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IMPACT OF DIGITAL PAYMENT SYSTEM ON CONSUMER SPENDING HABITS: AN EMPIRICAL STUDY

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Abstract *The rapid advancement of financial technologies has significantly transformed consumer behaviour, particularly in the domain of spending patterns. This empirical study investigates the impact of digital payment systems such as mobile wallets, online banking, UPI, and contactless payment modes on consumer spending habits. Drawing on survey data and transaction records from a diverse group of respondents, the research analyses how factors such as convenience, perceived security, speed, and ease of access influence purchasing frequency, expenditure levels, and budgeting practices. Findings reveal a strong correlation between digital payment adoption and increased consumer spending, largely driven by reduced transaction friction, cashless convenience, and enhanced user experience. The study also explores demographic variations, indicating that younger consumers and larger populations display a higher tendency towards impulsive purchases and overspending when using digital payment platforms. The results provide insights for financial institutions, policymakers, and marketers aiming to understand and guide consumer financial behaviour in the digital age.*

Keywords: *Digital Payments, Consumer Behaviour, Spending Habits, Financial Technology, Financial Literacy*

JEL Classifications: *D12, D14, E42, G53, O33, L86*

INTRODUCTION

The evolution of digital payment systems has significantly transformed consumer spending habits worldwide. With the proliferation of smartphones, internet penetration, and financial technology (FinTech) innovations, digital transactions have become an integral part of everyday economic activities (Kumar & Gupta, 2021). The shift from cash-based transactions to digital payments has been accelerated by government initiatives, technological advancements, and changing consumer preferences. The government of India is promoting a cashless economy, especially after the demonetisation of high-value currency notes in 2016, which has played a crucial role in promoting digital payment platforms such as Unified Payments Interface (UPI), mobile wallets, and internet banking (RBI, 2022). These changes have influenced consumer spending behaviour, particularly in semi-urban and rural areas such as Sambalpur district in Odisha. Sambalpur, a prominent district in Odisha, has witnessed increasing adoption of digital payments in recent years. The accessibility of digital payment methods, including UPI-based applications such as Google Pay, PhonePe, and Paytm, has contributed to a gradual transition from traditional cash transactions. However, the extent to which these digital payment methods impact consumer spending patterns in the region remains a subject of investigation. Several studies have suggested that digital payment systems encourage higher spending by providing convenience, cashback incentives, and seamless financial transactions (Chakraborty & Dutta, 2020). In addition, the psychological effect of cashless transactions reduces the perceived loss of money, leading to increased discretionary spending (Thaler, 2018). Notwithstanding the benefits of digital payments, obstacles such as cybersecurity risks, a lack of digital literacy, and infrastructure constraints continue to prevent their broad use in rural and semi-urban areas. Consumers in these regions may still rely on cash transactions due to network issues, a lack of trust in digital platforms, or inadequate financial literacy (Singh & Roy, 2021). Policymakers, financial institutions, and digital service providers must comprehend these factors to design strategies that ensure inclusive financial growth. By examining adoption rates, shifts in consumer spending patterns, and consumer obstacles, this study seeks to analyse how digital payment systems affect Sambalpur district

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customers' buying patterns. The research will contribute to existing literature by providing empirical insights into the regional variations of digital payment adoption and its socio-economic implications.

LITERATURE REVIEW

Digital Payment Systems and Consumer Behaviour

The non-cash payments such as credit and debit cards reduce the psychological pain of paying, leading to higher spending (Raghubir & Srivastava, 2008). Digital payment platforms further exacerbate this effect by making transactions seamless and reducing friction in purchases (Shah et al., 2016). Digital payments provide convenience, thereby increasing impulse purchases. Chen et al. (2020) found that mobile payment users tend to spend more frequently than cash users. Digital wallets create a perception of virtual money, leading to a lower sense of financial depletion (Zhao & Bacao, 2021). Digital payment systems encompass credit and debit cards, mobile wallets, cryptocurrencies, and contactless payments. The study by Dahlberg et al. (2015) emphasised the role of financial technology (FinTech) in shaping modern payment methods. Consumers prefer digital payments due to their ease of use and accessibility. Similarly, Oliveira, Thomas, Baptista and Campos (2016) emphasise that the reduced transaction time associated with digital payments enhances consumer satisfaction (Pousttchi & Dehnert, 2018). By lowering the psychological obstacles to purchasing, digital payment methods such as contactless cards and mobile wallets have drastically changed consumer spending patterns (Huggi et al., 2024). Although mobile wallets and UPI platforms are widely adopted, Bhavana (2025) found that among Gen Z women in Bengaluru, these tools do not necessarily result in increased purchasing frequency. The respondents typically spend more money while using digital payment applications because of the platforms' convenience and attractive deals, which have a big influence on consumers' purchasing decisions (Barodawala, 2025).

Security and Trust in Digital Payments

Perceived security and trust significantly influence users' willingness to adopt digital payment methods (Dahlberg et al., 2015). Biometric authentication and encryption technologies enhance consumer confidence, leading to increased spending behaviour (Kim et al., 2010). If consumers believe that digital payment systems are safe, they are more likely to use them (Gefen et al., 2013). Luo, Li, Zhang and Shim (2010) suggest that two-factor authentication and encryption technologies help build consumer trust in digital payments. The adoption of digital payments is impacted by social influence, performance expectancy, effort expectancy, and facilitating factors, as explained by the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2012).

Changing Spending Patterns

When utilising credit cards instead of cash, consumers typically spend more money (Prelec & Simester, 2001). The psychological distance between digital transactions and actual money leads to higher spending (Soman, 2003).

Mobile Payment Adoption

Kim et al. (2010) argue that personal innovativeness moderates mobile payment adoption. Structural assurance mechanisms, such as fraud protection and transaction guarantees, enhance consumer confidence in digital payments. Trust in digital payment providers is essential for widespread adoption (McKnight et al., 2002). Dahlberg et al. (2015) noted that ease of use, security, and trust significantly impact user adoption of mobile payment. The role of perceived usefulness and consumer confidence in mobile payment adoption (Thakur & Srivastava, 2014). Mobile payment adoption is also influenced by cultural and economic factors; it was found that users in developed economies prioritise convenience, while those in developing economies focus on financial accessibility (Zhou, 2013).

Future Trends in Digital Payments and Consumer Behaviour

Catalini and Gans (2020) indicate that blockchain-based payment systems can improve transaction transparency and reduce fraud. Furthermore, it is anticipated that biometric authentication such as fingerprint and facial recognition will boost confidence in the security of digital payments. The future of digital payments is driven by innovations such as blockchain, artificial intelligence (AI), and biometric authentication (Shin, 2019).

Security and Privacy Concerns

Users are discouraged from embracing mobile payments to the fullest extent by security risks such as phishing attempts and data leaks. One major obstacle to the broad use of mobile payment technology is still security (Linck et al., 2006). Trust in service providers and regulatory frameworks significantly affect consumer confidence in mobile payments (De Kerviler et al., 2016).

Economic Impact of Mobile Payments

By giving unbanked people access to digital financial services, mobile payments improve financial inclusion. The economic implications of mobile payment technologies are profound, affecting both businesses and consumers (Ondrus & Pigneur, 2006). Mallat (2007) noted that mobile payments also reduce transaction costs and improve operational efficiency for businesses, and demonstrated that mobile payments streamline retail operations and enhance customer satisfaction.

Consumer Behaviour and Mobile Payment Preferences

Yang et al. (2012) discovered that because they are more accustomed to digital technology, younger customers are more inclined to use mobile payments. Shin (2009), in contrast, noted that an ageing population may show resistance due to perceived complexity and security concerns. Kim et al. (2010) emphasise the importance of user experience and interface design in influencing mobile payment adoption.

Emerging Trends and Future Prospects

Jun and Palacios (2016) predict that AI-driven fraud detection and biometric verification will further enhance security and user confidence in mobile payment systems. The future of mobile payments is evolving with advancements in blockchain, AI, and biometric authentication.

Impact on Retail and E-Commerce by Digital Payments

Digital payments have revolutionised the retail and e-commerce sectors by enhancing transaction efficiency, reducing operational costs, and improving customer experiences. The growing adoption of digital payment methods such as credit/debit cards, mobile wallets, and cryptocurrencies has significantly influenced the way businesses operate. This literature review explores the impact of digital payments on retail and e-commerce, considering key aspects such as consumer behaviour, security, and business operations. Sharma & Gupta (2021) noted that digital transactions have led to increased impulse buying due to the convenience and speed of transactions. Kumar and Singh (2020) observed that digital payment incentives such as cashback and discounts encourage consumer spending.

Operational Efficiency and Cost Reduction

Brown and Taylor (2019) highlight that digital transactions reduce checkout times, thereby enhancing customer satisfaction. Patel et al. (2022) noted that digital payments lower administrative costs and streamline financial management. Retailers and e-commerce platforms have benefited from digital payments by reducing transaction processing costs and minimising errors associated with cash handling.

Security and Fraud Prevention

Wilson (2020) observed that digital payment methods have led to an increase in cyber fraud, necessitating advanced security measures such as biometric authentication and blockchain technology. Zhang and Li (2021) noted that secure digital payment solutions build consumer trust and encourage more online transactions.

Digital Payment Methods and Market Expansion

Ahmed and Khan (2021) indicate that digital payments have empowered small and medium enterprises (SMEs) to expand their customer base beyond geographical boundaries. Chen and Wang (2020) observed that cross-border e-commerce has grown due to seamless international transactions. Mobile wallets and contactless payments have widened market reach, particularly in developing economies.

Customer Experience and Loyalty

Johnson (2021) suggests that businesses integrating multiple payment options witness increased repeat purchases. Lee and Park (2022) noted that personalised digital payment solutions further enhance user satisfaction and brand engagement. Seamless digital payment experiences have contributed to higher customer retention and loyalty.

Challenges and Future Prospects

Singh et al. (2023) observed that digital payments offer numerous benefits, and challenges such as transaction failures, regulatory compliance, and digital literacy, which hinder full adoption. Future advancements in AI and blockchain are expected to address these challenges and further revolutionise digital payments.

Financial Literacy

Financial literacy is critical for effective financial decision-making, particularly in areas such as retirement planning and investment. The authors argue that low financial literacy correlates with poor savings behaviour and suboptimal financial outcomes (Lusardi & Mitchell, 2014). Financial education improves knowledge; its effects on behaviour are often modest, suggesting the need for well-designed interventions (Hastings et al., 2013). Higher financial literacy leads to better budgeting, debt management, and long-term financial planning (Xiao & O'Neill, 2016).

OBJECTIVES OF THE STUDY

- To identify the factors of digital payment systems that have an impact on consumer spending habits in Sambalpur.
- To examine the impact of digital payment systems on consumer spending habits.

RESEARCH HYPOTHESES

Direct Effect

H01: Digital payment systems have no significant influence on consumer spending habits.

Indirect Effect (Mediating)

H02: Digital payment systems have no significant effect on financial literacy.

H03: Financial literacy has no significant impact on consumer spending habits.

H04: Digital payment systems do not significantly affect the convenience of consumer purchasing.

H05: The convenience provided by digital payment systems has no significant impact on security concerns regarding online platforms.

H06: Security concerns related to online platforms have no significant effect on consumer spending habits.

RESEARCH METHODOLOGY

Research Design

The study employs descriptive as well as empirical research to analyse the impact of digital payment systems on consumer spending habits in Sambalpur district. This approach helps in understanding behavioural trends and patterns among digital payment users.

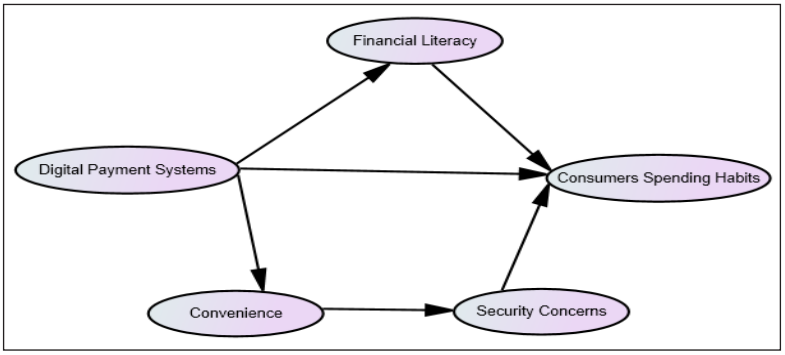
Sample Design

A structured questionnaire is used for focusing on individuals who actively use digital payment systems. The sample size comprises 350 respondents, ensuring a comprehensive representation of the target population.

Research Variables

The independent variable used in the study is adoption of digital payment systems, while the dependent variable is consumer spending habits. Control variables include demographic factors such as gender, age, occupation, income, and education level.

Research Model



Source: Self-developed model from literature review.

Fig. 1: Conceptual Research Model

Sampling Method

To ensure diversity in replies, stratified random sampling has been used, which divides the population into pertinent strata depending on demographic criteria.

Statistical Tools

Using Excel, SPSS, and Amos software, data analysis includes descriptive statistics, exploratory and confirmatory factor analyses, and structural equation models, among other things.

Reliability Analysis

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.901	34

Source: SPSS output.

Table 1 represents the reliability statistics. The Cronbach's alpha value of 0.901 indicates excellent internal consistency among the 34 items in the scale. This high reliability suggests that the items measure the same underlying construct and are suitable for further statistical analysis.

Data Collection

Primary data have been collected through a structured Google questionnaire, while secondary data were gathered from research papers, government reports, and websites, among others.

RESULTS AND DISCUSSION

Table 2: Demographic Profile of Respondents (n = 350)

Variables	Category	Frequency	Percentage
Gender	Male	263	75.1
	Female	87	24.9
Age Group	Up to 20 years	173	49.4
	21–30 years	126	36.0
	31–40 years	35	10.0
	41–50 years	5	1.4
	Above 51 years	11	3.1
Educational Qualification	Up to10th	47	13.4
	+2	89	25.4
	Graduate	171	48.9
	Postgraduate	18	5.1
	Others	25	7.1
Occupation	Salaried	195	55.7
	Businessperson	37	10.6
	Self-employed	52	14.9
	Professional	28	8.0
	Others	38	10.9
Geographical Area	Rural	270	77.1
	Urban	80	22.9
Monthly Income (In INR)	Up to 10,000	181	51.7
	10,001–25,000	84	24.0
	25,001–50,000	36	10.3
	50,001–1,00,000	14	4.0
	Above 1,00,001	35	10.0
Frequency of Digital Payment Usage	Rarely	15	4.29
	Occasionally	24	6.86
	Frequently	167	47.71
	Always	144	41.14
Preferred Digital Payment Method	UPI	107	30.57
	Credit/Debit Cards	35	10.0
	Mobile Wallets	183	52.29
	Net Banking	10	2.86
	Other	15	4.28

Source: Primary data.

The demographic profile of the respondents in Sambalpur district provides essential insights into how different consumer segments interact with digital payment systems and how this may influence their spending habits. The majority of the respondents were male (75.1%), with a significant portion falling into the age group of up to 20 years (49.4%) and 21–30 years (36%), indicating a youthful and possibly tech-savvy population. Educationally, most respondents were graduates (48.9%) or had completed up to 10th standard (13.4%), suggesting a relatively educated demographic, which is likely more adaptable to digital payment platforms. Occupationally, the majority were salaried individuals (55.7%), followed by self-employed individuals (14.9%) and professionals (8.0%). This distribution implies that a large portion of the respondents

have a stable income, possibly making them more open to using digital transactions for their regular expenditures. Geographically, the dominance of rural respondents (77.1%) suggests that digital payment systems have penetrated significantly into non-urban areas of Sambalpur, challenging the notion that such systems are more prevalent in urban settings. In terms of income, a substantial percentage (51.7%) reported earning up to INR10,000 per month, indicating that digital payment systems are not limited to high-income groups but are also being embraced by lower-income consumers. The frequency of digital payment usage shows that nearly half (47.7%) of the respondents use digital payments frequently, while 41.1% use them occasionally, reflecting a strong adoption rate overall. When examining the preferred digital payment methods, mobile wallets lead significantly (52.29%), followed by UPI (30.57%). This indicates a consumer preference for easy-to-use and widely accessible platforms. The strong inclination towards mobile wallets and UPI suggests a shift in consumer behaviour, likely leading to more impulsive and convenient purchases due to the ease of transactions.

Exploratory Factor Analysis

To identify the factors of digital payment systems on consumer spending habits in Sambalpur.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.897
Bartlett's Test of Sphericity	Approx Chi-Square	4.607E3
	Df	561
	Sig	.000

Source: SPSS output.

From Table 3, the KMO value of 0.897 signifies adequate sampling for factor analysis. Bartlett's Test of Sphericity is significant ($\chi^2 = 4607.0$, df = 561, $p < .001$), indicating that correlations between items are sufficiently large for factor analysis.

Table 4: Rotated Component Matrix

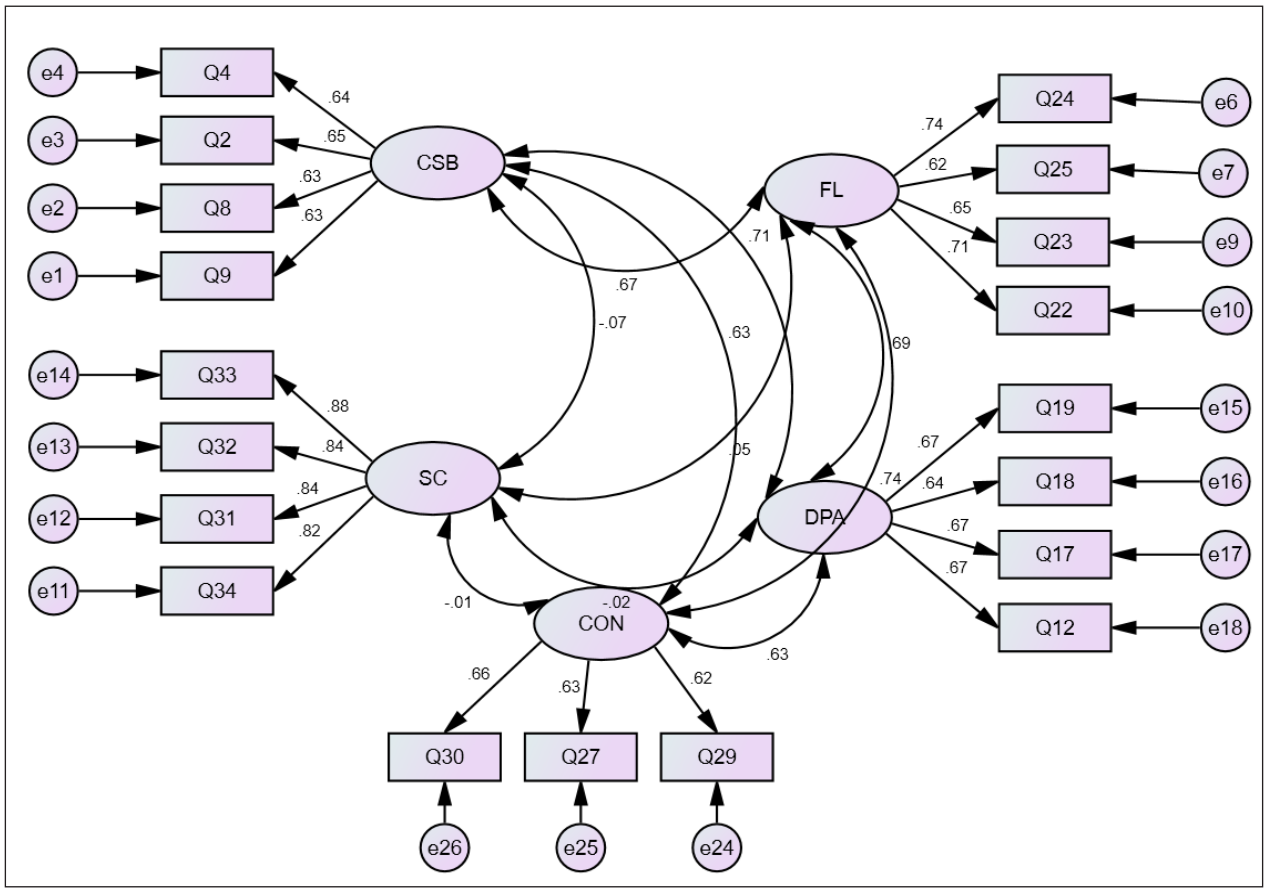
	Component					
	1 (CSH)	**2 (FL)**	**3 (SC)**	**4 (DPS)**	**5 (CON)**	**6 (TRU)**
Q3	.680					
Q2	.654					
Q8	.646					
Q9	.607					
Q4	.526					
Q10						
Q7						
Q13						
Q24		.691				
Q25		.690				
Q21		.631				
Q23		.596				
Q22		.594				
Q15						
Q14						
Q33			.905			
Q32			.884			
Q31			.878			
Q34			.866			
Q19				.697		
Q18				.682		
Q17				.660		
Q12				.579		
Q20				.505		

	Component					
	1 (CSH)	**2 (FL)**	**3 (SC)**	**4 (DPS)**	**5 (CON)**	**6 (TRU)**
Q16					.660	
Q26					.631	
Q11					.604	
Q6					.592	.690
Q29						.553
Q27						.550
Q30						
Q28						
Q5						
Q1						

Source: SPSS output.

Table 4 presents the Rotated Component Matrix from the Principal Component Analysis (PCA), showing the factor loadings of items on extracted components. Each item loads strongly (values ≥ 0.5) on a specific component, indicating clear groupings of variables. This pattern suggests the presence of distinct underlying constructs or factors within the dataset. The rotation clarifies the factor structure, enhancing interpretability by reducing cross-loadings.

Confirmatory Factor Analysis



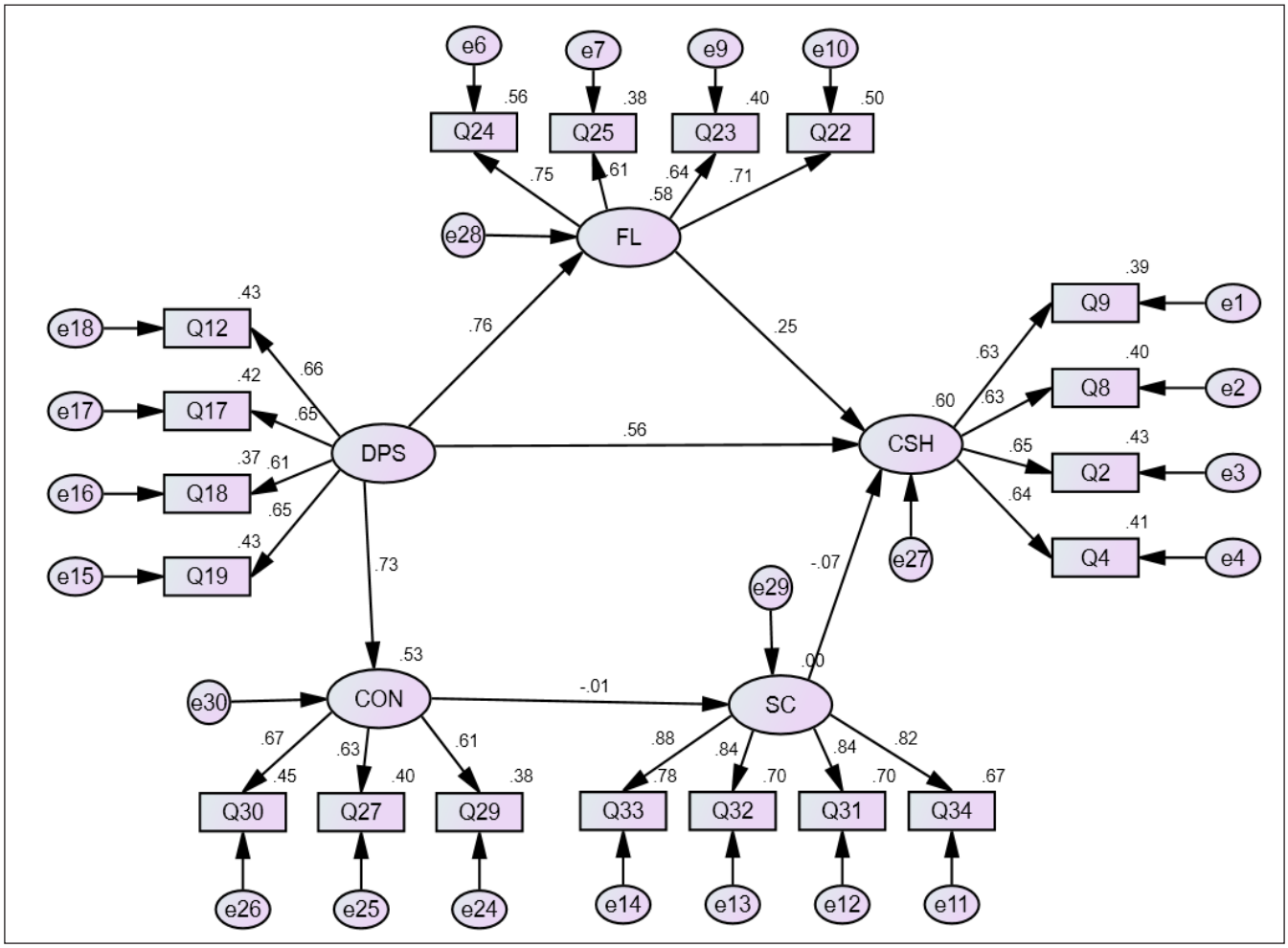
Source: Amos output.

Fig. 2: Modified CFA Model

Fig. 2 presents the Modified Confirmatory Factor Analysis model, which is used to validate the factor structure identified in the exploratory phase through PCA. The model consists of multiple latent constructs (factors) represented by ellipses, and observed variables (questionnaire items) represented by rectangles. This CFA model supports the hypothesised measurement structure with clearly defined latent constructs and strong loadings. The inter-factor correlations help explain the relationships among psychological or behavioural dimensions. The overall model appears to be well-structured and suitable for further structural equation modelling (SEM).

Structural Equation Model (Path Analysis)

To examine the impact of digital payment systems on consumer spending habits.



Source: Amos output.

Fig. 3: Structural Equation Model

Fig. 3 represents the Structural Equation Modelling (SEM) – Path Diagram. This SEM figure represents the structural model (not just measurement), showing relationships among latent variables (constructs) and observed variables (indicators). FL – Financial Literacy, DPS – Digital Payment Systems, CSH – Consumer Spending Habits, CON – Convenience, SC – Security. The SEM model in Fig. 3 adequately explains the interrelationships between financial literacy, digital payment adoption, convenience, security, and consumer behaviour.

Strong Paths: FL → DPS → CON → SC, and DPS → CSH.

Weaker Paths: CSH → SC and SC → CSH.

Table 5: Results of Hypotheses

Hypotheses	Relationship	Estimate	C R	P	Interpretation
H01	CSH ← DPS (Digital Payment → Spending Habits)	0.532	4.516	***	• **Significant** – DPS positively influences CSH
H02	FL ← DPS (Digital Payment → Financial Literacy)	0.945	9.115	***	• **Significant** – DPS has strong effect on FL
H03	CSH ← FL (Financial Literacy → Spending Habits)	0.190	2.205	***	• **Significant** – FL moderately influences CSH
H04	CON ← DPS (Digital Payment → Convenience)	0.697	7.649	***	• **Significant** – DPS strongly impacts CONVENIENCE
H05	SC ← CON (Convenience → Security)	-0.020	-0.182	.855	• **Not significant** – No impact of CON on SC
H06	CSH ← SC (Security → Spending Habits)	-0.044	-1.415	.157	• **Not significant** – SC has no significant effect on CSH

Source: Authors' compilation.

Supported Hypotheses (Significant at $p < .001$):

H01: DPS → CSH

H02: DPS → FL

H03: FL → CSH

H04: DPS → CON

- These show that Digital Payment Systems significantly influence Convenience, Financial Literacy, and Spending Habits.

Not Supported Hypotheses:

H05: CON → SC → (No significant link)

H06: SC → CSH → (No significant link)

- Suggests that Security perception does not influence spending nor is it impacted by convenience in a meaningful way.

The core SEM structure is strong, with most primary paths statistically supported.

The role of Security (SC) in this model seems weak or negligible.

FINDINGS OF THE STUDY

The study reveals several key insights into the impact of digital payment systems on consumer spending behaviour. A notable finding is the high rural adoption, with 77% of respondents from rural areas, reflecting the deep penetration of digital payments beyond urban boundaries. The analysis also highlights that youth are the key drivers, as 85% of users were below 30 years of age, indicating that younger consumers are spearheading the digital payment trend. Among the preferred methods, mobile wallets (52%) and UPI (31%) emerged as the most popular due to their ease of use and accessibility. Usage patterns further demonstrate that 89% of respondents rely on digital payments either frequently or always, showing their strong dependence on these platforms. Respondents reported that digital payment systems not only encouraged more frequent purchases, online shopping, and spending influenced by cashback offers but also supported better financial management through improved budgeting and expense tracking. In addition, SEM analysis confirmed that digital literacy and awareness were positively correlated with digital payment adoption and convenience. Interestingly, perceived security had minimal impact on spending behaviour, while affordability played a critical role, as the majority of users belonged to lower-income groups (earning ≤ INR10,000), underlining the accessibility and inclusiveness of digital payment platforms.

CONCLUSION

The study found that digital payment systems have emerged as a transformative force in shaping consumer spending habits, mainly in the Sambalpur district of Odisha. The findings highlight that rural penetration is significant, with youth and lower-income groups driving adoption, thereby challenging the traditional perception of digital divides. Popular platforms such as UPI and mobile wallets have redefined consumer behaviour by promoting convenience, frequent usage, and impulsive buying, while enabling improved budgeting and financial management. The structural equation modelling analysis confirms strong positive relationships between digital payment adoption, financial literacy, convenience, and consumer spending, while perceived security concerns exert negligible influence. This study suggests that accessibility, affordability, and ease of use outweigh security apprehensions in influencing

consumer choices. The results also highlight the role of financial literacy in mediating spending behaviour, pointing to the need for sustained educational initiatives. Overall, the study contributes to both academic discourse and policy debates by demonstrating that digital payments not only facilitate financial inclusion but also reshape consumption patterns, with far-reaching implications for financial institutions, businesses, and policymakers striving towards a cashless and inclusive economy.

POLICY IMPLICATIONS

The study highlights several important policy implications for strengthening the digital payment ecosystem in India. Programmes such as 'Digital India' should be expanded with a sharper focus on rural youth and low-income households, where the potential for wider adoption remains high. To ensure long-term sustainability, financial literacy initiatives must be integrated into school and college curricula, helping to build a future-ready and financially aware population. Furthermore, public–private collaboration between telecom providers and financial institutions is essential to enhance digital infrastructure, connectivity, and service reliability, particularly in underserved regions. Effective monitoring and regulation are also crucial, with clear policies on transaction fees, refunds, and data security needed to increase consumer trust and confidence. Finally, adopting a data-driven governance approach by analysing digital payment usage patterns can offer valuable insights into grassroots economic behaviour, enabling policymakers to design more informed and inclusive regional economic strategies.

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