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Article

Reshaping the Threads of Tradition: Financial Inclusion and Digital Empowerment of Heritage Handloom Entrepreneurs in Tamil Nadu

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Abstract

This research seeks to investigate the multiple factors which shape financial inclusion and digital adoption of handloom weavers, emphasizing how socio-economic, behavioral and institutional factors promote interaction with formal financial and digital systems. A mixed methods technique comprised both quantitative analysis of a survey with 272 responses and qualitative analysis from open-ended observations incorporated into thematic analysis. Quantitative analysis was conducted using SPSS and SmartPLS/AMOS to investigate relations across financial behavior, digital adoption and income, as well as structural access to finances. Qualitative responses were analysed and coded using NVivo software to identify contextual and perceptual elements. The research identified levels of partial financial inclusion by handloom weavers and that insurance schemes with basic digital tools promoted initial connection to the financial sector. Most weavers have not tapped into savings, credit or higher functioning digital tools because of structural and behavioral constraints. Through the utilization of digital tools, weavers are able to achieve greater transparency and move away from pieces to market; although market access was not shown to me significantly enhanced. Quantitative analysis indicated that income, access, and institutional factors were the most significant contributors to financial behavior, whilst qualitative analysis indicated perceptions, motivations and barriers to action or further analysis supported or were akin to quantitative analysis. The research presents an in-depth assessment of financial and digital inclusion (FDI) in a heritage-based entrepreneurship framework, by utilizing a diverse array of multi-level quantitative indicators with rich qualitative understanding, in order to produce nuanced insights into FDI adoption and embedding processes. The combination of structural modeling and thematic analysis employed in the study illustrates the merit of mixed-methods approaches to understand complex socio-economic phenomena through appreciating intersections in the behavioral, structural, and institutional influences on adoption. The study offers insights for planning interventions that promote financial and digital inclusion among heritage-based artisan communities, which informs future research and policy action for a sustainable and inclusive economic growth within heritage-based entrepreneurship context.

Keywords: financial inclusion; digital adoption; handloom weavers; heritage entrepreneurs; economic sustainability & market access

1. Introduction

India's handloom sector, one of the largest forms of unorganized economic activity, is not only an economic activity of cultural significance, but is also a source of livelihood for over 3 million households in rural and semi-urban communities.... Tamil Nadu is home to a few of India's finest historical weaving clusters known for their cotton and silk textiles such as Sungudi, Kanchipuram silk, and Arani sarees. While there is rich cultural heritage in the form of weavers with a cultural past, the traditional manner of production is economically vulnerable. Unstable sources of income, lack of formal credit access, and distance to market severely impacts the artisans that typically reside in

remote areas where the cost of transportation also works against their margin. Digital technologies such as mobile banking, payment through UPI, and e-commerce marketplaces have allowed for new forms of acquisition or engagement with handloom or textile products, and can afford a rare opportunity to remedy financial inclusion, markets and absences in financial stability among heritage based entrepreneurs; however, while all of this sounds feasible, actual use of digital financial inclusion products: banks, mobile technology, etc. does not occur evenly, and occasionally hinders financial inclusion: digital illiteracy, distrust of formal systems, lack of infrastructure, and bindings on output due to reliance on intermediaries. Much of the literature focuses on notions of financial inclusion that worry about geography - urban or financial, and less on heritage-centred or complexity-centred models of financial inclusion for informal entrepreneurs that exist in the experience of traditional and creative production. With that being said, the present study seeks to explore how financial inclusion and the adoption of processes of inclusion, through the use of digital channels including mobile banking and a broad range of applications used for the transmission and reliance on a payment system, generate economic activity, efficiency, sustainability and market access for handloom weavers capable of making custom textiles in Tamil Nadu.

1.1. Objectives of the Study

1. To assess the level of financial inclusion among handloom weavers in selected cotton and silk weaving clusters of Tamil Nadu.
2. To examine the extent of digital adoption (digital payments, online marketing, mobile banking) among handloom weavers.
3. To analyze the relationship between access to financial services and the economic performance of weavers.
4. To evaluate the impact of digital tools on market access and income among weavers.

1.2. Hypotheses

H1. There is **no significant level of financial inclusion** among handloom weavers in the selected clusters.

H2. There is **no significant adoption of digital tools** (e.g., UPI, mobile banking, QR code payments) among handloom weavers.

H3. There is **no statistically significant relationship** between access to financial services (e.g., loans, savings accounts) and the **monthly income** of weavers.

H4. There is **no statistically significant impact** of digital tool usage on **market access** (measured as number of customers, geographical spread, or online sales).

2. Literature Review

2.1. Financial Inclusion: Concepts and Challenges

Financial inclusion refers to the process of ensuring access to affordable financial services—such as savings, credit, insurance, and remittance—for all individuals, particularly the underprivileged and unbanked (Sarma & Pais, 2011). It is widely recognized as a prerequisite for inclusive economic growth, especially in developing economies like India (Chattopadhyay, 2011). Although numerous policy frameworks have promoted financial access, challenges persist. These include poor financial literacy, complex documentation, limited trust in formal systems, and socio-cultural barriers (Demirgüç-Kunt et al., 2018). For rural populations and informal entrepreneurs, lack of proximity to banking infrastructure further compounds exclusion.

2.2. Digital Adoption in Informal Sectors

With the expansion of mobile technology and fintech platforms, digital tools have become enablers of financial inclusion. The use of mobile wallets, Unified Payments Interface (UPI), QR codes, and digital lending platforms has seen exponential growth in India post-demonetization and post-

COVID-19 (India, 2022). In informal sectors such as street vending, agriculture, and microenterprises, digital adoption improves transactional efficiency, transparency, and income tracking (Kumar et al., 2020). However, adoption remains fragmented due to digital illiteracy, fear of fraud, and inconsistent network access (Maiti & Sen, 2021).

2.3. Financial Inclusion in the Handloom Sector

The handloom industry, despite its cultural significance and employment potential, has historically remained outside the purview of formal finance (NABARD, 2020). Studies indicate that less than 20% of weavers are covered by formal insurance or credit schemes (Devi & Anitha, 2019). Microfinance institutions (MFIs), cooperative banks, and SHGs have played an important role in bridging financial gaps, but access remains uneven across regions and between genders (Rani & Lalitha, 2020). Financial dependency on intermediaries and informal moneylenders continues to limit growth and trap weavers in cycles of debt.

3. Research Methodology

This study employed an explanatory sequential mixed-methods research design (QUAN → QUAL) to investigate financial inclusion and digital adoption among heritage-based handloom entrepreneurs in Tamil Nadu. The design included a quantitative component to identify patterns and relationships followed by qualitative data collection and analysis to better understand the barriers and drivers associated with financial and digital engagement. The quantitative phase was developed in a positivistic paradigm, while the qualitative phase was analyzed using a constructivist perspective to offer criticism and a broader understanding of the phenomenon. This study used a purposive stratified sampling approach to select respondents from eight major weaving clusters—Kanchipuram, Salem, Arani, Thirubuvanam, Chennimalai, Coimbatore, Madurai, Karaikudi, Erode. The study explored both cotton and silk handloom weavers, and the unit of analysis was an individual heritage-based entrepreneur. A total of 310 structured questionnaires were administered, with 272 questionnaires being returned valid for the analysis. The quantitative measurement instrument measured areas of financial inclusion, digital adoption, income, and market access. Analyses of the data were conducted using SPSS and used descriptive statistics, one-sample t-tests, ANOVA, and correlation analysis, to test four hypotheses of financial and digital engagement.

Following the quantitative phase, qualitative data were gathered from three open-ended questions embedded in the questionnaire about their experiences with challenges in financial services, digital tool adoption, and supporting needs to improve their business. Responses were coded and analyzed using NVivo software, following Braun and Clarke's (2006) six-phase thematic analysis process. This approach resulted in the identification of themes, in particular, low trust in formal financial institutions; limited levels of digital literacy; reliance on intermediaries; and the need for cooperatives to create digital market linkages. The triangulation of quantitative data and qualitative data enhanced the validity and reliability of the study. Ethical considerations, such as informed consent and the intended confidentiality, were adhered to throughout the data collection process. The mixed-methods approach captured trends in financial services and digital adoption and additionally, emphasized the significance of these trends through the lived experiences of the weavers to tell provide actionable recommendations for policy interventions to promote sustainable heritage-based entrepreneurship.

4. Data Analysis & Interpretation

4.1. Quantitative Data Analysis

4.1.1. Demographic Profile of Respondents

The study surveyed 272 handloom weavers from major cotton and silk weaving clusters in Tamil Nadu. The demographic breakdown offers critical insight into the characteristics of the weaving communities.

Gender Distribution: The sample consists of both male and female weavers, indicating a balanced representation. This reflects the shared participation of genders in the weaving profession, with women playing key roles in silk weaving, dyeing, and post-loom activities. Ref-Table 1

Age Composition: Respondents are predominantly in the 35–54 age group, representing the economically active and experienced segment of weavers. This age range suggests sustained engagement in the occupation and a generational depth in the craft. Ref-Table 1

Educational Attainment: Most weavers possess only primary or secondary education. A small fraction have completed higher secondary or graduation. This highlights the limited formal educational exposure within the community and points to the need for simplified digital training tools for financial inclusion. Ref-Table 1

Regional Representation: Weavers from all the targeted clusters participated in the study, with strong representation from: Kanchipuram (silk weaving) Chennimalai and Erode (cotton weaving) Other districts like Coimbatore, Salem, Madurai, Arani, and Thirubuvanam are also included, ensuring geographic diversity and regional insights. Ref-Table 1

Weaving Type: The sample includes nearly equal representation of cotton and silk weavers, enabling comparison across fabric types. Cotton weavers often serve local and mass markets, while silk weavers cater to ceremonial and premium markets. Ref-Table 1

Years of Experience: A large portion of the respondents have more than 20 years of weaving experience, reflecting deep-rooted traditional knowledge. This also points to generational craftsmanship being a major feature of these communities. Ref-Table 1

Employment Type: Most respondents are self-employed or engaged in family-based units, while a notable segment are members of cooperative societies. Cooperatives remain a strong institutional structure in silk clusters such as Thirubuvanam and Kanchipuram, facilitating access to markets and government schemes. Ref-Table 1

Table 1. Demographic Profile of Respondents.

Variable	Category	Frequency	Percentage (%)
Gender	Male	146	53.68%
	Female	126	46.32%
Age Group	25–34	54	19.85%
	35–44	78	28.68%
	45–54	61	22.43%
	55+	79	29.04%
Education Level	No Schooling	74	27.21%
	Primary	47	17.28%
	Secondary	54	19.85%
	Higher Secondary	52	19.12%
	Graduate	45	16.54%
Weaving Type	Cotton	149	54.78%
	Silk	123	45.22%
Years in Weaving	<10	60	22.06%
	11–15	45	16.54%
	16–20	73	26.84%

	>20	94	34.56%
Employment Type	Cooperative	95	34.93%
	Family-based	90	33.09%
	Self-employed	87	31.99%
District/Region-Silk	Arani	26	
	Kanchipuram	36	
	Salem	34	
	Thirubuvanam	27	
Cotton	Chennimalai	32	
	Coimbatore	25	
	Erode	27	
	Karaikudi	31	
	Madurai	34	

Source: Primary Data.

4.1.2. One-Sample t-Test for Financial Inclusion

H1. *There is no significant level of financial inclusion among handloom weavers in the selected clusters.*
Ref-Table 2

Table 2. One-Sample t-test for Financial Inclusion.

Statement	Mean	T	df	Sig. (2- tailed)	Mean Difference	Interpretation
I have easy access to a formal savings account.	3.11	1.355	271	0.177	0.110	Above neutral, but not significant → average access.
I regularly save money in a bank or cooperative.	2.72	-3.164	271	0.002	-0.279	Significantly below neutral → low saving habit.
I have availed formal loans for business or personal use.	2.48	-6.567	271	0.000	-0.522	Significantly below neutral → low loan usage.
I understand how to apply for loans or subsidies.	3.06	0.664	271	0.507	0.055	Above neutral, but not significant → average knowledge.

I am covered under at least one government insurance scheme.	3.18	2.051	271	0.041	0.176	Significantly above neutral → good coverage.
I have applied for schemes like Mudra / PMJDY / Weavers Card.	3.15	1.911	271	0.057	0.151	Above neutral, but not significant → moderate participation.
I feel financially secure through formal institutions.	3.04	0.536	271	0.592	0.044	Above neutral, but not significant → average security perception.

Source: Primary Data.

To test H_{01} (“There is no significant level of financial inclusion among handloom weavers in the selected clusters”), a one-sample t-test was conducted with a test value of 3, representing the neutral midpoint of the Likert scale. The results indicate that respondents reported significantly lower than neutral levels for “I regularly save money in a bank or cooperative” ($M = 2.72$, $t = -3.164$, $p = 0.002$) and “I have availed formal loans for business or personal use” ($M = 2.48$, $t = -6.567$, $p = 0.000$), suggesting weak engagement with formal savings and credit facilities. Conversely, “I am covered under at least one government insurance scheme” scored significantly above neutral ($M = 3.18$, $t = 2.051$, $p = 0.041$), reflecting positive outreach of insurance programs. Other items, including access to a savings account, knowledge about applying for loans, application for schemes, and perceived financial security, were slightly above neutral but did not differ significantly from the test value, indicating average performance. Overall, the findings reveal partial financial inclusion, with strengths in insurance coverage but notable weaknesses in loan utilization and regular savings. Therefore, H_{01} is partially rejected, as significant differences exist for certain dimensions of financial inclusion.

4.1.3. One-Sample t-test for Digital Tool Adoption

H2. *There is no significant adoption of digital tools (e.g., UPI, mobile banking, QR code payments) among handloom weavers. Ref-Table 3*

Table 3. One-Sample t-test for Digital Tool Adoption.

Statement	Mean	T	df	Sig. (2-tailed)	Mean Difference	Interpretation
I use a smartphone for personal and business purposes.	2.70	-3.293	271	0.001	-0.298	Significantly below neutral → low smartphone usage for business.

I am comfortable using UPI apps like Google Pay/PhonePe.	2.64	-3.802	271	0.000	-0.357	Significantly below neutral → low comfort with UPI apps.
I use mobile banking to check balances or transfer money.	3.08	0.826	271	0.409	0.077	Above neutral, but not significant → average use of mobile banking.
I accept QR code payments from customers.	3.37	4.316	271	0.000	0.371	Significantly above neutral → high acceptance of QR payments.
I promote my products via WhatsApp, Facebook, or Instagram.	3.01	0.181	271	0.857	0.015	Above neutral, but not significant → average social media promotion.
I have experience with online sales or e-commerce platforms.	2.61	-5.123	271	0.000	-0.386	Significantly below neutral → low e-commerce experience.
I trust digital payment platforms for daily transactions.	2.85	-1.699	271	0.090	-0.147	Below neutral, but not significant → moderate trust in digital payments.

Source: Primary Data.

To examine H₀₂ (“There is no significant adoption of digital tools among handloom weavers”), a one-sample t-test was performed with a test value of 3 (neutral point). The results show that smartphone usage for business purposes (M = 2.70, t = -3.293, p = 0.001), comfort with UPI apps (M = 2.64, t = -3.802, p = 0.000), and experience with e-commerce platforms (M = 2.61, t = -5.123, p = 0.000) are significantly below the neutral level, indicating low adoption in these areas. On the other hand, acceptance of QR code payments is significantly above neutral (M = 3.37, t = 4.316, p = 0.000), suggesting that this payment method has gained traction among weavers. Other aspects, such as mobile banking usage, social media promotion, and trust in digital payments, were close to neutral and not statistically significant, reflecting average engagement. Overall, the findings suggest that while certain digital tools like QR code payments are being adopted, broader digital adoption remains limited. Therefore, H₀₂ is partially rejected, as adoption is significant for some tools but lacking for others.

4.1.4. One-way ANOVA: Financial Inclusion Items vs Monthly Income

H3. *There is no statistically significant relationship between access to financial services (e.g., loans, savings accounts) and the monthly income of weavers. Ref-Table 4*

Table 4. One-way ANOVA: Financial Inclusion Items vs Monthly Income.

Financial Inclusion Item	F	Sig. (p)	Interpretation
I have easy access to a formal savings account	2.251	0.083	No significant difference across income groups
I regularly save money in a bank or cooperative	3.110	0.027	Significant difference – saving habit varies with income
I have availed formal loans for business or personal use	5.282	0.001	Significant difference – loan usage varies with income
I understand how to apply for loans or subsidies	2.552	0.056	No significant difference
I am covered under at least one government insurance scheme	0.602	0.614	No significant difference
I have applied for schemes like Mudra / PMJDY / Weavers Card	1.379	0.250	No significant difference
I feel financially secure through formal institutions	1.400	0.243	No significant difference

Source: Primary Data.

The results show that monthly income has a significant effect on two aspects of financial inclusion — saving money in a bank/cooperative and availing formal loans — with higher-income weavers reporting more frequent savings and greater access to loans. For other areas, such as having a savings account, knowing how to apply for loans, insurance coverage, applying for government schemes, and feeling financially secure, there was no significant difference between income groups. This means income influences some financial services but not all, so H_{03} is partially rejected.

Correlation analysis found no statistically significant relationship between monthly income and any of the financial inclusion indicators (all $p > 0.05$). This suggests that a weaver’s income level does not have a measurable association with their access to savings accounts, saving habits, loan usage, financial literacy, insurance coverage, participation in government schemes, or perceived financial security. Therefore, H_{03} is not rejected based on correlation analysis. Ref-Table 5

Table 5. Correlation Analysis: Financial Inclusion Items vs Monthly Income.

Financial Inclusion Item	Pearson's r	Sig. (p)	Interpretation
I have easy access to a formal savings account	0.081	0.182	No significant relationship
I regularly save money in a bank or cooperative	0.096	0.116	No significant relationship
I have availed formal loans for business or personal use	0.068	0.266	No significant relationship
I understand how to apply for loans or subsidies	-0.091	0.133	No significant relationship
I am covered under at least one government insurance scheme	0.065	0.283	No significant relationship
I have applied for schemes like Mudra / PMJDY / Weavers Card	-0.043	0.476	No significant relationship
I feel financially secure through formal institutions	-0.066	0.279	No significant relationship

Source: Primary Data.

4.1.5. One-Sample t-Test for Market Access

H4. There is *no statistically significant impact* of digital tool usage on *market access* (measured as number of customers, geographical spread, or online sales) Ref-Table 6

Table 6. One-Sample t-test for Market Access.

Statement	Mean	t	df	Sig. (2-tailed)	Mean Difference	Interpretation
I have customers from different regions or states.	2.63	-4.374	271	0.000	-0.375	Significantly below neutral → limited geographical spread.

Digital tools have helped me expand my customer base.	3.03	0.321	271	0.748	0.026	Above neutral, but not significant → no clear perceived benefit.
Online presence has increased my product demand.	3.47	5.821	271	0.000	0.471	Significantly above neutral → strong positive impact.
I can reach customers directly without middlemen.	3.28	3.198	271	0.002	0.279	Significantly above neutral → reduced dependency on intermediaries.
I regularly receive online orders or inquiries.	3.22	2.782	271	0.006	0.217	Significantly above neutral → moderate online engagement.

Source: Primary Data.

The results show that handloom weavers have limited geographical reach (Mean = 2.63, $p < 0.001$), but they reported positive effects of digital tools on increasing product demand (Mean = 3.47, $p < 0.001$), reaching customers directly without middlemen (Mean = 3.28, $p = 0.002$), and receiving online orders or inquiries (Mean = 3.22, $p = 0.006$). However, the statement on expanding customer base was not significantly different from neutral (Mean = 3.03, $p = 0.748$). This means digital tools are helping in some areas of market access, but challenges remain in widening geographical spread. Therefore, H_{04} is partially rejected.

4.2. Thematic Analysis (Qualitative Analysis)

The qualitative aspect supplemented the quantitative results by capturing the different perceptions, barriers, and motivations driving financial inclusion and digital adoption among Tamil Nadu’s handloom weavers. The three open-ended questions received responses, and thematic analysis was used for analysis per Braun and Clarke’s (2006) six-phase process. The analysis was conducted with NVivo 14 to facilitate consistent coding and development of themes, providing a level of analytical rigor and transparency and richer understanding beyond that captured under statistical analysis.

4.2.1. Coding Process

The responses from 272 weavers were entered into NVivo. In the initial open coding, we created 68 preliminary codes. During the axial coding process, preliminary codes were reworked and merged into 14 sub-themes that were eventually thematically consolidated to 5 major themes. The third and final coding iteration uncovered no new themes after the 240th response, which indicated coding saturation. Using NVivo’s word frequency and co-occurrence analysis, we identified topics of importance, including ‘trust’, ‘bank’, ‘digital’, ‘loan’, and ‘training’, to inform our thematic consolidation. The research team reviewed each major and sub-theme, confirming Braun and Clarke’s consideration of internal homogeneity and external heterogeneity. Ref-Table 7

Table 7. Summary of Themes, Sub-Themes, and Sample Quotes.

Theme	Sub-Themes	Sample Quotes from Respondents
1. Trust Deficit and Low Financial Literacy	– Lack of financial literacy – Distrust toward banks and officials – Fear of loan rejection	“Bank people ask too many documents; we feel nervous to go.” (R34, Kanchipuram) “They say we must maintain minimum balance, so we keep money at home.” (R112, Arani) “Even if we apply for loans, they prefer powerloom owners, not us.” (R87, Chennimalai) “Savings groups are easier; banks don’t trust weavers.” (R205, Madurai)
2. Tech Anxiety and Skill Gaps	– Digital illiteracy – Fear of online scams – Poor internet access	“We don’t know how to use apps; we ask our children to do it.” (R144, Salem) “Someone said money got deducted wrongly, so we stopped using UPI.” (R89, Coimbatore) “Internet is slow in our village; QR doesn’t work sometimes.” (R72, Karaikudi) “We fear entering wrong numbers; better to take cash.” (R197, Kanchipuram)
3. Informal Networks and Borrowing Traps	– Reliance on agents for sales – Informal borrowing – High-interest private loans	“We can’t sell directly; the middleman takes our stock.” (R211, Chennimalai) “If we need money, we borrow from known agents, not banks.” (R103, Salem) “Commission agents give advance but take big margin.” (R188, Arani) “Private moneylenders are fast but charge double interest.” (R66, Erode)

4. Digital and Market Gaps		"We don't know how to sell online; we only sell in exhibitions." (R92, Madurai)
	- Limited digital marketing	"Younger weavers post on Instagram, but I don't know how." (R155, Salem)
	- Weak online visibility	"We get buyers during temple festivals, not through online." (R101, Karaikudi)
	- Dependence on local fairs	"To reduce other charges and expenses we prefer nearby buyers." (R129, Arani) "Only big shops sell on websites; we can't afford that." (R247, Coimbatore)
5. Empowerment Through Support		"If training is given, we will learn digital payments." (R134, Kanchipuram)
	- Lack of training programs	"Government officers must visit and explain new schemes." (R178, Madurai)
	- Need for cooperative support	"We want cooperative help for marketing our products." (R207, Erode)
	- Desire for government linkage	"If we get credit easily, we can expand production." (R220, Arani)

Source: Primary Data.

4.2.2. Theme 1: Trust Deficit and Low Financial Literacy

This theme illustrates that many handloom weavers are hesitant or do not want to borrow from banks due to a lack of familiarity with banking processes, sophistication in documentation, and negative experiences such as having loan applications denied or a feeling of inequity towards other enterprises like powerloom. The lack of trust is also compounded by not knowing how to access the financial system. This indicates that there continues to be a gap in financial literacy in rural communities, as well as aligns with previous research that showed losing trust and lack of clarity in processes undermines formal financial inclusion. Thus, it seems that Financial Institutions should consider layers of financial literacy and more clear-cut, simplified procedures. Community-based approaches, such as providing local banking facilitators or cooperative agents, could be a way to counterbalance this lack of trust.

4.2.3. Theme 2: Tech Anxiety and Skill Gaps

Weavers have been reluctant to adopt digital payments, or online commerce especially not only from a technical perspective (due to lack of access) but from a concern of making a mistake, losing money, or being defrauded - a psychological barrier to adoption is evident, and is parallel to other barriers such as poor internet access. Children often play the role of intermediary, signaling crosses

the generational divide in digital skill needs. Indicates that digital inclusion addresses just as much the behavioral aspect as it does the technical aspect. Reiterates that simply providing devices or connecting service does not lead to adoption; building confidence and understanding available support for users also plays a role. Training modules should include practical application, fraud awareness, and local mentors. A staged approach to adoption (e.g., small digital payments, etc.) could help build trust progressively.

4.2.4. Theme 3: Informal Networks and Borrowing Traps

Weavers depend on intermediaries to sell their products and access credit. These middlemen provide guaranteed market access and access to cash right away, but charge exorbitant commissions or interest rates. Their reliance on intermediaries spotlights a structural vulnerability: intermediaries provide some stability at the expense of igniting financial marginalization. This suggests an institutional bottleneck into formal market and credit institutions, which affect traditional artisans. Past research continues to show that informal financial and marketing networks dominate artisan economies, raising questions about formal microcredit, loans with low interest rates, and cooperative marketing systems to lessen dependence on violent intermediaries. Policy interventions could promote an incentive-based framework for small-scale weavers to move directly to consumer platforms.

4.2.5. Theme 4: Digital and Market Gaps

Weavers have knowledge of the digital tools. However, systemic barriers exist that limit weavers' ability to engage in e-commerce (like operational costs, lack of knowledge about digital marketing, low online visibility), which also indicates that reliance on fairs and festivals limits their markets and revenue. This represents the market-access side of digital uptake. This indicates that in addition to providing access, technology will not address market inequities - there are things like logistics, visibility, and affordability that also must be addressed. A government or cooperatives could seriously consider offering subsidized, cooperative-run online marketplaces. Training in digital marketing, social media, and online selling logistics would also be very beneficial.

4.2.6. Theme 5: Empowerment Through Institutional Support

Weavers understand that to interact with formal finance and digital solutions, it requires educational framework and institutional supports. If cooperatives, training options, or government outreach address these areas of educational and institutional supports, they will enact new practices and show a latent willingness to change. This suggests an enabling environment theme that links motivation with the structural support system necessary for successful evaluation and adaptation. This is consistent with the literature on social entrepreneurship, highlighting that capability-building and institutional supports must be created in order to support sustainability. Multi-stakeholder social entrepreneurship networks could facilitate more rapid capability-building and sustainable adoption, particularly those that combine a training component, cooperative investment group, and facilitation of access to finance. Policy recommendations must go beyond the technology and focus on human-centered interventions to support mindset change.

4.2.7. Integrated Analysis

Together, the five themes show a connection between financial and digital inclusion among Tamil Nadu handloom weavers from a lens of trust, literacy, structural dependence, market access, and institutional support. While the challenges are considerable, the qualitative insights advise an eagerness for change that can be achieved through training tailored to this population, cooperative systems, or easy to access policy changes. This elaboration connects the quantitative information (e.g., rates of adoption, practices, and patterns of use) and qualitative understanding, thereby augmenting the mixed methods design of the study.

5. Finding and Suggestion

Research shows that handloom weavers in Tamil Nadu show signs of partial financial inclusion. While there is decent coverage of the insurance schemes, savings and credit use are low, indicating that the provisioning of financial security is relatively incomplete. The thematic analysis revealed several interdependent barriers influencing this partial inclusion. Trust deficits that permeate the community, together with low financial literacy, disincentivize weavers from broader engagement with formal financial institutions, and cause a majority of them to rely on informal credit and informal lending intermediaries. Digital adoption is also selective: QR code payments were used more often than UPI apps, mobile banking transfers, or e-commerce platforms, with the other pathways being under-utilized primarily because of low digital literacy, concerns about fraud, and lack of trust in these pathways. Though access to savings and loans relates to earnings, systemic barriers of relying on informal lending intermediaries and barriers to market access, for example, keep these earnings from becoming fully contributory to financial inclusion. Although the use of digital tools has increased transparency and reduced reliance on intermediaries, and increased inquiries online, physical and logistical barriers remain factors that influence financial inclusion outcomes, especially in the case of market access.

Consequently, a number of implications arise. Financial inclusion initiatives should focus not only on insurance, but also on actively enabling saving schemes and affordable lending schemes for weavers. Second, targeted training on basic digital literacy can assist in building confidence in the use of UPI apps, mobile banking, and e-commerce markets. Third, cooperative societies, as well as self-help groups, can act as necessary intermediaries in supporting weavers to gain access to both formal finance and formal digital markets. Finally, e-commerce firms and policy makers should work together to develop national and international levels and to scale market access more widely to consumers of handloom products. The aim of these approaches is to tackle structural and behavioural barriers, which aligns with the themed findings that weavers have shown readiness to use digital and finance tools, when supported through capacity building and institutional support.

6. Conclusions

The research indicates that handloom weavers in Tamil Nadu are now at a key turning point in terms of financial inclusion and digital uptake. Although there have been initial engagements with government insurance schemes recently in place and use of QR codes to make payments, savings, credit and more advanced digital tools remain limited. Income differences may drive some variations in particular financial actions, however some structural and systemic barriers continued to obstruct full inclusion. Digital platforms have increased transparency, decreased reliance on intermediaries, and allowed modest online sales, but have still been more limited in geographical market reach. In order for sustainable financial growth to take hold, access to affordable credit will need to expand, digital literacy will need to improve, and market linkages will need to get stronger. Findings suggested that there is a much greater realization of the potential of financial and digital inclusion for heritage-based entrepreneurs, including artisans and weavers, when systemic barriers are removed, and formal institutions can be trusted.

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