), suggesting that ease of use is also correlated with trust in platforms. The

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

relationship of usability and trust is well established in the TAM literature, and it has been reproduced in both markets in this study, which in turn helps establish its generalisability.

This study has some other limitations that need to be taken into consideration. First, both samples are convenience samples and findings cannot be generalised to younger, or lower income, or rural groups in either country. Second, the minimum sample size requirement for detection of medium effect sizes is still considered below the 0.80 threshold and so failure to reject the null hypothesis could, in part, be due to a lack of sample size and not necessarily a lack of differences. Third, the survey instrument was designed to assess the Indian context and was administered in the United States without being adapted, potentially causing measurement equivalence issues with some items. Fourth, the study used a single-time cross-sectional design to observe user perceptions at one specific moment, thereby restricting the ability to draw conclusions on changes in perceptions based on the maturity of the platform and/or changes in policy.

Conclusion

This study aimed to investigate if there are significant differences in adaptability in making payments using digital between India and the United States, and how the users perceive this adaptability. Based on a survey of 61 respondents across both countries and various non-parametric statistical techniques, the study reveals statistically similar views on ease of use of digital payments, trust in the platform, platform safety, regulatory confidence, cashback motivation and overall satisfaction of both populations.

For all six Likert scale comparisons, the null hypothesis was not rejected, suggesting that within the current sample and demographic profile representing upwardly mobile Indians and Americans, the digital payments adoption cannot be statistically differentiated on perceptual dimensions. There may be some significant distinctions between U.S. and non-U.S. users in terms of their level of motivation for cashback, and this is the case where the movement in each direction is strongest. This discovery is in line with the historical and structural differences between the two ecosystems, the Indian UPI ecosystem being based on public infrastructure and access, and the US market being based on private competition and consumer incentive design. Overall, the most policy-relevant results in both markets is that regardless of private or public infrastructure, users value safety perception as the most important determinant of overall satisfaction in both groups, with visible and effective security infrastructure being the highest-return investment for digital payment platforms in both countries.

Future studies need to take into account the limitations of this study by incorporating additional user segments (younger, rural and lower income) in both countries, making the survey

ISSN: 2455-8834

Volume:11, Issue:06 "June 2026"

instrument culturally equivalent and using longitudinal designs to follow up how perceptions change over time. Other constructs, including platform-specific trust and social influence, perceived financial literacy, and financial knowledge would enhance the framework for comparison. The cross-cultural comparative study will be more relevant than ever as the digital payment systems in India and the U.S. continue to develop, both for platform design and for policy.

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ISSN: 2455-8834

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