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Understanding Factors Influencing UPI (Unified Payments Interface) user adoption levels and sentiments in India.

MSc Research Project
Fintech

Ruchik More
Student ID: x20234074

School of Computing
National College of Ireland

Supervisor: Mr. Victor Del Rosal

National College of Ireland

MSc Project Submission Sheet

School of Computing

Student Name: Ruchik More

Student ID: X20234074

Programme: Msc Fintech **Year:** 2022-23

Module: Msc Research Project

Supervisor: Mr. Victor Del Rosal

Submission Due Date: 8/14/2023

Project Title: Understanding Factors Influencing UPI (Unified Payments Interface) user adoption levels and sentiments in India.

Word Count:5071 **Page Count:**18

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Understanding Factors Influencing UPI (Unified Payments Interface) user adoption levels and sentiments in India.

Ruchik More
X20234074

Abstract

The Government of India in its initiative to bolster digital economy and cashless transactions came up with a novel and innovative idea of UPI (Unified Payments Interface), a digital platform for transactions facilitated through smart phone mobile applications. The move has prompted a sizable proportion of smartphone users to migrate from traditional methods of cash or even internet banking through web to the use of UPI. There have been a lot of driving factors in the decision making of the users to opt for the migration which can be attributed to transaction speed, the ease of convenience in the use, a simple and friendly user experience, cash back or other such offers from the UPI apps, as also the government policy to push for cashless economy. The study aims to find the motivation and the driving factors of the users to adopt this mode of transaction and what is their sentiment towards the same. The research studies prior literature and consumer behaviour towards UPI by conducting a survey on the end users of UPI. The study then analyses the relationship of various factors towards the UPI adoption and highlights what all factors are responsible for the adoption by using test of significance, viz: chi square test and hypothesis testing, followed by cross tabulation techniques and deriving inferential visualisations. The study draws a conclusion that a few factors like the transaction speed, convenience, The research was able to establish some relationship between few of the variables like transaction speed, ease of convenience, trust on the service, and its adoption perception introduced in the question, whereas for a few variables like the app selection, high value transactions, relationship wasn't established.

1 Introduction

In recent years, India has witnessed a transformative shift towards digital payments, revolutionizing the way financial transactions occur. At the forefront of this movement is the Unified Payments Interface (UPI), a revolutionary platform launched by the National Payments Corporation of India (NPCI).(MC and Shanmugam, 2023) UPI enables seamless real-time transactions through mobile devices, linking multiple bank accounts and creating a foundation for convenient, secure, and inclusive digital financial services. This paradigm shift holds profound implications for financial inclusion, technology adoption, and the overall economic landscape of the country. This research thesis examines the realm of UPI adoption and user sentiment in India, shedding light on the pivotal factors that influence the dynamics. By examining aspects such as gender, age group, and occupation, the study reveals how these demographics impact the way people have accepted UPI. Additionally, the research dissects

the crucial role of factors like security, transaction speed, and user experience in shaping users' attitudes and choices. Government initiatives also play a significant role in influencing UPI adoption trends.(Parbat et al., 2021) Through various analysis techniques the study tries to understand the usage frequency and adoption sentiment and aims to provide a comprehensive understanding of how these elements collectively shape the evolving UPI landscape. The research question that is asked to understand the adoption is 'What factors influence UPI user sentiment and adoption levels in India', which in effect studies underlying factors that have led to the adoption of UPI. The primary research objectives of the study are as follows:

To achieve the aforementioned objective, this research addresses the following:

I. Identify the factors that influence UPI user sentiment and adoption levels in the Indian context.
II. Understand the interaction between demographic variables, technological factors, and government initiatives in relaying UPI adoption trends.
III. Analyse the impact of factors such as security, transaction speed, user experience, and trust on users' attitudes towards UPI.

Research methodology implemented to carry out the research starts with primary data collection being undertaken with the help of Google forms and collecting responses on the basis of a structured questionnaire. The questionnaire addresses the relationship between the research question and the considered variables. An analysis is then undertaken using python for deriving statistical inferences using chi-square test of independence. Further a classification test was run using decision trees to draw significant conclusions in classifying the independent factors with respect to adoption levels and sentiments of the respondents. The findings highlighted that there was a correlation between few of the variables like, ease of convenience, trust on the service, transaction speed and its adoption perception, whereas for a few variables like the high value transactions, app selection, relationship wasn't established.

2 Related Work

Unified Payments Interface (UPI) has been nothing short of a boon to the Indian economy in digital payments ecosystems over the last 4-5 years. From a small vegetable merchant to a rich businessman, all have adopted UPI technology in India. The change in trend from cash to digital payments has been very interesting from 2016 onwards as different initiatives were strategized by the Indian government which led to the increased usage of UPI.(Thakkar and Thakkar, 2023) One of the major steps in this was the incorporation of NPCI (National

Payments Corporation of India), where, under their umbrella, UPI was incepted.("The payment systems revolution: India's story. - EBSCO," n.d.). Moreover, Boston Consulting Group and Google have explicitly mentioned that where cash appears cheaper than digital transactions, it must be corrected through government regulation. The committee believes that customers opt for payment methods that are mostly available and merchants prefer payment modes that drive customers to them. Therefore, adoption of digital payments by merchants and customers is equally important. (Gupta et al., 2020).

2.1 Demonetisation and its after effects

India after its demonetisation move in 2016, pushed the customers and merchants alike to go digital.(Memdani, 2020) Thus, we can observe a sharp growth in the use of UPI over a period of time in India as published by NPCI from 4.47 Mn in Jan 2017 after demonetisation to 9335.06 Mn in June 2023 ("Unified Payments Interface (UPI) Product Statistics | NPCI," n.d.). It is then a matter of research to understand and explore the latent factors that drive the adoption of UPI, apart from the government's directive to demonetise. In a developing country like India, the network of Wi-Fi and internet has facilitated to go cashless in the mode of transaction in an adequate manner. The late entry and growth of 'Jio' service by Reliance Industries further pushed the use of smartphones.(Vialle et al., 2020) Although, a stiff competition in the market has been posed by both private companies and government banks and organisations that target widespread audiences in using the services .("Factor Affecting Consumer Satisfaction in Cashless Payment Systems in India with Respect to Paytm and BHIM," 2019). Thus, the widespread adoption of the Unified Payments Interface (UPI) in India can be attributed to a convergence of factors that have redefined the digital payment landscape in the country. Its widespread adoption can be attributed to factors such as its unparalleled convenience, allowing users to easily conduct transactions using virtual addresses, and its interoperability, which ensures users can transact across various banks without constraints. (Bhasin, 2020). Ease in payment through UPI and the proposed availability of credit through it could boost its adoption. UPI also boasts real-time transaction capabilities. Furthermore, it's the platform's robust security mechanisms, such as two-factor authentication and UPI PINs, that have instilled user trust. (Kumar et al., 2020)

2.2 Factors of UPI

A study of UPI's user demographics would also reveal its broad appeal across different age groups, genders, and income levels. The user experience (UX) and interface design have played a critical role in UPI's success. A seamless UX, coupled with a simple interface, ensures user satisfaction and encourages continued adoption.(Saha and Kiran, 2022) Transparent communication about security and easy navigation further enhances user trust.

Efforts to educate the masses about the benefits of digital payments, complemented by incentives and collaborations, have fuelled UPI's growth. However, the platform is not without its challenges. Technical issues, including glitches leading to transaction failures, can sometimes undermine user confidence.(Madwanna et al., 2021) Addressing these challenges is crucial for the sustained success and growth of UPI in the digital economy and hence an analysis considering the aforementioned factors is required.

3 Research Methodology

The fundamental aim of this research is to identify and understand the factors influencing UPI user sentiment and adoption levels in India. The methodology presents the methods and procedures adopted to collect and analyse data pertinent to the research question.

1. Research Philosophy: Primary data are data collected that are for a specific research problem primarily at hand, using procedures that fit the research problem best. On every occasion where primary data are collected, new data are added to the existing store of knowledge (Hox and Boeije, 2005). The study follows the idea that people's user experiences and views determine their adoption levels and sentiments towards UPI. This approach is important for our research because it helps us understand how different individuals feel and think about using UPI. By recognizing that everyone might have a different perception while using the UPI apps as a payment method and that we can get a broader and richer understanding of UPI adoption.

2. Research Design: This study uses a research design which emphasizes by asking participants about their current perceptions, sentiments, and experiences with UPI, keeping in mind the factors of security, transaction speed, their user experience, government initiatives and their trust on the service.

3. Sampling Size and Selection: Given the primary data collection methodology of the study's target group, a convenience sampling technique was adopted. A total of 155 responses were gathered, using Google forms to record their responses and were then deemed appropriate to extract meaningful patterns while ensuring manageability.

4. Data Collection: Primary data was collected using a structured questionnaire, focusing on categorical responses to minimize ambiguity. Each question in the survey was carefully framed to capture nuances and depth, with options ranging from users' transaction frequency to their trust in UPI as a secure payment mode. Crucial factors which deemed to be important and which would affect the UPI adoption levels and sentiments of the user were carefully considered to be the dependent variables whereas transaction speed, security, trust, ease in convenience were kept as the independent variables from the respondents.

5. Reliability and Validity: To ensure the reliability, the questionnaire collected the email ids of the individual respondents to eliminate potential ambiguities. The respondents were informed beforehand about the confidentiality of their individual responses and that their responses would not be taken into consideration individually, rather the survey would be carried out in an aggregated manner. The questions were framed based on extant literature, enhancing content validity. Construct validity was maintained by ensuring each question served the purpose of our research question.

6. Method of Data Analysis: The following approach was adopted for data analysis:

- **Data Pre-processing**: In this stage, any potential duplicate responses were tackled and dealt with. Data was cleaned to omit incomplete or erroneously filled responses. The columns imported from the Google forms were then renamed to a more readable and relevant format. Also, in cases of multiple responses being recorded for particular questions, comma separated values were dealt with to be coherent and one which make sense.
- **Visualization:** Python, with its powerful libraries such as Matplotlib and Seaborn, was used to provide visual representations of the responses, offering insights into patterns, distributions, and relationships.
- **Statistical Analysis:** Descriptive statistics were generated using Python's Pandas library. Chi Square test for Test of independence was then carried out to determine the relationship between independent and dependent variables. Further, decision trees, employing the Scikit-learn library, were used to understand decision-making patterns and the relative importance of various factors affecting UPI adoption and sentiments.

7. Ethics Declaration: All participants were informed about the research's purpose, ensuring full transparency. Confidentiality and anonymity were guaranteed, and data was used strictly for academic purposes. Consent was acquired before data collection, and participants were informed of their right to withdraw at any stage.
Thus, a diligent planning and execution of this research methodology ensured comprehensive insights into the factors influencing UPI user sentiment and adoption in India. By utilizing a combination of visualization and advanced statistical methods, the study aims to understand user behaviour patterns and their driving factors.

4 Design Specification

1. **Questionnaire Formulation:** The foundation of the research was in the careful and thorough crafting of the questionnaire. The goal was to deep dive into user sentiment, and thus we started by questioning fundamental demographics such as gender, age, and occupation. This allows us to segment our respondents in later stages of analysis, potentially identifying patterns unique to certain groups. It was then followed by asking the respondents about their motivation and the driving factors behind the use of UPI. Factors such as convenience, speed of transactions, security features, brand reputation, availability of offers, peer influence and government initiatives were asked. Later the users' trust and comfort were captured in the questionnaire by using Likert Scale questions determining varying degrees of agreement or likelihood. Questions were also framed for exploratory data analysis purposes to visualise the outcomes for a peculiar features like comfort in high value transactions or increased spending after UPI.
2. **Deciding the Key Metrics:** Metrics such as frequency of UPI use, trust in UPI, and the likelihood of recommending UPI were earmarked as the dependent variables. These represent the core of our investigation: understanding and quantifying user sentiment and adoption levels.
3. **Pre Processing:** Pre processing was necessary to go away with white spaces from the column names, label the columns that were imported in a csv file from the Google forms to form meaningful column names and the final step being dealing with duplicates if any. There was also a need to deal with all unique individual values from

comma-separated strings in the 'motivation' column, which was also addressed in the pre processing stage.

4. **Descriptive Analysis:** Descriptive Analysis was carried out to test the frequencies of every parameter drawn out from the survey. The frequencies highlighted the various factors under every parameter to develop a better understanding of the UPI usage and its underlying factors.
5. **Chi Square Test:** The Chi Square was then deployed to understand the test of significance of each parameter against the dependent variables, viz: usage frequency and likelihood of recommending it to others, which tried to capture the adoption levels and the sentiment of the UPI users through their responses.
6. **Decision Trees:** An attempt was made to classify the usage frequency, to capture the adoption levels and their recommendation of UPI to others to capture their sentiment towards UPI and its adoption.

5 Implementation

1. **Data Collection:** The research employed a digital survey through Google forms over social media to gather responses, leveraging platforms that allow for easy distribution and collection. This not only made the process efficient but also ensured data was logged without manual errors. Our sample size consisted of 155 respondents. This number was chosen after the feasibility of data collection.
2. **Data Preprocessing:** Once collected, the data underwent preprocessing using Python. Given that our variables were categorical, we transformed them into a format suitable for analysis, ensuring consistency and removing any potential outliers or errors. The imported file had columns in the form of the questions posed, which were then suitably labelled for understanding purposes, keeping in mind what each particular variable was highlighting. White spaces were duly removed as they lead to inconsistencies and errors in analysis. White spaces also create problems in analysis like ours when reading data from files, extra white spaces can lead to incorrect parsing of columns. We then checked for erroneous double entries, which might have been because of double entries by a few respondents. In that case, we record the latest entry, as the respondent might have decided to select another answer for a particular question. By removing the 2 duplications, our data points were recorded to 153 from the initial 155.
3. **Descriptive Analysis:** With the dataset cleaned and validated, we moved on to descriptive statistical analysis. Python, paired with libraries such as Pandas and Matplotlib, was instrumental. We computed frequencies with respect to every parameter from the csv file giving us a clear snapshot of our respondent's sentiments towards the particular parameter.
4. **Test of Significance:** The test of significance was essential in understanding the interdependency of the independent variables to the targeted variables in question. The frequency of UPI usage was cross tabulated against the independent variables to generate a heat map to help visualise the results better. The *p* values were generated from the contingency table to test the significance of the two variables, with one being our target variable. The same process was repeated to gain insights on the other target variable of recommendation to others.

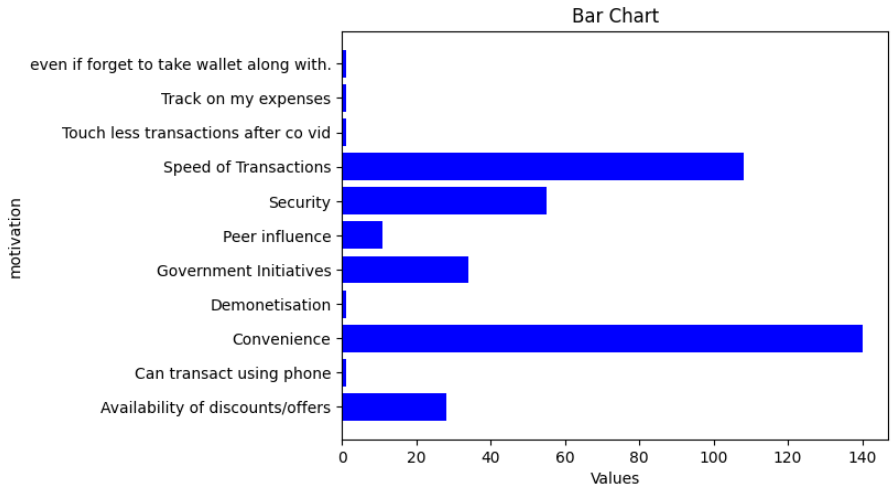
5. **Decision Tree Analysis:** To answer the intricate question of 'what factors most influence UPI adoption?', we utilized decision trees. This approach, with its hierarchical nature, allowed us to understand the significance of variables leading to higher adoption rates. Using Python's Scikit-learn library, we trained our classifier model, with our dependent variables being the metrics like the frequency of UPI use and their inclination to recommend upi to others for day-to-day transactions. The f-1 score generated after the analysis, gave a measure of the classification model and how good a fit it was.
6. **Visualization:** Visualization played a pivotal role in our research. Using Seaborn and Matplotlib, we crafted intuitive plots and graphs. This was not just for internal understanding, but to communicate our findings in a manner that's accessible to a diverse audience, from tech experts to laypersons.

6 Evaluation

In our attempt to analyse the underlying reasons that shape the sentiment and adoption levels of UPI users in India, a comprehensive analytical approach was employed. The research began by observing and analysing the frequency distributions. This foundational statistical method enabled us to determine patterns and predominant trends in the data, highlighting the most common parameters and their corresponding adoption levels.

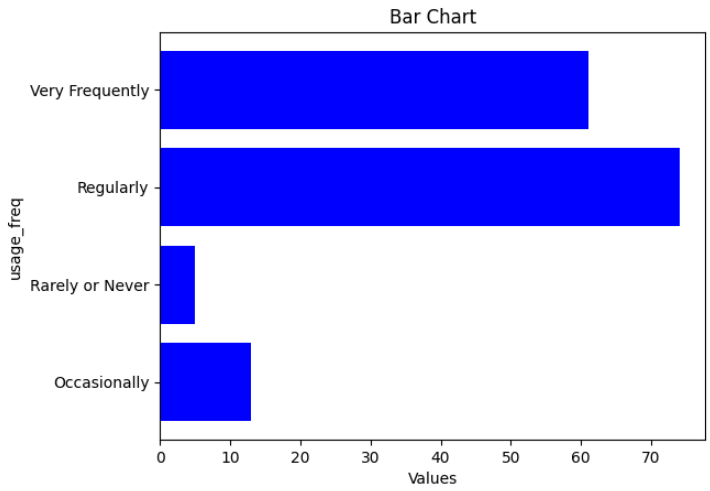
6.1 Frequency Distributions

Motivation to use UPI



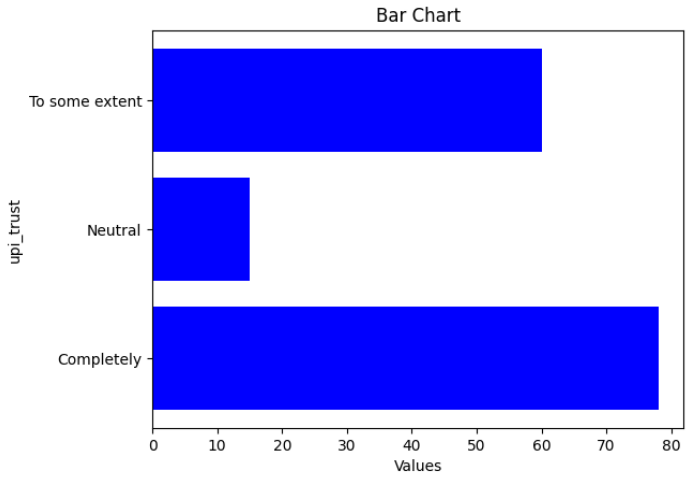
The primary motivation for UPI usage among respondents is the sheer convenience it offers. With 140 responses citing this factor, it's clear that the ease of using UPI is its most significant appeal to users. Following closely behind is the speed of transactions, with 108 individuals highlighting the quick transaction time as a major draw for the platform. Security also emerges as a pivotal factor, with 55 users valuing the safety and secure transactions provided by UPI. Additionally, the role of government support cannot be understated; 34 respondents indicated that government initiatives played a role in their adoption of UPI. Lastly, the allure of financial incentives, like discounts and offers, motivated 28 respondents, showcasing that economic benefits further enhance UPI's appeal.

Frequency of Use



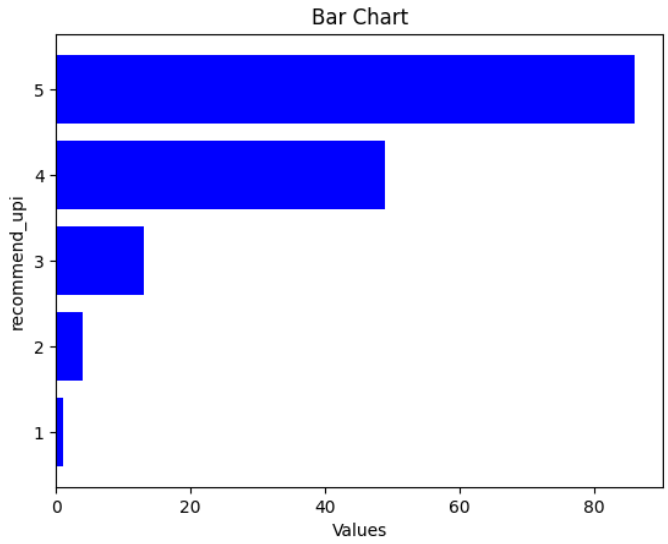
The survey on UPI usage frequency reveals a strong adoption among respondents: approximately 88.2% use it regularly or very frequently, while only 11.8% use it occasionally or rarely. The data suggests that once users adopt UPI, they often integrate it into their regular transaction habits, with a slight preference for "Regular" use over "Very Frequent." In effect, UPI appears to be a trusted and prevalent transaction method among the surveyed group.

Trust on the service



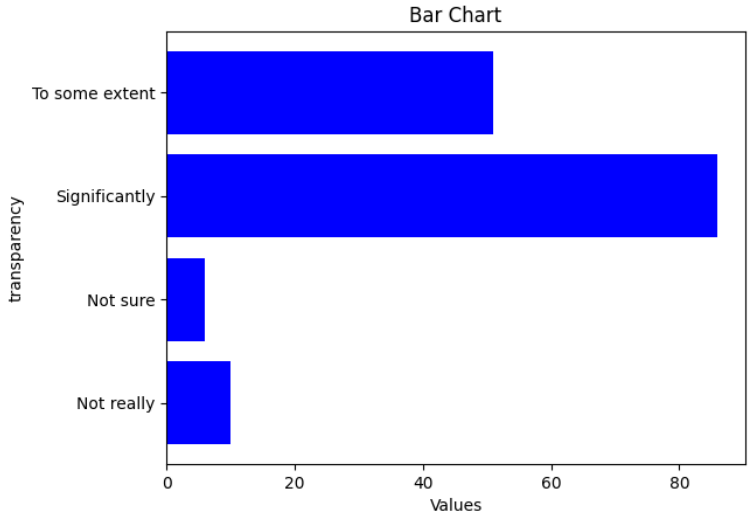
In a survey involving 153 respondents on the trust factor influencing the use of UPI, a notable 51% expressed complete trust in the platform. This indicates a significant proportion of users who are very confident in the UPI system. Meanwhile, 39.2% of participants trusted UPI "to some extent", suggesting they see the merits but might have reservations or require certain conditions for full confidence. A minimal group, accounting for 9.8%, remained neutral, neither fully endorsing nor rejecting the trustworthiness of UPI. These insights highlight that while majority have faith in UPI, there's a considerable segment that has some level of uncertainty.

Recommending UPI to others



From a survey of 153 participants regarding the recommendation of UPI to others, a very high percentage of 56.2% were extremely likely to advocate for its use, while 32% were inclined towards recommending, but not as enthusiastically as the majority This showcases a significant endorsement of the UPI system from its current user base. On the other end of the spectrum, a minimal 0.65% showed resistance, indicating they were not likely at all to recommend UPI. An additional 2.6% leaned towards this same sentiment, with a less intensely. The middle ground was occupied by 8.5% who held a neutral stance. In essence, the inclination to recommend UPI to peers stands out as a prominent factor, with a vast majority endorsing the platform to others.

Transparency



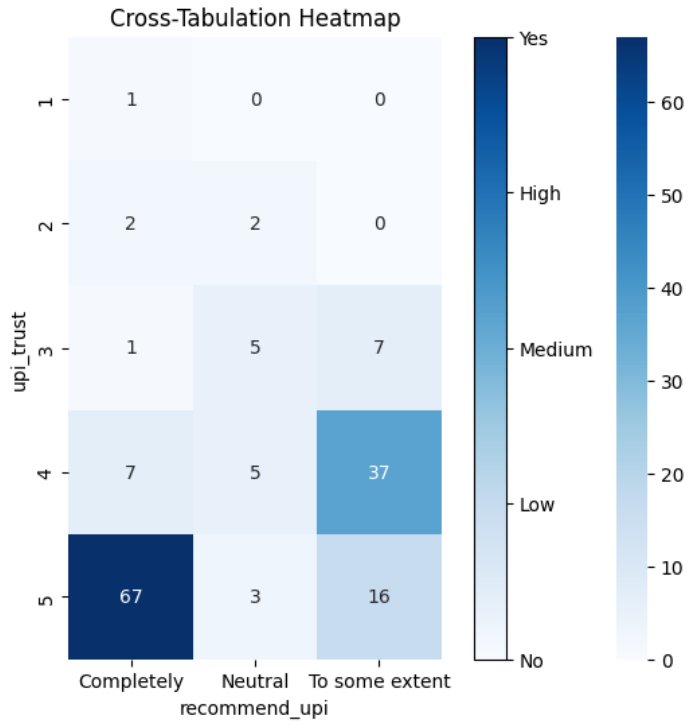
56.2% felt that UPI offers significant transparency in its operations and transactions. This underlines a broad trust and clarity associated with the UPI platform. In addition, 33.3% believed UPI provides transparency to some extent, suggesting that while they acknowledge its open nature, there may be areas they feel could be clearer. On the other side, a minority

6.5% did not perceive UPI as transparent and 3.9% remained uncertain about the platform's transparency, hinting at a need for more information or clarity. This can certainly highlight the fact that transparency has surely been a major driving factor in the adoption of UPI.
Frequency distribution has been carried out on every parameter available in the data set. Only a notable few have been included in the report to highlight the findings and discussion.

6.2 Test of Significance

To visualize the associations and dependencies between the target and independent variables, the study utilized heat maps based on the Chi-Square test. This visualization method, combined with the statistical methodology of the Chi-Square test, helped to identify significant relationships and to ascertain the strength of the association between user sentiment, adoption levels, and various influencing factors.

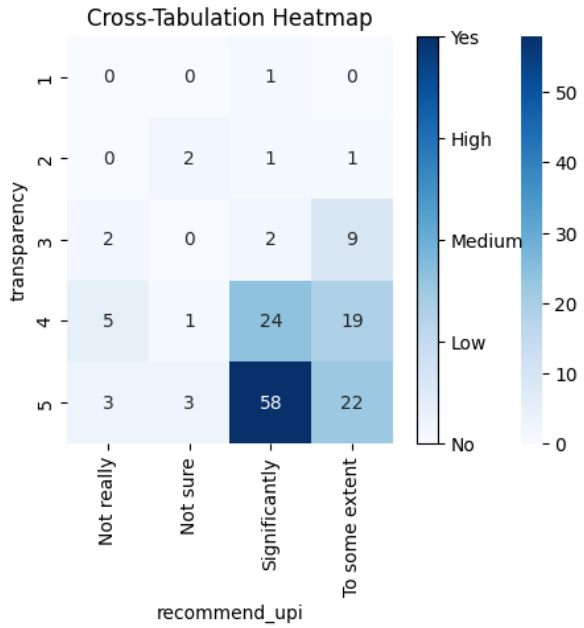
Test 1: Testing Sentiment against Trust



Upon analyzing the relationship between the trust users place in UPI and their willingness to recommend it to others, a Chi-Square test rendered a value of 79.95627072901543. This value signifies the extent of difference between our observed frequencies and what we'd expect under the assumption of independence. The critical piece of information, however, is the P-value, which stands at an exceedingly small 4.988954486678272e-14. In conventional statistical terms, a P-value below 0.05 denotes a statistically significant result. Given that our P-value is much smaller than this threshold, the result is highly statistically significant. From our primary data collection of 155 data points, it can be concluded that the level of trust users

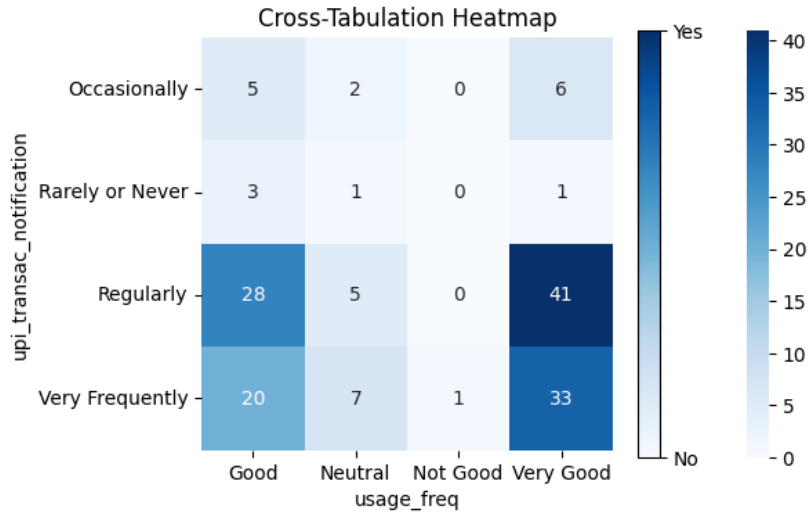
have in UPI has a significant association with their likelihood to recommend the platform to others.

Test 2: Testing Sentiment against Transparency



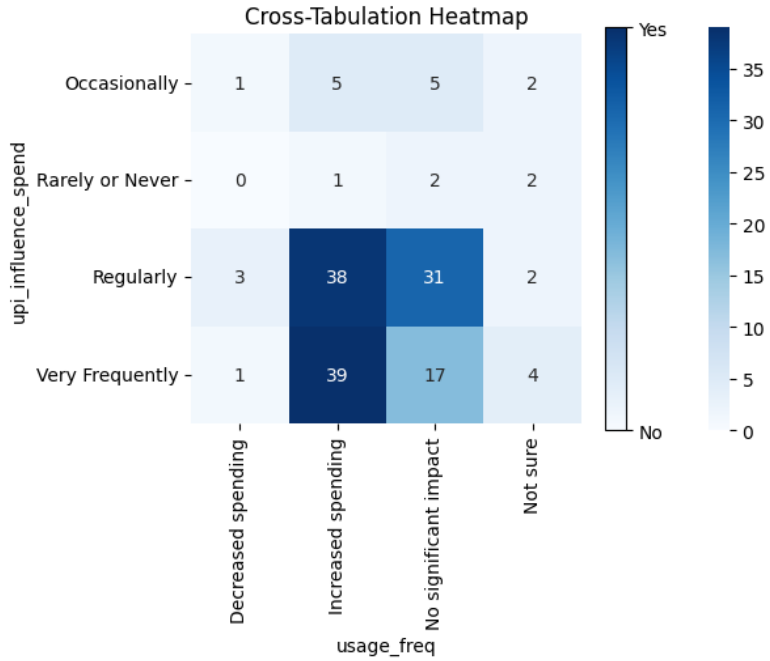
Chi-Square test conducted to ascertain the relationship between the perceived transparency in using UPI and the willingness of users to recommend it to others gave the following output: The computed Chi-Square value of 41.507 suggests a strong association between the two variables. This assumption is bettered by the P-value, which stands at 4.03e-05, being significantly below the conventional threshold of 0.05. This indicates that the observed association is statistically significant and not due to random chance.

Test 3: Testing Adoption Levels against Transaction Notifications



The calculated Chi-Square value stands at 5.5979, which on its own might suggest a deviation from expected frequencies. However, the accompanying P-value of 0.7794 significantly exceeds the conventional threshold of 0.05, meaning that any observed association between the variables might well be due to chance. Hence, it can be inferred that there's no statistically significant relationship between the promptness of receiving transaction notifications and the adoption of UPI.

Test 4: Testing Adoption Levels against Influence in Spending



With a Chi-Square value of 18.0933, there's an indication of a deviation from what would be expected if the two variables were independent of each other. This is further supported by the P-value, which at 0.0341, is below the typical threshold of 0.05, denoting that the observed relationship is statistically significant and unlikely to be due to mere randomness. This suggests that the influence of UPI on spending habits has a notable association with its adoption.

Just like the frequency distribution above, only a select few visualisations have been included.

6.3 Decision Tree Classifier

In order to predict and classify user sentiments based on multiple factors, decision trees were implemented. This technique not only attempts at highlighting various factors in influencing adoption levels and sentiment in UPI, but also provides a clear branching that traces the decision-making process of users as they perceive their UPI experiences.

The results of the first decision tree based on the adoption level of UPI are as follows:

	precision	recall	f1-score	support

Occasionally	0.00	0.00	0.00	3
Rarely or Never	0.00	0.00	0.00	2
Regularly	0.36	0.42	0.38	12
Very Frequently	0.36	0.29	0.32	14
accuracy			0.29	31
macro avg	0.18	0.18	0.18	31
weighted avg	0.30	0.29	0.29	31

The model has an overall accuracy of 0.29 or 29%, which means it correctly predicted the frequency class for approximately 29% of the instances in the test dataset. The F-1 score is 0.32, the balance between precision and recall. The decision tree model's performance in predicting the frequency of usage is subpar across most classes, with "Regularly" and "Very Frequently" being the ones where it performed best, though still not ideal. For the classes "Occasionally" and "Rarely or Never," the model failed to make any correct predictions.

The results of the second decision tree based on the sentiment of UPI are as follows:

	precision	recall	f1-score	support
0	0.00	0.00	0.00	0
1	0.00	0.00	0.00	2
2	0.00	0.00	0.00	3
3	0.38	0.38	0.38	8
4	0.68	0.72	0.70	18
accuracy			0.52	31

The values of accuracy and f-1 score are to be taken into consideration for the analysis. The accuracy metric indicates the overall correct predictions by the model, which is 52%. Given the data, this means the model correctly predicted the class of 16 out of 31 instances. In effect, the decision tree model has varying performance across different classes. It performs best for Class 4 and decently for Class 3 but struggles with the other classes, especially Classes 0, 1, and 2. This might suggest that you need more data or different features for these classes.

6.4 Discussion

The analysis carried out tries to understand the underlying factors in UPI adoption and sentiments of the users using the payment services. Existing literature and cited data from authentic secondary data websites indicate that the adoption has been significantly in the positive direction. The frequency distribution undertaken in this study displays that majority factors barring a select few, have been significant in the adoption. The frequency distribution shows that the usage of UPI is quite high in the respondents. This might be attributed to the factors like convenience, speed of transactions, followed by the security that is offered by the service. Although the respondents have recorded transaction issues and technical issues, their adoption and sentiment is yet on the positive side. This might be attributed to other factors like the user experience provided, as a majority of the respondents have upvoted for the same. We clearly observe there is a high trust factor in the usage of UPI; as also, the perception towards economic growth because of the adoption.

In the test of significance, we observe with the p-values that, apart from UPI app selection criterion, every other factor is related to the dependent variable of adoption levels and sentiment and is highly corelated. Even timely transaction notifications, transparency offered by UPI apps and the occupation of the respondents show no significance to the adoption level. This might indicate that respondents wouldn't focus to a certain extent on the transaction updates or the transparency offered. Similarly, UPI's influence in spending habits, usage of high value transactions has no significant effect on the sentiment factor of the respondents. As bank transfers and at times cash transactions have been preferred over contemporary methods of payment like UPI, when it comes to a bigger amount to spend, the UPI has a daily transaction limit. Although there are challenges posed in the UPI usage, the respondents have shown there is no significant relation to the dependent variable of recommendation. The recommendation might be attributed to other positively significant factors.

More factors could be introduced to check their validity and reliability and the test of significance might help determine their correlation. Having an example like the influence of Covid in cashless transactions can be factored in as to how it had a significant effect. Although, some of the factors introduced in the question did help capture the sentiment of the users and the adoption rate, many more factors can be checked against the same.

The Decision Trees hasn't really captured the factors to classify the adoption levels and sentiments. This might be because of the lack of enough data points for the tree to classify. A change in train test split might work or hyper parameter tuning might also work. Since the data that has been dealt with is relatively small, with 155 responses, the decision trees might not be working on a small data set. Probably more data points would balance it out. Also, other Classifier models such xGBoost can be introduced to check their accuracy and impact.

7 Conclusion and Future Work

The Research Question was to Understand the factors influencing UPI user adoption levels and sentiments in India and the objectives were to understand how the technological factors played a role in it as well as understand the interaction between demographic variables, technological factors and government initiatives. The research was able to establish some relationship between few of the variables like transaction speed, ease of convenience, trust on the service, and its adoption perception introduced in the question, whereas for a few variables like the app selection, high value transactions, relationship wasn't established. Although the Classifier of Decision Trees didn't work as intended in classifying the given data points, it is an attempt to take the work further, where in a classifier can fit on the model. To capture the sentiment of the users, even Twitter sentiment analysis can be carried out. The sentiment score captured can surely help in identifying the positive or negative or neutral sentiment towards UPI adoption. Also, by approaching a UPI payments company, as a part of the study, one can introduce a survey at the end of the payment, which the user can voluntarily fill in which will capture more responses with varied questions. Similarly, a pre or post covid period comparison can also be undertaken to understand the adoption levels and sentiment.

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