



ECONOMIC IMPLICATIONS OF TECHNOLOGICAL CHANGE IN PHULKARI: ASSESSING ARTISAN LIVELIHOODS AND EXPLORING SUPPORTIVE STRATEGIES

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ABSTRACT

DOI No: 10.36713/epra28576

Article DOI: <https://doi.org/10.36713/epra28576>

*This study examines the influence of technological advancements, particularly machine embroidery and digital techniques, on the livelihoods of traditional Phulkari artisans, while identifying supportive strategies to enhance their **economic well-being**, livelihood security, and consumer satisfaction. A descriptive research design was adopted, and primary data were collected through structured questionnaires from consumers, artisans, and shopkeepers. The data were analyzed using percentage distribution and mean scores. The findings indicate that while consumers appreciate handmade Phulkari for its authenticity and craftsmanship, their purchasing decisions are largely influenced by affordability and accessibility, resulting in increased demand for machine-made and digitally produced products. This technological shift has significant **economic implications**, including reduced income opportunities, declining employment prospects, increased market competition, and financial insecurity among traditional artisans. At the same time, technology has expanded market access and production efficiency, creating new economic opportunities for businesses and consumers. The study suggests that interventions such as skill development, improved marketing, financial assistance, geographical indication (GI) certification, digital market integration, and policy support can strengthen artisan livelihoods and improve their economic resilience. It concludes that a balanced integration of traditional craftsmanship with modern technology is essential for promoting sustainable economic development, preserving the cultural heritage of Phulkari, and ensuring the long-term socio-economic sustainability of artisan communities.*

KEYWORDS: Phulkari, Technological Change, Economic Implications, Artisan Livelihoods, Consumer Behavior, Machine Embroidery, Traditional Craft, Sustainable Development.

1.1 INTRODUCTION

Phulkari, a traditional embroidery of Punjab, stands for its rich cultural heritage and skilled craftsmanship. Over time, the introduction of machine embroidery and digital technologies has brought significant changes in its production and market dynamics. While these advancements have made Phulkari more affordable and widely available, they have also influenced the livelihoods of traditional artisans.

Many artisans face challenges related to income and job security due to reduced demand for handmade products. Therefore, it becomes important to understand these changes and explore ways to support artisans while meeting modern consumer needs.

1.2 REVIEW OF LITERATURE

Singh & Gupta (2019): Highlighted that modernization has supported the revival and wider reach of traditional crafts like Phulkari, but also created competition from machine-made products, affecting the demand for handmade work.

Sharma (2020): Emphasized the importance of digital platforms and online marketing in improving direct market access for artisans, helping them connect with consumers and increase income opportunities. **Kaur (2021):** Observed that machine embroidery enhances production efficiency and reduces time, but may compromise the originality and uniqueness of traditional handmade Phulkari.

Kaur and Singh (2025) explored the integration of artificial intelligence with Phulkari design. The findings showed that AI-based systems can generate culturally appropriate designs while enhancing productivity and income for artisans. The study

concluded that combining traditional knowledge with modern technology can support both preservation and innovation.

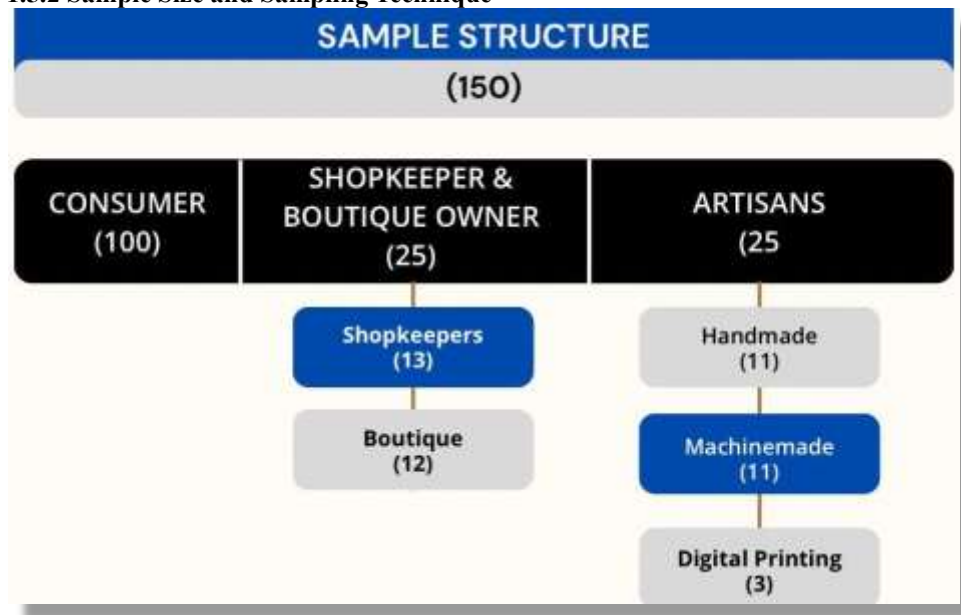
Tewari et al. (2026) examined the impact of commercialization on Phulkari traditions and gendered practices. The study found that standardization and market driven production have led to the decline of traditional practices and marginalization of women artisans. It concluded that while commercialization supports economic growth, it threatens cultural heritage.

1.3 OBJECTIVES OF THE STUDY

1. To examine the economic implications of technological advancements, particularly machine embroidery and digital techniques, on the income, employment, and livelihood sustainability of traditional Phulkari artisans.
2. To explore strategies for enhancing the economic sustainability and competitiveness of traditional Phulkari artisans in the era of technological transformation.

1.4 RESEARCH QUESTIONS

1.5.2 Sample Size and Sampling Technique



The respondents were selected using a convenience sampling technique from selected regions of Punjab.

1.5.3 Tools Used

Data was collected using structured questionnaires for consumers and shopkeepers, and semi-structured interviews for artisans to gather both quantitative and qualitative information.

1.5.4 Data Collection Procedure

Data was collected through both online and offline methods. Online responses were gathered using Google Forms, while

1. What are the economic implications of technological advancements on the income, employment, and livelihood sustainability of traditional Phulkari artisans?
2. Which strategies can enhance the economic sustainability and market competitiveness of traditional Phulkari artisans in the changing technological landscape?

1.5 RESEARCH METHODOLOGY

This section outlines the overall approach adopted for the study. It describes the research design, sample selection, data collection methods, and statistical tools used to analyze the data to achieve the objectives of the study.

1.5.1 Research Design

The study uses a descriptive **research design** to understand the impact of technological advancements on Phulkari artisans and to analyze the perception of different stakeholders.

offline data was collected through field visits and personal interactions with respondents.

1.5.5 Statistical Tools

The collected data was analyzed using descriptive statistical tools such as frequencies percentages and mean. Graphical representations including tables and bar graphs were used for better interpretation of results.

1.6 Analysis and interpretation of Data and Discussion of Results.

Table- 1.1
Income Sufficiency and Stability of Phulkari Artisans

Response Category	Income Sufficiency Hand-Made Artisans (%)	Income Stability of Machine and Digital Workers (%)
Strongly Agree	4	50
Agree	52	50
Neutral	8	0
Disagree	32	0
Strongly Disagree	4	0
Total	100	100
Mean Score	3.20	4.50

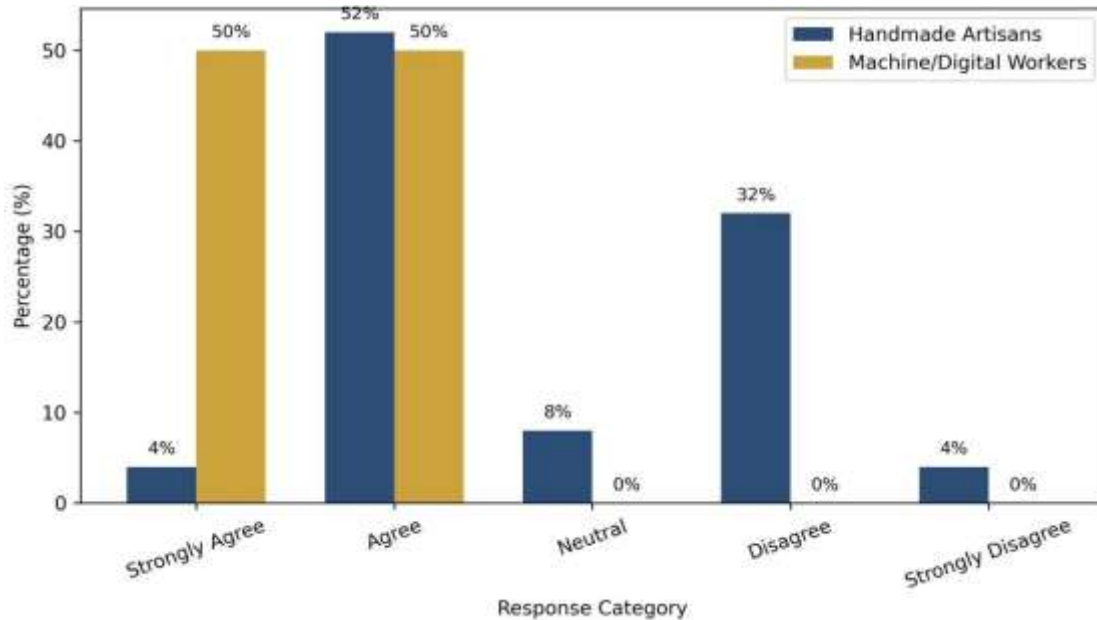
**Figure: 1.1**

Table- 1.2
Impact of Machine/Digital Methods on Traditional skills

Response Category	Percentages (%)
Strongly Agree	64
Agree	36
Neutral	0
Disagree	0
Strongly Disagree	0
Total	100
Mean Score	4.64

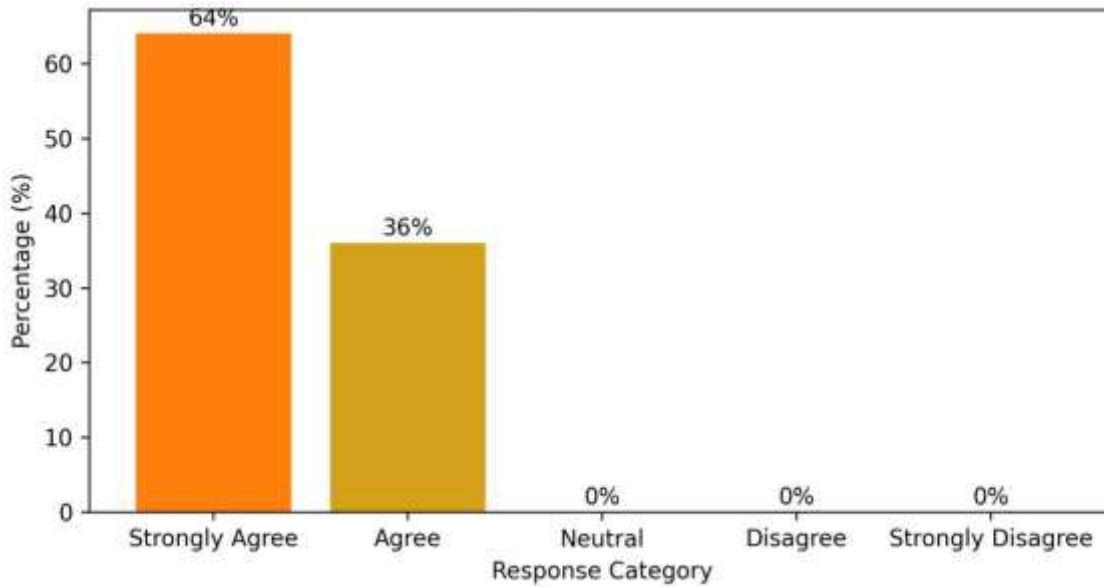


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Table- 1.3
Impact of Machine/Digital
Phulkari on Artisans Livelihood (Shopkeeper/Boutiques) Perspective

Impact Category	Frequency	Percentages (%)
Greatly impacted	12	48
Somewhat impacted	10	40
No impact	2	8
Not sure	1	4
Total	25	100

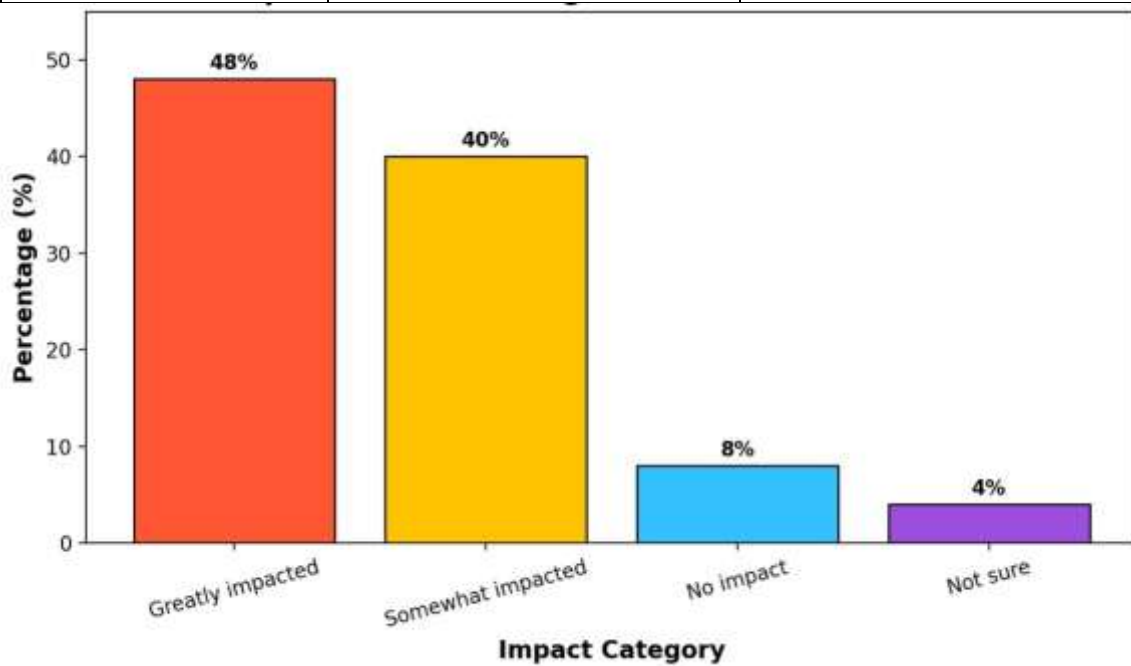


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Table- 1.4
Customer Support and Suggestions for promoting Handmade Phulkari

Category	Response/Theme	Frequency	Percentages (%)
Willingness to pay more	Yes	-	49.5
	Maybe	-	35.9
	No	-	14.6
Promotion Strategies	Social media & Influencer promotion	14	26
	Modern/fusion design & trends	10	19
	Workshops, Exhibition & awareness	9	17
	Cultural preservation & education	6	11
	Product diversification more	5	9
	Financial support	4	7
	No suggestions/NA	6	11
	-	54	100

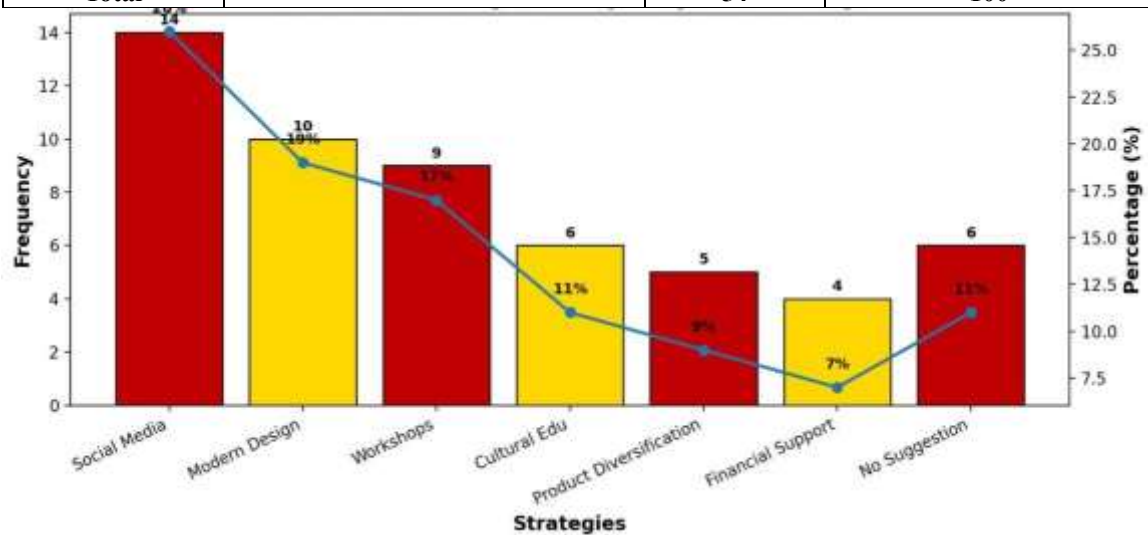


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Table- 1.5
Intervention to Improve Artisans Income and Consumer satisfaction
(Shopkeeper's View)

Intervention Theme	Frequency	Percentages (%)
Direct market access	5	25
Fair wages / pricing support	4	20
Awareness & storytelling (value of handmade)	4	20
Online platforms/social media	3	15
Fairs	2	10
Design improvement & Skill training	2	10
Total	20	100

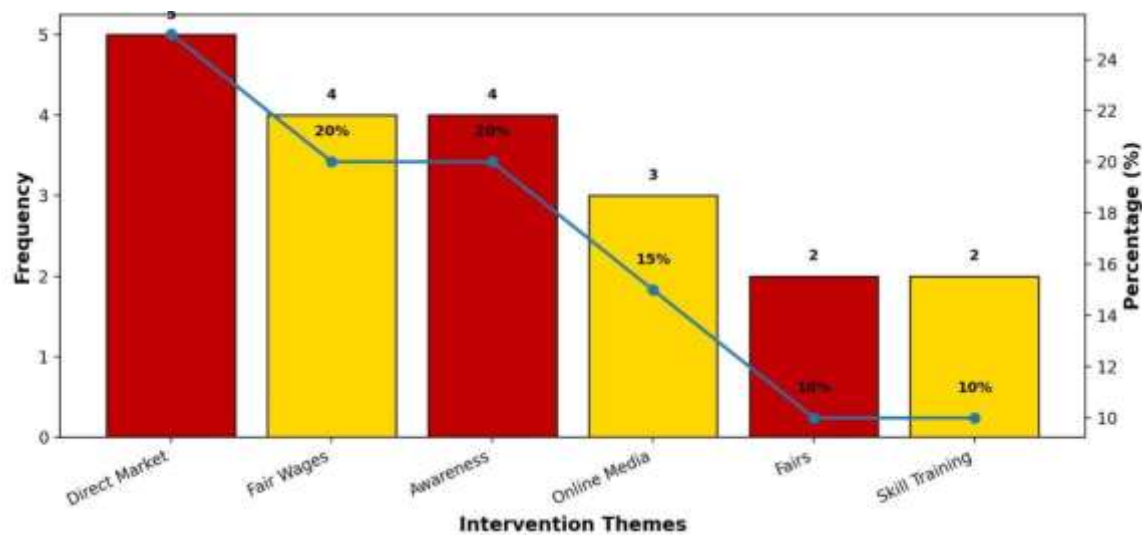


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1.6.2 Discussion of results

1. Majority of respondents agreed that machine and digital methods have a strong impact on traditional skills, with full agreement and a high mean score (4.64), indicating a significant shift from traditional practices.
2. Most respondents (48% greatly, 40% somewhat) reported that artisan livelihoods are negatively affected, showing that technological changes influence income and work opportunities.
3. Consumers show a positive attitude towards handmade Phulkari, with nearly half willing to pay more and others moderately willing, reflecting appreciation for authenticity.
4. Social media and influencer promotion emerged as the most effective strategy, followed by modern design adaptation and workshops, highlighting the importance of marketing and innovation.
5. Direct market access was identified as the most important intervention, followed by fair pricing and awareness, indicating the need to reduce middlemen and improve artisan earnings.
6. Online platforms, fairs, and skill training also play a supportive role, suggesting that a combination of market access, awareness, and skill development is essential for improving artisan livelihoods and consumer satisfaction.

1.7 CONCLUSION

1. Technological advancements, particularly machine embroidery and digital production, have significantly increased production efficiency, reduced manufacturing costs, and enhanced the market availability of Phulkari products.
2. The widespread adoption of technology has generated economic benefits for manufacturers and retailers; however, it has adversely affected the income, employment opportunities, and livelihood sustainability of traditional Phulkari artisans.
3. Traditional artisans experience economic challenges, including declining earnings, irregular employment, reduced market demand for handmade products, and increasing competition from machine-made alternatives.
4. Although consumers value the authenticity and craftsmanship of handmade Phulkari, affordability and easy availability of machine-made products largely influence their

purchasing decisions, thereby affecting the economic viability of traditional artisans.

5. Strengthening market linkages, providing skill development, financial assistance, branding, certification, and digital marketing support can improve the economic resilience and competitiveness of traditional Phulkari artisans.

6. Sustainable economic development of the Phulkari sector requires a balanced integration of traditional craftsmanship with technological innovation to preserve cultural heritage while ensuring long-term livelihood security for artisans

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