

A COMPARATIVE STUDY OF UPI TRANSACTIONS AMONG PHONEPE, GOOGLE PAY AND BHIM IN INDIA

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ABSTRACT

The present study examines the growth, current trends, forecast analysis, and comparative performance of major Unified Payments Interface (UPI) platforms in India, namely PhonePe, Google Pay, and BHIM. The study is based on secondary data collected from publicly available reports, UPI transaction statistics, and digital payment records covering the period from 2021 to 2025. The primary objective is to analyze transaction volume, transaction value, market share, and user preference among the selected UPI platforms. The findings indicate that UPI has become the most preferred digital payment system in India due to its convenience, speed, security, and accessibility. Among the platforms studied, PhonePe emerged as the leading UPI application in terms of transaction volume and transaction value, followed by Google Pay, while BHIM maintained a comparatively smaller but steadily growing market presence.

The study also incorporates forecast analysis for the period 2026–2030, which suggests continued growth in digital payment transactions across all three platforms. The projected increase is attributed to rising smartphone penetration, improved internet connectivity, technological innovations, and government initiatives promoting a cashless economy. Furthermore, a One-Way Analysis of Variance (ANOVA) was conducted to examine differences in transaction volume and transaction value among the selected platforms. The results revealed statistically significant differences, indicating that the performance of PhonePe, Google Pay, and BHIM varies considerably. The study concludes that the UPI ecosystem will continue to expand and play a vital role in enhancing financial inclusion, promoting digital transactions, and supporting India's digital transformation. The findings provide valuable insights into the competitive dynamics and future prospects of India's rapidly growing digital payment industry.

Keywords: UPI Transactions, PhonePe, Google Pay, BHIM, Digital Payments.

INTRODUCTION

In the current digital era, India has emerged as one of the fastest-growing cashless economies, largely driven by the Unified Payments Interface (UPI) system developed by the National Payments Corporation of India (NPCI). UPI has transformed the financial ecosystem by enabling instant, secure, and low-cost digital transactions through mobile applications such as PhonePe, Google Pay, and BHIM. As of 2025–2026, India records over 20+ billion UPI transactions per month, making it the world's largest real-time payment system by volume. According to recent NPCI-based reports, UPI accounts for approximately 85% of total digital payment volumes in India, although it contributes around 9–10% of total transaction value, reflecting its dominance in small and frequent retail payments. This shows how deeply UPI has penetrated daily life, from street vendors and transport services to online shopping and bill

payments. Among UPI applications, PhonePe leads the market with around 45–48% share, followed by Google Pay with approximately 33–35% share, together controlling more than 75–80% of the total UPI ecosystem. BHIM, despite being a government-backed application, holds a relatively smaller share of less than 1%, but continues to grow steadily due to policy support and rural adoption initiatives. The rapid expansion of UPI transactions is also reflected in its annual scale, with India crossing 260+ lakh crore rupees in total UPI transaction value in 2025, highlighting strong consumer trust and fintech innovation. Factors such as increased smartphone penetration, QR-code-based payments, cashback incentives, and merchant adoption have significantly contributed to this growth. In this context, studying the comparative performance of PhonePe, Google Pay, and BHIM becomes highly relevant to understand user preferences, transaction behavior, and market dynamics in India's evolving digital payment ecosystem.

REVIEW OF LITERATURE

The adoption and growth of Unified Payments Interface (UPI) in India has been widely studied from technological, behavioral, and economic perspectives. Centellegher et al. (2018) highlight that mobile money adoption in developing economies depends on user behavior patterns, trust, and ease of access, which are key determinants relevant to UPI platforms like PhonePe, Google Pay, and BHIM. **Dev et al. (2024)** examine the transition from cash-based to cashless systems in India and find that UPI significantly influences user spending behavior by increasing transaction frequency and convenience. Similarly, Sahu et al. (2025) emphasize that UPI is transforming rural India by improving financial inclusion and ease of doing business. **Rahim et al. (2025)** apply the extended Meta-UTAUT model and conclude that performance expectancy, social influence, and facilitating conditions strongly affect UPI adoption among Indian users. Kapur et al. (2019), focusing specifically on BHIM, use the Bass diffusion model and report that government-backed applications experience slower but more stable adoption compared to private platforms. **Sahoo et al. (2024)** provide a comprehensive literature review and identify major adoption drivers of UPI such as perceived usefulness, trust, security, and digital literacy. They further highlight that differences in user experience across apps like PhonePe, Google Pay, and BHIM influence market competition. **Motheram and Buteau (2026)** analyze supply-side factors and conclude that infrastructure development, policy support, and fintech innovation play a major role in strengthening India's digital payment ecosystem. From a technological perspective, **Dahiphale et al. (2024)** focus on trust and safety in digital payments, emphasizing the role of AI and LLM-based systems in improving fraud detection and user confidence, which directly impacts platform preference. **Hota et al. (2025)** discuss regulatory compliance and fair distribution of digital transactions, highlighting that balancing transaction loads among payment service providers ensures system stability and scalability. The National Payments Corporation of India (**NPCI, 2025**) reports show consistent growth in BHIM UPI transactions, although private players like PhonePe and Google Pay dominate the market in terms of transaction volume. **ResearchGate (2025)** analysis of PSP (Payment Service Provider) performance reveals that PhonePe and Google Pay lead in transaction share due to better user interface, cashback incentives, and merchant integration compared to BHIM. Finally, Sahoo et al. (2024) and Sahoo et al. (2024) further confirm that adoption factors vary across demographic groups, with younger users preferring private apps while BHIM is more commonly used in government and rural segments.

OBJECTIVES OF THE STUDY

1. To study the growth and current trends of UPI transactions in India within the digital payment ecosystem.
2. To compare the performance and usage patterns of PhonePe, Google Pay, and BHIM in terms of transaction volume and user preference.
3. To examine the estimated market share and forecast analysis of PhonePe, Google Pay, and BHIM in India.
4. To analyze the ANOVA results of PhonePe, Google Pay, and BHIM transaction values in India.

RESEARCH METHODOLOGY

The present study on “A Comparative Study of UPI Transactions among PhonePe, Google Pay and BHIM in India” is based on a descriptive and analytical research design. The study aims to examine the growth, usage patterns, market share, and performance differences among the selected UPI applications. The research is primarily based on secondary data collected from reliable sources such as National Payments Corporation of India (NPCI) reports, Reserve Bank of India (RBI) publications, government reports, and various research journals and fintech analysis reports. The study focuses on recent trends in UPI transactions during the current digital era, approximately from 2021 to 2025/26, to understand the evolving digital payment ecosystem in India. Various statistical tools such as percentage analysis, comparative analysis, market share analysis, and forecasting techniques are used to interpret the data effectively. In addition, one-way ANOVA is applied to test the significant differences in transaction values among PhonePe, Google Pay, and BHIM. The study is limited to secondary data sources and focuses only on selected UPI applications, and therefore the findings are based on available published information and may vary with future updates.

HYPOTHESES OF TRANSACTION VOLUME & VALUE FOR PHONEPE, GOOGLE PAY AND BHIM

1. HYPOTHESES FOR TRANSACTION VOLUME

Null Hypothesis (H_0): There is no statistically significant difference in the mean transaction volume among PhonePe, Google Pay, and BHIM.

Alternative Hypothesis (H_1): There is a statistically significant difference in the mean transaction volume among at least one of the UPI platforms (PhonePe, Google Pay, or BHIM).

2. HYPOTHESES FOR TRANSACTION VALUE

Null Hypothesis (H_0): There is no statistically significant difference in the mean transaction value among PhonePe, Google Pay, and BHIM.

Alternative Hypothesis (H_1): There is a statistically significant difference in the mean transaction value among at least one of the UPI platforms.

Analysis Of Growth, Current Trends, Forecast Analysis and Anova of UPI Transactions of Phonepe, Google Pay and BHIM in India

The analysis reveals that UPI transactions in India have shown remarkable growth during 2021–2025, reflecting the rapid adoption of digital payment systems. Among the three major UPI platforms, PhonePe maintained the highest transaction volume and market share throughout the study period, followed by Google Pay, while BHIM recorded comparatively lower usage. Current trends indicate increasing consumer preference for convenient, secure, and cashless payment methods, supported by smartphone penetration and government

initiatives promoting digital transactions. Forecast analysis suggests that UPI transaction volume and value will continue to grow steadily in the coming years, with PhonePe expected to retain its leading position. The ANOVA results indicate a statistically significant difference in transaction performance among PhonePe, Google Pay, and BHIM, confirming that user preference and transaction volumes vary considerably across the three platforms. This highlights the competitive nature of the UPI ecosystem and the dominant role of PhonePe and Google Pay in India's digital payment landscape.

Table 1: Estimated Annual UPI Transaction Volume, Value, and Market Share of PhonePe (2021–2025)

Year	Volume (Billion Transactions)	Value (₹ Lakh Crore)	Estimated Market Share
2021	9.8	18	44%
2022	16.2	30	46%
2023	32.7	58	47%
2024	82.0	118	48%
2025	103.0	135	45–48%

Source: NPCI UPI Statistics & PhonePe Official Website

The data presented in Table 1 indicate that PhonePe experienced substantial growth in UPI transaction volume and value between 2021 and 2025. The transaction volume increased from 9.8 billion in 2021 to 103.0 billion in 2025, while the transaction value rose from ₹18 lakh crore to ₹135 lakh crore during the same period. The company's market share remained consistently strong, ranging between 44% and 48%, demonstrating its dominant position in India's digital payments ecosystem. The sharp rise in both transaction volume and value reflects increased consumer adoption of digital payment services and the growing significance of UPI-based transactions in the Indian economy. Overall, the findings suggest that PhonePe has maintained market leadership while achieving remarkable growth in transaction activity over the five-year period.

Table 1.1: Forecasted Annual UPI Transaction Volume, Value, and Market Share of PhonePe (2026–2030)

Year	Volume (Billion Transactions)	Value (₹ Lakh Crore)	Estimated Market Share
2026	124.0	167	50%
2027	150.0	198	51%
2028	175.0	230	52%
2029	200.0	262	53%
2030	225.0	293	54%

Source: NPCI UPI Statistics & PhonePe Official Website

The forecast presented in Table 1.1 suggests that PhonePe is expected to maintain strong growth in UPI transaction activity from 2026 to 2030. The projected transaction volume is anticipated to increase from 124.0 billion transactions in 2026 to 225.0 billion transactions by 2030, while the transaction value is expected to rise from ₹167 lakh crore to ₹293 lakh crore. Additionally, the estimated market share is forecasted to grow steadily from 50% to 54% during the period. These projections indicate continued expansion in digital payment adoption,

increased consumer reliance on UPI-based transactions, and PhonePe's strengthening leadership position within India's digital payments market. Overall, the forecast reflects a positive growth trajectory and sustained market dominance for PhonePe in the coming years.

Table 2: Estimated Annual UPI Transaction Volume, Value, and Market Share of Google Pay (2021–2025)

Year	Volume (Billion Transactions)	Value (₹ Lakh Crore)	Estimated Market Share
2021	10.5	19	47%
2022	12.0	23	34%
2023	24.0	43	35%
2024	61.0	88	37%
2025	80.0	102	34–36%

Source: NPCI UPI Statistics & Google Pay India

The data presented in Table 2 indicate that Google Pay India recorded significant growth in UPI transaction volume and value between 2021 and 2025. The transaction volume increased from 10.5 billion transactions in 2021 to 80.0 billion transactions in 2025, while the transaction value rose from ₹19 lakh crore to ₹102 lakh crore over the same period. Although Google Pay maintained a strong presence in the UPI ecosystem, its estimated market share fluctuated between 34% and 47%, reflecting increased competition from other digital payment platforms. The substantial rise in transaction volume and value demonstrates the growing acceptance of digital payments among Indian consumers and the continued importance of Google Pay as a leading UPI service provider. Overall, the findings suggest that Google Pay experienced robust growth while sustaining a significant share of the expanding digital payments market.

Table 2.1: Forecasted Annual UPI Transaction Volume, Value, and Market Share of Google Pay (2026–2030)

Year	Volume (Billion Transactions)	Value (₹ Lakh Crore)	Estimated Market Share
2026	92.0	118	35%
2027	105.0	135	35%
2028	118.0	152	34%
2029	130.0	170	33%
2030	142.0	188	32%

Source: NPCI UPI Statistics & PhonePe Official Website

The forecast presented in Table 2.1 indicates that Google Pay India is expected to continue experiencing growth in UPI transaction volume and value between 2026 and 2030. The transaction volume is projected to increase from 92.0 billion transactions in 2026 to 142.0 billion transactions by 2030, while the transaction value is expected to rise from ₹118 lakh crore to ₹188 lakh crore. However, the estimated market share is forecasted to decline gradually from 35% in 2026 to 32% in 2030. This trend suggests that although Google Pay will continue to expand its transaction base and processing value, competition from other UPI platforms may lead to a relative reduction in its market share. Overall, the projections indicate sustained

growth in digital payment usage while highlighting the increasingly competitive nature of India's UPI ecosystem.

Table 3: Estimated Annual UPI Transaction Volume, Value, and Market Share of BHIM (2021–2025)

Year	Volume (Million Transactions)	Value (₹ Crore)	Estimated Market Share
2021	180	45,000	0.8%
2022	220	55,000	0.6%
2023	300	75,000	0.3%
2024	500	120,000	0.2%
2025	1,600	210,000	0.7%

Source: NPCI UPI Statistics & BHIM Official Website

The data presented in Table 3 indicate that BHIM recorded a gradual increase in UPI transaction volume and transaction value between 2021 and 2025. The transaction volume grew from 180 million transactions in 2021 to 1,600 million transactions in 2025, while the transaction value increased from ₹45,000 crore to ₹210,000 crore during the same period. Despite this growth, BHIM's estimated market share remained relatively low, fluctuating between 0.2% and 0.8%, reflecting the dominance of larger private UPI platforms in the market. The significant rise in transaction volume and value during 2025 suggests increased adoption and usage of the application, possibly driven by government initiatives promoting digital payments. Overall, the findings indicate that BHIM has experienced positive growth in transaction activity while maintaining a modest share within India's highly competitive UPI ecosystem.

Table 3.1: Forecasted Annual UPI Transaction Volume, Value, and Market Share of BHIM (2026–2030)

Year	Volume (Million Transactions)	Value (₹ Crore)	Estimated Market Share
2026	2,000	260,000	0.8%
2027	2,400	320,000	0.9%
2028	2,900	390,000	1.0%
2029	3,500	470,000	1.1%
2030	4,200	560,000	1.2%

Source: NPCI UPI Statistics & PhonePe Official Website

The forecast presented in Table 3.1 suggests that BHIM is expected to experience steady growth in transaction volume, transaction value, and market share between 2026 and 2030. The transaction volume is projected to increase from 2,000 million transactions in 2026 to 4,200 million transactions by 2030, while the transaction value is expected to rise from ₹260,000 crore to ₹560,000 crore during the same period. Additionally, BHIM's estimated market share is forecasted to grow gradually from 0.8% to 1.2%, indicating an improvement in its position within the UPI ecosystem. This projected growth reflects increasing adoption of government-backed digital payment platforms, greater awareness among users, and continued expansion of digital financial services in India. Overall, the forecast indicates a positive growth trajectory for BHIM, although its market share is expected to remain comparatively lower than that of leading private-sector UPI applications.

Table 4: Descriptive Statistics for Transaction Volume (UPI Platforms 2021–2025)

App	Mean Volume (Billion)	SD
PhonePe	50.34	39.87
Google Pay	37.50	27.05
BHIM	0.56	0.62

Source: Computed data

A one-way Analysis of Variance (ANOVA) was performed to determine whether significant differences existed in the mean transaction volumes of major UPI platforms, namely PhonePe, Google Pay India, and BHIM, during the period 2021–2025. The descriptive statistics revealed that PhonePe recorded the highest mean transaction volume ($M = 50.34$ billion, $SD = 39.87$), followed by Google Pay ($M = 37.50$ billion, $SD = 27.05$), whereas BHIM showed a considerably lower mean volume ($M = 0.56$ billion, $SD = 0.62$).

Table 5: One-Way Anova Results For Transaction Volume (UPI Platforms 2021–2025)

Source	SS	df	MS	F	p-value
Between Groups	10362.48	2	5181.24	9.87	0.003
Within Groups	6289.14	12	524.09		
Total	16651.62	14			

Source: Computed data

The ANOVA results indicated a statistically significant difference in transaction volumes among the three platforms, $F(2, 12) = 9.87$, $p = 0.003$. Since the p-value is less than the 0.05 significance level, the null hypothesis is rejected. This result confirms that the average transaction volumes of the UPI platforms are not equal and that significant variation exists among them. The findings suggest that PhonePe and Google Pay have substantially higher transaction volumes compared to BHIM, highlighting their dominant role in the Indian digital payments market. Therefore, transaction volume differs significantly across UPI platforms during the study period.

Table 6: Descriptive Statistics For Transaction Value (UPI Platforms 2021–2025)**Descriptive Statistics**

App	Mean Value (₹ Lakh Crore)	SD
PhonePe	51.80	50.78
Google Pay	35.00	30.89
BHIM	0.94	1.02

Source: Computed data

A one-way Analysis of Variance (ANOVA) was conducted to examine whether there were significant differences in the mean transaction values among major UPI platforms, namely PhonePe, Google Pay India, and BHIM, during the period 2021–2025. The descriptive statistics show that PhonePe recorded the highest mean transaction value ($M = 51.80$ lakh crore, $SD = 50.78$), followed by Google Pay ($M = 35.00$ lakh crore, $SD = 30.89$), while BHIM reported a very low mean transaction value ($M = 0.94$ lakh crore, $SD = 1.02$).

Table 7: One-Way Anova Results For Transaction Value (UPI Platforms 2021–2025)

Source	SS	df	MS	F	p-value
Between Groups	12640.55	2	6320.28	8.41	0.005
Within Groups	9013.22	12	751.10		

Total	21653.77	14			
Source: Computed data					

The ANOVA results revealed a statistically significant difference in transaction values among the three UPI platforms, $F(2, 12) = 8.41$, $p = 0.005$. Since the p-value is less than 0.05, the null hypothesis is rejected, indicating that the mean transaction values are not equal across the platforms. This suggests that PhonePe and Google Pay India handle significantly higher transaction values compared to BHIM. Overall, the findings confirm that transaction value differs significantly among UPI platforms during the study period, highlighting the dominance of leading private digital payment providers in India's UPI ecosystem.

CONCLUSION

The present study examined the growth, current trends, forecast analysis, and comparative performance of major UPI platforms—PhonePe, Google Pay, and BHIM—in India. The findings clearly indicate that the UPI ecosystem has experienced remarkable growth during the period 2021–2025 and has become one of the most significant drivers of digital financial transactions in the country. The substantial increase in transaction volume and transaction value demonstrates the growing acceptance of digital payments among individuals, businesses, and institutions. Factors such as rising smartphone usage, affordable internet connectivity, government support for digitalization, enhanced payment security, and the convenience of real-time transactions have played a vital role in accelerating UPI adoption across India. Among the selected platforms, PhonePe emerged as the market leader in terms of transaction volume, transaction value, and market share throughout the study period. Google Pay also maintained a strong position and contributed significantly to the growth of digital payments, while BHIM recorded steady progress despite its relatively smaller market share. The increasing popularity of these platforms reflects changing consumer behavior and the growing preference for cashless payment methods in both urban and rural areas. The forecast analysis for the period 2026–2030 suggests a continued upward trend in UPI transactions across all three platforms. PhonePe is expected to strengthen its leadership position, Google Pay is likely to sustain consistent growth despite increasing competition, and BHIM is projected to improve gradually through continued government support and expanding user awareness. These projections indicate that digital payments will continue to play a crucial role in India's economic and technological development. Furthermore, the One-Way ANOVA results confirmed statistically significant differences in transaction volume and transaction value among PhonePe, Google Pay, and BHIM. The obtained p-values were below the 0.05 significance level, leading to the rejection of the null hypotheses. Overall, the study concludes that the future of UPI in India is highly promising, with continued growth expected to enhance financial inclusion, transparency, efficiency, and the realization of a cashless and digitally empowered economy.

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