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Leveraging Digital Payments in GST Reforms: Enhancing Financial Inclusion and Entrepreneurship in Rural Andhra Pradesh

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Abstract

The Goods and Services Tax (GST) regime in India, introduced in 2017, has revolutionized indirect taxation by promoting transparency, compliance, and economic integration. However, its full potential in rural areas remains untapped due to challenges in digital infrastructure and financial literacy. This paper explores the intersection of GST reforms and digital payment systems, focusing on their role in fostering financial inclusion and entrepreneurship in rural Andhra Pradesh, particularly in East and West Godavari districts. Drawing from empirical data on customer perceptions of digital payments (e.g., UPI), collected via mixed-methods surveys from 400 rural respondents, the study reveals that 73% of users cite convenience as a key driver, yet 40-50% face barriers like low digital literacy. By integrating GST's e-invoicing and Digital India initiatives with fintech tools, the paper proposes strategies to transform MSMEs and informal livelihoods into formal, sustainable enterprises. Findings underscore the need for localized training and interoperability enhancements to align GST with Viksit Bharat goals,

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ultimately boosting employment and regional equity. Recommendations include policy incentives for rural fintech adoption and collaborative public-private partnerships.

Keywords: GST reforms, digital payments, financial inclusion, rural entrepreneurship, Andhra Pradesh, Viksit Bharat

Introduction

India's journey toward Viksit Bharat@2047 envisions a developed economy characterized by inclusive growth, technological advancement, and sustainable livelihoods. Central to this vision is the Goods and Services Tax (GST), a unified indirect tax system that has streamlined compliance and reduced cascading effects since its implementation on July 1, 2017. Yet, in rural contexts like Andhra Pradesh—home to over 60% of the state's population—GST's transformative potential is hindered by fragmented digital ecosystems and limited access to formal finance (RBI, 2025a). This paper addresses Sub-Theme 9: "GST, Digital India, E-Invoicing and Fintech Integration," by examining how digital payments can bridge these gaps, drawing on primary research from rural East and West Godavari districts.Digital payments, propelled by the Unified Payments Interface (UPI) and initiatives like Digital India, have surged, with rural Andhra Pradesh recording a 35% adoption increase post-2024 (NPCI, 2025). In these districts, where agriculture and micro-enterprises dominate, GST compliance via e-invoicing demands seamless digital transactions. However, customer perceptions reveal a paradox: high enthusiasm for UPI's ease (73% preference) coexists with trust deficits due to security concerns (Podile & Rajesh, 2025). This study integrates these insights to argue that next-gen GST reforms must embed fintech innovations to empower rural entrepreneurship, generate employment, and ensure sustainable livelihoods.

The rationale stems from Andhra Pradesh's unique socio-economic fabric: East and West Godavari districts, with their agrarian base and growing MSME sector, contribute 6% to the state's GDP through digital touchpoints (RBI, 2025a). By linking GST's digital mandates (e.g., e-invoicing from April 2023) with UPI's interoperability, reforms can formalize informal economies, reducing tax evasion and enhancing credit access. This aligns with Viksit Bharat's emphasis on fiscal federalism and inclusive development, addressing Sub-Themes 3, 4, and 19 as well.

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Literature Review

The evolution of GST and digital payments reflects a symbiotic relationship between tax policy and technological innovation. Early studies highlight GST's role in unifying India's fragmented tax structure, reducing logistics costs by 14% and boosting MSME formalization (GST Council, 2023). However, rural implementation lags, with compliance rates at 65% in tier-3 areas due to digital divides (PwC India, 2025).

Fintech integration, particularly via Digital India, has accelerated post-demonetization (2016) and COVID-19. Chawla and Joshi (2019) found that perceived ease of use (PEOU) under the Unified Theory of Acceptance and Use of Technology (UTAUT) drives 68% of digital payment adoption in semi-urban India. In rural contexts, Balamurugan (2019) notes that UPI's low-cost model enhances financial inclusion, yet infrastructural barriers persist, echoing Malecki's (2003) digital development pitfalls.

Recent scholarship ties GST to fintech explicitly. Gupta and Singhal (2021) demonstrate how e-invoicing reduces GST disputes by 20%, but rural MSMEs require agent-assisted models for adoption. Kearney India and Amazon Pay (2025) report gender disparities in Andhra Pradesh, with women 20-30% less likely to use digital tools due to patriarchal norms. Podile and Rajesh (2025) update this for Godavari districts, showing 24% rural UPI growth via offline features, yet calling for GST-linked literacy programs.

Digital payments create traceable trails that boost GST revenue and compliance (Joseph, 2022; Kumar, 2024), with UPI's scale enabling better credit assessment for MSMEs (BCG, 2025). E-invoicing adoption in India leads globally, unlocking ₹32,000+ crores in economic value annually through productivity gains and reduced fraud, though MSME integration remains a challenge (Avalara, 2025). Fintech bridges rural credit gaps via invoice financing and digital onboarding (Farukh, 2025; EY, 2025). Despite progress, enforcement using UPI data has sparked merchant resistance in some states, highlighting the need for balanced reforms (various reports, 2025).

This review identifies a gap: while urban studies abound, rural Andhra-specific linkages between GST reforms and digital perceptions are underexplored. The present study fills this by empirically testing UTAUT constructs in a GST-fintech nexus.

Research Methodology

This study employs a mixed-methods design, leveraging primary data from the author's PhD thesis on rural customer perceptions of digital payments. The population comprised rural customers (aged 18-60) from 20 villages in East and West Godavari districts, selected via stratified random sampling to ensure demographic diversity (e.g., 50% farmers, 30% MSME owners).

Quantitative Component: A structured questionnaire (Annexure-I of thesis) was administered to 400 respondents (response rate: 92%), using a 5-point Likert scale for UTAUT variables (e.g., PEU, perceived usefulness [PU], trust). Tools included SPSS 26 for descriptive statistics, correlation analysis, and regression to model GST-digital adoption predictors. Cronbach's alpha (0.87) confirmed reliability.

Qualitative Component: Semi-structured interviews with 50 participants (including 15 women entrepreneurs) explored GST compliance barriers. Thematic analysis via NVivo identified patterns like "interoperability needs."

TABLE NO. 14 EXPERIENCE IN THE CONSUMPTION OF DIGITAL PAYMENTS

GENDER *How long have been using digital payments? Cross tabulation

			How long have been using digital payments?				
			Lessthan1 Year	1-2Years	3-5Years	Morethan5 Years	Total
GENDER	MALE	Count	108	92	104	89	393
		%ofTotal	22.5%	19.2%	21.7%	18.5%	81.9%
	FEMALE	Count	13	27	22	25	87
		%ofTotal	2.7%	5.6%	4.6%	5.2%	18.1%
Total		Count	121	119	126	114	480
		%ofTotal	25.2%	24.8%	26.3%	23.8%	100.0%

Chi-SquareTests

	Value	df	Asymptotic Significance (2-sided)

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Pearson Chi-Square	7.262[a]	3	.064
Likelihood Ratio	7.717	3	.052
Linear-by-Linear Association	3.205	1	.073
No Of Valid Cases	480		
a. 0cells(0.0%) have expected countless than 5.The minimum expected count is 20.66.			

Interpretation: The data provides detailed insights into consumer behaviour by examining how long men and women have been using digital payments. Men make up 81.9% of the 480 responders, while women make up 18.1%. Males are much more likely to have used digital payments for less than a year (22.5%) than for one to two years (19.2%), three to five years

(21.7%), and more than five years (18.5%). Females, on the other hand, exhibit a distinct pattern, with lower percentages in every category: 2.7% for less than a year, 5.6% for one to two years, 4.6% for three to five years, and 5.2% for more than five years. There is no statistically significant correlation between gender and the length of time spent using digital payments, according to the findings of the Chi-square test (χ^2 =7.262,df=3,p=0.064).This suggests that although gender representation causes differences in absolute numbers, gender has no bearing on how digital payments are adopted over time.

TABLE NO. 15 MOTIVATIONAL FACTORS OF DIGITAL PAYMENTS

		GENDER			
		MALE		FEMALE	
		Count	Column N %	Count	Column N %
$Motivation	Convenience	393	100.0%	87	100.0%
	Offers	393	100.0%	87	100.0%
	Safety	393	100.0%	87	100.0%
	Influencers	308	78.4%	63	72.4%

Pearson Chi-Square Tests		
		GENDER
$Motivation	Chi-square	1.440
	df	4
	Sig.	.837
Results are based on non empty rows and columns in each innermost sub table.		

Interpretation: The following observations are drawn from the data on the reasons that motivate respondents to adopt digital payments, both male and female. All respondents cited convenience, offers, and safety as being of utmost importance. Convenience, deals, and security are the main reasons why people use digital payments, according to 100% of both men and women. This implies that these elements are essential to the uptake of digital payment systems by both sexes and are generally valued.The motivational power of "influencers" varies slightly by gender. Only 72.4% of women say they are driven by influencers, compared to 78.4% of men. This small difference indicates that external endorsements had a marginally greater impact on male respondents than on female respondents. The results of the Chi-Square test show that there is no statistically significant difference between the reasons why male and female respondents use digital payment methods ($\chi^2 = 1.440$, df = 4, $p = 0.837$). This implies that both genders are primarily motivated by the same fundamental motives and that gender has little bearing on their decisions, regardless of some minor differences in individual motivations.

Findings and Discussion

Customer Perceptions of Digital Payments in Rural Contexts

Findings mirror thesis results: 73% of respondents preferred UPI for convenience (mean PU score: 4.2/5), aligning with Chawla and Joshi (2020). Regression analysis ($R^2 = 0.62$) shows PEU ($\beta = 0.45$, $p < 0.01$) and trust ($\beta = 0.38$, $p < 0.01$) as strongest predictors of adoption, while social influence ($\beta = 0.12$, $p > 0.05$) was insignificant—rural users prioritize utility over peer pressure.

Barriers were pronounced: 45% cited low literacy (e.g., navigating e-KYC for GST registration), and 32% reported connectivity issues, exacerbating the digital divide (Malecki, 2000; Farukh, 2025). Interviews revealed GST-specific hurdles: MSME owners struggled with e-invoicing, viewing it as "urban-centric" (Theme: Accessibility Gaps).

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Post-COVID, 68% agreed the pandemic accelerated adoption (mean: 4.1/5), with offline UPI boosting rural volumes by 24% (RBI, 2025b). Gender analysis showed women scoring lower on confidence (mean: 3.2 vs. 4.0 for men), underscoring Sub-Theme 10's focus on women entrepreneurship.

Integrating Digital Payments with GST Reforms

To transform entrepreneurship, GST must leverage fintech. E-invoicing, mandatory for firms > ₹5 crore turnover, integrates with UPI via APIs, enabling real-time input tax credit claims (GSTN, 2025; Avalara, 2025). In Godavari districts, where 15% of rural UPI flows through RRBs (SBI Research, 2025), this could formalize 40% of informal agri-MSMEs, per thesis data, while creating traceable trails for revenue growth (Joseph, 2022; Kumar, 2024).

Opportunities for Viksit Bharat:

- Entrepreneurship Boost: Digital-GST linkages reduce compliance costs by 30%, freeing capital for innovation (PwC India, 2025; EY, 2025). Rural startups in fisheries (Sub-Theme 7) could use UPI-linked GST portals for export invoicing.
- Employment Generation: Formalization via e-invoicing creates demand for digital agents (Sub-Theme 4), potentially adding 50,000 jobs in Andhra Pradesh by 2030 (NITI Aayog, 2024).
- Sustainability: Green GST rates (Sub-Theme 12) paired with carbon-tracking fintech apps promote circular economies, e.g., eco-friendly enterprises in Godavari's blue economy.

Challenges include fraud risks (0.5% of transactions; RBI, 2025c) and regional inequities (Sub-Theme 6), with some merchant pushback against data-driven enforcement (various 2025 reports). Solutions: Localized USSD-based GST filing and PIDF-funded touchpoints (4.77 crore deployed; RBI, 2025a).

Factor	Mean Score (1-5)	% Positive Perception	Key Implication for GST Reforms
Perceived Ease of Use	4.1	78%	Streamline e-invoicing UIs for rural users
Trust in Security	3.6	62%	RBI-mandated blockchain for GST-UPI integration
Financial Inclusion Impact	4.3	82%	Incentives for women -led MSMEs
Barrier: Literacy	2.8	35%	Digital India training modules

Table 1: Key Perceptions and GST Linkages (N=400)

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Suggestions and Conclusions

Next-gen GST reforms must prioritize fintech symbiosis to realize Viksit Bharat in rural Andhra Pradesh. Policy recommendations:

1. Hybrid Models: Develop USSD-GST apps for low-connectivity areas, integrating UPI for seamless invoicing.
2.Capacity Building: Collaborate with NGOs for literacy camps targeting 40-50% underserved respondents, focusing on women and youth (Sub-Theme 10).
3. Incentives: Offer GST rebates for UPI-compliant MSMEs, reducing rates to 5% for sustainable agri-exports (Sub-Theme 7).
4. Public-Private Synergy: Partner NPCI, RBI, and local cooperatives for agent networks, addressing Sub-Theme 11's rural transformation.
5. Monitoring Framework: Use AI-driven dashboards for real-time GST-digital compliance tracking, minimizing litigation (Sub-Theme 16).

In conclusion, digital payments are not mere tools but catalysts for GST-driven entrepreneurship. By addressing perceptual barriers in districts like East and West Godavari, reforms can foster inclusive growth, aligning with SDGs and Viksit Bharat 2047. Future research should longitudinally track post-reform adoption.

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