

# Payment Preference and Digital Infrastructure: A Quantitative study of UPI vs Cash among College Students



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## ABSTRACT

The current research paper examines payment options of Unified Payments Interface (UPI) over cash among 70 undergraduate students of SCD Government College, Ludhiana. Demographic data, internet and smartphone access, and UPI-related bank accounts, frequency of payment, self-reported convenience and trust and issues regarding both payment methods were gathered using a standardised Google Forms questionnaire. Descriptive analysis indicates high digital readiness: 95.7% of people own smartphones, 91.4% of people have access to the internet, and 88.6% of people have accounts related to UPI. 68.6% of the participants selected UPI for everyday payments, while cash was still better for low-value transactions and some transactions that took place offline. A Chi-square test of independence was conducted on payment preference and possessing a UPI-linked account, yielding a value of 7.96 at degree of level 1, at 5% level of significance; this contextualize strategic strengths and impediments as illustrated by SWOT and ETOP analysis. Findings indicate that digital preparedness, specifically digital infrastructure, is strongly inclined toward UPI preference. Improving campus connectivity, providing digital literacy classes and confidence-building would facilitate the broader adoption.

Keywords: UPI; Cash Payments; Payment Preference; Chi-square Test; Digital Readiness; Students; Ludhiana

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## INTRODUCTION

Over the last few years, the Indian payment environment has been evolving at a very high rate, due to the invention of online solutions such as Unified Payments Interface (UPI). The National Payments Corporation of India (NPCI) introduced UPI, which has become a popular form of peer-to-peer and merchant payments, especially to young generations that are highly reliant on smartphones and mobile internet connectivity. Despite the digital revolution, cash

continues to play a significant role in daily transactions, namely when the amount is low and the digital infrastructure is not adequate. In the case of college students, small purchases like meals, stationery, and local travelling may take up a significant daily amount of money that lacks value. The decision they make between UPI and cash is depending on a variety of factors access to technology, perceived convenience, trust in the digital systems and personal habits. The target of this research is undergraduate students in SCD Government College, Ludhiana, to comprehend their preferences regarding payment and the motivation behind them. The research aims at determining the most appropriate payment method to be used by this group by analysing digital readiness, usage patterns, the perception towards trust and convenience. Strategic frameworks like SWOT and ETOP analysis are also included in the study to put both the strength and challenges of the two modes of payment in perspective. Although the previous research has shown that UPI has become increasingly popular with urban youth, the given study contributes to the existing body of literature by investigating payment behaviour within a semi-urban college context. The findings are expected to offer insights into digital adoption trends and inform strategies for promoting financial inclusion and digital literacy among students.

**Hypothesis Formulation**

The null hypothesis framed is: There is no association between students’ payment preference and digital infrastructure access.

The alternate hypothesis framed is: There is an association between students’ payment preference and digital infrastructure access.

**Methodology**

This study is based on descriptive survey design and is quantitative in nature. The target population of this study includes under graduated students of SCD Government College, Ludhiana. The questionnaire has been opted to take the responses. The Google form was created and circulated through the social media sites such as WhatsApp, E-mail etc. The questionnaire had questions related to demographics, availability of digital infrastructure, frequency and preference of usage of UPI vs cash, perception of trust, convenience and security and problems faced with either method. In total 70 properly filled responses were collected and considered for study. The analysis has been done using descriptive and inferential statistics. For the same Chi-square test are used.

**RESULTS & ANALYSIS**

The following results obtained from the questionnaire:

Access to Digital Infrastructure		
Indicator	Count	Percentage
Smartphone Ownership	67	95.7%
Internet Access	64	91.4%
UPI-Linked Bank Account	62	88.6%

Payment Preference		
Method	Count	Percentage
UPI	48	68.6%
Cash	16	22.9%

Both Equally	6	8.6%

Frequency of Use

Frequency	UPI Users	Cash users
Daily	32	18
Weekly	10	20
Occasionally	6	24
Never	4	8

Perceptions of Convenience and Trust

Category	UPI Users	Cash Users
More Convenient	50	20
More Trustworthy	28	22
Reported Issues	18	12

Issues Faced

- UPI: App crashes, delayed transactions, incorrect debits (26%)
- Cash: Lack of change, theft risk, inconvenience (17%)

Observed contingency table (derived from questionnaire responses)

Payment Preference	UPI-linked Account: Yes	UPI-linked Account: No	Row Total
UPI preferred	46	2	48
Non-UPI (Cash or Both)	16	6	22
Column Total	62	8	70

**Note:** Non-UPI groups cash and both equally together as one category to create a 2x2 table for the Chi-square test.

Expected count formula:  $E = (\text{row total} \times \text{column total}) / n$

- $E(\text{UPI, Yes}) = (48 \times 62) / 70 = 42.514$
- $E(\text{UPI, No}) = (48 \times 8) / 70 = 5.486$
- $E(\text{Non-UPI, Yes}) = (22 \times 62) / 70 = 19.486$
- $E(\text{Non-UPI, No}) = (22 \times 8) / 70 = 2.514$

All the expected counts are presented in the table below, along with observed counts:

Cell	Observed (O)	Expected (E)
UPI & Yes	46	42.514
UPI & No	2	5.486

Non-UPI & Yes	16	19.486
Non-UPI & No	6	2.514

Cell-by-cell contributions to  $\chi^2 = (O - E)^2 / E$

Cell	$\chi^2 = (O - E)^2 / E$
UPI & Yes	$(46 - 42.514)^2 / 42.514 = 0.286$
UPI & No	$(2 - 5.486)^2 / 5.486 = 2.216$
Non-UPI & Yes	$(16 - 19.486)^2 / 19.486 = 0.624$
Non-UPI & No	$(6 - 2.514)^2 / 2.514 = 4.830$

Sum of contributions:  $\chi^2 = 0.286 + 2.216 + 0.624 + 4.830 = 7.956$  & degree of freedom is  $(2 - 1)(2 - 1) = 1$ . The p-value of chi square as per the table is 3.84 at 5% level of significance; hence the association is statistically significant at the 5% level

Chi-square test finding -there is a significant relationship between having a UPI-linked account and liking UPI. Chi-square tests reject the null hypothesis of independence. Payment preference among students is statistically associated with whether they hold a UPI-linked bank account or not. Students who hold UPI-linked accounts are strongly more likely to favour UPI for daily transactions than non-UPI-linked account holders.

**SWOT Analysis**

Aspect	UPI Payment	Cash Payment
Strengths	Fast, convenient, traceable	Universally accepted, simple to use
Weaknesses	Requires internet, risk of fraud	No digital record, theft risk
Opportunities	Government push, cashback offers	Useful in low-tech settings
Threats	Technical glitches, trust issues	Declining relevance in digital economy

**ETOP Analysis**

Factor	UPI Payment Impact	Cash Payment Impact
Economic	Supports digital economy	Dominant in informal sectors
Technological	Dependent on smartphones and internet	No tech required
Social	Peer influence, growing trust in digital systems	Familiarity and habit
Political	Strong government support	Affected by demonetization and digital push

**CONCLUSION & RECOMMENDATIONS**

This study indicates that due to reasons like convenience, speed and universal availability of smartphones and internet, UPI is the preferred method for daily payments. Cash plays major role in case of small value transactions and where internet or smartphones are not available. Although most of the students are digitally enabled with smartphone access,

internet and bank account linkage with UPI-Issues of app breakdowns, errors in transactions, and security issues remain in existence. The SWOT and ETOP analysis also highlight that UPI has strategic benefits in terms of economic efficiency and technological innovation, but faces several threats in the areas of trust and reliability. On the basis of findings, some suggestions & recommendations to enhance digital payment adoption and financial inclusion among college students could be to conduct training sessions to familiarize the students regarding safe UPI usage and app interface. Hybrid payment system must be motivated and choice must depend upon the situation of users.

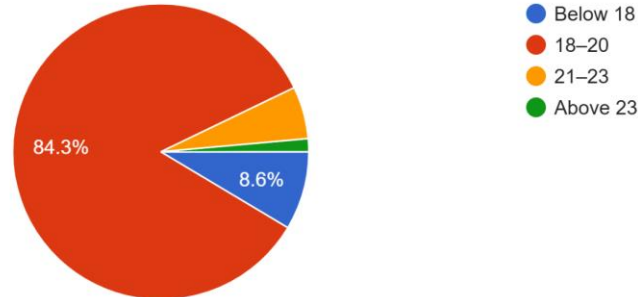
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ANNEXURE

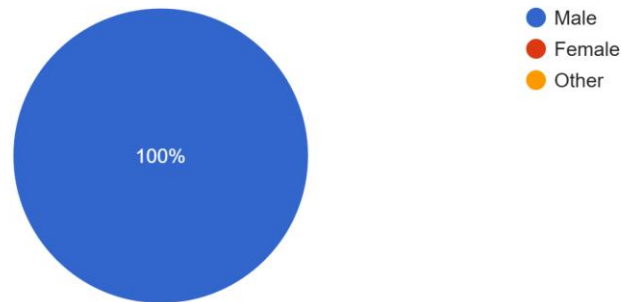
Section A: Basic Information 1. Age:

70 responses



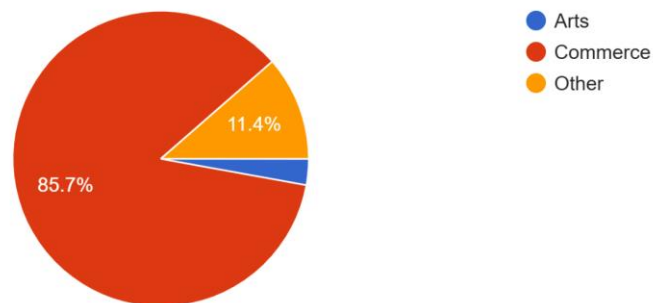
2. Gender:

70 responses



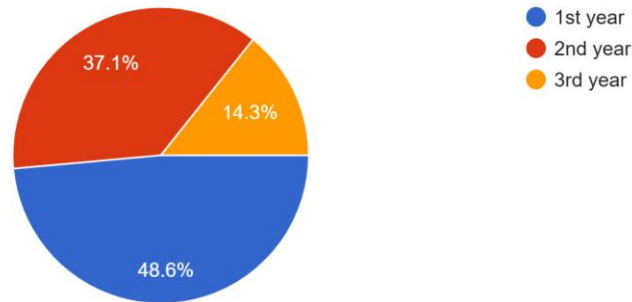
3. Course Stream

70 responses



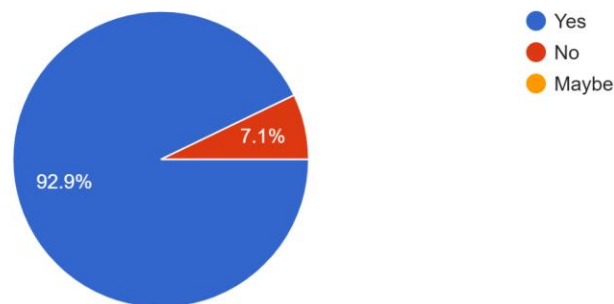
4. Year of Study:

70 responses



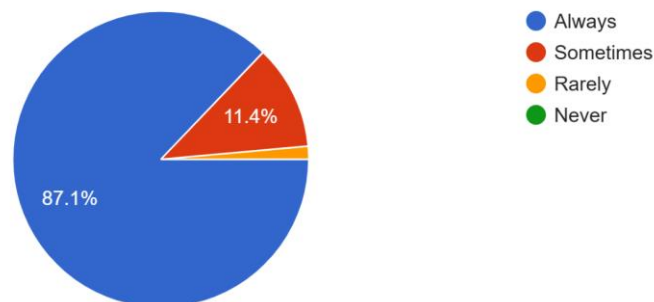
Section B: Payment Access 5. Do you own a smartphone?

70 responses



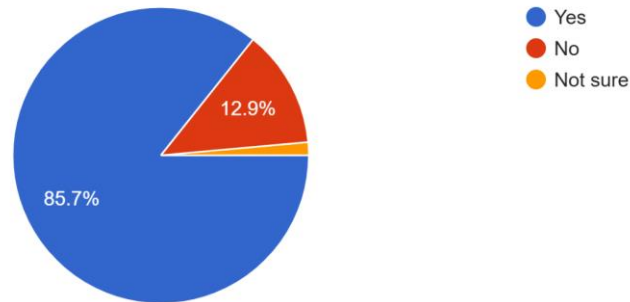
6. Do you have access to mobile internet/data?

70 responses



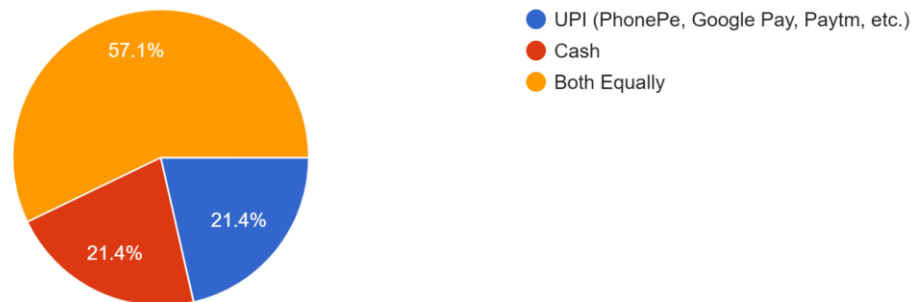
7. Do you have a bank account linked to UPI?

70 responses



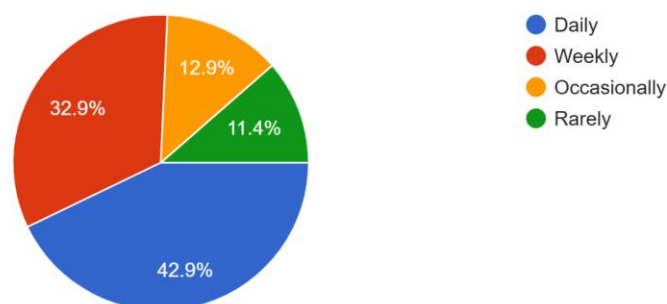
Section C: Payment Usage 8. Which payment method do you use most often for daily expenses (canteen, stationery, transport)?

70 responses



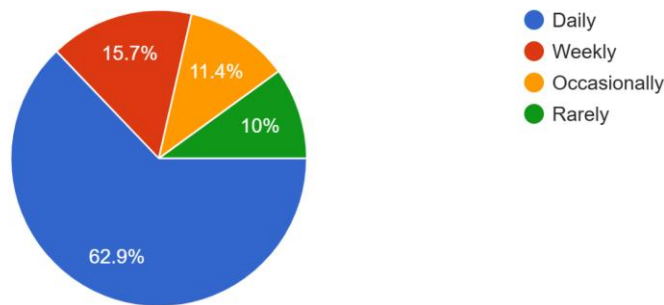
9. How frequently do you use UPI?

70 responses



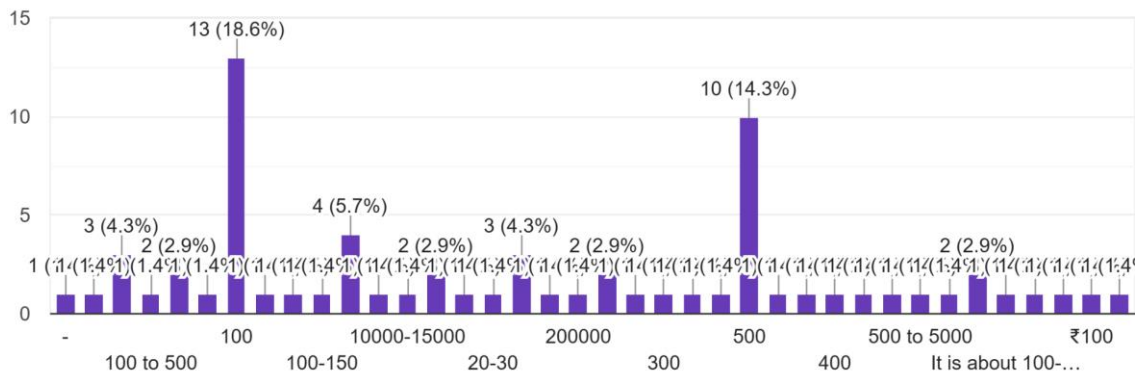
10. How frequently do you use cash?

70 responses



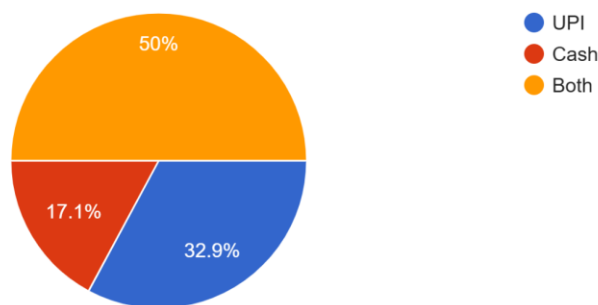
11. What is your average transaction amount?

70 responses



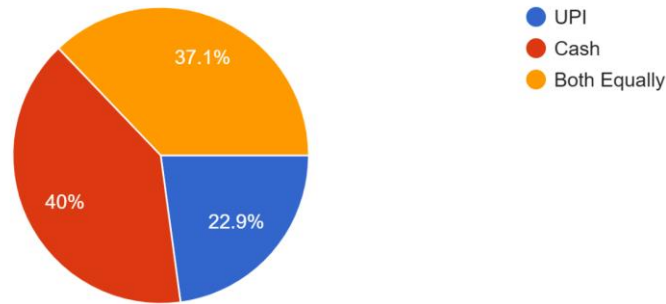
Section D: Preferences and Perceptions 12. Which payment method do you find more convenient?

70 responses



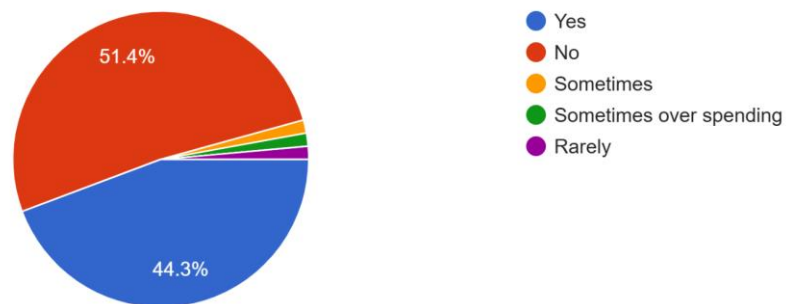
13. Which payment method do you trust more?

70 responses



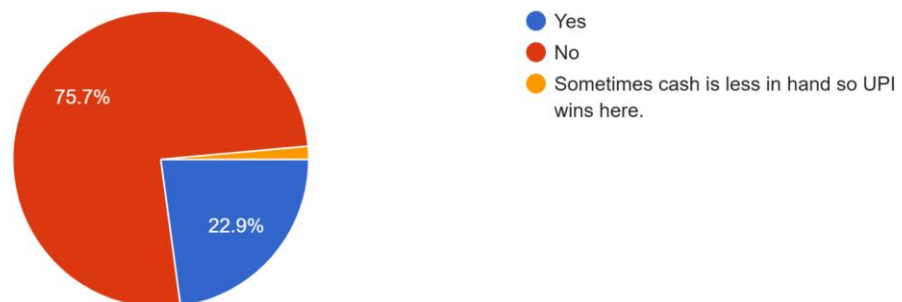
14. Have you ever faced issues while using UPI?

70 responses



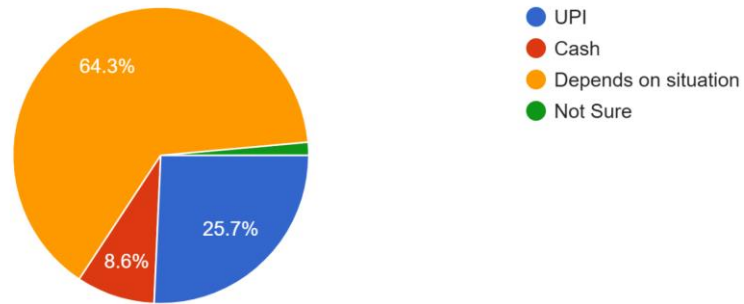
15. Have you ever faced issues while using cash?

70 responses



16. Which payment method do you think is best suited for students in your college?

70 responses



Section E: Final Opinion 17. If given a choice, which payment method would you prefer for all your college-related expenses?

70 responses

