



## Factors Affecting Income of SFURTI vs Non-SFURTI Artisan Households: An Empirical Analysis

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### Abstract

India is renowned for its magnificent monuments, which exemplify the pinnacle of our exquisite stone craftsmanship. The artistry is passed down from one generation to the next, and it is believed that today's artisans are descendants of the master craftsmen who were involved in the creation of these historical monuments. However, these traditional industries like stone carving suffer from a lack of finance, raw materials, marketing, orders, and social security measures covering the health aspect, among others. To ensure long-term sustainability and to promote clusters among the traditional industries, the Government of India launched a scheme of fund for regeneration of traditional industries (SFURTI) under the Ministry of MSME in 2005. The objective of this paper is to examine the factors affecting income among SFURTI and non-SFURTI artisan households. The findings of the study reveal that SFURTI initiative enhances the economic returns from education, technology, and awareness, and builds an enabling environment in which artisan incomes are not only higher, but more systematically influenced by positive interventions. This evidence provides a strong case for expanding and deepening such support mechanisms, particularly in underserved artisan communities.

**Keywords:** SFURTI, Stone carvings, Artisans.

### I. Introduction

Handicrafts products are those made by artisans, either entirely by hand, with the aid of hand tools, or even mechanical means, as long as the artisan's direct manual contribution remains the most substantial component of the finished product," according to UNESCO-UNCTAD/WTO. The unique characteristics of artisanal goods—which might be useful, decorative, artistic, culturally associated, religiously and socially symbolic, and significant—are what give them their unique character.

In developing countries, the handicraft sector has enormous employment and revenue-generating possibilities. But as time has gone on, it

has become more difficult to preserve and advance the old crafts and arts, which are in decline. Handicrafts made with regional materials and craftsmanship are unique expressions of a particular culture or community. However, as globalization increases, things become more commodified, making craftsmen's products competitive on a global scale. For the craftspeople engaged in this age-old craft, a stable source of income is also essential (Guha et al., 2022). In the world, stone carving is still a significant handicraft.

India is renowned for its magnificent monuments, which exemplify the pinnacle of our exquisite stone craftsmanship. Among the ancient rock-cut marvels are the Khajuraho Temple, Elephanta Caves, Konark Temple, and Puri Jagannath Temple, among others. Stone carving stands as one of the principal handicrafts of Orissa. The art of stone carving in Orissa has attained remarkable heights of excellence, as evidenced by the countless age-old archaeological monuments, rock-cut sculptures, caves, and temples. Furthermore, it is noteworthy that there is a current export of stone-carved products to international markets (Panda, 2009). The artistry is passed down from one generation to the next, and it is believed that today's artisans are descendants of the master craftsmen who were involved in the creation of these historical monuments.

However, these traditional industries like stone carving suffer from a lack of finance, raw materials, marketing, orders, and social security measures covering the health aspect, among others. To ensure long-term sustainability and to promote clusters among the traditional industries, the Government of India launched a scheme of fund for regeneration of traditional industries (SFURTI) under the Ministry of MSME in 2005.

Against this back drop this study was carried out to check how far the SFURTI scheme has benefitted the artisan community in the Balasore. The study is conducted in Balasore district where the majority (550) of the artisans are covered under the scheme. A total number of 600 sample



artisans are covered including 400 participating artisans involved in the scheme (called “trial group”) and 200 non-participating artisans engaged in the stone carving activity independent of the scheme (called the “Control Group”).

**II. Review of related literatures**

Governments, intergovernmental organizations, and NGOs have recognized the potential of the handicrafts sector for job creation, poverty reduction, and community revitalization. The approach of these groups has largely conformed to the tradition of livelihood support in the informal sector. This tradition, emerging primarily from the ILO (1972, 1982; Haan 2001), sees informal sectors like handicrafts as opportunities for employment creation in contexts where formal jobs are scarce.

Harris (2014) presented findings on observed productivity constraints of handicraft firms in Nairobi, Kenya. To suggest policies to the government, 102 respondents were interviewed about their business, cost structure, hiring practices, and other intra-industry relationships. He pointed out several practical problems hindering productivity and limiting livelihoods, including problematic labour practices, conditions of adverse selection, the context of proprietary information in small-scale manufacturing, and the tendency of the industry toward hyper-competition.

Guha et al. (2022) in their paper explored the traditional art form of stone carving, in the Susunia region of Bankura district of West Bengal, India. They looked at the limitations associated with stone-carving operations and investigated the numerous livelihood results obtained from stone-carving activities by stoneworkers through entrepreneurial activities.

Mohapatra and Dash (2011) discussed the problems faced by 4 categories (namely stone carving, filigree, Patachitra, and Applique) under the handicrafts sector of Orissa. The major problems were irregular supply of raw materials, irregular orders, irregular payments, rejection of orders, raising loans and advances, and marketing.

Mukhopadhyay and Srivastava (2010) evaluated ergonomic risk factors in non-regulated stone carving units of Jaipur, Rajasthan, India. The study indicated that the majority of the activities are in the high-risk category and demand immediate ergonomic intervention in the form of tool, workstation, and process design.

Mishra (2024) focused on assessing the SFURTI scheme with a sample of 87 artisans and tried to find the major differences among SFURTI and non-SFURTI artisans in the study sample. The

findings of the study reveal that SFURTI artisans have higher average income, higher average wages, higher average number of earning members, and higher average years of training than their non-SFURTI counterparts.

**III. Objective**

To examine the factors affecting the Income of SFURTI versus non-SFURTI artisan households.

**IV. Data and Methods**

*Multivariate regression* is used to account for the possible differences between trial and the control group on measurable characteristics that allows to focus on one indicator of interest, holding the effects of other variables (indicators) in the model as constant or unchanging. Here the parameter of interest is the average income of the members of the household engaged in stone carving occupation under SFURTI and Non-SFURTI households engaged in stone carving occupation (denoted as  $Y_t$  and  $Y_c$ ) and other measured personal and environmental characteristics that may affect the indicator of interest are given in equation-1. We assume that if all indicators that possibly affect the outcome are measurable and a part of the model, it would imply an unbiased estimate of the program’s impact. The indicative model to be used in the research is as below.

$$Y_t = \alpha_0 + \alpha_1x_1 + \alpha_2x_2 + \dots + \alpha_kx_k + \beta_iD's + \epsilon_i \dots \dots \dots (1)$$

$$Y_c = \alpha_0 + \alpha_1x_1 + \alpha_2x_2 + \dots + \alpha_kx_k + \beta_iD's + \epsilon_i \dots \dots \dots (2)$$

Where,

$x_1$  through  $x_k$  are independent influencers such as average age of working members, female participation rate in the household, years of experience in the business, average years of schooling, level of dependency in the occupation (ratio of number of family members in the occupation to the total number of earning members), level of technology (ratio of number of hours for a finished product to the total number of hours the same product would take if done manually without any aid from a power driven tool) and so on.  $D$ 's are the dummy variables taking value 1 for presence of an attribute and 0 otherwise. E.g., using technology or not, attended any awareness camp or skill development program related to the craft or not, etc.(The indicators may change depending on the nature of the data available).

For the *Non-SFURTI* artisans the following model was used:



Y (Income of the Household) = f (Age, Experience, Dependency Ratio, Technology, Amenities and Health, Training, Hours/Day, Machine Used, Education, Health)

**Table 1 Model Summary (For Non-SFURTI Artisans)**

Model Summary <sup>b</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.520 <sup>a</sup>	.270	.231	5490.842	.270	6.952	10	188	.000	1.794
a. Predictors: (Constant), HEALTH, EDU, DEPRATIO, TECH, TRAINING, HRS/DAY, AMENITIES, AGE, MACHUSED, EXP										
b. Dependent Variable: INCOME										

Source: Calculated by Author using SPSS

**Table 2 Coefficients and Significance**

Coefficients <sup>a</sup>								
Model	Unstandardized Coefficients			Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta	Tolerance			VIF	
1	(Constant)	3118.893	5214.723		0.598	0.550		
	AGE	-113.594	64.089	-0.197	-1.772	0.078	0.316	3.169
	EXP	240.15	66.608	0.4	3.605	0.000	0.315	3.177
	TRAINING	973.89	287.084	0.226	3.392	0.001	0.876	1.142
	HRS/DAY	312.576	588.337	0.043	0.531	0.596	0.603	1.658
	MACHUSED	629.04	346.28	0.147	1.817	0.071	0.592	1.688
	EDU	-9.766	161.34	-0.004	-0.061	0.952	0.749	1.335
	DEPRATIO	826.838	330.716	0.163	2.5	0.013	0.917	1.09
	TECH	1141.951	5903.597	0.014	0.193	0.847	0.792	1.262
	AMENITIES	2442.668	923.804	0.19	2.644	0.009	0.756	1.323
	HEALTH	-111.298	966.322	-0.008	-0.115	0.908	0.913	1.095
a. Dependent Variable: INCOME								

Source: Calculated by Author using SPSS

For the *SFURTI* artisans the following model was used:

Y (Income of the Household) = f (Age, Experience, Training, Hours/Day, Machine Used, Education, Dependency Ratio, Technology, Amenities, Awareness and Health)



**Table 3 Model Summary (For SFURTI Artisans)**

Model Summary <sup>b</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
2	.451 <sup>a</sup>	.204	.181	3042.082	.204	9.026	11	388	.000	1.590

a. Predictors: (Constant), HEALTH, TECH, TRAINING, EDU, MACHUSED, AWARENESS, AMENITIES, DEPRATIO, AGE, HRS/DAY, EXP  
 b. Dependent Variable: INCOME

Source: Calculated by Author using SPSS

**Table 4 Coefficients and Significance**

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
2	(Constant)	4348.835	2485.312		1.75	0.081		
	Age	-129.743	46.015	-0.346	-2.82	0.005	0.136	7.328
	EXP	223.179	44.146	0.639	5.055	0.000	0.129	7.779
	TRAINING	154.962	87.44	0.082	1.772	0.077	0.949	1.053
	HRS/DAY	63.749	296.377	0.015	0.215	0.830	0.397	2.52
	MACHUSED	538.703	207.168	0.182	2.6	0.010	0.421	2.376
	EDU	193.715	75.56	0.148	2.564	0.011	0.62	1.614
	DEPRATIO	287.028	174.892	0.086	1.641	0.102	0.742	1.347
	TECH	10155.694	2826.321	0.178	3.593	0.000	0.836	1.197
	AMENITIES	1595.701	618.12	0.133	2.582	0.010	0.779	1.284
	AWARENESS	1916.818	521.2	0.192	3.678	0.000	0.753	1.328
HEALTH	-149.31	353.235	-0.02	0.423	0.673	0.901	1.11	

a. Dependent Variable: INCOME

Source: Calculated by Author using SPSS

**Table 5 (Coefficients and Significance after Removing Age variable)**

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1086.571	2219.135		0.49	0.625		



EXP	113.698	21.191	0.325	5.365	0.000	0.568	1.761
TRAINING	181.119	87.72	0.096	2.065	0.040	0.96	1.041
HRS/DAY	-17.755	297.587	-0.004	-0.06	0.952	0.401	2.496
MACHUSED	640.781	205.794	0.216	3.114	0.002	0.434	2.303
EDU	207.88	76.064	0.158	2.733	0.007	0.622	1.607
DEPRATIO	253.726	176.045	0.076	1.441	0.150	0.746	1.341
TECH	10071.348	2851.298	0.177	3.532	0.000	0.836	1.197
AMENITIES	1892.294	614.521	0.157	3.079	0.002	0.802	1.247
AWARNNESS	1643.434	516.657	0.165	3.181	0.002	0.78	1.282
HEALTH	-93.259	355.812	-0.013	0.262	0.793	0.903	1.107

a. Dependent Variable: INCOME

Source: Calculated by Author using SPSS

## V. Results and Findings

The regression analysis for Model-1, which focuses on non-SFURTI artisans, provides important insights into the factors influencing income in traditional artisanal occupations that are outside the purview of structured government support programs. The model, comprising ten explanatory variables, is statistically significant with an F-statistic of 6.952 and a p-value of less than 0.001, indicating that the set of predictors reliably explains variations in income among non-SFURTI artisans.

Among the explanatory variables, work experience stands out as the most significant positive determinant of income. With an unstandardized coefficient of 240.15 and a standardized beta value of 0.400, it confirms that artisans with more years of experience earn substantially higher incomes. This is consistent with expectations, as longer involvement in artisanal work tends to build mastery, networks, and market familiarity, all of which enhance earning capacity. Training also emerges as a key variable, with a positive and statistically significant effect ( $B = 973.89$ ;  $\beta = 0.226$ ;  $p = 0.001$ ), suggesting that skill development interventions, even when not systematically organized under programs like SFURTI, can make a tangible difference in income levels.

Another intriguing finding is the positive and statistically significant coefficient for the dependency ratio ( $B = 826.84$ ;  $p = 0.013$ ). While dependency is typically considered a burden in economic literature, in artisan households this may reflect a situation where more family members are

indirectly involved in production or marketing, thus supporting income generation. Amenities at the workplace also show a significant and positive relationship with income ( $B = 2442.67$ ;  $p = 0.009$ ), highlighting the relevance of decent infrastructure — such as drinking water, washrooms and toilets — in enabling better productivity and income.

However, several variables do not show significant relationships with income. Education, surprisingly, has virtually no impact ( $p = 0.952$ ), implying that formal schooling may not translate into higher earnings in traditional artisan contexts that lack institutional integration and formal markets. Likewise, technical inputs, health facilities, machine use, and working hours per day do not significantly affect income. The weak influence of technology and health reflects the broader structural limitations that non-SFURTI artisans face — they often work in isolation, with limited access to modern tools, collective platforms, or supportive ecosystems that could amplify the benefits of such inputs.

Turning to Model-2, which represents artisans covered under the SFURTI scheme, the results are notably more robust and encouraging. The model includes eleven predictors and is statistically significant with an F-statistic of 9.026 ( $p < 0.001$ ). Most notably, experience again features as the strongest predictor ( $B = 223.18$ ;  $\beta = 0.639$ ;  $p < 0.001$ ), confirming the enduring role of experiential learning in this sector.

In contrast to Model-1, education plays a much more prominent role in Model-2, emerging as a statistically significant variable ( $B = 193.71$ ;  $p =$



0.011). This suggests that within a structured and supportive environment like SFURTI, formal education finds practical relevance — perhaps due to exposure to market systems, digital platforms, and documentation processes that require basic literacy and numeracy. It is worth noting that technology has an exceptionally strong effect ( $B = 10155.69$ ;  $p < 0.001$ ), indicating that access to improved tools or techniques — whether in design, production, or marketing — greatly enhances income when supported by institutional mechanisms like SFURTI.

Importantly, awareness — entirely absent as a variable in Model-1 due to zero variance — emerges as a significant and powerful determinant in Model-2 ( $B = 1916.82$ ;  $p < 0.001$ ). This reflects the fact that SFURTI-linked artisans are more likely to be aware of markets, quality standards, government schemes, and customer expectations, and this awareness translates directly into income gains. Workplace amenities continue to show a positive and significant effect, reinforcing their consistent role across both models.

However, Model-2 initially faced a multicollinearity issue between age and experience, as indicated by very high VIF values ( $>7$ ). After removing the age variable and re-estimating the model, the regression results improved. Experience remained highly significant ( $B = 113.70$ ;  $p < 0.001$ ), and training, which was only marginally significant before, became clearly significant ( $p = 0.040$ ). The coefficients for technology, education, machine use, amenities, and awareness remained strong and significant, reaffirming their critical role in influencing artisan income within the SFURTI ecosystem.

When comparing the two models, a distinct pattern emerges. While experience and training are significant in both models, the range of effective predictors is considerably broader in the SFURTI model. For instance, education, awareness, and technology, which are either insignificant or absent in the non-SFURTI model, have a pronounced positive influence on income among SFURTI artisans. This points to the transformative effect of institutional support: SFURTI not only boosts income levels directly through cluster development, but also enhances the effectiveness of individual capabilities and resource inputs.

Moreover, the magnitude of the unstandardized coefficients in the SFURTI model — especially for technology and awareness — suggests that these variables have the potential to cause substantial income improvements. This finding validates the rationale of the SFURTI initiative,

which focuses on integrating traditional artisans into structured value chains, improving design and marketing capacities, and fostering collective efficiency.

#### **Key comparative findings from both the models**

- Experience and Training are consistently significant in both models, but their coefficients are more refined in the SFURTI model after resolving multicollinearity.
- Education, Technology, Awareness, and Machine Use significantly influence income only among SFURTI artisans, indicating that institutional support improves returns to these inputs.
- Dependency ratio is significant only in the non-SFURTI model, possibly reflecting household-level coping mechanisms.
- Awareness, though absent in the non-SFURTI data, shows a substantial income impact in SFURTI, highlighting the success of information dissemination under the scheme.
- Health and hours worked per day are not significant in either model.

## **VI. Conclusion**

In conclusion, the comparative regression analysis underscores that while traditional factors like experience and training matter across the board, their impact is significantly magnified when combined with institutional support. The SFURTI initiative enhances the economic returns from education, technology, and awareness, and builds an enabling environment in which artisan incomes are not only higher, but more systematically influenced by positive interventions. This evidence provides a strong case for expanding and deepening such support mechanisms, particularly in underserved artisan communities.

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