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Digital Financial Literacy And Digital Payment Adoption Among Women-Owned Micro Enterprises In Southern Tamil Nadu – An Empirical View

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ABSTRACT
In southern districts of Tamil Nadu, many women who run small shops, tailoring units and food processing enterprises have started receiving payments through UPI and QR codes, yet their comfort with these tools varies widely. This paper looks at how digital financial literacy shapes the actual use of digital payments among women-owned micro enterprises and whether such use relates to business performance. Primary data were gathered from 320 women entrepreneurs operating in Tirunelveli, Thoothukudi, Kanyakumari and Tenkasi. These enterprises were contacted through District Industries Centre lists, Udyam registrations and Mahalir Thittam self-help group networks, using purposive and snowball sampling. A structured questionnaire with 25 items measured on a five-point Likert scale was administered. Reliability (Cronbach's alpha = 0.938) and sampling adequacy (KMO = 0.921) were found suitable for factor analysis. Exploratory factor analysis extracted five underlying dimensions accounting for 66.35% variance: digital financial knowledge, perceived usefulness and business performance, ease of use and digital skill, trust, security and risk perception, and government support, training and accessibility. Multiple regression ($R^2 = 0.626$, $F = 89.84$, $p < 0.001$) showed all five dimensions positively associated with overall adoption, with digital financial knowledge emerging as the strongest predictor ($\beta = 0.312$). The study argues for Tamil-medium hands-on training, simplified app interfaces, and stronger fraud-awareness mechanisms to support inclusive digital adoption.

Keywords: Digital Financial Literacy, Digital Payment Adoption, Women-Owned Micro Enterprises, Financial Inclusion, Trust and Security, Southern Tamil Nadu.

Introduction

In the markets around Courtallam, Tenkasi and Tirunelveli town, it is now common to see a small grocery shop or a fancy store displaying a laminated QR code next to the cash box. For many women who run such micro units, this shift from cash to UPI happened quickly after COVID-19, but the ability to use it confidently has not spread evenly. Some entrepreneurs check their PhonePe or GPay transaction history every evening and maintain digital ledgers, while others still depend on a family member to confirm whether money has arrived. Digital financial literacy, as described by OECD (2022) and used in recent Indian studies, is not just knowing how to press buttons in an app. It involves understanding what a failed transaction means, how to recognise a phishing link, how to keep a record of digital receipts for business accounting, and where to complain if money is debited incorrectly. For women-owned micro enterprises, where the owner often manages both household and business finance, such knowledge directly affects working capital management and customer retention.

India's digital payment infrastructure, particularly UPI, mobile banking and QR-code based payments promoted by the National Payments Corporation of India and the Reserve Bank of India, has significantly lowered cost-related entry barriers for micro enterprises. However, field evidence from Tamil Nadu (Women's World Banking & NPCI, 2022) indicates that women entrepreneurs encounter specific challenges: apprehension of financial loss due to incorrect clicks, limited availability of guidance in Tamil language, inconsistent mobile network connectivity in rural areas of Kanyakumari district, and time constraints for attending training programmes due to domestic responsibilities.

Existing literature provides a foundational understanding but reveals a clear regional research gap. Gupta et al. (2023) demonstrated that digital financial literacy influences firm performance through financial inclusion, based on data from 214 women entrepreneurs across India. Peter et al. (2022) examined the linkage between financial behaviour traits and financial decision-making among 223 women-owned enterprises. Mishra and Sahoo (2021) focused on entrepreneurial intentions among 266 female students using PLS-SEM, rather than active micro entrepreneurs, which limits its direct applicability to the present context. What remains unexplored is ground level empirical evidence from the micro enterprise sector in Southern Tamil Nadu, where the concentration of SHG-linked women enterprises is high, yet systematic data on actual digital payment adoption behaviour is scarce. To address this gap, the present study examines 320 women owned micro enterprises across four southern districts of Tamil Nadu.

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Objectives of the Study

1. To assess the level of digital financial literacy among women-owned micro enterprises in the selected southern districts.
2. To record adoption and usage patterns of UPI, QR and mobile banking among women entrepreneurs.
3. To identify underlying dimensions influencing literacy and adoption using factor analysis.
4. To examine the influence of those dimensions on overall digital payment adoption through multiple regression.
5. To explore the association between digital payment use and perceived business performance.
6. To document practical challenges faced during day-to-day digital transactions.

Review of Literature

Gupta et al. (2023) Gupta et al. studied digital engagement and financial inclusion among 214 women entrepreneurs in India. Using survey data, they found digital financial literacy significantly related to financial inclusion and firm performance, with inclusion partially mediating the link. Their work underlines the need to treat literacy as an enabler rather than a standalone outcome.

Peter, Geetha and Gupta (2022) Peter, Geetha and Gupta analysed 223 women-owned enterprises in the new normal context. Through hierarchical regression, they reported that financial competency, financial skills and digital financial literacy together contributed to financial decision-making. The study stressed behavioural traits alongside knowledge.

Mishra and Sahoo (2021) Mishra and Sahoo looked at sustainable financial literacy and digital financial inclusion and its link to entrepreneurial intention among 266 female students in Indian institutions, using PLS-SEM. While the model is useful theoretically, the respondent group differs from active micro entrepreneurs, limiting direct transferability to the present context.

Women's World Banking and NPCI (2023) Women's World Banking and NPCI in their field report on enabling digital payments for women in India observed that even when women owned smart phones, concerns about fraud, lack of confidence to resolve failed transactions, and absence of a trusted local support person reduced regular usage. The report recommended demonstrating direct business benefits - faster receipt of money and ability to sell to distant customers – rather than only explaining technology.

Kumar et al. (2020) Digital Financial Literacy and Its Impact on Financial Decision Making of Women: Evidence from India - This study titled Digital Financial Literacy and Its Impact on Financial Decision Making of Women: Evidence from India examined digital financial literacy in relation to women's financial decision-making, considering factors such as financial attitudes, perceived behavioural control, financial accessibility and government support. The study contributes to understanding the importance of digital financial knowledge in women's financial choices. Its broader focus on women's financial decision-making provides a conceptual basis for investigating how digital financial capabilities relate to the financial practices of women entrepreneurs.

Research Gap

The above studies confirm that digital financial literacy matters for women's financial participation. However, most evidence comes from pan-India samples or student populations, and uses variables that do not capture the micro enterprise reality of southern Tamil Nadu such as dependence on weekly shandies, seasonal business in Courtallam tourist belt, or network issues in interior parts of Tenkasi. This study therefore collects primary data from 320 active women micro entrepreneurs in four specific districts to provide a localised factor structure and regression based evidence.

Research Methodology

Research Design

A descriptive and analytical design was adopted. Description was used to map profiles and usage frequencies, while factor analysis and multiple regression were used to identify dimensions and test their association with adoption.

Area of the Study

The study was carried out in Tirunelveli, Thoothukudi, Kanyakumari and Tenkasi districts. These districts were chosen because they have a high concentration of women-owned micro units registered under Udyam and linked to Mahalir Thittam, and represent a mix of coastal, semi-urban and rural market conditions.

Sample Size and Sampling

The final sample comprised 320 women entrepreneurs who had at least six months of business operation and some exposure to digital payments. A list was compiled from District Industries Centre, Udyam portal and SHG federations. From this, purposive sampling was used to ensure inclusion of manufacturing (e.g., tailoring, papad making), trading (grocery, fancy store) and services (beauty parlour, tuition). Snowball referrals helped reach unregistered but active entrepreneurs. Ten respondents per statement (25 statements) were maintained, meeting the threshold for factor analysis.

Statistical Tools

Data were coded in SPSS 26. Percentage analysis described profiles. Cronbach's alpha checked internal consistency. KMO and Bartlett's test checked suitability for factor analysis. Exploratory factor analysis (Principal Component

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Analysis with Varimax rotation) extracted factors. Multiple regression examined influence of factor scores on overall digital payment adoption.

Factor Analysis

Table 1: Reliability and KMO Statistics

Particulars	Value
Number of respondents	320
Number of statements	25
Cronbach's Alpha	0.938
KMO Measure of Sampling Adequacy	0.921
Bartlett's Test – Approx. Chi-Square	4,862.145
Degrees of Freedom	300
Significance	0.000

The alpha value of 0.938 shows high internal consistency among the 25 items. KMO of 0.921 is well above the 0.6 threshold, and Bartlett's test is significant ($p < 0.001$), indicating the correlation matrix is suitable for factoring.

Table 2: Total Variance Explained

Factor	Eigen value	% of Variance	Cumulative %
Digital Financial Knowledge	6.982	27.928	27.928
Perceived Usefulness & Business Performance	3.215	12.860	40.788
Ease of Use & Digital Skill	2.541	10.164	50.952
Trust, Security & Risk Perception	2.124	8.496	59.448
Government Support, Training & Accessibility	1.726	6.904	66.352

Five factors with eigen values above 1 were retained, together explaining 66.352% of variance. Knowledge accounts for the largest share, followed by usefulness, ease, trust and support.

Table 3: Rotated Factor Matrix – Major Loadings

S.No	Statement	F1 Knowledge	F2 Usefulness	F3 Ease	F4 Trust / F5 Support
1	I understand UPI, QR and mobile banking	0.828			
2	I can identify fraud messages/links	0.805			
3	I keep digital receipts for business accounts	0.782			
4	Digital payments increase sales and customer base		0.819		
5	Payments improve cash flow speed		0.796		
6	Apps are easy to learn in daily work			0.837	
7	I can handle payments without help from others			0.808	
8	Fear of losing money stops me from using				0.831 / 0.795
9	Govt/SHG training helped me				0.824 / 0.758

Sources: SPSS Output

The rotated matrix shows clear grouping. Items related to understanding UPI and fraud awareness load on Factor 1. Items about sales growth and cash flow load on Factor 2. Ease of operation loads on Factor 3. Fear of fraud and trust in platform security load on Factor 4, while training support and access to smartphone/data load on Factor 5. For brevity, major loadings above 0.70 are shown.

Multiple Regression Analysis

Overall digital payment adoption, measured as a composite of frequency of UPI use, QR use and willingness to continue, was taken as dependent variable. Factor scores of the five dimensions were predictors.

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Table 4: Model Summary (N=320)

Model	R	R Square	Adj. R Square	Std. Error
1	0.791	0.626	0.620	0.468

R of 0.791 indicates a strong relationship. About 62.6% variation in adoption is explained by the five factors in this sample of 320 entrepreneurs.

Table 5: ANOVA (N=320)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	98.412	5	19.682	89.84	0.000
Residual	58.788	314	0.187		
Total	157.200	319			

The model is statistically significant ($F = 89.84$, $p < 0.001$), suggesting the five dimensions together explain adoption better than chance.

Table 6: Regression Coefficients (N=320)

Predictors	B	Std. Error	Beta	T	Sig.
Constant	0.402	0.148		2.716	0.007
Digital Financial Knowledge	0.298	0.045	0.312	6.622	0.000
Perceived Usefulness	0.251	0.042	0.268	5.976	0.000
Ease of Use	0.203	0.041	0.211	4.951	0.000
Trust & Security	0.172	0.038	0.185	4.526	0.000
Govt Support & Training	0.128	0.035	0.138	3.657	0.000

All predictors are positive and significant at $p < 0.001$. Knowledge shows the highest beta (0.312), meaning a one-unit increase in knowledge score relates to higher adoption even after controlling for other factors. Usefulness (0.268) and ease (0.211) follow. Trust and government support, though smaller, remain significant contributors.

Findings

- Five dimensions explain 66.35% variance in responses from 320 women micro entrepreneurs.
- Reliability is high (alpha 0.938) and sample adequate (KMO 0.921).
- Knowledge of UPI, fraud identification and record keeping is the strongest driver of adoption.
- Women who see direct business benefits more customers, quicker cash rotation use digital payments more regularly.
- Fear of fraud and failed transactions still limits usage for about one-third of respondents, especially those relying on others to operate apps.
- Tamil-medium, hands-on training through Mahalir Thittam and DIC is positively linked to adoption, but access to stable internet and smartphones remains uneven in interior villages.

Suggestions

- Design short, Tamil-language practical sessions at weekly shandy or SHG meeting venues, demonstrating actual transactions, not just theory.
- Encourage banks and fintechs to provide voice prompts in Tamil and simple error messages (e.g., 'money not debited, try again').
- Set up a local help person – a trained SHG animator – in each panchayat to assist with failed transaction complaints and fraud reporting.
- Share success stories of nearby women entrepreneurs who increased sales after adopting QR codes, to show tangible business value.
- Link digital payment usage data with credit eligibility under Mudra and Udyam, so regular digital receipts help in accessing formal loans.

Limitations

The study covers only four districts, so results may not apply to northern Tamil Nadu. Snowball sampling, while necessary to reach unregistered units, limits generalisability. Self-reported business performance may be biased. Technology and UPI rules change quickly, so perceptions measured now may shift. The cross-sectional design shows association, not causality.

Conclusion

Among 320 women-owned micro enterprises in southern Tamil Nadu, digital payment adoption does not just about own a smartphone. It depends on understanding risks, seeing business usefulness, finding the app easy, trusting its security, and having local training support. Digital financial knowledge emerged as the strongest predictor, suggesting that

improving literacy through localised, practice-based support will do more than merely distributing QR codes. Such steps can strengthen financial inclusion and day to day business resilience of women micro entrepreneurs.

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