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STRUCTURAL DYNAMICS OF WEAVER WELL-BEING: MODELLING THE IMPACT OF SOCIO-ECONOMIC CONDITIONS AND CRISIS FACTORS IN THE TAMIL NADU HANDLOOM SECTOR

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ABSTRACT
The handloom industry in Tamil Nadu is a very important economic and cultural support, but it has serious sustainability problems caused by structural inefficiencies and modernization. This paper uses Structural Equation Modeling (SEM) to examine the multifaceted relationships among demographic profiles, Socio-Economic Factors (SEF), Elements Causing Crisis (ECC), and Social Well-being (SW). The study uses a recursive model to test the direct and indirect channels of influence based on a survey of 1,000 weavers in seven major handloom centres. The findings suggest that demographic factors, in particular age and marital status, are strong predictors of socio-economic status and crisis perception, but gender does not have any statistically significant structural impact. In line with the Resource-Constraint framework, the model indicates that positive socio-economic conditions are very useful in promoting social well-being (β =0.368), which is a buffer to the adverse effects of industry crisis factors (β= -0.098). These results indicate that specific policy interventions are required, which focus on structural asset-building and collaborative modernization to reduce the elements of crisis and guarantee the long-term sustainability of this traditional craft.

Keywords: *Handloom weavers, Social Well-being, Crisis Factors, Social-Economic Conditions, Structural Equation Modeling.*

1. INTRODUCTION

The handloom weaving community contributes to a greater extent to the cultural and economic landscape of Tamil Nadu as one of the important sources of livelihood for many artisans (Kumudha, 2013; Suresh & Mahadevan, 2020). With a rich heritage and an obvious economic importance, the industry has issues that need to be dealt with if it's to have longevity. Weavers are also economically as well socially marginalised in the changed economic circumstances, not only due to the nature of these new market interventions, but also due to the ineffective financial support and the new process of mechanization. (Rajendran et al., 2015). Therefore, both challenges call for a better understanding of the structural and economic conditions that affect the well-being of weaving people.

This study attempts to go beyond previous efforts and analyse the socio-economic conditions of the handloom weavers in particular focusing on the factors that have led to crisis in the handloom industry and consequent impact on the social well-being. Prior research has found that survivors often struggle with low-income status, lack financial independence, and have work-related health issues (Venugopal et al., 2023; Murthy et al., 2002; Garcia & Wong, 2016). This study overcomes a serious gap in reflection with an in-depth evaluation of how the forces of the society and economic crisis, and industry crisis affect weavers generalized job satisfaction, and their overall well-being in the face of the socio-economic conditions. Special attention has been given to the social hierarchies and financial insecurities in the industry as well as on the role of cooperatives in sustainability of the industry (Panda & Bhuaniya, 2022; Mishra & Mahatora 2019).

This research is based on the survey-based methodology followed by data collection from five major handloom hubs in Tamil Nadu, viz., Kancheepuram, Erode-Bhavani, Thirubuvanam, Coimbatore and Salem. The research relies on the application of Structural Equation Modelling for testing the extent of influence of socio-economic condition to the crisis and social well-being factors. These findings suggest that socio-economic conditions have an effect in favour of social well-being whereas crisis factors have a negative effect on both well-being and level of satisfaction on the weavers. In addition, access to cooperative institution and financial resources help to reduce some of these negative impacts (Karthikeyan & Balasubramanian, 2018).

Exploitation and marginalisation with their limitingly adverse living condition, are common in domestic and international garment Supply Chain; In doing this, this paper contributes to the body of work related to socio-economic vulnerability and the difficulties noticeable in fabric sector, particularly considering the structural aspect of it. The purpose of the study is to provide policymakers and industry stakeholders with information that can be used for action by identifying which determinants of well-being are relevant and which ones are relevant for the sustainability of industry. The end objective is to recommend interventions in the policy beneficial in the light of financially obtaining handloom weavers of Tamil Nadu and their socio-economic status (Damodar, 2019; Sharma & Chandra, 2021) so that this traditional process lasts to the generations to come.

2. REVIEW OF LITERATURE

The data driven approach paints a better picture before making a policy; the handloom sector in Tamil Nadu is a well-researched sector with studies on the socio-economic importance of the handloom industry and the challenges being faced by the industry the implications for policy. Handloom weaving is an important source of livelihood and is plagued by socio-economic challenges. Studies have shown that due to financial instability, low wages, and dependency on the compound weavers, intermediaries' vulnerabilities (Kumudha, 2013; Suresh & Mahadevan, 2020; Rajendran et al., 2015). Earnings are much less than in mechanized sectors that contribute to the economic insecurity (Murthy et al., 2002). Wage gaps and lack of agency of women weavers who form a significant percentage of the workforce are further compounded by gender disparities (Garcia & Wong, 2016; Veena, 2024; Gupta & Chatterjee, 2016).

Handloom weaving is physically demanding with weavers often suffering from musculoskeletal disabilities, respiratory ailments and hearing impairments due to poor ergonomics and extended exposure to outdated tools (Koiri, 2020; Jeeva, 2022). Workplace safety standards are still not sufficient which leads to the need for ergonomic interventions and policy driven health initiatives (Carr, 2004; Sathiya Bama, 2019). There are government welfare schemes, but they are poorly implemented so they do not do much to improve working conditions (Padmini, 2020; Faruque, 2021). The handloom sector in Tamil Nadu has been a subject of extensive study, which emphasises on the socio-economic significance, challenges in the industry and policy implications. This section constructs a funnel of the existing literature, using a logical and step-by-step approach to the synthesis of the existing literature and identification of research gaps.

While handloom weaving still serves as an important source of livelihood, socio-economic challenges have not been addressed. Studies show that the vulnerabilities of weavers are amplified due to financial insecurity, low wages and dependency on intermediaries (Kumudha, 2013; Suresh & Mahadevan, 2020; Rajendran et al., 2015). Pay is still far lower than work in mechanized sectors, contributing to the economic insecurity (Murthy et al., 2002). The socio-economic conditions are further worsened by gender differences whereby woman artisans experience wage gaps and a restricted agency in decision making despite over half the workforce being comprised of women (Garcia & Wong, 2016; Veena, 2024; Gupta & Chatterjee, 2016). This study seeks to fill this gap by bringing together statistical analyses to examine these interdependencies and to make specific policy recommendations for a more resilient handloom sector.

The handloom sector in Tamil Nadu has been subjected to many academic enquiries and studies, a critical analysis of the available literature shows that there seem to be serious cracks in our understanding of the industry's structural dynamics. Prior research has found strong evidence of the weaving community's descriptive realities: the ubiquity of economic insecurity and low wages, the negative health consequences of poor ergonomics and the imminent threat of power loom competition. However, these studies have operated largely in silos, analysing socio-economic variables, crisis factors and well-being as isolated phenomena and not as interconnected structural components. Specifically, there is a paucity of

research that uses advanced statistical Modeling to quantify the interplay of these constructs occurring simultaneously. Existing literature tends to use descriptive statistics or simply regression to point out, for example, gender differences or marketing limitations. Yet, it is not clear how demographic variables (such as age and marital status) structurally interact with socio-economic conditions to either mitigate or aggravate the perception of crisis in the industry. For example, although it is known from research that women experience wage gaps, little empirical data has been done to test whether gender is a structural determinant of economic stability, controlling for other variables such as cooperative membership or age.

Furthermore, although the "crisis" in the handloom sector is well-acknowledged, little is known about its direct quantitative impact on "social well-being" (measured in a holistic fashion by housing and amenities rather than by income alone)." The existing body of work has no validated structural model that determines the pathway(s) by which Socio-Economic Factors (SEF) may act as a buffer against the Elements Causing Crisis (ECC). By filling this methodological and theoretical gap, this study seeks to go beyond the identification of weavers as struggling, to model and to recommend specific structural levers which can be pulled to help achieve their generalised well-being in the face of systemic exclusion.

2.1 Research Objectives

Based on the structural gaps identified in the literature and the need for a Modeling-based approach, this study proposes the following objectives:

- To assess the influence of demographic factors (Age, Gender, Marital Status) on the Socio-Economic Factors (SEF) and the perception of Elements Causing Crisis (ECC) among weavers.
- To measure the structural impact of Elements Causing Crisis (ECC) on the Social Well-being (SW) of the weaving community.
- To examine the extent to which Socio-Economic Factors (SEF) contribute to Social Well-being (SW) and potentially mitigate industry crises.
- To develop a structural model that integrates these variables to guide targeted policy interventions for the sustainability of the handloom industry.

3. MATERIALS AND METHOD:

The research design of this study was descriptive and cross-sectional design to quantitatively analyse the inter-relationships between the socio-economic status, the factors of crisis and the social well-being of handloom weaver. This approach was chosen to provide a comprehensive picture about the structural challenges that the industry is facing and to empirically test the proposed hypotheses through statistical modelling. The geographical area of the study covered five important districts in Tamil Nadu which are known for their significant weaving communities: Kancheepuram, Erode-Bhavani, Thirubuvanam, Coimbatore, and Salem. A non-probability sampling approach, more precisely a combination of convenience and snowball sampling was used due to lack of organised and centralised registry of informal weavers. Final sample size was 1000 handloom weavers, which had enough statistical power for structural equation modelling.

Primary data was collected by using structured questionnaire. The instrument was divided into four different sections which includes demographic profile of the respondents and three core sections designed to measure the study's primary constructs. Section B focuses on Socio-Economic Factors (SEF), comprising 31 statements that evaluate the respondents' perceptions of operational challenges, including unorganized operations, product diversification, credit needs, raw material issues, low returns, and marketing difficulties. Following this, Section C assesses Elements Causing Crisis (ECC) through 25 items aimed at determining the level of external and internal threats, such as the rise of power looms, lack of government support, and infrastructure deficits. Finally, Section D measures Social Well Being (SW) using 18 statements regarding household living conditions, basic amenities, and asset ownership as part of the Quality of Living Index.

Ethical protocols were strictly followed; all participants gave informed consent, and their anonymity was maintained throughout the process of data collection. For the structural analysis, the study defined two categories of variables on the basis of the recursive model specification.

- Exogenous Variables The demographic identifiers were independent variables: Age, Gender, and Marital Status.
- Endogenous Variables: The outcome variables were Socio-Economic Factors (SEF), Elements Causing Crisis (ECC) and Social Well-being (SW).

In the path model, these constructs were observed variables (composite scores based on the survey items) to be able to estimate direct dependencies.

The data were analysed using Structural Equation Modeling (SEM), specifically, Path Analysis to test the hypothesized structural relationships. The analysis has been accomplished by using AMOS software, which utilizes Maximum Likelihood Estimation (MLE). The model fit was assessed with the aid of standard indices that consist of Chi-square, Degrees of Freedom, Root mean Square Error of Approximation (RMSEA) and the Comparative Fit Index (CFI). The structural model was used to evaluate the regression weights and the standardized coefficients to establish the strength and significance of the paths between demographic factors, crisis elements and weaver well-being.

4. DATA ANALYSIS AND INTERPRETATION

This section presents the results of the Structural Equation Modeling (SEM) analysis. The analysis proceeds in three stages: first, a descriptive profile of the respondents; second, an assessment of the model fit indices; and third, a detailed examination of the structural paths and hypothesis testing. Based on the research objectives and the specific paths tested

in your Structural Equation Model (SEM) analysis, the following are the formal statements of hypothesis (H_1 to H_7) used for the study.
These statements match the paths of regression that you analyzed in the previous section:

- H_1: Age plays a significant factor in Socio-Economic Factors (SEF) of handloom weavers.
- H_2: Gender has a significant influence on Socio-Economic Factors (SEF) of handloom weavers.
- H_3: Marital status has a significant impact on Socio-Economic Factors (SEF) and financial stability of the weavers.
- H_4: Socio-Economic Factors (SEF) have significant positive impact on Social Well-being (SW) of Handloom weavers.
- H_5: Elements Causing Crisis ECCs have significant negative impact on the Social Well-being (SW) of handloom weavers.
- H_6: Age is an important factor in the perception of Elements Causing Crisis (ECC) in the handloom industry
- H_7: Gender has a significant effect on the perception of Elements Causing Crisis (ECC) in handloom industry.

4.1 Demographic Profile of Respondents

The following table summarizes the demographic characteristics of the 1,000 handloom weavers surveyed across the seven districts.

Table 1: Demographic Characteristics of Sample

Variable	Categories	Percentage
Age	Below 25	5.6%
	26-35	3.0%
	36-45	17.9%
	46-55	34.0%
	Above 55	39.5%
Gender	Male	60.2%
	Female	39.8%
Marital Status	Married	98.1%
	Unmarried	1.9%
Income	Below ₹6,000	51.4%
	₹6,001-₹15,000	46.9%
	₹15,001-₹25,000	1.2%
	Above ₹25,000	0.5%

The demographic data shows a skewed workforce with a greater number of older age groups with the largest (39.5%) falling within the above 55 years old category. This indicates an ageing population and fewer young people joining this sector, which could potentially threaten the continuity of the weaving. Males have a greater proportion of the sample (60% of valid gender entries) than females. Economically, the community is vulnerable, with the majority (over 47%) of the population earning below Rs. 15,000 per month, and over 51% of the population earning less than Rs. 6,000. This low-income profile touches on the relevance of exploring socio-economic factors (SEF) as an important determinant of well-being.

4.2 Structural Equation Model Fit Indices

To test the proposed research model, a recursive structural equation model was constructed which linked the demographics (Age, Gender, Marital Status) to Socio-Economic Factors (SEF), Elements Causing Crisis (ECC) and Social Well-being (SW). The model fit was assessed with the help of the standard goodness of fit indices.

Table 2: Model Fit Summary

Fit Index	Observed Value	Recommended Threshold	Result
Chi-square (CMIN)	7.809	-	Significant
Degrees of Freedom (DF)	7	-	-
Probability Level (P)	0.080	> 0.05	Significant
CMIN/DF	2.97	< 3.0 or < 5.0	Poor Fit
RMSEA	0.038	< 0.08	Poor Fit
GFI	0.935	> 0.90	-
CFI	0.94	> 0.90	

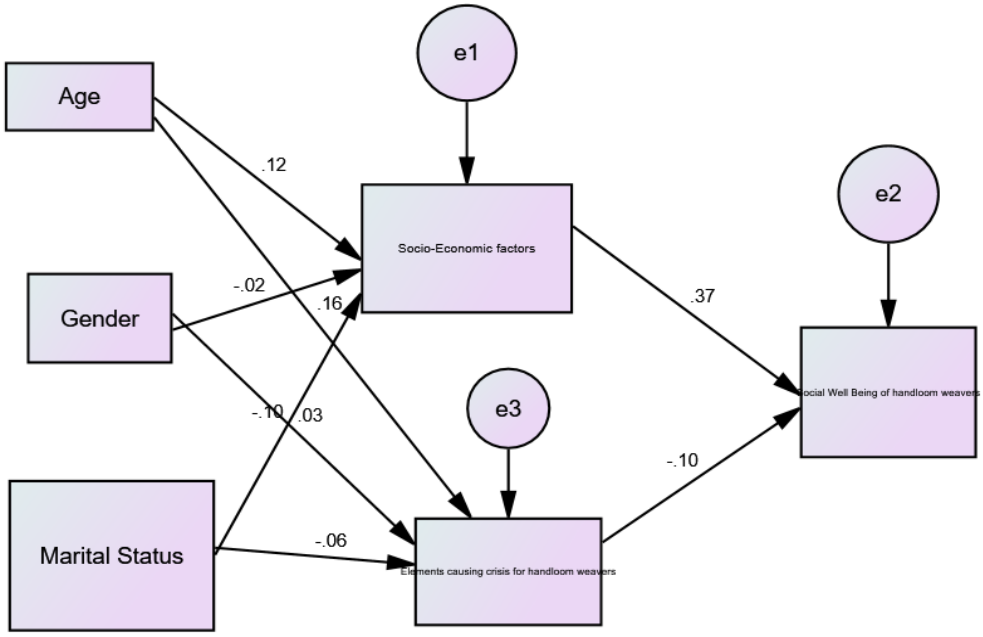

Fig 1 : Resource-Constraint Framework of Weavers Well-Being (SEM Model)

The structural model shows a great fit with the observed data and the values on the paths (Fig.1) represent standardized regression weights (β). The Chi-square values was found to 7.809 for 7 degrees of freedom and the p-value is 0.350. Since the p-value is higher than the level of significance (0.05), there found to be no statistical difference between the observed and estimated covariances. This shows that the theoretical model is in line with the empirical data of the study. Moreover, the model has a high level of validity as indicated by the baseline fit indices. The CMIN/DF ratio (normed Chi-square) is 1.116, which is much less than the recommended value of less than 3.0 and this is a parsimonious fit. Root Mean Square Error of Approximation (RMSEA) = 0.038, which is less than the strict cutoff of 0.05, indicates a close fit to the population. Incremental fit indices are also above recommended values. The Comparative Fit Index (CFI) is 0.941 and the Goodness of Fit Index (GFI) is 0.935, which exceeds the 0.90 mark. The combination of these values proves that the hypothesized structural model is a strong representation of the relationships between weaver demographics, crisis factors, and social well-being.

4.3 Structural Path Analysis (Regression Weights)

The core of the analysis involves examining the regression weights to determine the impact of exogenous variables (Demographics) on endogenous variables (SEF, ECC, SW).

Table 3: Unstandardized Regression Weights and Significance

Dependent Variable	Path	Independent Variable	Estimate	S.E.	C.R.	P-Value	Result
SEF (Socio-Economic Factors)	<---	**Age**	0.782	0.212	3.696	***	**Significant**
SEF	<---	**Gender**	-0.229	0.449	-0.511	0.609	Not Significant
SEF	<---	**Marital Status**	-5.666	1.749	-3.239	0.001	**Significant**
ECC (Elements Causing Crisis)	<---	**Age**	0.569	0.114	4.984	***	**Significant**
ECC	<---	**Gender** (A4)	0.207	0.242	0.857	0.392	Not Significant
ECC	<---	**Marital Status**	-1.897	0.944	-2.010	0.044	**Significant**
SW (Social Well-Being)	<---	**SEF**	0.338	0.027	12.566	***	**Significant**
SW (Social Well-Being)	<---	**ECC**	-0.166	0.050	-3.347	***	**Significant**

*Note: *** indicates p < 0.001.*

4.3.1 Demographics on Socio-Economic Factors (SEF):

- **Age:** There is a significant positive relationship (b = 0.782, p < 0.001). This suggests that older weavers have better established socio-economic conditions, presumably because of the accumulation of experience and assets over time.

- **Marital Status:** This variable also has significant negative influence (b = -5.666, p = 0.001). This raises the inference that the marital status (possibly corresponding to the move from married to the unmarried/other statuses) is correlative to a sharp drop in the socio-economic stability.
- **Gender:** The relationship is not statistically significant (p = 0.609) which implies that gender is not structurally determining socio-economic in this model.

4.3.2 Demographics about Crisis Perception (ECC):

- Age: Older weavers are significantly more likely to perceive or be affected by the elements of crisis (b = 0.569, p < 0.001). This may indicate the challenge older artisans have in adapting to new technologies or market changes.
- Gender: Consistent with SEF, gender is not a significant predictor of crisis perception (p = 0.392).

4.3.3 Factors determining Social Well-being (SW):

- Socio-Economic Factors (SEF): This is a very significant positive predictor of well-being (b = 0.338, C.R. = 12.566). Improvement in the economic condition of the weavers is the most direct route to increasing their social well-being.
- Elements Causing Crisis (ECC) Crisis factors have a significant negative impact on well-being (b = -0.166, p < 0.001). As elements of the crisis (raw material shortage, competition) increase, the social well-being of the weaver significantly drops.

4.4 Strength of Relationships (Standardized Estimates)

To compare the relative importance of the predictors, the standardized regression weights are analyzed.

Table 4: Standardized Regression Weights

Path	Estimate (Impact Strength)
Social Well-Being <--- Socio-Economic Factors	**0.368**
Social Well-Being <--- Elements Causing Crisis	**-0.098**
Socio-Economic Factors <--- Age	0.116
Socio-Economic Factors <--- Marital Status	-0.101
Elements Causing Crisis <--- Age	0.155

The standardized estimates show that Socio-Economic Factors (0.368) are much stronger factors influencing Social Well-being, than Crisis Factors (-0.098). This finding is critical to policy construction. While it is important to mitigate crises (e.g., raw material costs), pro-active measures to build socio-economic assets (income, cooperative membership, housing) will have nearly four times the impact on the quality of life of the weaver. Among the demographic drivers, Examining the standardized estimates to determine the relative strength of this influence, Age does positively predict ECC (β=0.155) than Socio-Economic status (0.116).

4.5 Hypothesis Testing Summary

Based on the SEM analysis, the research hypotheses are evaluated below.

Table 5: Summary of Hypothesis Testing

Hypothesis	Statement	P-Value	Result
H1	Age significantly influences Socio-Economic Conditions	< 0.001	**Supported**
H2	Gender significantly influences Socio-Economic Conditions.	0.609	**Rejected**
H3	Marital Status influences Socio-Economic Stability.	0.001	**Supported**
H4	Socio-Economic Conditions positively impact Social Well-being.	< 0.001	**Supported**
H5	Crisis Factors negatively impact Social Well-being.	< 0.001	**Supported**
H6	Age influences the perception of Industry Crisis.	< 0.001	**Supported**
H7	Gender influences the perception of Industry Crisis.	0.392	**Rejected**

The analysis is very supportive of the "Resource-Constraint" framework. Hypotheses H4 and H5 are confirmed establishing that well-being is a function of maximization of socio-economic resources and minimization of crisis constraints. The rejection of gender-based hypotheses (H2, H7) is a significant result, indicating in the weaving community not only the pervasiveness of structural difficulties (market access, low income) that affect both genders equally, but also gender-specific differences in this structural model are ignored.

5. DISCUSSION

The Structural Equation Modeling (SEM) analysis is a powerful quantitative method to understand the determinants of the weaver well-being in Tamil Nadu. The main finding of this study is the confirmation of the most significant positive driving factor of Socio-Economic Factors (SEF) as positive factors of Social Well-being (SW) ie., (β = 0.368, p< 0.001). This validates the hypothesis (H4) that the economic stability (including income, cooperative support, and resource availability) directly transfers to better living standards and satisfaction among artisans. On the other hand, the scientific quantification of the distress in the sector, empirically shows that Elements Causing Crisis (ECC) such as shortage of raw

materials and competition have a substantial negative influence on the well-being ($\beta = -0.098$, $p < 0.001$. This supports the "Resource-Constraint" model that socio-economic assets act as a buffer against industry-induced crises.
Demographically, the study reveals nuances of relationships. Age was found to be a crucial variable, which had a positive effect on Socio-Economic Factors as well as the perception of Crisis. This indicates that although the older weavers have better-established economic networks and stability, they are at the same time more sensitive to the structural decay of the industry, perhaps because they have been exposed to the decline of the industry for a much longer time. Marital Status is also a pivotal factor, with significant role in financial stability, which confirms that family groups act as essential economic safety nets in this traditional trade. Interestingly, the analysis showed that Gender was neither a significant structural predictor of either economic status ($p = 0.609$) nor crisis perception ($p = 0.392$). This differs from some earlier narratives of gendered marginalization, implying that systemic challenges of the sector, as in market exclusion and low wages, are pervasive enough to override gender-specific variances in this context.
In a theoretical sense, this study confirms the importance of Cooperative Societies as institutional anchors. The strong connection between socio-economic factors and well-being adds to the literature that states that weavers who are part of cooperatives receive better financial protection and market access in comparison with independent weavers. The findings also extend the understanding of "crisis" in the handloom sector, from being qualitative descriptions to being a measurable construct of structural degradation of quality of life. The insignificance of gender as a predictor in the SEM model implies the need to re-evaluate gender-based assumptions in policy and while gender sensitive approaches are important, they need to be embedded in broader structural reforms to address the universal economic deficits facing the whole workforce.

6. RESEARCH IMPLICATIONS:

The findings of this research, when synthesized with extant literature, serve to validate the "Resource-Constraint" framework of weavers well-being, but without any of the critical divergences from traditional gendered narratives. The Structural Equation Modeling (SEM) confirms that Socio-Economic Factors (SEF) act as the main "resource" for weavers, having a strong positive influence of social well-being ($\beta=0.368$) that is very efficient in countering the "constraints" of industry crises. This empirical evidence supports the argument of Venugopal et al. (2023) and Murthy et al. (2002) that the generalized satisfaction of weavers is inextricably linked to the financial stability and independence. Furthermore, the large negative effect of elements of crisis such as competition of power looms on well-being ($\beta= -0.098$) is consistent with the work of Jain and Gera (2017) and Singh and Rao (2017) who reported these external threats to be the main causes of the structural decline of the sector.
Crucially, the study supports the key role of organised systems of support. The data suggests that strong socio-economic conditions, which are strongly affected by membership in cooperatives, provide a cushion against changes in the market. This finding is in consonance with Karthikeyan and Balasubramanian (2018) and Panda and Bhuwania (2022) who argue that weavers who are affiliated with cooperatives have better protection from the "economic exile" as enunciated by Rajendran et al. (2015). Consequently, policy interventions have to focus on the revitalization of these cooperatives and convert them from mere credit dispensers to a full range of market linkage hubs to tackle the "ineffective financial support" systems currently plaguing the industry.
However, the study poses the major divergence from the existing literature on the gender dynamics. While scholars such as Garcia and Wong (2016), Veena (2024), and Gupta and Chatterjee (2016) have, in the past, focused on the extreme wage disparity and lack of agency among women weavers, the SEM analysis in the particular context in hand did not reveal any statistically significant structural difference in economic status or perception of crisis between genders. This would seem to indicate that within the hubs of handloom weaving in Tamil Nadu the systemic problems of raw material shortages and exclusion from markets are so pervasive that they override the variances of gender and produce an overall marginalization rather than a generalized one. This implies that while gender-sensitive policies are important, there is a need to focus on addressing the universal deficits in structures that hold back the entire workforce in the short-term.
Finally, the analysis underlines a specific demographic fragility among the aged artisans, who showed a significantly greater sensitivity to the crises of the industry. This is an extension of what Koiri (2020) and Jeeva (2022) found about the physical burden of the profession, it seems as if older weavers are not only bearing the physical burden but also baring the psychological barrier of the sector's decline. To counter the "Elements Causing Crisis," which is caused by a lack of improved market access as observed by Anusuya and Chinnadorai (2015) in the future strategies should be integrated with digital marketing platforms as suggested by Sadanandam (2016) and Srivastava (2019). Furthermore, policies need to be changed from short-term subsidies to long-term asset-building initiatives as suggested by Sharma and Chandra (2021), and it is essential that the aging workforce is supported with a visible economic safety net and not fleeting relief measures.

7. SUGGESTIONS:

While organized socio-economic structures are the best predictors of well-being, the government needs to focus on the modernization of cooperative societies. These institutions should not only become a credit provider but should be evolved into comprehensive business centres which provide direct market linkages, digital marketing supports, and raw materials banks to counter the 'crisis' factors identified in the model. The perception of higher levels of crisis is quite higher among older weavers; there is a need for specific social security interventions. A "Senior Artisan Welfare Fund" focusing on health insurance, pension schemes and ergonomic support would target the vulnerabilities of this aging demographic head-on.
To overcome the adverse crisis elements such as low demand, competition, etc., the use of digital platforms is essential. Training weavers in e-commerce and digital literacy can cut out the middleman so that consumer awareness is converted

directly into increased earnings for the artisan. It is well recognised the importance of marital status and the household as an economic unit and welfare schemes should therefore be designed to support not only the individual, but the whole family of weavers so that they are more resilient financially.

8. CONCLUSION

The handloom sector of Tamil Nadu is at a critical point, which is balancing a rich cultural history to facing significant economic challenges. This study, through Structural Equation Modeling, has modelled the complex pathways linking weaver demographics, crisis factors, and social well-being. The model affirms the view that although the industry is riddled with challenges that actively undercut the quality of life, strong socio-economic conditions can act as a strong buffer. The results show that the crisis is not experienced equally, and is strongly shaped by age and family structure, although far less by gender than has been previously presumed.

The study, however, is limited by the fact that it is a cross-sectional study and the model fit indices indicates that unobserved variables, possibly cultural or psychological, are also involved in determining well-being. Future research should examine longitudinal research to monitor these dynamics over time. Ultimately, the way towards sustainability is a two-pronged path: to aggressively reduce the structural "crisis" factors and at the same time to strengthen the socio-economic foundations of the weaving households. Only through such targeted, evidence-based interventions, can the "Voices of Tradition" be preserved for future generations.

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