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Financial Inclusion: Evidence from India's Handloom Industry

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Abstract

In India, the handloom sector, one of the most important rural-based industries, ranks second only to agriculture in terms of employment generation and household income, which grows with the formal institutionalization of financial needs. Consequently, financial inclusion, a critical issue for inclusive growth, becomes attainable. This study investigates how the expansion of the handloom sector affects financial inclusion in six Indian states. It employs a structural panel design with secondary sources of two census data sets, 2009-10 and 2019-20, which correlate to handloom growth characteristics and separate stages of financial inclusion, demonstrating a structural shift from a traditional to a modern framework. Handloom growth is measured through the compound annual growth rate (CAGR) approach, and financial inclusion indicators are adjusted with the min-max method before being combined to create a unified structural financial index. The research demonstrates that handloom expansion is negatively related to financial inclusion, whereas the literacy rate (control variable) shows positive results. The study suggests that sector- and state-specific policy development is necessary because system-wide growth policy and financial deepening regulations have failed to determine the interlink between traditional industries and credit oriented financial inclusion.

Keywords: Handloom growth, financial inclusion, Credit-led, Direct benefit transfer (DBT).

Introduction

Financial inclusion has arisen as a critical development issue in an emerging economy, such as India, where a considerable proportion of the population works in traditional and informal sectors, such as handlooms and handicrafts. Financial inclusion refers not only to having access to financial services but also using them effectively (Sarma, 2008). Traditionally, financial inclusion has been assessed based on access to institutional credit, which determines whether families or businesses can borrow from financial institutions (Rangarajan Committee, 2008). Furthermore, in the modern period, the focus has expanded to include bank account ownership and the digital financial environment. This transfer occurs through the Pradhan Mantri Jan Dhan Yojana (PMJDY) and Direct Benefit Transfer (DBT) (RBI, 2018; World Bank, 2018). Additionally, the expansion from credit-led growth in the early 2010s to universal banking ownership since 2014 reflects direct link between households and enterprises to the formal financial system. This structural change shows a broad understanding of financial inclusion as functional access as well as access to institution level.

After agriculture, the handloom industry plays a crucial role in generating employment in rural and semi-urban areas. According to census 2019-20, nearly 27.83 lakh handloom households are engaged in weaving and allied activities, of which 87 percent are located in rural areas and the remaining 13 percent in urban areas.

The handloom sector symbolizes India's long-standing traditions, with a wide range of products that are well-known worldwide. Every state has something unique to offer in terms of handloom products, such as phulkari from Punjab, Chandaria from Madhya Pradesh, Ikats from Andhra Pradesh, Tie and Dies from Rajasthan and Gujarat, Daccai from West Bengal, and Brocade from Banaras (Uttar Pradesh) (FICCI). Since the handloom sector works with low capital intensity, household-based production, and deeply integrated with the local economy, this sector is the foundation of Make in India and Viksit Bharat 2047. These characteristics of the handloom industry create greater scope for financial inclusion. The capacity to create more job opportunities enhances income generating capacity of labourers, which help them to become part of the financial system. Before 2010 financial inclusion was credit-led, where access to formal finance began primarily through provision of credit or loan; growth and development of the handloom industry has transformed the approach of financial inclusion, i.e., from credit-led approach to opening of savings account, insurance and through other financial services. In other words, following the development of the handloom industry the approach of financial inclusion shifted from credit-led to bank account ownership mechanisms.

The rest of the paper is divided into 4 sections. Section first deals with introduction, Section two reviews the existing literature related to the study; data criteria and methodology are discussed in section three. The penultimate section four presents the results and discussion. The study is concluded in section five.

Review of Literature

Many studies have been conducted on the handloom industry and financial inclusion. The first part of the review covers studies on financial inclusion index and its determinants, and the second part discusses the literature based on handloom industry performance and its relation.

Financial Inclusion

In his study, Sharma (2008) focused on three aspects of financial inclusion: banking penetration, availability, and usage of banking services. Using UNDP methodology, he has created a multidimensional FII that included India. Crisil (2018) investigated FII at the national and sub-national levels in India. This study focused on four financial infiltration indicators: bank branches, credit, deposits, and insurance penetration. According to the report, Kerala has the highest financial inclusion rate, with an FI score of 90.9 percent, while Manipur has the lowest level of financial inclusion, at 32.0 percent. Sethy (2016) and Goel and Sharma (2017) used the same UNDP method to recommend FII for Indian states. Simultaneously, Shethy and Goyari (2018) conducted FII for Indian states using the same methods. The findings demonstrate that no state falls into the high financial inclusion index category, while only six states fall into the medium financial inclusion category, and the remaining 16 states fall into the below-FII category. Sarma & Pais (2011) refers that financial inclusion is the process of providing affordable financial services including saving, credit, insurance and remittances to all individuals, especially the disadvantaged and unbanked; it is commonly recognised as a prerequisite for inclusive growth references.

Handloom Industry

Using data from the 3rd and 4th handloom census reports, Devbrath (2024) analyses the socio-economic condition of handloom workers in India. He finds changes in gender distribution, educational achievements, religious affiliation and households' characteristics. The study focused economic discrepancies among low-income households and significant financial improvement among handloom workers; they highlighted the significance of gender inclusion, educational achievement, and financial support in handloom business, which can guide policy makers decisions. Similarly, Kusugal (2023) examines the growth, trend, and patterns of India's handloom industry from 1987-88 to 2019-20. The major findings show that significant decline in handloom weavers' households (3.06 million to 2.27 million), independent weavers dominate 73.2 percent in 2019-20 with positive CAGR (2.46) employed days and average cloth production shows declining trends. The study recommends institutional support through Banks, NABARDS, and Cooperatives. On the other side Saha (2022) analyses the employment status in India's handloom practicing states covering 93 percent of sector workers. The result shows that employment declined nationally, though 4 states showed positive CAGR. The sector employed 35.23 lakh workers in 2019-20 significant variations exist among states in terms of nature of work engagement pattern, working days, and household income. Independent weavers dominated (78.35), followed by master's weaver units (14.59) and institutional organizations (7.06).

Financial Inclusion in the Handloom Industry

Though the handloom industry has potential to generate employment (NABARD, 2020), it has not been able to get benefit from formal finance throughout history. Various studies show that not more than 20 per cent of weavers are insured or benefit from any credit scheme provided by formal financial institutions. Devi and Anitha (2019), contend that microfinance, cooperative banks, and SHGs have all been instrumental in bringing about financial inclusion. However, access to these financial services is still very much dependent on regions and women's status in society, which varies heavily (Rani & Lalitha, 2020).

Research Gap

The existing literature has revealed a scarcity of empirical studies directly connected to the handloom sector and the outcomes of financial inclusion. Moreover, there are only a few comparative studies based on census data that have analysed financial inclusion in the handloom sector and have not integrated the mechanisms of access to credit and ownership of bank accounts across different phases of policy.

Justification of the Present Study

The current study attempts to fill these gaps by investigating the development of handlooms and their correlation with financial inclusion in the top six states of India in terms of their performance. It further combines both the pre-and post-2014 policies in one picture and their financial transition over time based on the handloom census data.

Objective of the Study

1. To investigate the expansion of the handloom sector in specific Indian states.
2. To evaluate the changes in the financial inclusion mechanism.
3. To explore the connection between the handloom industry's growth and financial inclusion.

Methodology

This study uses a quantitative, descriptive, analytical research design to analyze the relationship between financial inclusion and handloom growth in various states. Because of the variables' structural and long-term in nature, this study uses handloom census data 2009-10 and 2019-20, and applies panel data techniques to capture variations among states and over time.

On the basis of their performance in handloom industry to employment generation and core of livelihoods, six states, viz., Assam, Gujarat, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal are selected.

Variable Description and Measurement

Dependent variable*:* Financial inclusion is a multifaceted concept that incorporates both demand- and supply side variables. To reflect this, a composite Financial Inclusion Index (FII) is created. However, the two census years used distinct approaches to determine financial inclusion. This study includes indicators such as access to institutional credit (2009-10, 2019-20), handloom household bank account holding (2019-20). Before normalisation two structurally consistent indices are constructed for the year 2009-10 which is credit-led and for 2029-20 which is direct benefit transfer (DBT).

Credit-led (census 2009-10):

Credit access = $\frac{Bank+Cooperativesociety+SHG}{3}$

DBT (census 2019-20):

DBT = $\frac{Bankaccount+Formalinstitutionaccess}{2}$

Before DBT formula implementation this data was converted in handloom households bank accounts on the basis of workers bank account holdings for this

$BA_{hh} = \frac{Workerswithbankaccount}{Totalworkers} \times 100$

Each indicator is normalized using the Min-Max method which is suitable for small samples across states and construction of index. The method is calculated using the formula in Equation

FI= $\frac{Xit-Xmin}{Xmax-Xmin}$

The value of financial inclusion varies between 0 to 1, where 0 indicates less and 1 is highly financial inclusion across states.

Independent variable*:* Handloom industry growth is measured by the growth in the number of handloom households (explanatory variable) between two censuses. The variable measures industrial development through its long-term growth assessment which uses compound annual growth rate (CAGR) calculations.

Control variable*:* The literacy rate is used as a control variable because it helps to track human capital and financial knowledge variations that occur between different states. Higher literacy rates enable individuals to understand the operation of formal financial services. The inclusion of literacy rates allows us to separate the effects of handloom growth on financial accessibility by controlling for the economic differences that exist between states.

Model specification*:* Balanced panel data estimation is used for the analysis across states.

$$FI_{it} = \alpha + \beta_1 HG_{it} + \beta_2 LR_{it} + \mu_i + \varepsilon_{it}$$

FI represents the financial inclusion index, which measures state I financial inclusion during the year t period. The equation includes HG for handloom growth and LR for literacy rate and μ for unobserved state-specific effects and ε as the error term.
The research utilized both Fixed effect and Random effect model, which required the Hausman test to determine the suitable estimation method. The Random Effect model is chosen as the final estimation method because it delivers accurate and reliable results for the study.

Result and Discussion

Table.1

Mean_FII	**SD_FII**	**Mean_HG**	**SD_HG**	**Mean_LR**	**SD_LR**
0.403	0.362	-0.0559	0.262	60.8	22.1

Year Wise-

Table.2

Year	**Mean_FII**	**SD_FII**	**Mean_HG**	**SD_HG**	**Mean_LR**	**SD_LR**
2009-10	0.324	0.361	0	0	51.6	24.9
2019-20	0.483	0.373	-0.112	0.376	69.9	15.6

The statistical descriptions of the variables are shown in Table 1 and Table 2. The Financial inclusion Index shows an increasement between 2009-10 and 2019-20 across all the selected states as well as at the national level. The increase in the FII mean value demonstrates better access to formal banking services, which resulted in increased account ownership and institutional credit that customers could obtain. Handloom households increased their formal credit borrowing from financial institutions during 2009-10 compared to their borrowing levels in 2019-20.
The FII standard deviation results show that interstate variation increased slightly. Financial inclusion improvements for most states showed progress, but Tamil Nadu, Rajasthan, and Uttar Pradesh experienced faster financial deepening through account and credit usage than Assam and West Bengal. However, significant variation indicates the existence of heterogeneity across the states.
The base year to measure handloom household growth from 2009 to 2010 established an average growth rate of 0. The mean growth rate for the period became negative when it dropped to -0.112 during 2019-20 which showed that household numbers had decreased in all states throughout the decades. Rajasthan demonstrates structural changes in its sector through two main developments: occupational diversification and the transition from traditional practices to contemporary ones. The literacy rate experiences continuous growth throughout all states because human understanding and awareness of financial systems emerge as vital factors that determine access to formal financial services.
The year-wise comparisons show that financial sector reforms and inclusion-oriented initiatives like PMJDY and DBT expanded financial inclusion in 2019-20.

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Boxplot Analysis of Financial Inclusion Index

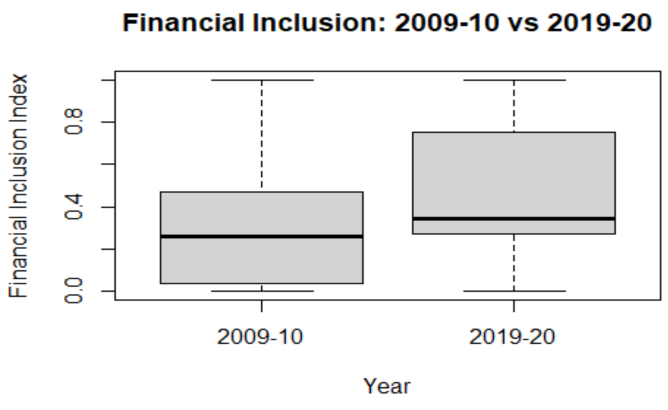

Fig-1

The box plots distribution displays the financial inclusion index measurement for each state during both census years. The analysis demonstrates how credit-based systems developed into financial inclusion through direct benefit transfer. In 2009-10, handloom households were largely limited to formal bank access from formal institutions. The period from 2019-20 to 2019-20 established a transition from access-based financial inclusion to usage-based financial inclusion through the establishment of bank account possession requirements and institutional loan access. The figure demonstrates that the median values have increased, indicating better performance. The interquartile range has decreased, indicating that the states have shown slight improvement in their results. The presence of outliers in specific states demonstrates different speeds of development which results in various rates of progress across states. The differences between the two groups are established through panel data methods which eliminate the impact of state-specific unobserved factors.

Panel Regression Results

Dependent Variable: Financial Inclusion Index (FII)

Variables	**Fixed Effects (FE)**	**Random Effects (RE)**	**Random Effects (Robust SE)**
Handloom Growth (HG)	-1.0413	-0.1082*	-0.7459***
	(0.4681)	(0.3303)	(0.0299)
Literacy Rate (LR)	-0.0012	-0.0077*	0.0077**
	(0.0067)	(0.0039)	(0.0022)
Constant	-	0.1082	-0.1082
	-	-	-
Observation(N)	14	14	14
Number of States(n)	7	7	7
Time Period(t)	2	2	2
R-squared	0.5029	0.4024	-
Adjusted R-squared	-0.2923	0.2938	-
Model p-value	0.1741	0.0246	-

Note- Standard error are presented in brackets
Robust standard errors are heteroskedasticity consisted
***, **, and * denote significant at the 1%, 5%, 10% levels respectively

Table 3 displays panel regression outcomes which examined how handloom industry growth links to financial inclusion across selected states and national level data. The research examines all study variables through fixed effect and random effect model application. The fixed mode of the study shows that handloom growth estimation has no statistical significance because its coefficient value remains negative, and state-level growth data show minimal change between both census periods. The negative adjusted R-squared value demonstrates that this model does not fit the dataset used in his research.

The random effect method provides sufficient explanatory power through its estimated values which reach statistical significance. The financial inclusion index shows a negative relationship with handloom growth yet demonstrates a positive connection with literacy rate. Using robust standard errors to handle heteroskedasticity made our results more powerful than before. The handloom industry growth showed significant negative results at the 1% level while literacy rate displayed positive results which reached significance at the 5% level. Likewise, absence of multicollinearity in independent variables presents a reliable nature of the estimation of regression.

The study shows a negative correlation which exists between handloom business industry and financial accessibility within the state. The 2009-10 handloom census followed different methods which allowed them to include all households who participated in handloom activities while the 2019-20 census restricted its coverage to working households and industry workers. Rajasthan showed reduced growth in handloom households, while other states showed the same pattern. The decline shows how Indian economic development has moved away from traditional handloom work to new employment opportunities which include migration beyond agricultural labour. The handloom industry creates various job opportunities, but its informal system stops employees from obtaining essential financial services needed to meet their basic requirements.

Although, the positive relationship between literacy rates and financial inclusion demonstrates that financial capabilities need to be developed through financial education and financial knowledge acquisition, which transforms knowledge into human capital development. The states of Tamil Nadu, Gujarat, West Bengal, and Uttar Pradesh possess optimal conditions to gain benefits from financial programs, which include better access to formal credit and the ability to open bank accounts.

The period from 2009-10 until 2019-20 shows upward growth in financial inclusion because handloom households needed credit during the 2009 census to acquire necessary working equipment, which included yarn and loom maintenance needs, for their production activities. The 2019-20 period saw a decrease in this purpose because people needed to access government benefits through their bank accounts, which showed how credit systems changed to a technology-intensive system through its increased capacity. The government established PMJDY through its execution of DBT programmes in 2014 to create formal financial inclusion, which enabled small businesses and disadvantaged groups to access financial services through this simplified entry point. The upward trend failed to connect with traditional sector growth, which includes the handloom industry. Consequently, the states and India have experienced financial inclusion, yet large informal handloom households and formal banking systems remain disconnected in their financial operations.

Conclusion and Policy Recommendation

The handloom sector of India is one of the biggest unorganized economic activities because it operates from small towns and villages throughout the country, which transfer their skills from one generation to another. The industry provides employment to 3522512 workers, according to the 2019-20 census, which shows that 72.29 per cent of whom are women (Indian Trade Portal). Financial inclusion provides all people and businesses with free access to appropriate services that they can use at affordable prices (Doeveren). In this study, the handloom sector and financial inclusion in different states are considered developmental instruments, and both directly and indirectly affect each other. However, handloom growth has a negative but significant relationship with financial inclusion, reflecting that the traditional sector still matters in the modern era. Whereas, box plot analysis indicates that overall financial inclusion has increased numerically, qualitative integration with this sector remains limited. The empirical findings suggest that some policy implications are needed such as:

1. In India, financial inclusion is driven as a system-level mechanism, not sector-specific, which is insufficient for sector-centric needs like flexible credit links and working capital loans,
2. The presence of state-level heterogeneity, considering socio-economic and institutional differences, suggests that a one-size-fits-all approach to development does not work,
3. The government should shift its focus from account-based to optimum usage-based strategies to ensure meaningful financial inclusion, and.
4. Last but not least, policy makers should expand and encourage SHG corporations as well as commercial banks to also recognize the sector-specific lending under priority sector norms.

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