

# INTEGRATING INDIGENOUS FINANCIAL PRACTICES WITH MODERN ACCOUNTING SYSTEMS TO ENHANCE SUSTAINABILITY OF TRIBAL HANDICRAFT MICRO-ENTERPRISES IN UDHAM SINGH NAGAR, UTTARAKHAND

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## ABSTRACT

This Tribal handicraft micro-enterprises constitute a vital component of rural livelihoods and cultural preservation in Uttarakhand, particularly within Udham Singh Nagar district, where indigenous communities continue to rely on traditional craftsmanship for income generation. Despite possessing rich artisanal knowledge and strong community-based economic systems, many of these enterprises face persistent sustainability challenges arising from weak financial management, limited access to formal credit, poor record-keeping, and low integration with modern markets. Indigenous financial practices—such as oral bookkeeping, trust-based credit systems, rotational savings, and kinship-driven financial accountability—continue to dominate these enterprises. While culturally embedded and socially efficient, these practices often lack scalability, transparency, and compatibility with formal accounting systems, thereby restricting growth and long-term viability.

This study aims to examine how the integration of indigenous financial practices with modern accounting systems can enhance the economic sustainability of tribal handicraft micro-enterprises in Udham Singh Nagar, Uttarakhand. Adopting a mixed-method research design, the study combines an extensive review of literature with primary empirical data collected from 182 tribal handicraft entrepreneurs through a structured questionnaire and selected qualitative insights from field observations. Quantitative data were analyzed using descriptive statistics, reliability testing, correlation analysis, and multiple regression techniques to assess the impact of financial integration on enterprise sustainability indicators such as profitability, income stability, access to credit, and continuity of operations.

The findings reveal that while indigenous financial practices foster trust, resilience, and community cohesion, their integration with basic modern accounting tools—such as cash books, cost records, inventory accounting, and digital payment tracking—significantly improves financial decision-making, transparency, and sustainability outcomes. The study contributes to existing literature by proposing a hybrid financial integration framework tailored to tribal micro-enterprises and offers actionable policy recommendations aligned with NEP 2020, MSME development strategies, and tribal entrepreneurship promotion schemes. The research holds practical relevance for policymakers, development agencies, academic institutions, and grassroots organizations working toward inclusive and culturally sensitive economic development.

**KEYWORDS:** Indigenous finance, Modern accounting, Tribal handicrafts, Micro-enterprises, Sustainability, Uttarakhand, Financial integration

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## 1. INTRODUCTION

### 1.1 Background of the Study

India's tribal economy is deeply rooted in indigenous knowledge systems, traditional occupations, and community-based production structures. Among these, **tribal handicrafts** represent not only a source of livelihood but also an expression of cultural identity, historical continuity, and social organization. In Uttarakhand, particularly in districts such as Udham Singh Nagar, tribal communities engage in diverse handicraft activities including wood carving, bamboo crafts, wool weaving, metal artifacts, and traditional decorative items. These

handicraft micro-enterprises are largely informal, family-owned, and operated at a subsistence or semi-commercial level.

Despite increasing policy attention toward tribal entrepreneurship and MSME development, the sustainability of tribal handicraft enterprises remains fragile. One of the most critical yet under-researched challenges is the **financial management system** adopted by these enterprises. Unlike urban or formal MSMEs, tribal entrepreneurs primarily rely on **indigenous financial practices**—oral accounting, memory-based record keeping, informal savings groups, barter exchanges, and trust-based lending within kinship networks. While these practices are culturally appropriate and socially efficient, they often lack standardization, documentation, and compatibility with formal financial institutions.

Modern accounting systems, on the other hand, emphasize systematic record-keeping, cost control, profit measurement, transparency, and compliance with regulatory norms. However, their adoption among tribal micro-enterprises remains limited due to low financial literacy, perceived complexity, language barriers, and fear of formalization. This disconnect between indigenous practices and modern accounting frameworks has resulted in poor financial visibility, limited access to institutional finance, weak pricing strategies, and vulnerability to market fluctuations.

### 1.2 Problem Statement

Tribal handicraft micro-enterprises in Udham Singh Nagar continue to operate at low productivity and income levels despite strong artisanal skills and market potential. The persistence of purely traditional financial practices, without integration with basic modern accounting systems, has constrained enterprise sustainability, scalability, and intergenerational continuity. Existing development interventions often promote either complete formalization or purely traditional preservation, failing to recognize the potential benefits of **integrating indigenous financial wisdom with modern accounting tools**. There is a significant research gap in understanding how such integration can be designed, accepted, and operationalized at the grassroots level.

### 1.3 Rationale of the Study

This study is significant for several reasons. First, it addresses a **critical gap in tribal entrepreneurship literature** by focusing on financial systems rather than production or marketing alone. Second, it adopts a **culturally sensitive approach**, recognizing the value of indigenous financial practices instead of dismissing them as informal or inefficient. Third, by empirically examining the integration of these practices with modern accounting systems, the study offers a practical pathway toward sustainable tribal enterprise development. Finally, the findings are directly relevant to policymakers, academic institutions, NGOs, and development agencies working in tribal regions of Uttarakhand and similar socio-economic contexts.

### 1.4 Objectives of the Study

The major objectives of the study are:

- 1) To examine the nature and characteristics of indigenous financial practices followed by tribal handicraft micro-enterprises in Udham Singh Nagar.
- 2) To assess the level of awareness and adoption of modern accounting practices among tribal entrepreneurs.
- 3) To analyze the impact of integrating indigenous financial practices with modern accounting systems on enterprise sustainability.
- 4) To identify key barriers and facilitators influencing financial integration.
- 5) To propose a conceptual framework for sustainable financial integration tailored to tribal handicraft micro-enterprises.

## 2. REVIEW OF LITERATURE

### 2.1 Indigenous Financial Practices in Tribal Economies

Indigenous financial systems have evolved over generations, grounded in trust, reciprocity, and social accountability. Studies have highlighted that tribal communities rely on informal savings mechanisms, rotating credit associations, and oral record-keeping (Basu, 2016). These systems reduce transaction costs, enhance mutual support, and ensure financial inclusion in the absence of formal institutions. However, scholars have also noted limitations such as lack of scalability, vulnerability to shocks, and absence of financial documentation (Rao & Prasad, 2019).

### 2.2 Modern Accounting Systems and Micro-Enterprise Sustainability

Modern accounting practices play a crucial role in improving financial transparency, cost efficiency, and strategic planning for micro-enterprises. Research indicates that even basic accounting tools—such as cash flow statements and inventory records—significantly enhance enterprise performance (Kumar & Sharma, 2020). However, adoption among rural and tribal enterprises remains low due to low literacy and contextual mismatch.

### 2.3 Integration of Traditional Knowledge with Modern Systems

Recent development literature emphasizes hybrid models that integrate indigenous knowledge with modern management practices. Such integration has been shown to enhance acceptance, effectiveness, and sustainability

(Sen & Ghosh, 2021). However, empirical studies focusing specifically on financial integration in tribal handicraft enterprises are scarce.

#### 2.4 Research Gap

Most existing studies either romanticize indigenous practices or advocate complete formalization. There is limited empirical research examining **how integration between indigenous financial practices and modern accounting systems affects sustainability outcomes** in tribal handicraft micro-enterprises, particularly in Uttarakhand.

### 3. CONCEPTUAL FRAMEWORK

The study proposes a hybrid framework wherein **indigenous financial practices** (trust-based credit, informal savings, oral bookkeeping) are integrated with **modern accounting tools** (cash books, cost accounting, digital transaction records). Enterprise sustainability is measured through profitability, income stability, access to credit, and business continuity.

### 4. RESEARCH QUESTIONS AND HYPOTHESES

#### Research Questions

1. What indigenous financial practices are prevalent among tribal handicraft micro-enterprises in Udham Singh Nagar?
2. To what extent are modern accounting practices adopted?
3. Does financial integration significantly influence enterprise sustainability?

#### Hypotheses

**H1:** Indigenous financial practices have a significant positive relationship with enterprise sustainability.

**H2:** Adoption of modern accounting practices significantly improves financial performance of tribal micro-enterprises.

**H3:** Integration of indigenous financial practices with modern accounting systems has a stronger positive impact on sustainability than either system alone.

### 5. RESEARCH METHODOLOGY

#### 5.1 Research Design

The present study adopts a **mixed-method research design**, combining both qualitative and quantitative approaches to provide a comprehensive understanding of financial practices and sustainability among tribal handicraft micro-enterprises. The mixed-method approach is particularly suitable for studies involving indigenous knowledge systems, as it allows for contextual interpretation while maintaining empirical rigor.

The **qualitative component** involves interpretative insights derived from field interactions, observation of financial practices, and review of indigenous economic traditions. The **quantitative component** is based on primary data collected through a structured questionnaire administered to tribal handicraft entrepreneurs in Udham Singh Nagar district.

The research follows a **cross-sectional design**, capturing the existing financial practices and sustainability status of enterprises at a single point in time.

#### 5.2 Study Area

Udham Singh Nagar district, located in the Terai region of Uttarakhand, is home to a significant tribal population engaged in handicraft-based livelihoods. The district has emerged as an important zone for bamboo crafts, woodwork, textile-based handicrafts, and eco-friendly artisanal products. Despite proximity to industrial zones, tribal enterprises largely remain informal, making the region an appropriate setting for examining financial integration challenges.

#### 5.3 Population and Sample Size

The target population of the study comprises **tribal handicraft micro-enterprises operating in Udham Singh Nagar**. A **sample size of 182 respondents** was selected using **purposive and snowball sampling techniques**, given the informal and dispersed nature of tribal enterprises.

The sample size was considered adequate for statistical analysis, including correlation and regression techniques, and aligns with methodological standards for social science research.

#### 5.4 Sampling Technique

- 1) **Purposive sampling** was used to identify active tribal handicraft entrepreneurs.
- 2) **Snowball sampling** helped in reaching enterprises operating outside formal networks.

#### Inclusion criteria:

- ◆ Enterprise must be tribal-owned
- ◆ Engaged in handicraft production
- ◆ Operational for at least two years

## 6. RESEARCH INSTRUMENT AND DATA COLLECTION

### 6.1 Questionnaire Design

A structured questionnaire was developed after an extensive literature review and field consultations. The instrument was divided into **five sections**:

Section	Description
A	Demographic & enterprise profile
B	Indigenous financial practices
C	Modern accounting practices
D	Financial integration indicators
E	Enterprise sustainability outcomes

Most items were measured using a **5-point Likert scale** ranging from Strongly Disagree (1) to Strongly Agree (5).

### 6.2 Variables and Measurement

Independent Variables

- ◆ Indigenous Financial Practices (IFP)
- ◆ Modern Accounting Practices (MAP)
- ◆ Financial Integration (FI)

Dependent Variable

- ◆ Enterprise Sustainability (ES)

### 6.3 Data Collection Procedure

Primary data were collected through **face-to-face interviews** and assisted questionnaire administration to overcome literacy barriers. The data collection process ensured ethical considerations, voluntary participation, and confidentiality of responses.

## 7. RELIABILITY AND VALIDITY ANALYSIS

### 7.1 Reliability Testing

The internal consistency of the questionnaire was tested using **Cronbach's Alpha**.

Construct	No. of Items	Cronbach's Alpha
Indigenous Financial Practices	10	0.82
Modern Accounting Practices	8	0.79
Financial Integration	6	0.84
Enterprise Sustainability	8	0.87
<b>Overall Scale</b>	<b>32</b>	<b>0.85</b>

The results indicate **high reliability**, as all values exceed the acceptable threshold of 0.70.

### 7.2 Validity

- ◆ **Content validity** was ensured through expert review.
- ◆ **Construct validity** was established through correlation analysis among variables.
- ◆ **Face validity** was confirmed during pilot testing.

## 8. DATA ANALYSIS AND RESULTS

Data were coded and analyzed using **SPSS**. Descriptive and inferential statistics were employed.

### 8.1 Demographic Profile of Respondents

Variable	Category	Percentage
Gender	Male (61%)	Female (39%)
Age	Below 30	22%
	31–45	48%
	Above 45	30%
Education	Primary	34%
	Secondary	41%
	Higher	25%
Enterprise Age	2–5 years	46%
	6–10 years	38%
	Above 10 years	16%

### 8.2 Descriptive Statistics of Key Variables

Variable	Mean	Std. Deviation
Indigenous Financial Practices	4.12	0.56
Modern Accounting Practices	2.87	0.71
Financial Integration	3.26	0.64
Enterprise Sustainability	3.41	0.68

The findings indicate **high reliance on indigenous practices**, moderate sustainability, and **low-to-moderate adoption of modern accounting tools**.

### 8.3 Correlation Analysis

Variables	IFP	MAP	FI	ES
IFP	1			
MAP	0.41**	1		
FI	0.62**	0.58**	1	
ES	0.49**	0.53**	0.68**	1

Note:  $p < 0.01$

Strong positive correlations exist between **financial integration and enterprise sustainability**.

### 8.4 Regression Analysis

**Dependent Variable:** Enterprise Sustainability

Predictor	$\beta$	t-value	Sig.
Indigenous Financial Practices	0.24	3.12	0.002
Modern Accounting Practices	0.29	3.87	0.000
Financial Integration	0.41	5.96	0.000

$R^2 = 0.56$

$F = 75.43$  ( $p < 0.001$ )

The model explains **56% variance** in enterprise sustainability, indicating a strong explanatory power.

### 8.5 Hypothesis Testing

Hypothesis	Result
H1	Accepted
H2	Accepted
H3	Strongly Accepted

Financial integration emerged as the **most influential predictor**.

### 8.6 Qualitative Insights

Field observations revealed that enterprises using **hybrid practices**—such as traditional trust-based credit combined with written cash records—reported better financial control and confidence in dealing with banks and cooperatives.

## 9. DISCUSSION OF FINDINGS

The present study set out to examine whether integrating indigenous financial practices with modern accounting systems enhances the sustainability of tribal handicraft micro-enterprises in Udham Singh Nagar, Uttarakhand. The findings from the quantitative and qualitative analyses provide strong empirical support for the central premise of the research and offer several important theoretical and practical insights.

### 9.1 Indigenous Financial Practices and Sustainability

The results indicate a **significant positive relationship between indigenous financial practices and enterprise sustainability**, supporting **Hypothesis H1**. Practices such as trust-based lending, informal savings, oral bookkeeping, and kinship-based financial accountability were found to strengthen social cohesion, reduce default risks, and ensure continuity of operations during periods of financial stress.

These findings align with earlier studies that highlight the resilience of indigenous economic systems in tribal societies. Unlike formal financial mechanisms, indigenous practices are embedded in social norms and reciprocal obligations, making them particularly effective in contexts where formal institutions are either inaccessible or mistrusted. However, the moderate strength of the relationship suggests that while indigenous practices are necessary for survival, they are **not sufficient on their own** to ensure long-term growth and market competitiveness.

### 9.2 Modern Accounting Practices and Financial Performance

The study also confirms a **significant positive impact of modern accounting practices on enterprise sustainability**, validating **Hypothesis H2**. Respondents who maintained written records, tracked costs, monitored inventory, and used basic digital payment tools reported better income stability, pricing accuracy, and financial planning.

Despite this positive relationship, the descriptive analysis revealed **low overall adoption** of modern accounting systems. This gap highlights persistent barriers such as limited financial literacy, fear of taxation, language constraints, and perceived complexity of formal accounting procedures. These findings are consistent with existing literature on micro-enterprises in rural and tribal settings, where accounting is often viewed as an external imposition rather than a managerial tool.

### 9.3 Financial Integration as a Key Driver of Sustainability

The most significant finding of the study is the **strong explanatory power of financial integration**, which emerged as the most influential predictor of enterprise sustainability, strongly supporting **Hypothesis H3**. Enterprises that combined indigenous practices with simplified modern accounting tools demonstrated superior

performance across multiple sustainability indicators, including profitability, access to credit, resilience to shocks, and long-term continuity.

This result underscores the importance of **hybrid financial models** that do not replace indigenous systems but rather enhance them through contextual adaptation. The integration approach respects cultural norms while introducing transparency, documentation, and scalability—key requirements for market linkage and institutional finance.

#### 9.4 Alignment with the Conceptual Framework

The empirical findings strongly validate the proposed conceptual framework presented in Part I. Indigenous financial practices and modern accounting systems operate not as substitutes but as **complementary forces**, with financial integration acting as a mediating mechanism that amplifies their combined impact on sustainability outcomes.

#### 9.5 Implications for Theory

From a theoretical perspective, this study contributes to the growing body of literature on **indigenous knowledge systems, sustainable entrepreneurship, and inclusive finance**. It challenges the binary view of “traditional versus modern” and instead advances an integrative paradigm that recognizes the adaptive potential of indigenous financial practices when aligned with modern managerial tools.

### 10. CONCLUSION

Tribal handicraft micro-enterprises represent a vital yet vulnerable segment of India’s rural economy. While these enterprises are rich in cultural capital and artisanal skills, their long-term sustainability is often undermined by weak financial management systems. This study demonstrates that neither indigenous financial practices nor modern accounting systems alone can fully address these challenges.

Through a mixed-method analysis of 182 tribal handicraft entrepreneurs in Udham Singh Nagar, the study establishes that **integrating indigenous financial practices with simplified modern accounting systems significantly enhances enterprise sustainability**. Financial integration improves transparency, decision-making, credit access, and resilience while preserving the trust and social cohesion intrinsic to tribal economic life.

The study concludes that sustainable tribal entrepreneurship does not require the abandonment of indigenous systems but rather their thoughtful integration with modern tools in a culturally sensitive manner.

### 11. POLICY IMPLICATIONS

The findings of this study carry important implications for policymakers, development agencies, academic institutions, and financial organizations.

#### 11.1 Tribal Entrepreneurship Development

Government programs aimed at tribal entrepreneurship should shift from purely formalization-driven approaches to **hybrid financial capacity-building models**. Training modules should focus on integrating traditional practices with basic accounting skills rather than imposing standardized accounting frameworks.

#### 11.2 NEP 2020 and Skill Development

Under the **National Education Policy (NEP) 2020**, higher education institutions—particularly commerce departments—can play a crucial role by developing **contextual financial literacy programs** for tribal entrepreneurs. Experiential learning, community engagement, and indigenous knowledge documentation should be embedded into commerce curricula.

#### 11.3 MSME and Credit Policy

Financial institutions and MSME agencies should recognize alternative financial records—such as community-verified accounts and hybrid bookkeeping—as valid indicators of creditworthiness. This would significantly enhance access to institutional finance for tribal enterprises.

#### 11.4 Digital Inclusion

Digital accounting and payment tools designed in local languages and aligned with indigenous practices can accelerate adoption and reduce resistance. Technology must be positioned as an enabler, not a disruptor, of tribal economic systems.

### 12. LIMITATIONS OF THE STUDY

Despite its contributions, the study has certain limitations:

- 1) The research is geographically limited to Udham Singh Nagar district.
- 2) The cross-sectional design restricts causal inference over time.
- 3) Financial data relied on self-reported responses, which may involve bias.

### 13. SCOPE FOR FUTURE RESEARCH

Future studies may:

- ◆ Conduct longitudinal analysis to assess long-term sustainability impacts.
- ◆ Compare tribal regions across different states.
- ◆ Examine gender-specific dimensions of financial integration.
- ◆ Explore digital accounting innovations tailored for indigenous enterprises.

#### 14. DECLARATIONS

##### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The study was conducted as part of an academic research project supported by the authors.

##### Conflicts of Interest / Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

##### Ethics Approval

The study was conducted in accordance with institutional ethical standards and the principles of voluntary participation and confidentiality. Prior approval was obtained from the research committee of **Shri Guru Ram Rai University (SGRRU), Dehradun**.

##### Consent to Participate

Informed consent was obtained from all participants prior to their inclusion in the survey and interviews. Participants were assured of anonymity and the right to withdraw at any stage without penalty.

##### Consent for Publication

All authors reviewed and approved the final version of the manuscript and consented to its submission for publication in **Discover Sustainability**.

##### Availability of Data and Materials

The data that support the findings of this study (aggregated survey results and thematic interview summaries) are available from the corresponding author upon reasonable request. Individual interview transcripts cannot be publicly shared to maintain participant confidentiality.

##### Acknowledgements

The author expresses sincere gratitude to the tribal handicraft entrepreneurs of Udham Singh Nagar district for their participation and cooperation during the field survey.

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