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A Study on Impact of GST in Construction Industry

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Abstract: ***The implementation of GST in India on 01 july 2017. The aim of this study is the GST effect associated on construction capital cost and it influences towards the housing developer and housing property price. And also provide suggestions and initiatives that can soften the GST impact on kerala. A total of 120 questionnaire were collected, data were analyzed using SPSS software. From the analysis it concludes that, building materials, labour cost and prize of building are the major construction impact gain from the GST implementation. Increment on housing property price in which end buyer is the one who suffer the price increment.***
Keywords: GST, Anova, Construction industry Questionnaire, RII, SPSS.

I. INTRODUCTION

A. General

GST is the crucial form of Indirect Taxation which is said to be the indirect taxation reform ever since our Independence. The Goods and Service Tax is levied on the manufacture, sale and consumption of the goods and services. Tax policies play an important role on the economy through their impact on both efficiency and equity.A good tax system should keep in view issues of income distribution and, at the same time, also endeavor to generate tax revenues to support government expenditure on public services and infrastructure development.

The purpose of this study is to identify the perception of the construction industry towards the implementation of the goods and services tax. The others purpose of this research is to investigate the pricing effect from the perspectives of the construction industry. Introduction of goods and service tax (GST) by the government of India has led to a lot of ambiguity in the Construction industry. To arrive at a conclusion, detailed studies starting from the gestation phase to the handover phase would depict in detail where are the area of concern where the cost of project has affected due to GST implementation.

B. Proposed GST Rate

The GST council has agreed upon the 4 rate structure for levying tax on various goods and services i.e. 5%, 12%, 18% and 28%. It is expected that the rate of GST that may be applicable on this sector would be mostly 12%. There may not be any further abatement/ composition on this rate. Although this rate will be little on the higher side as compared to current tax rates which is between 6% to 10%, however this impact could largely get reduced due to ease in credits availability.

C. Research Objectives

This study is aim to identify the possible impact of GST implementation towards the construction cost which will then give an influence to the housing developer and the housing value.

D. Need for Study

Contribution of industrial sector to GDP is 29% of the total GDP. In this 29%, construction industry contributes to 11% of the industry sector. This seems to be a big digit when it comes to revenue generation of the nation.

II. METHODOLOGY

This chapter is divided into different section

A preliminary survey was conducted in order to know the factors affected by the implementation of GST on construction projects. For this preliminary survey a questionnaire was distributed to different companies in kerala.

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Process of Working on the Project is as follows: -

1) Literature review
2) Factors identification
3) Questionnaire preparation
4) Questionnaire survey
5) Data analysis using SPSS software
6) Conclusion and recommendations

A. Identification of Factors

There are thirty plus literature are studied were done, on the basis of literature survey top factors are identified and listed out.
The main factors classified as construction site cost, construction hard cost, labour cost, equipment cost and construction soft cost

B. Questionnaire Sampling

Due to the limitation, the total population for this study were focused on the construction developers and their ongoing projects at Ernakulam, Thiruvananthapuram, Kozhikode, Kollam andTrissur. Simple random approach was selected as the list of sampling frame had been created. Sample sizes larger than 30 and less than 500 are appropriate for most research. Here the total ongoing projects on these cities are 287 projects and to provide questionnaire survey it gets sampled to a total of 100 ongoing projects.

C. Questionnaire Preparation

A questionnaire was designed based on the objectives of the study, which are the impacts of demonetisation and GST on construction industry. A questionnaire survey was developed to get the opinion and understanding from the experienced respondents regarding the demonetisation and GST on construction industry.

1) Questionnaire Outline: The questionnaires are all classified into 2 sections:
a) Section A: Company and respondent profile
b) Section B: Impacts of demonetization and GST on construction industry.

Based on the literatures and factors considered, a questionnaire was designed as a measurement tool for impacts. The thirty factors were adapted to measure impacts of demonetisation and GST on construction industry. Also the respondents were asked to rate their level of argument according to 5 point scale (Likerts scale) according to level of contributing.

D. Rating Scale

Table 1: Likerts scale

SCALE	IMPORTANCE
1	No effect
2	Slight effect
3	Significant effect
4	Very significant effect
5	Extremely significant

E. Relative Importance Index (RII)

Relative Importance Index (RII) method was used as data analysis method to assess the relative importance of cost overrun factors. A five-point Likert Scale was adopted. Results of analysis was presented in the next chapter. The relative importance index, RII, was computed for each factor to identify the most and the least significant cost overrun factors in residential building. The causes were examined and the ranking of their attributes was done using the Relative Importance Index (RII). The relative importance index is given as:

$$Rii = \frac{\sum W}{A \times N}$$

Where,

Rii = Relative Important Index
W = Weighting given to each factor by the respondents (ranging from 1 to 5)
A = Highest weight (here 5)
N = Total number of respondents

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F. Data Analysis

This study will adopt the Statistical Packages for Science Social (SPSS) version 20 for interpretation to identify the most impact gain to the construction capital cost from the GST implementation.

III. DATA ANALYSIS

A. General

The computer software plays a vital role in analysing the collected data. The software would give an efficient result for our work study. The analysis software is discussed in detail.

B. Statistical Package For Social Sciences

SPSS trends provide the power and flexibility required by experienced time series analysts, while at thesame time being easy enough for those not familiar with time series techniques to use and master quickly. Its power and flexibility can be seen in the wide variety of identification, estimation, forecasting and diagnostic methods available and the opportunity for continuous interaction during the model-building process and the ability to quickly create new series as functions, transformation or components of the observed series for further analysis

C. Survey Analysis

From total of 120 survey forms distributed, only 100 were returned duly completed and could be utilized in this project study. Table 3.1 and Table 3.2 represent the detailed background of the respondents that participated in this project study.

Table 3.1 Respondents status

SL	DESIGNATION	NO: OF RESPONDED	% OF RESPONDED
1	Managing Director, Executive Director	5	12.5
2	Project Manager, General Manager, Assistant Manager	21	52.5
3	Senior Engineer, Site Engineer, Supervisor	10	25
4	Finance Manager, Finance Controller, Finance Accountant	4	10
5	Others	0	0
	Total	40	100

From Table 3.1, it can be identified that the group who give the most feedback to the questionnaire is from the group of project executive, project manager and assistant of project manager which consist of 77.5% out of 40 respondents. It can be concluded that, project executive, project manager and project assistant are the one who actively respond to the distributed questionnaire.

Table 3.2: Experience status

SL.NO	YEAR OF EXPERIENCE	NO:OF RESPONDED
1	0-5	0
2	05-10	2
3	10-15	12
4	Above 15	26

As from the Table 3.2, the highest respondents who had filled in the questionnaire completely are belonging to the group from above 15 years of experience. This means that 65% out of 40 respondents had an experience above 15 years in related to their status / title in their company.Whereas the least group who had participate in this study is contributed by those respondents who have an experience between 0-5 years and 5-10 years.

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IV. RESULT AND DISCUSSION

A. Ranking of factors

Questionnaire survey was conducted and factors are analyzed by using SPSS software and they are ranked based on Rii value

Table 4.1: Rank value

SL NO	FACTORS AFFECTTING	TOTAL	RII	RANK
	Construction site cost			
1	Land acquisition cost	298	0.596	47
2	Increase in bank loan interest rate	204	0.408	57
3	Site demolishing cost	171	0.342	58
4	Transfer taxes	233	0.466	56
5	Commission and fees	264	0.528	50
6	Property prize in urban area	319	0.638	43
7	Property prize in rural area	322	0.644	42
	Material cost			
1	Cement cost	430	0.86	4
2	River sand cost	395	0.84	5
3	Cost of aggregate	418	0.836	6
4	Roofing material cost	370	0.74	31
5	Cost of Timber	381	0.762	26
6	Steel reinforcement	401	0.802	18
7	Glass	366	0.732	32
8	Ready mix concrete cost	375	0.75	29
9	Cost of bricks	309	0.618	45
10	Plywood cost	303	0.606	46
11	GI binding wire	316	0.632	44
12	Cost of gypsum	329	0.658	41
13	Admixture cost	296	0.592	48
	Finishing/flooring cost			
1	Cost of marble/Granite	439	0.878	3
2	Cost of white cement	377	0.754	28
3	Cost of paints	402	0.804	17
4	Wall putty	375	0.75	29
5	Primer	386	0.772	24
6	Emulsion paint	380	0.76	27
	Labour cost			
1	Head mason charge/hr	409	0.818	11
2	Mason charge/hr	412	0.824	9
3	Mazdoor/hr	406	0.812	14
4	Carpenter/hr	400	0.8	19
5	Plumber/hr	410	0.82	10
6	Steel barbender/hr	414	0.828	7
7	Bricklayer/hr	407	0.814	12
8	Structural steel worker/hr	413	0.826	8
9	Plasterer/hr	417	0.78	22
10	General worker/hr	407	0.814	12
11	Painter/hr	404	0.808	15

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12	Concreter/hr	403	0.806	16
	Equipment and machinery cost			
1	Excavator/backhoe	400	0.8	19
2	Marble/granite polisher	388	0.776	23
3	Concrete mixer	366	0.732	32
4	Bar cutter/bending machine	382	0.764	25
5	Concrete vibrator	357	0.714	35
	Construction soft cost			
1	Marketing fees	334	0.668	40
2	Insurance fees	242	0.484	54
3	Engineering fees	337	0.674	39
4	Legal fees	235	0.47	55
5	Architectural fees	340	0.68	38
	Miscellaneous cost			
1	Cost for safety materials	364	0.728	34
2	Changes in government regulation and laws	286	0.572	49
3	Ineffective planning and scheduling	259	0.518	51
4	Design changes	247	0.494	53
5	Total construction cost	393	0.786	21
6	Duplicating of billing	345	0.69	36
7	Wiping out of small builders	342	0.684	37
8	Price of building	456	0.912	1
9	End buyers price	446	0.892	2
10	Demand of materials	252	0.504	52

From Table 4.3, it shows that majority of the construction capital elements do achieve a high frequency in which the GST do lead to an increment on the construction capital cost. The topmost rii score rated among all of the construction capital elements was encountered to construction building materials and floor finishing cost, value ranging from 0.86 to 0.72. Furthermore, the second greatest rii score that been rated to 0.78 was belonging to the labour cost. While the 3rd and 4thhighest mean score that rated 0.71 and 0.50listed to the three elements from the construction hard cost of equipment and machinery and two elements from the construction soft cost which are excavator/backhoe, marble/granite polisher, concrete mixer, marketing fees and insurance fees. Additionally, the elements that rated the lower high means score in the range from 0.47to 0.34 can be concluded that the elements does get the cost increase after the GST implementation but it is not the significant increase.

B. Analysis and Result of Regression in SPSS

The multiple regression analysis were done based on the most importance factors that were previously identified. Both backward and forward regression analysis (BRM and FRM) can be used for cost overrun. From the literature review, backward regression is more valid and applicable than the forward regression analysis.

Table 4.2: model summery

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.954[a]	0.91	0.908	1.26496

Table 4.2 provides the R and R2 values. The R value represents the simple correlation and is 0.954 (the "R" Column), which indicates a high degree of correlation. The R2 value (the "R Square" column) indicates how much of the total variation in the dependent variable can be explained by the independent variable, Factors. In this case, 90.8% can be explained, which is very large.

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Table 4.3: Anova

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	504.578	1	504.58	315.34	.000[b]
	Residual	49.604	31	1.6		
	Total	554.182	32			

The Anova table, which reports how well the regression equation fits the data (i.e., predicts the dependent variable). This table indicates that the regression model predicts the dependent variable significantly well. At the "Regression" row the "Sig." column indicates the statistical significance of the regression model. Here, p = 0.00001, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Table 4.4: coefficients of variables and T-test statistics

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)		0.05	0.211		0.236	0.815
	x3	1.1	0.084	0.184	13.097	0
	x1	1.08	0.091	0.192	11.861	0
	x6	0.91	0.078	0.182	11.744	0
	x7	0.88	0.072	0.163	12.264	0
	x5	0.9	0.054	0.204	16.723	0
	x4	1.12	0.097	0.19	11.64	0
	x2	0.96	0.089	0.183	10.818	0

The coefficients table provides us with the necessary information to predict GST from factors considered, as well as determine whether these factors contributes statistically significantly to the model (by checking at the "Sig." column). Furthermore, the values in the "B" column under the "Unstandardized Coefficients" was used to present the regression equation as:

GST =1.1x3+1.08x1+.901x6+.88x7+0.9x5+1.12x4+0.96x2

Thus the regression model has a strong correlation coefficient R equal 0.954 and the coefficient of determination R square equal 0.91 which is a best fit which means that 91% of the total variation in GST can be explained by the model. It has to be noted that two of the previously considered top five input factors were only considered by the model developed.

V. CONCLUSION

In overall, the objectives of this study has successfully conducted and achieved where the data collected had also been analysed. A questionnaire based survey was conducted from owners, site engineers and contractors from various companies. Totally 100 responses were collected through online and personal, analyzed by using SPSS. From the findings, researcher had identified that the building materials and building property cost are the major construction cost component that get the significant impact due to GST implementation.

While cost increment due to GST and exempt taxes make an issues on developer business's capital flows. In order to maintain the profit and cover the risk, developer raising the housing price where the end buyers will borne the price increment.\

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VI. SUGGESTIONS

Transferring all the cost increment to the end buyers is the priority decision among all of the developers. However such a measure will result in an increment of the housing property prices and thus is unadvisable. Hence, discussion on this particular is meaningless. The initiatives such as using in-house sources is not an effective measurement to soften the GST impact as professional soft cost is just a small portion in a project. However, such small portion saving can help an organisation to allocate on the other operation field. Besides, in order to push up the sales rate, promotion is necessary. For an example give a discount from 5-10% for those who can clear their instalment in once time although developer will get losses, but at least it can soften the overall business capital flow. Additionally, the late claiming issues can be overcome if an organisation establishes a GST specialist department to handle all GST related issues. Although investment in a new department may be costly initially, however it can provide a positive return in the long run.

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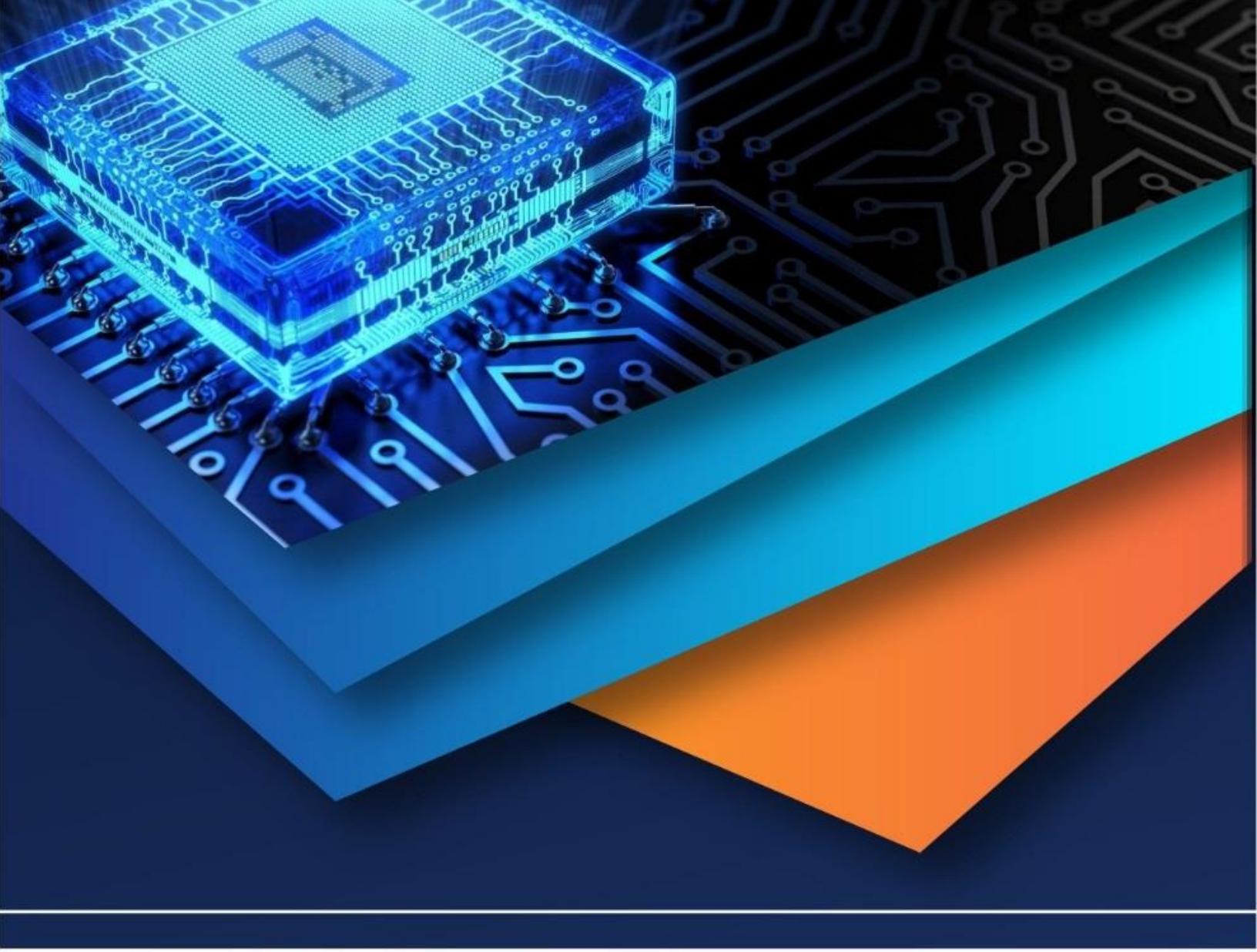

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