



Analytical Study of FinTech in India – A Special Reference to UPI Sector

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Abstract : The rise in Fintech has changed the India's financial Landscape with the introduction of Unified Payments Interface (UPI), developed by National Payments Corporation of India (NPCI). UPI has enhanced consumer experiences and accelerated payments across platforms. The study analyses the growth of funding parameters from 2014 to 2022, A Comparative analysis of 5 UPI App's comparing their growth and regression analysis is conducted for a period of 8 years i.e., 2016-2023. Data is collected from several sources including RBI and NPCL. The findings reveal UPI's popularity and its positive correlation with bank involvement in transactions.

Keywords: Fintech, UPI, NPCI, Banks

JEL Codes:G21, F37, E33

INTRODUCTION

Fintech has transformed India's financial environment by introducing cutting-edge alternatives for money management such as digital wallets, online loans, and mobile payments in recent years. The UPI which was introduced in 2016 employs virtual payment addresses (VPAs) to facilitate instant and secure money transfers between bank accounts through a single mobile app which is a major advancement in Indian Fintech. The increasing popularity of Fintech in UPI Payments encourages more and more individuals to use formal financial system. UPI payments promotes cashless transactions, leading to a more transparent and efficient economy.

LITERATURE REVIEW

V Chouhan, S Ali, RB Sharma, A Sharma (2023), Study examines how Indian traditional banks are impacted by FinTech. A sample of 300 customers and regression analysis was used to find if FinTech can improve a bank's value proposition through better service, marketing, and merchant reach.

AS Virdi, A Mer (2023) Study explores the impact of FinTech on Indian banks. The research examines how FinTech services like mobile payments and investment tech are changing the landscape. The study highlights the uneven playing field - FinTech firms face fewer regulations compared to banks, potentially giving them an advantage in some areas.

B Jugurnath, P Hemshika (2023), Research explores how FinTech is changing the financial landscape in India. With the rise of fintech funding, the challenges faced by lenders, regulators, and consumers are examined through this paper. The research also studies about rise in FinTech adoption since the COVID-19 pandemic.

R Gupta (2023) Study explores the growth of FinTech (financial technology) in India's banking sector. This study analyzes how FinTech is changing the landscape for both banks and customers through recent initiatives like the RBI. The study highlights the new opportunities that FinTech brings to banking industry, while acknowledging the challenges that may arise during adoption

R Vij (2023) Study describes a digital payment system in India popularly known as UPI and its role in financial inclusion. This research paper will explore the impact of UPI on financial inclusion and the challenges the government faces in achieving it.

G Damodhar, T Suneetha (2020) Study discusses how e-commerce relies on electronic payments (e-payments) for secure online transactions. E-payments offer various methods like credit cards, debit cards, and UPI, often involving third parties for secure transfers. The paper aims to explore how e-payment trends are driving the growth of e-commerce in India (Bharat), particularly due to their user-friendly nature and ability to expand market reach for businesses.

R Gupta, P Mallick (2023) Study highlights the rise of mobile payments in India, fueled by government initiatives and advancements like smartphones and apps. The crucial role played by digital payments in the modern Indian economy is emphasised in the paper. This paper will explore the reasons behind the rise of Digital wallets, the benefits they offer, and their promising future prospects.

P Rajeswari, C Vijai (2021) Fintech, the hot new trend in finance, is driven by innovative startups. This research dives into Fintech adoption, industry structure, startups, networks, and overall trends in India's rapidly evolving financial landscape.

M Asif, MN Khan, S Tiwari, SK Wani, F Alam (2023) India's financial inclusion has boomed with more people having bank accounts (almost 80%). This data for the study is from the RBI to analyze this impact and found fintech suggestively improves financial inclusion. These findings can guide policymakers in bringing everyone into the formal financial system.

A Mahesh (2021) Paper explores the rise a digital payment system launched by India's National Payment Corporation known as UPI. The study analyzes UPI's growth through secondary data and SWOT analysis, the findings of the study says that the digital payments in retail sector has significantly raised. The paper highlights UPI's strengths and potential for further growth, while suggesting future research on India's broader digital payment landscape.

Dr. Deepa Baliyan, Dr. Neha Singh (2023) This paper examines India's UPI payment system, a unified platform for digital transactions. UPI's growth and user adoption suggest a promising future for cashless payments in India. By analyzing applications, usage, and future potential, this research highlights UPI's role in the country's digital economy.

STATEMENT PROBLEM

Most studies focus on older data or general trends. This research focuses to understanding the specific changes that have happened in the recent years.

RESEARCH OBJECTIVES

- To know the growth of fintech companies and the funding parameters since 2016 to 2023
- Comparative analysis of the total Customer oriented transactions both in terms of volume and value of the UPI Apps in India
- To analyze the relationship of No. of banks that live upon UPIs with the volume and value of UPI transactions

RESEARCH METHODOLOGY

- **Sample Design** - The analysis focuses on the UPI transactions and payments in India from the year 2016 to 2024 (as of February).
- **Sample size** – Analysis conducted for 8 years of UPI Transactions and a comparative analysis of 5 UPI applications.
- **Method of Data Collection** – The research design used in our study is exploratory cum descriptive research. The method of data collection used in our study is from secondary sources collected using annual reports of RBI, NPCL, articles, research papers, magazines and websites.
- **Data analysis Methods** – Comparative Analysis, Regression Analysis and Hypothesis Testing

DATA PRESENTATION AND ANALYSIS

- Fintech Companies and it funding parameters over the years.
- Comparative Analysis: Analysis Of the total number of Customer Oriented Transactions, Both in terms of Value and Volume of UPI App's in India.
- In this research we have conducted Regression Analysis and Hypothesis Testing.

1. Growth of fintech companies and the funding parameters since 2016 to 2023

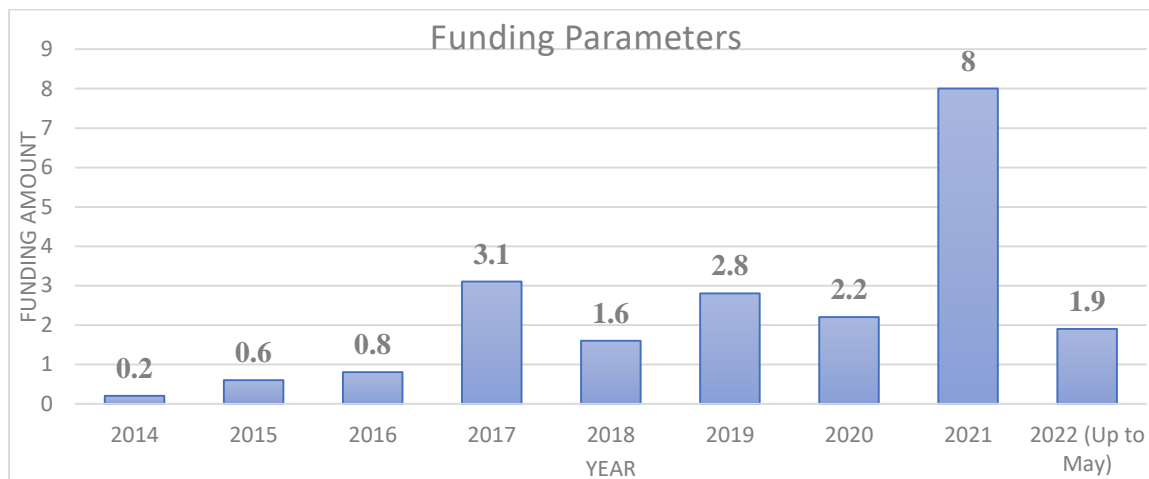


Figure No 1: Funding Parameters of Fintech

The figure shows a considerable increase in investment for Indian fintech companies from 2014 to 2021. There's a clear upward trend, with funding amounts multiplying over sevenfold from \$0.2 billion in 2014 to a staggering \$8 billion in 2021. This indicates a growing investor interest in India's fintech sector. However, there are fluctuations within this growth. Although overall funding decreased in 2018 compared to 2017, it still exceeded the amount for 2018.

The below charts depict the value and volume of the digital payments sector in India

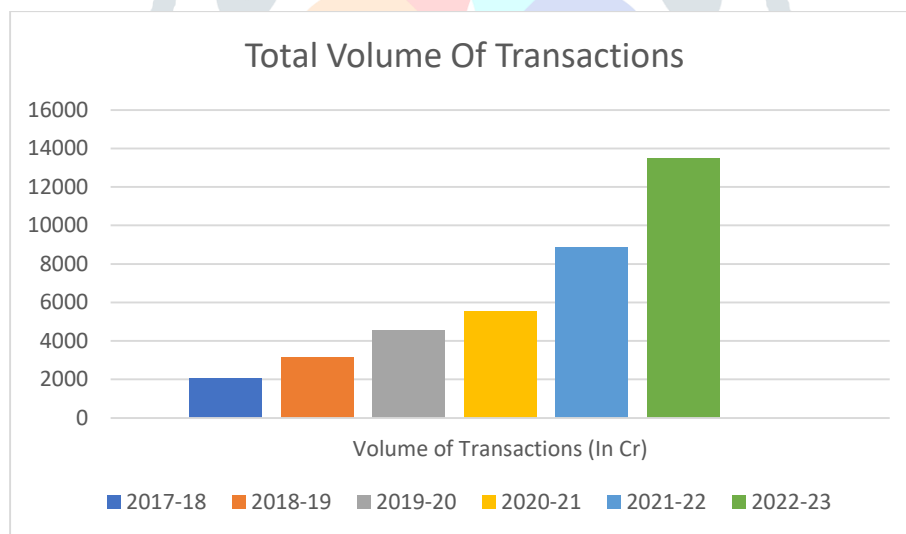


Figure No 2: Year on Year growth for Digital Payments in India in Volume

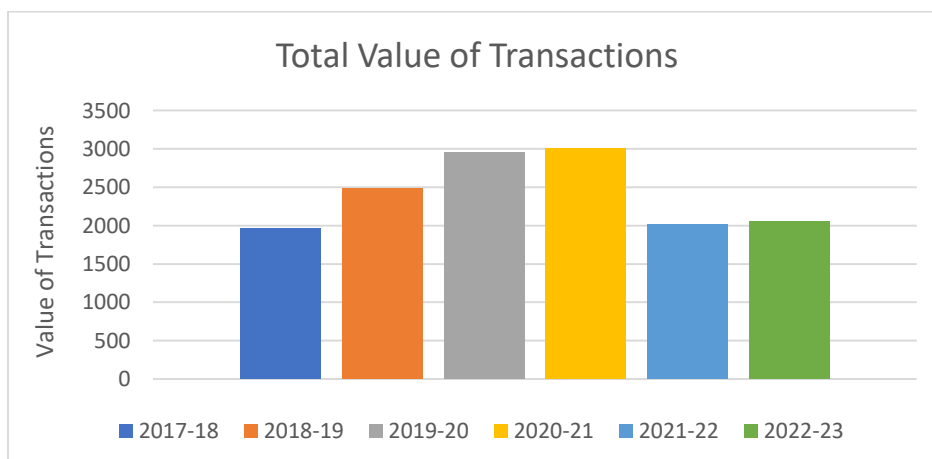


Figure No 3: Year on Year growth for Digital Payments in India in Value

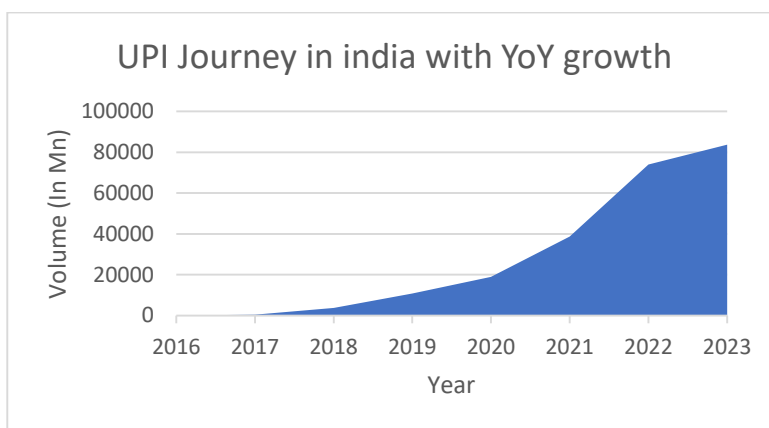


Figure No 4: UPI journey in India with YoY (Year-on-Year) growth statistics till Jan 2023

2. Comparative Analysis: Analysis of the total number of Customer Oriented Transactions Both in terms of Value and Volume of UPI App's in India

A Comparative analysis is a method of evaluating and comparing two or more entities or variables to identify similarities, differences etc. It involves examining the characteristics, attributes, and performance of each entity and drawing meaningful conclusions based on the comparisons made.

In this research study, we are evaluating 5 UPI apps based on their customer transactions in terms of volume and value, as well as the company's growth as of February 2024 as depicted below

Table No 1: UPI App's Volume

| UPI App's | 2021 | 2022 | 2023 | 2024 |
|-----------|----------|----------|---------|---------|
| Paytm | 612.71 | 1,054.05 | 1442.58 | 1332.57 |
| CRED | 10.36 | 31.42 | 105.31 | 118.77 |
| BHIMA | 27.12 | 25.5 | 24.3 | 58.84 |
| Gpay | 1,587.43 | 2,712.34 | 4375.29 | 4755.4 |
| PhonePe | 2,077.60 | 3,674.24 | 5642.66 | 6140.97 |

Table No 2: UPI App's Value

| UPI App's | 2021 | 2022 | 2023 | 2024 |
|-----------|-------------|-------------|-------------|-------------|
| Paytm | 71,874.13 | 1,18,069.81 | 1,65,694.96 | 1,51,044.10 |
| CRED | 13,817.16 | 19,622.29 | 37,293.27 | 40,525.56 |
| BHIMA | 8,831.67 | 8,400.04 | 8,431.47 | 9,486.38 |
| Gpay | 3,02,989.79 | 4,40,370.99 | 6,29,285.36 | 6,71,539.96 |
| PhonePe | 3,94,565.58 | 6,39,348.78 | 9,01,006.65 | 9,67,467.18 |

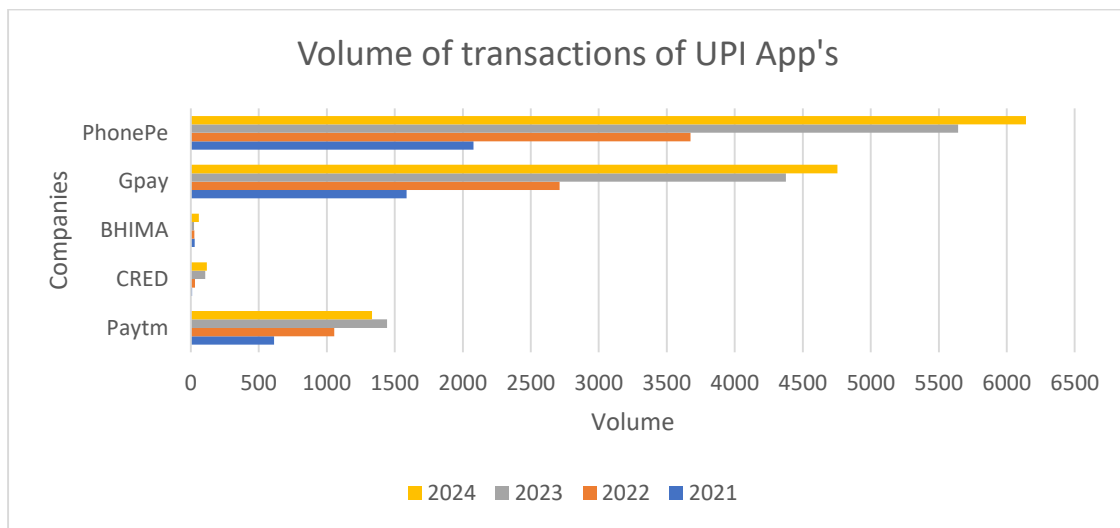


Figure No 5: UPI App's Volume

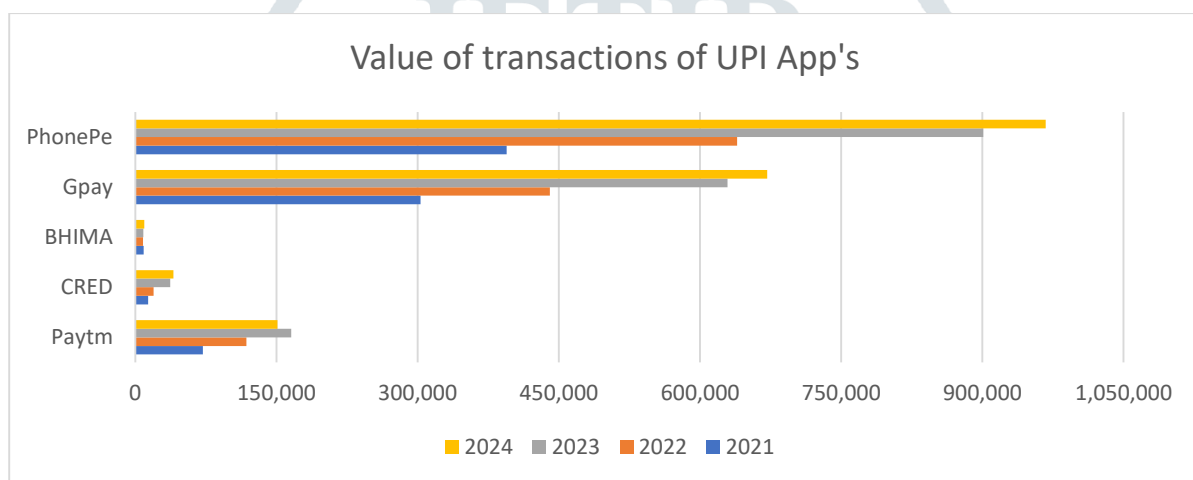


Figure No 6: UPI App's Value

In the above table we are comparing 5 UPI Apps and analysing thier growth and market share. As we can see in the above figure that thee is a increase in transaction of volume as well as value from 2021-2024. PhonePe and Gpay seems to be the dominant player in market. Studies analyze PhonePe holds 46% of the market share and Gpay holds 26% if the market share. Following PhonePe and Gpay come the other UPI apps like Paytm and BHIM which shows steady growth in the market. Studies analyze Paytm holds 13% of the market share.

3. Analysis of the relationship of No. of banks that live upon UPIs with the volume and value of UPI transactions

The Analysis is conducted based on the below log data:

Table No 3: Sourced data from RBI

| Year | No. of Banks | Volume (In Mn) | Value (In Cr.) |
|------|--------------|----------------|----------------|
| 2016 | 221 | 3 | 893 |
| 2017 | 626 | 419 | 57,021 |
| 2018 | 1291 | 3,746 | 5,85,710 |
| 2019 | 1696 | 10,788 | 18,36,638 |
| 2020 | 2003 | 18,881 | 33,87,745 |
| 2021 | 2869 | 38,745 | 71,59,286 |
| 2022 | 4049 | 74,044 | 1,25,95,077 |
| 2023 | 5483 | 1,18,529 | 1,82,84,407 |

Table No 4: Log Data based on the above sourced data

| Year | No. of Banks | Volume (In Mn) | Value (In Cr.) |
|------|--------------|----------------|----------------|
| 2016 | 2.34 | 0.42 | 2.95 |
| 2017 | 2.80 | 2.62 | 4.76 |
| 2018 | 3.11 | 3.57 | 5.77 |
| 2019 | 3.23 | 4.03 | 6.26 |
| 2020 | 3.30 | 4.28 | 6.53 |
| 2021 | 3.46 | 4.59 | 6.85 |
| 2022 | 3.61 | 4.87 | 7.10 |
| 2023 | 3.74 | 5.07 | 7.26 |

Regression Analysis

To analyse the Relationship Between the Number of Banks the live on UPIs with UPI Transactions with Payments.

X: Volume and Value of UPI Transactions.

Y: No of Banks.

Hypothesis Testing:

H0: There is no significant relationship between the No. of Banks and the and the Volume and Value of UPI Transactions.

H1: There is a significant relationship between the No. of Banks and the Volume and Value of UPI Transactions.

Part I – Analysis of the relationship between No of Banks and the Volume of the UPI Transactions.

SUMMARY OUTPUT

| <i>Regression Statistics</i> | |
|------------------------------|-------------|
| Multiple R | 0.981365293 |
| R Square | 0.963077839 |
| Adjusted R Square | 0.956924146 |
| Standard Error | 0.094031004 |
| Observations | 8 |

ANOVA

| | <i>df</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>Significance F</i> |
|------------|-----------|-------------|-----------|-------------|-----------------------|
| Regression | 1 | 1.383782004 | 1.383782 | 156.5040316 | 0.00001595 |
| Residual | 6 | 0.053050979 | 0.008842 | | |
| Total | 7 | 1.436832983 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i> | <i>Upper 95%</i> | <i>Lower 95.0%</i> | <i>Upper 95.0%</i> |
|----------------|---------------------|-----------------------|---------------|----------------|------------------|------------------|--------------------|--------------------|
| Intercept | 2.128708 | 0.091740 | 23.203607 | 0.0000004201 | 1.904228 | 2.353189 | 1.904228 | 2.353189 |
| Volume (In Mn) | 0.290483 | 0.023220 | 12.510157 | 0.0000159521 | 0.233666 | 0.347300 | 0.233666 | 0.347300 |

Interpretation:

- The regression equation for the volume of UPI transactions is given by ($Y = 2.13 + 0.29X$).
- The coefficient for the volume of UPI transactions (0.29) indicates that for every unit increase in the volume (in millions), the number of banks (Y) increases by 0.29 units.
- The high R-squared value (0.963) suggests that approximately 96.3% of the variation in the number of banks can be explained by changes in the volume of UPI transactions.
- The p-value (0.0000159521) associated with the volume variable is highly significant (less than 0.05), indicating a strong relationship between the volume of UPI transactions and the number of banks.
- Therefore, we reject the null hypothesis (H0) and accept the alternative hypothesis (H1), concluding that there is a significant positive relationship between the volume of UPI transactions and the number of banks.

Part II - Analysing the relationship between No of Banks and the Value of the UPI Transactions.**SUMMARY OUTPUT**

| <i>Regression Statistics</i> | |
|------------------------------|----------|
| Multiple R | 0.986393 |
| R Square | 0.97297 |
| Adjusted R Square | 0.968466 |
| Standard Error | 0.080454 |
| Observations | 8 |

ANOVA

| | <i>df</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>Significance F</i> |
|------------|-----------|-----------|-----------|----------|-----------------------|
| Regression | 1 | 1.397996 | 1.397996 | 215.9797 | 0.00000623 |
| Residual | 6 | 0.038837 | 0.006473 | | |
| Total | 7 | 1.436833 | | | |

| | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i> | <i>Upper 95%</i> | <i>Lower 95.0%</i> | <i>Upper 95.0%</i> |
|-------------------|---------------------|-----------------------|---------------|----------------|------------------|------------------|--------------------|--------------------|
| Intercept | 1.37100739 | 0.12755530 | 10.74833741 | 0.00003833 | 1.05889082 | 1.68312396 | 1.05889082 | 1.68312396 |
| Value (In Cr.) | 0.30786196 | 0.02094834 | 14.69624707 | 0.00000623 | 0.25660322 | 0.35912070 | 0.25660322 | 0.35912070 |

Interpretation

- The regression equation for the value of UPI transactions is given by ($Y = 1.37 + 0.31X$).
- The coefficient for the value of UPI transactions (0.31) indicates that for every unit increase in the value (in crores), the number of banks (Y) increases by 0.31 units.
- The high R-squared value (0.973) suggests that approximately 97.3% of the variation in the number of banks can be explained by changes in the value of UPI transactions.
- The p-value (0.00000623) associated with the value variable is highly significant (less than 0.05), indicating a strong relationship between the value of UPI transactions and the number of banks.
- Similar to the volume analysis, we reject null hypothesis and accept alternative hypothesis, concluding that there is a significant positive relationship between the value of UPI transactions and the number of banks.

To summarize, both the volume and value of UPI transactions have a statistically significant and positive relationship with the number of banks participating in UPI transactions. This suggests that as the volume and value of UPI transactions increase, more banks tend to participate in the UPI system highlighting the importance of transaction metrics in influencing bank participation in the UPI ecosystem.

FINDINGS

Funding for Indian fintech startups witnessed significant growth from \$0.2 billion in 2014 to \$8 billion in 2021, marking a more than sevenfold increase. Despite fluctuations, the overall trend suggests growing investor interest in the Indian fintech sector. There's been a substantial rise in the volume and value of digital payments in India, indicating a rapid digitalization of financial transactions. Factors such as the emergence of user-friendly mobile applications, integration of UPI, and the pandemic accelerating the shift towards digital payments contribute to this growth. The adoption and use of UPI for digital payments have seen remarkable growth. The number of banks offering UPI services has increased from 221 in 2016 to 1,110 by 2024, with a significant rise in transaction volume and value. This suggests a significant shift towards using UPI for everyday payments and transactions of higher value. PhonePe leads the UPI market with a 46% market share, followed by Google Pay with 26%, collectively accounting for 72% of the UPI market. While Paytm holds a notable position with a 13% market share, smaller players collectively hold a relatively smaller share. Regression analysis reveals a statistically significant and positive relationship between both the volume and value of UPI transactions and the number of banks participating in UPI transactions. As the volume and value of UPI transactions increase, more banks tend to participate in the UPI system. Null Hypothesis is rejected and Alternative hypothesis is accepted.

CONCLUSION

The financial environment in India has been completely transformed by fintech, especially the widely used UPI platform. With UPI growing as a dominating force, we can see a considerable movement towards abandoning the old banking system and towards digital payments. A vibrant Fintech environment is suggested by the rise in bank numbers as well as the quick rise in UPI value and volume. There is still room for improvement, though. Maintaining growth will require addressing security issues, improving user engagement on UPI systems, and reaching unbanked people in rural locations. The financial system may also be strengthened by enhancing cross-border payments, encouraging data-driven innovation, and guaranteeing regulatory clarity. From then on, UPI has completely changed the Indian financial scene and accelerated the country's transition to a digital economy.

RECOMMENDATIONS

- Promote the use of UPI in rural regions by forming partnerships with NGOs and neighbourhood businesses.
- Develop targeted outreach programs to educate and incentivize rural populations to adopt UPI.
- Provide strong authentication procedures and user education to allay security worries. Update security procedures often to keep up with emerging cyberthreats.
- To encourage small companies to use UPI for quicker and more convenient transactions, provide initiatives and rewards. This can boost operational effectiveness and lessen their dependency on cash.

LIMITATIONS OF THE STUDY

- The research is based on secondary data, and the accuracy and reliability of the data are dependent on the methods and sources used to collect them.
- The study might not have taken into account the most recent changes to the UPI payment system, and its conclusions might not apply to other nations or areas.
- The study is specific to very few UPI payment Platforms and does not cover all of them.
- The data might primarily reflect trends in urban areas. Limited information on rural adoption of UPI could underrepresent the complete picture.

BIBLIOGRAPHY

1. V Chouhan, S Ali, RB Sharma, A Sharma, (2023) The effect of financial technology (Fin-tech) on the conventional banking industry in India, International Journal of Innovative research and Scientific studies, Issue Vol. 6 No. 3 (2023)
2. AS Viridi, A Mer, (2023), Fintech and Banking: An Indian Perspective, Green Finance Instruments, FinTech, and Investment Strategies, pp 261–281
3. B Jugurnath, P Hemshika, (2023), A Study of Fintech Oppourtunities and Challenges, International Research Journal of Modernization in Engineering Technology and Science, Volume:05/Issue:06/June-2023
4. R Gupta (2023), Adoption of Fintech on Digital Banking: Exploring Trends, Prospects and Risk, International Journal of Innovative Science and Research Technology, Volume 8, Issue 6, June 2023.
5. R Vij (2023), Unified Payment Interface (UPI) –Stimulates Financial Inclusion, EPRA International Journal of Multidisciplinary Research (IJMR)-Peer Reviewed Journal, Volume: 9| Issue: 3| March 2023.
6. G Damodhar, T Suneetha, (2020), E-Commerce in India: E- Payment Methods, Trends AND Challenges, International Journal of Engineering Applied Sciences and Technology, Vol. 5, Issue 7.
7. R Gupta, P Mallick, Mobile Wallets Driving the Growth of Indian Digital Economy, Social Science Journal, vol.13, Issue 2023.
8. P Rajeswari, C Vijai, Fintech Industry In India: The Revolutionized Finance Sector, European Journal of Molecular & Clinical Medicin, Volume 8, Issue 11, 2021.
9. A Mahesh, Digital payments Service in India - A Case Study of Unified Payment Interface, International Journal of case studies in Business IT and Education, Vol 5, No. 1, June 2021.
10. Dr. Deepa Baliyan, Dr. Neha Singh, UNIFIED PAYMENTS INTERFACE (UPI): A Digital Transformation in India, Journal of Emerging Technologies and Innovative Research, Volume 11, Issue 3, 2023.

REFERENCES

1. <https://rbi.org.in/>
2. <https://www.npci.org.in/>
3. <https://finmin.nic.in/>
4. <https://www.bankbazaar.com/ifsc/upi-payment-app.html>