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Impact of GST on handloom weavers - a case study

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ABSTRACT

Goods and Services Tax (GST) is paradigm shift to Indian Economy. Introduced in the year 2016 it has widened the tax base by including more number items in the list of taxation abolishing multiple tax system on single item and distributing the tax proceeds among the Central and State Governments with defined share of each on item concerned. Many questions have been raised since its conceptualization about its benefits, merits, demerits and its overall impact on Indian economy and its people. Though it's too early, an attempt has been made in this article to examine the effect of GST on Handloom Weavers of West Bengal as a case study. Based on primary information from 135 handloom weavers in a traditional weavers village viz Nasratpur situated at 23°N and 88°E during March-April,2018 the study concludes that due to GST there has been new tax imposed on handloom goods which were almost nill before the introduction of GST. There has been increase in production cost per saree against reduction in selling prices of handloom sarees but mostly at the cost of decrease in labour wage rate. Moreover there have been decrease in sales of sarees compared to before GST regime, may be initially. Discriminant analysis reveals that there has been differential effects of different factors of production in different groups of weavers based on number of handlooms owned and employed different types of labour. The study suggests that there should be concrete effort to reduce the cost of raw materials for handloom material and also marketing channels should be geared up to have good market for handloom goods.

***Keywords*:** Cost, discriminant analysis, GST, handloom

1. INTRODUCTION

Taxation is a system of any nation or state or a kingdom for collecting revenue to meet the expenditure on defense, development. The system is as old as Manu Smriti and Arthasastra; variety of tax measures are referred in both. In India, the tax was introduced by the British for the first time in 1860, by Sir James Wilson in order to meet the losses sustained by the Government on account of the Military Mutiny of 1857. In 1918, a new income tax law was passed and again it was replaced by another new act which was passed in 1922.This Act remained in force up to the assessment year 1961-62 with numerous amendments. In consultation with the Ministry of Law finally the Income Tax Act, 1961 was passed in independent India. The Income Tax Act 1961 has been brought into force with 1 April 1962. Since then this act along with it numerous ammendments were the basis for taxation/revenue generation in India. Similar kinds of law were invogue in other developed and developing countries of the world. But increasingly it was felt that multiple taxation system are being in operation in this system, thereby causing hardship to the payers and in many of the cases multiple number of times taxes are being imposed by various governmental agencies before it reaches to the ultimate user; which might have also facilitated the tax evasion at different levels and thereby causing huge gaps in estimated and realised revenues. An alternative to such problems in tax system was visualised in terms of the Goods and Services Tax (GST). France was first country to introduce GST as early as in 1954 and now more than 160 countries have taken GST as the TAX base. The main idea of GST is to do away with multiple number of taxes on single item and goods and services are grouped in to relatively small number of categories with definite tax slabs. There has been conflicting ideas about the successof GST in India. Anbuthambi and Chandrasekaran (2017) worked on goods and services tax (GST) and training for its implementation in India and opined that the implementation of GST will play an important role in the growth of India Economy while Dani (2017), worked on impact of Goods and Service Tax (GST) on Indian Economy and opined that GST regime is a half-hearted attempt to rationalize indirect tax structure.

GST is the newest inclusion to Indian economy. Since its conceptualisation, it has taken more than 15 years to come into reality. The GST was launched at midnight by the President of India, and the Prime Minister of India on 1 July 2017. It is a comprehensive, multi-stage, destination-based tax that is levied on every value addition. It replaces 7 indirect central and 10 indirect state taxes. Initially, under GST, goods and services are taxed at the following rates, 0%, 5%, 12%, 18% and 28%. Petroleum products and alcoholic drinks were not under GST; these are taxed separately by the individual state government. There is a special rate of 0.25% on rough precious and semi-precious stones and

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3% on gold. At present it is controlled by GST council constituted of Union finance minister (Chairperson), Union minister in charge of state revenue of finance (Member), and minister in charge of finance or taxation or any other minister nominated by each state government (Member).

With the introduction of GST, it has abolished 7 central taxes *viz*. 1. Central Excise duty, 2. Additional Duties of Excise (Goods of Special Importance), 3. Duties of Excise (Medicinal and Toilet Preparations), 4. Additional Duties of Excise (Textiles and Textile Products) 5. Additional Duties of Customs (commonly known as CVD and SAD), 6. Service Tax, 7. Cesses and surcharges and 10 state taxes like 1. State VAT / Sales Tax, 2. Central Sales Tax, 3. Purchase Tax, 4. Entertainment Tax (other than those levied by local bodies), 5. Luxury Tax, 6. entry tax (All forms), 7. Taxes on lottery, betting & gambling, 8. Surcharges and Cesses, 9. Taxes on advertisements, 10. State cesses and surcharges insofar as they relate to supply of goods or services. Four different categories of taxes *viz*. 1. CGST- levied by central government and applied intra-state supply of goods, 2. SGST- levied by the state government and applied intra-state supply of goods, 3. IGST- levied by central government and applied inter-state supply of goods; tax revenue shared between central and state government and 4. UTGST- levied by central government and applied supply of goods within union territories under five initial tax slabs as already mentioned.

In India, textile sector is one of the major livelihood provider in Indian Economy and can broadly be categorised under two major segments -

A. **Organized sector :** constituted of Spinning mills or composite mills. The organized mill sector contributes around 10% of the fabric production in the country.

B. **Unorganized decentralised sector :** constituted of

1. Power loom : Contributing 55 %(about 16,000 sq. meters per year) of the total cloth production of the country and is competing successfully in global market.

2. Handloom sector : This sector is the largest economic activity after agriculture. It provides direct and indirect employment to more than 45 lakh weavers. It contributes nearly 23 per cent of total cloth production. Indian handloom is a part of heritage. India's handloom weavers are known to the world for their knowledge, innovation and brilliance in designs and hand spun cloth.

3. Garments and hosiery : This sector contributes mainly in foreign exchange earnings. There are around 30,000 small and fragmented manufacturing units in the country. They employ around 3 million people and earn Rs. 18,000 crores by exports.

4. Khadi and Carpet manufacturing segment : Handloom weaving is a full-time family profession. A household-based industry, it is concentrated in about 15 States, accounting for about three quarters of production, including Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Rajasthan, West Bengal, and Uttar Pradesh, followed by Gujarat. More than 80 per cent of handloom production in value is sold domestically and about 10% in external markets.Per capita purchase of cotton textiles in handloom sector is 0.88 metres and aggregate consumption at all India level is estimated to be 989 million metres. Handloom fabric production reached 6.9 billion square metres in 2011-12. In the centuries of history, there has been no tax on handloom industry, so, imposition GST on handloom at rates varying between 5 to 18 per cent excepting silk and jute fibre is a burning topic now a days. Khan and Soni (2018), worked on Impact of GST on textile hub of Mumbai (Bhiwandi, Dist. Thane). Oberoi (2017), worked on GST effect for the textile sector in India. GST will help the entire textile industry in shifting towards an organized sector. It will make the entire textile industry more aggressive in the export market. The farmers will get the accurate price for their hard work. It is expected that GST on textile will create development in the entire value chain.

The state of West Bengal is one of the 15 states in India where handloom textiles play major role in economy. West Bengal produces several varieties of cotton and silk saris in the country. Handlooms are a popular way of livelihood to the rural population of the state. Every district has weaving "clusters", which are home to artisan communities, each specialising in specific varieties of handloom weaving. Notable handloom saris include tant, jamdani, garad, korial, baluchari, tussar, and muslin..Districts like, Nadia, Burdwan, Murshidaba, Hooghly, Midnapore, 24Parganas are famous for their handloom products. Though its too early for study on GST specific to any sector while GST system is still under stabilization and frequent changes are being made, the present study emphasises on studying the impact of GST on handloom weavers as a case study.

Objective

With the main objective of studying the impact of GST on handloom industry, the specific objective of the study are-

1. To investigate the socio-demographic and economic characters of the handloom weavers.
2. The factors influencing the handloom economy.
3. To identify the changes in economic structure of handloom weavers during pre and post GST regime.

2. MATERIALS AND METHODS

Nasaratpur, also known as Samudragarh, a traditionally handloom textile belt, as such this village was taken for the present study purposively. Nasaratpur is a village under Nadanghat police station in Purbasthali-I Block in Kalna subdivision in Purba Barddhaman district in the state of West Bengal, India. It is about 15 km away from Kalna, India and 97 km from Howrah. It is situated on the Western bank of the Bhagirathi at 23°N and 88°E.Though "Samudragarh" is a small area but it contributes a lot in the economical field of garments business both in the local and national market. Tant saree is the main garment produced here in a major quantity.

At first a pilot survey was conducted to know the nature of the handloom weaver in the study area. Based on pilot survey three groups of weavers are categorized *viz*. having 1-3, 4-5, 6 and above number handlooms; 4 villages are selected by purposively each village consisting 3 groups totaling to 405 weavers By using Israel, (1992) method a sample of 135 were selected with 7 per cent level of precision as shown in table below :

Table 1: Sample size at 5% level of significant and 7% level of precision

Village no.	1-3 handloom	4-5 handloom	≥ 6 handloom	Total
1	15(5)	25(8)	10(3)	50(16)
2	17(6)	20(7)	8(3)	45(16)
3	40(13)	15(5)	5(2)	60(20)
4	50(17)	120(40)	80(26)	250(83)
Total	122(41)	180(60)	103(34)	405(135)

Note: *Figure in the parenthesis represent number of weavers selected from the particular category of the particular village*

Variables studied : X_1= no. of handloom, X_2 = respondent age, X_3 = year of schooling of the head, X_4 = average years of schooling of the family, X_5 = total no. of family member, X_6 = no. of male in the family, X_7 = no. of female in the family, X_8 = no. of adult in a family, X_9 = no. of child in a family, X_{10} = total monthly income of a family, X_{11} = cost of input material per saree pre GST, X_{12} = lobour cost per saree pre GST, X_{13} = total cost of production per saree pre GST, X_{14} = no. of saree produce per month pre GST, X_{15} = no. of saree selling per month pre GST, X_{16} = price per saree pre GST, X_{17} =profit per saree pre GST, X_{18} = cost of input material per saree post GST, X_{19} = lobour cost per saree post GST, X_{20} = total cost of production per saree post GST, X_{21} = no. of saree produce per month post GST, X_{22} = no. of saree selling per month post GST, X_{23} = price per saree post GST, X_{24} = profit per saree post GST, X_{25} = no. of family labour, X_{26} = no. of hired labour.

Descriptive statistics are typically distinguished from inferential statistics; with descriptive statistics one simply describes what is or what the data shows. With inferential statistics, one tries to reach conclusion that extend beyond the immediate data alone. For instance, one uses inferential statistics to infer about the population from the sample data. Or, one uses inferential statistics to make judgment of the probability that an observed difference between groups is a dependable one or one that might have happened by chance in this study. Thus, we use inferential statistics to make inferences from a given data to more general conditions; on the other hand we use descriptive statistics simply to describe what's going on in the given set of data. Usual descriptive measures like mean, median, standard error, skewness, kurtosis, correlation-regression along with multivariate tools like discriminant analysis are used to unearth the nature of the studied variable, their relationship and contribution in discriminating different groups of weavers. The variable factors associated with handloom industry and studied are provided as noted below the table 1.

Descriptive statistics, Pearson's correlation coefficient, and Fisher's discriminant function was used in this studies. Ante and Ana (2013), worked on discriminant analysis of bank profitability levels. Uddin, Siraj and Raiham (2013), worked on discriminant analysis as an aid to human resource selection and human resource turnover minimization decisions. Fisher's discriminant analysis is a multivariate statistical tool used to identify the variables which are contributing significantly in differentiating between the groups among other uses. The general form of Fisher's discriminant function is represented by,

$$Z = \vec{l'} . \vec{x}$$

Where, $\vec{l} = S^{-1}_{pooled} . \vec{d}$ and $\vec{d} = \overrightarrow{x_1} - \overrightarrow{x_2}$; S^{-1}_{pooled} = pooled variance- covariance matrix; $\overrightarrow{x_1}$ mean vector for first group; $\overrightarrow{x_2}$ mean vector for second group. Let, $\overline{Z_1}$ and $\overline{Z_2}$ $\left(\overline{Z_1} > \overline{Z_2}\right)$ are the centroid discriminant scores for group 1 and 2. By taking all the variables in to consideration, if Z is the value of the new individual either of the two following options is followed depending up on the situation; $Z > \frac{\overline{Z}_1 + \overline{Z}_2}{2}$, then the new observation fall in first group otherwise the new observation falls in second group.

In order to distinguish among labour groups in pre GST and post GST situation and handloom group in pre GST and post GST situation important multivariate statistical tools Fishers's discriminant analysis was used.

3. RESULTS AND DISCUSSION

Data are collected by questionnaires method from 02.04.2018 to 25.04.2018. Here, data for 26 variables are collected. Among the variables respondent age, year of schooling of the head, average years of schooling of the family, total number of family member, number of male in the family, number of female in the family, number of adult in a family, number of child in a family are socio-demographical variables. On the other side total monthly income of a family, cost of raw material per saree pre GST, lobour cost per saree pre GST, total cost of production per saree pre GST, number of saree produce per month pre GST, number of saree selling per month pre GST, price per saree pre GST, profit per saree pre GST, cost of raw material per saree post GST, lobour cost per saree post GST, total cost of production per saree post GST, number of saree produce per month post GST, number of saree selling per month post GST, price per saree post GST, profit per saree post GST, number of family labour, number of hired labour are economic variables.

In table-2 minimum, maximum, range, standard error of mean, median, mode, standard deviation, skewness, kurtosis and in table-3 Pearson's correlation coefficient are calculated for 26 variables. Where, X_1= number of

Table 2: Descriptive statistics

Variable	Minimum	Maximum	Mean	Standard Error of mean	Median	Mode	Coefficient of Skewness	Coefficient of Kurtosis
X_1	1.00	12.00	4.27	0.17	4.00	4.00	0.55	1.29
X_2	21.00	70.00	40.34	0.90	40.00	41.00	0.20	-0.51
X_3	2.00	15.00	6.53	0.25	6.00	8.00	0.39	-0.50
X_4	5.10	11.80	8.01	0.13	8.00	8.00	0.40	-0.19
X_5	3.00	10.00	4.41	0.12	4.00	3.00	1.16	1.90
X_6	1.00	7.00	2.62	0.09	3.00	2.00	0.82	1.94
X_7	1.00	4.00	1.81	0.06	2.00	2.00	0.66	0.35
X_8	2.00	7.00	3.34	0.11	3.00	2.00	0.49	-0.94
X_9	0.00	4.00	1.12	0.07	1.00	1.00	0.62	0.81
X_{10}	6800.00	43000.00	17793.33	640.76	15600.00	14600.00	1.60	2.94
X_{11}	150.00	780.00	353.15	12.72	320.00	300.00	1.13	0.68
X_{12}	280.00	860.00	506.81	12.50	500.00	450.00	0.86	0.31
X_{13}	450.00	1600.00	859.96	24.44	800.00	900.00	1.06	0.57
X_{14}	10.00	150.00	55.27	2.54	48.00	45.00	1.14	1.26
X_{15}	10.00	150.00	55.09	2.54	47.00	46.00	1.17	1.32
X_{16}	600.00	2000.00	1089.41	28.13	1000.00	850.00	0.97	0.29
X_{17}	100.00	470.00	229.44	5.89	220.00	300.00	0.60	0.41
X_{18}	160.00	890.00	394.37	14.57	350.00	350.00	1.14	0.72
X_{19}	280.00	810.00	481.26	11.26	450.00	450.00	1.02	0.67
X_{20}	460.00	1690.00	875.63	24.98	800.00	680.00	1.18	0.87
X_{21}	10.00	150.00	55.27	2.54	48.00	45.00	1.14	1.26
X_{22}	10.00	145.00	44.24	2.24	36.00	35.00	1.61	2.40
X_{23}	560.00	1850.00	1012.52	26.21	920.00	850.00	1.06	0.46
X_{24}	50.00	280.00	136.89	3.68	130.00	100.00	0.91	1.05
X_{25}	0.00	3.00	1.36	0.06	1.00	1.00	0.60	0.28
X_{26}	0.00	12.00	2.91	0.18	3.00	3.00	0.73	1.54

Note: *Figure in the parenthesis represents number of weavers selected from the particular category of the particular village*

Table 3: Pearson's correlation coefficient among the variables

Variable	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}	X_{16}	X_{17}	X_{18}	X_{19}	X_{20}	X_{21}	X_{22}	X_{23}	X_{24}	X_{25}	X_{26}
X_1	1.00																									
X_2	-0.04	1.00																								
X_3	0.14	-.44**	1.00																							
X_4	.23**	-0.11	.52**	1.00																						
X_5	0.09	.24**	-.21*	-0.02	1.00																					
X_6	0.15	.26**	-.19*	-0.02	.86**	1.00																				
X_7	-0.03	0.07	-0.14	-0.02	.65**	.19*	1.00																			
X_8	0.01	.23**	-.25**	0.06	.81**	.75**	.48**	1.00																		
X_9	0.11	0.05	0.02	-0.13	.34**	.19*	.36**	-.23**	1.00																	
X_{10}	.45**	0.12	0.01	.28**	.46**	.51**	0.14	.60**	-.23**	1.00																
X_{11}	.22*	-0.12	.21*	.2**	-0.05	-0.05	-0.02	-0.04	-0.05	.19*	1.00															
X_{12}	.26**	-0.12	.26**	.31**	-0.05	-0.08	-0.01	-0.04	-0.07	.23*	.88**	1.00														
X_{13}	.24**	-0.12	.24**	.28**	-0.05	-0.07	-0.02	-0.04	-0.06	.21*	.97**	.97**	1.00													
X_{14}	.83**	0.01	0.03	0.07	0.06	0.09	-0.02	-0.01	0.10	.32**	-0.13	-.19*	-0.16	1.00												
X_{15}	.83**	0.01	0.02	0.06	0.07	0.10	-0.02	-0.01	0.11	.33**	-0.13	-.19*	-0.16	.99**	1.00											
X_{16}	.23**	-0.10	.26**	.31**	0.00	-0.01	-0.00	0.02	-0.07	.27**	.95**	.96**	.99**	-.19*	-.19*	1.00										
X_{17}	0.11	0.00	.21*	.33**	.21*	.24**	0.06	.27**	-0.09	.39**	.51**	.56**	.55**	-.23**	-.22*	.69**	1.00									
X_{18}	.23**	-0.12	.22*	.25**	-0.05	-0.05	-0.02	-0.04	-0.05	.20*	.99**	.88**	.97**	-0.12	-0.12	.95**	.51**	1.00								
X_{19}	.24**	-0.09	.26**	.32**	-0.06	-0.10	0.01	-0.05	-0.07	.20*	.87**	.98**	.95**	-.20*	-.20*	.95**	.59**	.87**	1.00							
X_{20}	.24**	-0.11	.24**	.29**	-0.05	-0.08	-0.01	-0.05	-0.06	.21*	.97**	.96**	.99**	-0.16	-0.16	.98**	.56**	.98**	.96**	1.00						
X_{21}	.83**	0.00	0.03	0.07	0.06	0.09	-0.02	-0.01	0.10	.32**	-0.13	-.19*	-0.16	1.00**	.99**	-.19*	-.23**	-0.12	-.20*	-0.16	1.00					
X_{22}	.73**	0.03	-0.01	0.02	0.07	0.10	-0.01	0.01	0.09	.28**	-.22*	-.30**	-.27**	.98**	.98**	-.29**	-.28**	-.21*	-.31**	-.26**	.98**	1.00				
X_{23}	.25**	-0.12	.25**	.30**	-0.03	-0.04	-0.01	-0.01	-0.07	.26**	.96**	.96**	.99**	-0.16	-0.16	.99**	.63**	.96**	.96**	.99**	-0.16	-.26**	1.00			
X_{24}	0.12	-0.01	0.14	.18*	0.17	.23**	-0.03	.22**	-0.11	.42**	.23**	.32**	.28**	-0.07	-0.06	.39**	.69**	.23**	.30**	.27**	-0.07	-0.11	.39**	1.00		
X_{25}	-0.04	0.04	-0.15	-0.09	.52**	.47**	.34**	.48**	0.13	0.12	-0.07	-0.14	-0.11	-0.02	-0.02	-0.07	0.09	-0.07	-.19*	-0.13	-0.02	-0.01	-0.10	0.11	1.00	
X_{26}	.95**	-0.05	.18*	.25**	-0.09	-0.02	-0.14	-0.16	0.06	.38**	.22**	.27**	.26**	.78**	.78**	.24**	0.07	.23**	.28**	.27**	.78**	.68**	.26**	0.08	-.37**	1.00

Note: ** indicates significant at the 0.01 level (2-tailed) and * indicates significant at the 0.05 level (2-tailed).

handloom, X_2 = respondent age, X_3 = year of schooling of the head, X_4 = average years of schooling, X_5 = total number of family member, X_6 = number of male in the family, X_7 = number of female in the family, X_8 = number of adult in a family, X_9 = number of child in a family, X_{10} = total monthly income of a family, X_{11} = cost of raw material per saree pre GST, X_{12} = lobour cost per saree pre GST, X_{13} = total cost of production per saree pre GST, X_{14} = number of saree produce per month pre GST, X_{15} = number of saree selling per month pre GST, X_{16} = price per saree pre GST, X_{17} =profit per saree pre GST, X_{18} = cost of raw material per saree post GST, X_{19} = lobour cost per saree post GST, X_{20} = total cost of production per saree post GST, X_{21} = number of saree produce per month post GST, X_{22} = number of saree selling per month post GST, X_{23} = price per saree post GST, X_{24} = profit per saree post GST, X_{25} = number of family labour, X_{26} = number of hired labour. It was found Average education of the family(X_4) is medium and also total number of family member(X_5) is medium. Number of male in a family is more than female.

Table 4: Group average for 14 group discriminating variables for different category of labour groups in *pre GST* situation.

Variable	Mean			t-value		
	Group-1	Group-2	Group-3	Group-1 vs Group-2	Group-1 vs Group-3	Group-2 vs Group-3
X_1= number of handloom labour	1.52	5.13	4.75	-3.59**	-14.41**	0.38
X_2= respondent age	42.24	33.13	40.51	2.18	0.60	-2.21
X_3= year of schooling of the head	5.48	7.88	6.63	-1.60	-1.80	0.88
X_4= average year of schooling of the family	7.22	8.23	8.14	-1.79	-2.70*	0.18
X_5= number of family member	4.38	3.63	4.48	1.72	-0.31	-2.45*
X_6= number of male in the family	2.57	2.13	2.67	1.30	-0.48	-1.75
X_7= number of female in the family	1.81	1.50	1.84	0.92	-0.14	-1.23
X_8= number of adult in the family	3.43	3.00	3.35	0.93	0.27	-0.87
X_9= number of child in the family	1.10	0.63	1.16	1.38	-0.28	-1.95
X_{10}= cost of raw material per saree pre GST	285.24	392.50	363.63	-1.84	-2.40*	0.55
X_{11}= labour cost per saree pre GST	411.90	562.50	521.42	-3.71**	-4.73**	1.05
X_{12}= number of saree produce per month pre GST	24.10	61.63	60.97	-3.12**	-9.04**	0.05
X_{13}= number of saree sell per month pre GST	24.24	61.63	60.71	-3.11**	-8.98**	0.08
X_{14}= price of selling each saree pre GST	916.19	1206.25	1114.91	-2.84*	-3.28**	0.97

Note: ** indicates significant at P=0.01 level (2-tailed) and * indicates significant at P=0.05 level (2-tailed).

Table 5: Fisher's linear discriminant function coefficient for labour groups in pre GST situation

Variable	Group-1 vs Group-2	Group-1 vs Group-3	Group-2 vs Group-3
X_1= number of handloom	-3.18	-1.43	0.38
X_2= respondent age	-0.05	0.00	-0.07
X_3= year of schooling of the head	-0.72	0.00	0.02
X_4= average year of schooling of the family	-0.37	-0.24	-0.26
X_5= number of family member	-7.53	4.39	2.34
X_6= number of male in the family	16.91	-7.06	6.67
X_7= number of female in the family	9.56	-6.71	7.23
X_8=number of adult in the family	-1.92	2.43	-9.58
X_9=number of child in the family	-0.89	2.44	-10.42
X_{10}=cost of raw material per saree pre GST	-0.03	0.00	-0.01
X_{11}= labour cost per saree pre GST	-0.14	-0.24	-0.01
X_{12}= number of saree produce per month pre GST	-4.58	-0.11	-0.09
X_{13}= number of saree sell per month pre GST	4.35	0.10	0.08
X_{14}= price of selling each saree pre GST	0.04	0.01	0.01

Table 6: Inter group D^2 values between labour groups in pre GST situation

Category	Group-1	Group-2	Group-3
Group-1	-	37.55*	6.39*
Group-2	37.55*	-	1.67
Group-3	6.39*	1.67	-

Note: * indicates significant at P=0.05

The average value of Total monthly income of a family(X_{10}) was Rs 17793.33 indicating most of them are belonged in middle class family.

Table-6 represents the values of D^2 of the following groups. For family labour vs hired labour and family labour vs mixed labour D^2 value is significant, indicating there are significant differences between two groups mean vector. But for hired labour vs. mixed labour there have no significant differences between two group mean vectors.

Table 7: Ranking of different variables on group discrimination among labour groups in *pre GST* situation

Category	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}
Group-1 vs Group-2	3	10	7	8	12	4	6	11	9	5	2	1	14	13
Group-1 vs Group-3	1	9	8	5	12	4	6	7	11	10	3	2	14	13
Group-2 vs Group-3	5	4	7	8	12	14	13	2	1	10	11	9	6	3

Table-7 represents the ranks of different characters on group discrimination. Between the group family labour and hired labour, X_{12} means number of saree produce per month pre GST ranks first. This means this character affects mostly to discriminate between them. Between the group family labour and mixed labour, X_1 means number of handloom ranks first, which affects mostly to discriminate between them. Between the groups hired labour and mixed labour, X_9 means number of child in the family ranks first. This means this character affects mostly to discriminate between them.

Table 8: Group average for 14 group discriminating variables for different category of labour groups in *post GST* situation

Variable	Mean			t-value		
	Group-1	Group-2	Group-3	Group-1 vs Group-2	Group-1 vs Group-3	Group-2 vs Group-3
X_1= number of handloom	1.52	5.13	4.75	-3.59**	-14.14**	0.38
X_2= respondent age	42.23	33.13	40.51	2.18	0.60	-2.21
X_3= year of schooling of the head	5.48	7.88	6.63	-1.60	-1.80	0.88
X_4= average year of schooling of the family	7.22	8.23	8.14	1.79	-2.70*	0.18
X_5= number of family member	4.38	3.63	4.48	-1.72	-0.31	-2.45*
X_6= number of male in the family	2.57	2.13	2.67	1.30	-0.48	-1.75
X_7= number of female in the family	1.81	1.50	1.84	0.92	-0.14	-1.23
X_8= number of adult in the family	3.43	3.00	3.35	0.93	0.27	-0.87
X_9= number of child in the family	1.09	0.63	1.16	1.38	-0.28	-1.95
X_{10}= cost of raw material per saree post GST	314.28	435.00	407.17	-1.82	-2.56*	0.46
X_{11}= labour cost per saree post GST	410.48	526.25	491.89	-2.98*	-3.69**	0.93
X_{12}= number of saree produce per month post GST	24.10	61.63	60.97	-3.12**	-9.04**	0.05
X_{13}= number of saree sell per month post GST	22.19	48.63	48.28	-2.63*	-7.40**	0.03
X_{14}= price of selling each saree post GST	850.95	1116.25	1036.70	-2.53*	-3.31**	0.81

Note: ** indicates significant at the 0.01 level (2-tailed) and * indicates significant at the 0.05 level (2-tailed).

Table 9: Fisher's linear discriminant functions coefficient for labour groups in post GST situation

Variable	Group-1 vs Group-2	Group-1 vs Group-3	Group-2 vs Group-3
X_1= number of handloom	-4.20	-1.46	0.69
X_2= respondent age	0.05	0.00	-0.07
X_3= year of schooling of the head	0.36	-0.02	0.04
X_4= average year of schooling of the family	-1.14	-0.22	-0.21
X_5= number of family member	108.31	2.54	1.64
X_6= number of male in the family	-100.49	-4.92	15.52
X_7= number of female in the family	-105.64	-5.08	15.99
X_8=number of adult in the family	-1.29	2.42	-17.65
X_9=number of child in the family	0.49	2.59	-18.45
X_{10}=cost of raw material per saree post GST	-0.05	0.00	-0.01
X_{11}= labour cost per saree post GST	-0.78	0.00	-0.01
X_{12}= number of saree produce per month post GST	-1.40	-0.12	-0.09
X_{13}= number of saree sell per month post GST	1.70	0.14	0.07
X_{14}= price of selling each saree post GST	0.05	0.00	0.01

Table 10: Inter group D^2 values between labour groups in post GST situation

Category	Group-1	Group-2	Group-3
Group-1	-	30.05*	6.00*
Group-2	30.05*	-	1.66
Group-3	6.00*	1.66	-

Note: * indicates significant at 5% level

Table 10 represents the values of D^2 of the following groups. For family labour vs hired labour and family labour vs mixed labour D^2 value is significant, indicating there are significant differences between two groups mean vector. But for hired labour vs. mixed labour there have no significant differences between two group mean vectors.

Table 11: Ranking of different characters on group discrimination among labour groups in post GST situation

Category	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}
Group-1 vs Group-2	3	7	10	6	1	13	12	9	8	5	4	2	14	11
Group-1 vs Group-3	1	10	9	5	12	3	7	6	11	13	8	2	14	4
Group-2 vs Group-3	5	4	6	8	12	14	13	2	1	10	11	9	7	3

Table-11 represents the ranks of different characters on group discrimination. Between the group family labour and hired labour, X_5 (number of family member) ranks first. This means this character contributes mostly to discriminate between them. Between the groups family labour and mixed labour, X_1 (number of handloom) ranks first. Between the groups hired labour and mixed labour, X_9 (number of child in the family) ranks first.

Depending upon the number of handloom possessed by the weavers were categorised in to three groups viz. 1-3 handloom (Group-1), 4-5 handloom (Group-2), 6 and above handloom (Group-3).As discussed, not all the variables are equally contributing towards group discrimination. The 15 variables, as given in the foot note were used in the discriminant analysis to identify the relative contribution in group discrimination through Fisher's discriminant analysis. In both the cases pre and post GST situation there were 41, 60 and 34 observation in 1-3 handloom, 4-5 handloom, 6 and above handloom groups respectively.

Table 12: Group average for 15 group discriminating variables for different category of handlooms in *pre GST* situation

Variable	Mean			t-value		
	Group-1	Group-2	Group-3	Group-1 vs Group-2	Group-1 vs Group-3	Group-2 vs Group-3
X_1= age	40.76	40.77	39.09	0.00	0.71	0.79
X_2= year of schooling of the head	5.88	6.55	7.26	-1.21	-1.93	-1.06
X_3= average year of schooling of the family members	7.37	8.30	8.26	-3.49**	-2.39*	0.11
X_4= number of family members	4.51	4.38	4.35	0.43	0.47	0.12
X_5= number of male family members	2.66	2.57	2.68	0.41	-0.08	-0.58
X_6= number of female family members	1.85	1.87	1.68	-0.08	0.99	1.40
X_7= number of adult family members	3.34	3.58	2.91	-0.93	1.38	2.38*
X_8= number of child family members	1.24	0.85	1.44	2.19	-1.00	-3.90**
X_9= cost of raw material per saree pre GST	303.66	360.75	399.41	-2.22	-2.33*	-1.05
X_{10} = labour cost per saree	438.05	529.67	549.41	-3.84**	-2.88*	-0.55
X_{11} = number of saree produce per month	29.44	54.22	88.29	-8.38**	-10.62**	-6.14**
X_{12} = number of saree sell per month	29.44	53.75	88.29	-8.27**	-10.61**	-6.23**
X_{13} = selling price per saree	958.78	1130.00	1175.29	-3.21**	-2.43*	-0.54
X_{14}= number of family labour	1.41	1.38	1.24	0.22	1.31	1.05
X_{15}= number of hired labour	0.66	2.97	5.53	-14.01**	-16.62**	-8.81**

Note: ** indicates significant at the 0.01 level (2-tailed) and * indicates significant at the 0.05 level (2-tailed).

Table 13: Fisher's linear discriminant functions coefficient for handloom groups in *pre GST* situation

Variable	Group-1 vs Group-2	Group-1 vs Group-3	Group-2 vs Group-3
X_1= age	-0.07	-0.09	0.00
X_2= year of schooling of the head	-0.07	-0.26	-0.14
X_3= average year of schooling of the family members	-0.10	0.26	0.01
X_4= number of family members	8.32	-2.78	2.03
X_5= number of male family members	-6.75	2.53	2.72
X_6= number of female family members	-6.73	2.61	3.04
X_7= number of adult family members	-1.07	2.29	-4.16
X_8= number of child family members	0.57	0.54	-5.35
X_9= cost of raw material per saree pre GST	0.02	0.01	-0.02
X_{10}= labour cost per saree	-0.03	-0.02	-0.03
X_{11}= number of saree produce per month	-0.11	0.60	0.01
X_{12}= number of saree sell per month	0.14	-0.69	-0.07
X_{13}= selling price per saree	0.00	0.00	0.02
X_{14}= number of family labour	-6.85	-5.43	-3.74
X_{15}= number of hired labour	-7.68	-3.69	-2.93

Table 14: Inter group D^2 values between handloom groups in *pre GST* situation

Category	Group-1	Group-2	Group-3
Group-1	-	19.01*	24.58*
Group-2	19.01*	-	10.71*
Group-3	24.58*	10.71*	-

Note: * indicates significant at 5% level

Table-14 represents the values of D^2 of the following groups. For all handloom groups D^2 values were significant, indicating there were significant differences between all groups mean vectors.

Table 15: Ranking of different characters on group discrimination among handloom groups in pre GST situation

Category	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}
Group-1 vs Group-2	10	9	7	4	12	8	6	5	14	3	2	15	13	11	1
Group-1 vs Group-3	10	6	11	12	8	5	4	9	13	3	15	1	7	14	2
Group-2 vs Group-3	9	7	10	8	12	6	15	2	4	5	11	3	14	13	1

Table-15 represents the ranks of different characters on group discrimination. X_{15} (number of hired labour) ranks first. In discriminating the group 2 from that of group 1 and group 3. Between the group 1 and group 3. X_{12} (number of saree sell per month) ranks first. Between the group 2 and group 3, X_{15} (number of hired labour) ranks first.

Table 16: Group average for 15 group discriminating variables for different category of handlooms in *post GST* situation

Variable	Mean			t-value		
	Group-1	Group-2	Group-3	Group-1 vs Group-2	Group-1 vs Group-3	Group-2 vs Group-3
X_1= age	40.76	40.77	39.09	0.00	0.71	0.79
X_2= year of schooling of the head	5.88	6.55	7.26	-1.21	-1.93	-1.06
X_3= average year of schooling of the family members	7.37	8.30	8.26	-3.49**	-2.39*	0.11
X_4= number of family members	4.51	4.38	4.35	0.43	0.47	0.12
X_5= number of male family members	2.66	2.57	2.68	0.41	-0.08	-0.58
X_6= number of female family members	1.85	1.87	1.68	-0.08	0.99	1.40
X_7= number of adult family members	3.34	3.58	2.91	-0.93	1.38	2.38*
X_8= number of child family members	1.24	0.85	1.44	2.19	-1.00	-3.90**
X_9= cost of raw material per saree pre GST	334.02	403.75	450.59	-2.41*	-2.50*	-1.01
X_{10}= labour cost per saree	428.78	492.00	525.59	-2.94**	-2.71*	-1.01
X_{11}= number of saree produce per month	29.44	54.22	88.29	-8.38**	-10.62**	-6.14**
X_{12}= number of saree sell per month	25.71	41.67	71.06	-5.93**	-8.06**	-5.12**
X_{13}= selling price per saree	890.49	1039.00	1112.94	-2.94**	-2.71*	-0.96
X_{14}= number of family labour	1.41	1.38	1.24	0.22	1.31	1.05
X_{15}= number of hired labour	0.66	2.97	5.53	-14.01**	-16.62**	-8.81**

Note: ** indicates significant at the 0.01 level (2-tailed) and * indicates significant at the 0.05 level (2-tailed).

Table 17: Fisher's linear discriminant functions coefficient for handloom groups in *post GST* situation

Variable	Group-1 vs Group-2	Group-1 vs Group-3	Group-2 vs Group-3
X_1= age	-0.07	-0.08	0.03
X_2= year of schooling of the head	-0.08	-0.27	-0.09
X_3= average year of schooling of the family members	-0.07	0.22	0.20
X_4= number of family members	5.75	0.77	1.26
X_5= number of male family members	-4.04	-0.96	-4.58
X_6= number of female family members	-4.83	-1.00	-4.12
X_7=number of adult family members	-1.00	2.16	4.03
X_8=number of child family members	0.76	0.82	2.52
X_9= cost of raw material per saree pre GST	0.01	0.00	0.00
X_{10}= labour cost per saree	0.01	-0.03	-0.02
X_{11}= number of saree produce per month	-0.06	-0.34	-0.09
X_{12}= number of saree sell per month	0.14	0.23	-0.01
X_{13}= selling price per saree	-0.01	0.01	0.01
X_{14}= number of family labour	-6.54	-4.93	-3.31
X_{15}= number of hired labour	-7.75	-3.05	-2.29

Table 18: Inter group D^2 values between handloom groups in *post GST* situation

Category	Group-1	Group-2	Group-3
Group-1	-	17.72*	25.26*
Group-2	17.72*	-	10.37*
Group-3	25.26*	10.37*	-

Note: * indicates significant at 5% level

Table 18 represents the values of D^2 of the following groups. For all handloom groups D^2 values were significant, indicating there were significant differences between all groups mean vectors.

Table 19: Ranking of different characters on group discrimination among handloom groups in *post GST* situation

Category	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}
Group-1 vs Group-2	10	9	7	4	12	8	6	5	14	13	2	15	3	11	1
Group-1 vs Group-3	8	5	11	6	7	10	4	9	12	3	1	15	14	13	2
Group-2 vs Group-3	9	8	11	10	5	14	3	15	7	4	2	6	12	13	1

Table 19 presents the ranks of different characters on group discrimination. Between the group 1-3 handloom and 4-5 handloom, X_{15} (number of hired labour) ranks first. This means no. of hired labour affects mostly in discriminating the groups. Between the group 1-3 handloom vs 6 and above handloom, X_{11} (number of saree) produce per month post GST ranks first. Between the group 4-5 handloom vs 6 and above handloom, X_{15} (number of hired labour) ranks first. This means no of hired labour affects mostly to discriminate between them. From the discriminant analysis, it is clear that during both pre and post GST regime hired labour plays important role among different groups of weavers.

Table 20 represents mean and t value for different variables in pre and post GST situation. Among this t value of cost of raw material per saree, number of saree selling per month, selling price per saree is significant which indicates those are significantly differ in pre and post GST situation.

For maximizing the profit from handloom industry handloom owner's reduced the labour wages during post GST situation, so that they could balance the total cost of production per saree. In post GST situation the selling price of saree and no. of saree sold per month were also significantly reduced, which significantly decreased the profit in post GST situation. In pre and post GST situation number of saree produced per month was same but no. of saree sold per month was significantly reduced. They stored that stock to sell before the festive season when the demand and selling price of saree will be higher to obtain maximum profit. So, now-a-days about 1 year later of

introduction of GST, it can be concluded that GST had a negative impact on handloom industry as well as on textile industry.

Table-20: t-value for different variables in pre and post GST situation:

Variable	Mean for Pre GST	Mean for post GST	t value
Cost of raw material per saree	353.15	394.37	-2.13*
Lobour cost per saree	506.81	481.26	1.52
Total cost of production per saree	859.96	875.63	-0.45
Number of saree produce per month	55.27	55.27	0.00
Number of saree selling per month	55.09	44.24	3.20**
Selling price per saree	1089.41	1012.52	1.99*
Profit per saree	229.44	136.89	13.33**

Note: ** indicates significant at the 0.01 level (2-tailed) and * indicates significant at the 0.05

Thus from the study, it is clear that introduction of GST has certain impacts on handloom weavers. Though the nature of work and the process remain almost same but GST has got several economy impacts on handloom industry. Cost of raw material has increase after GST. To keep parity of selling price the labour engaged in the process were less paid compared to pre GST regime ; though labour contributes a substantial part of the industry. This has got serious impact on rural economy as handloom weaving is believed to one of the major avenues for huge human resource management. Though this assessment is too early, but the reduction in selling of handloom sarees needs to be taken seriously, if marketing awareness are not geared up the very existence of this cottage industry will be in stake which will have ultimate effect on rural economy.

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