Impact of GST on motor and pump exports in India

Raghuveer Negi and Muthusamy Arumugam
Department of International Business, Alagappa University, Karaikudi, India
Abuzar Nomani
Department of Business Administration, C. V. Raman Global University, Bhubaneswar, India, and
Shetty Deepa Thangam Geeta
School of Management Studies, Sathyabama Institute of Science and Technology, Chennai, India

Received 15 August 2022
Revised 28 September 2022
Accepted 5 October 2022

Abstract

Purpose – The impact of Goods and Service Tax (GST) on the motor and pump exports in the Coimbatore region is measured in this study using various parameters and scales. The data collected from exporters were used to identify the pros and cons of GST, stating their opinions on variables considered by the researchers through extensive literature on GST and exports.

Design/methodology/approach – The data were collected from 220 motors and pump exporters through a field survey from the month of January to September 2021. The impacts have been measured using principal component analysis (PCA) and confirmatory factor analysis (CFA). The factor analyses and CFA will derive the positive and negative impact of GST determined through critical empirical evidence in this study. Also, the problems faced by the exporters allied to GST, which the authors could not include in the questionnaire due to certain reasons, are concisely apportioned and discussed.

Findings – The study depicts the major advantages of GST, such as harmonized system, long-run performance, reduction in logistics cost, check-post operation, bonds and ease of doing business. Also, it highlights the disadvantages of GST, such as biases in the indirect tax system, the reimbursement of duty drawback being late or pending and document filing was still a tedious job under the GST regime.

Originality/value – The unavailability of considerable literature on the impact of GST on Indian exports signifies the novelty of this research. So far, this is the first empirical attempt to measure the impact of GST on exports which is a unique and original attempt to highlight the problem that lies under the GST regime and the necessary reforms the tax structure needs in the context of Indian exports.

Keywords GST, Exports, Motor, Pumps, Tax, Goods and service tax

Paper type Research paper

1. Introduction

The Goods and Service Tax (GST) is an indirect tax levied on the supply of goods and services. The GST replaced many comprehensive indirect taxes such as value-added tax (VAT), excise duty, service tax, etc. (Wiencek, 2017). It came to effect on July 1, 2017, after the GST Act was passed on March 29, 2017 in Parliament (IBEF, 2017). The purpose of the GST implementation is to minimize the cascading effect of indirect taxes on the cost of goods and services. Also, it is implemented to establish cooperation and create a common and undivided Indian market in order to enrich the economy of the nation

JEL Classification — H21, H24, H25

Business Analyst Journal
Vol. 43 No. 2, 2022
pp. 13-25
Emerald Publishing Limited
e-ISSN: 2754-6721
p-ISSN: 0973-211X
DOI 10.1108/BAJ-08-2022-0020

(World Bank Group, 2018). It is claimed to be the biggest tax reform in recent times after it was passed officially by the Government of India (GoI) (Deswal, 2019). It is adopted as a single unified GST model in many countries of the world (Revathi, Madhushree, & Aithal, 2019), but due to disagreement between the state and central GoI, the dual GST model was adopted in India. This means the state and central government both will administer the GST (CBIC, 2019). The Central Goods and Service Tax (CGST) is collected by the central GoI, the State Goods and Service Tax (SGST) is collected by the state GoI and Integrated Goods and Service Tax (IGST) is collected by the central GoI (Deshmukh, 2022; Kumar, 2018). The CGST and SGST shall not be levied on goods and services exports from India because it is considered a zero-rated supply under the foreign trade policy of India (Patra, 2018). The IGST shall be charged on imports and exports of goods from India. The engineering export alone contributes 25% of exports from India (IBEF, 2021), and motors and pump exports have a significant contribution to engineering exports.

The unavailability of literature on the impact of GST on Indian exports signifies the value of this research. The presumption of the impact of GST is analyzed in this study through factor analysis and confirmatory factor analysis. After an extensive review of the literature, we were able to identify the various gaps in measuring the impact of GST on Indian exports. The impact of GST on motor and pump exports was not measured in earlier studies which is a unique and original attempt to highlight the problem that lies under the GST regime and the necessary reforms the tax structure needs in the context of Indian exports. The previous studies lack the empirical evidence to contemplate the positive and negative impacts of GST on motor and pump exports and Indian exports in general. Also, the study will highlight the identified loopholes that prevail in the GST policies in terms of exports.

The standing committee on GST highlighted the numerous impact of GST on exports in terms of refund mechanism, grievance redressal, refund of the utilized input tax credit, duty drawback schemes, deemed exports and reverse charge mechanism (PRS, 2017). The mandatory use of HSN codes under the GST regime brought harmonization in domestic trade as well as in international trade (Kar & Sahore, 2018). The implementation of the GST regime has been considered as a revolutionary initiative by the GoI to revive declining exports, infrastructure, investment and employment opportunities (Ojha & Vrat, 2018). We tried to understand the impact of the implementation of GST and authenticate the various claims made by the government, policy-makers, researchers and academicians through critical analysis and empirical evidence.

There is a dire need to examine the impact of GST implementation in terms of quantitative analytics with meaningful insights for Indian exports. The Coimbatore motor and pump industries meet more than 50% of the country's requirements (SIEMA Library, 2022). This region is also named "Pump City of Asia" due to its production capacity, continuous innovation and market significance in the global market. The motor and pumps are the most used machinery in various sectors. The wide application of motors and pumps in various sectors (household, agriculture, manufacturing, oil and gas, infrastructure, chemicals, mining and water treatment, to name a few) itself signifies the thorough research in this field. There are around 600 manufacturing units and 400 ancillary units in Coimbatore producing motor and pumps (TERI, 2016) and its spare parts for various sectors such as household, agriculture, manufacture, infrastructure, oil and gas, chemicals, mining and quarrying, water treatment, food and drink, defense and even for nuclear power generation. The study aims to measure the impacts of GST on motor and pump exports by collecting the opinion of Coimbatore-based motor and pump exporters on rules and regulations under the GST regime. In this study, the main focus of the study is to testify to all the claims made by major stakeholders in lieu of the implementation of GST. Also, the quantitative data were used to perpetuate the accuracy and eminently fair portrayal of the impact of GST on motor and pump exports in the Coimbatore region.

The various sections in this article are systemized in the following order; the first section forms a layout for the research where the origin of GST and possible impacts of the implementation of GST on exports are discussed. The emphasis is given much to the impact of GST on exports in spite of domestic trade. The second section discusses the earlier studies and reports from various government institutions for an in-depth understanding of GST implementation and its consequential terrain on motor and pump exports in this region. It also scrutinizes previous research outcomes carried out by academicians and researchers. In the third section, we identified the research gap through an extensive investigation of the available literature. The fourth section elucidates the description of collected data and its relevance in the study. Also, it explores the methodology used in this study to perceive the empirical evidence which may endorse or decouple the various claims made by government institutions and academicians. The fifth section of the study exhibit the empirical evidence attained through critical analysis and detailed discussion. The last section of the research concludes and posits suggestions based on analysis for further fine-tuning of the GST policies for motor and pump exports (which may apply to exporters in general as well) on the basis of realistic and factual evidence derived from the study.

2. Literature

A few studies have been conducted focusing on the impact of GST on Indian exports and none on the impact of GST on motor and pump exports in the Coimbatore region. Mukherjee (2020) stated that GST capacity depends upon the structural composition and size of the economy, and under GST, the state's GST capacity has decreased. It is noticed that the state's share of exports in GDP is increased but collection under GST has decreased after the tax reforms. The liability arises in the product origin state because the input tax credit is adjusted for exports under the IGST. Rao (2019) considered the GST as a landmark reform by the GoI. This study evaluates the rapid progress made after the implementation of GST to simplify the tax to reduce compliance and administrative cost, improvement in revenue and minimization of distortion. It is stated that GST has benefitted the Indian economy by consolidating indirect tax in the domestic market, enhancing the movement structure of goods across countries, and reducing cascading. It helped exporters by eliminating indirect taxes in the domestic market. The study pinpoints the distortion in GST, such as ensuring faster refunds to exporters, multiple rates and imposing a penalty on exports are issues which still need to address by the government. The research by Revathi *et al.* (2019) reviewed the global implication of GST implementation in India. The paper pinpoints the different aspects of GST and its impact on business and society. It is observed that the exports of goods and services and imports by Special Economic Zone are considered inter-state transactions under IGST, and exporters have to collect that transaction amount from the seller under the GST regime. The study shows that the GST has strengthened the manufacturing business and exports of India by bringing uniformity in price, transparency and employment opportunities. Also, the GST has reduced the customs duties related to exports. Tiwari and Singh (2018) stated that the GST regime and tax reform would bring transparency, track tax evasion, uniformity in tax rates and removes the barriers to trade in the country. The gains from GST will encourage domestic and foreign investors to do business in India. It is observed that the GST will enhance the export performance of the county by removing customs duties and providing employment opportunities in export sectors. Also, it will increase the foreign exchange reserve (FOREX) and improve the current account balance by easing foreign direct investments in the nation. The study reveals that tax reforms will represent the country as a common market which will signify Indian products in the global market. Also, it is noted that the GST will attract domestic consumers and promote Indian-made products. World Bank Group (2018), in their report, examined the obstacles that lie with the implementation of GST.

It is stated that an enforcement framework and multiple tax slabs can lay down the huge burden of compliance on small and medium enterprises (SMEs) and can impact the economy negatively. It is suggested that the government should extend the transition period to fulfill the GST requirements. The exporters encountered a significant number of shrinkages in their working capital under the GST tax system. It is advised that immediate attention and action are required to take off the burden of reduced cash flow and cases of rebates. Also, the government needs to minimize the impact of GST on SMEs and exporters for a shorter period of time until they get accustomed to the new tax structure by reducing additional compliance burdens and issues discussed in the study. Patra (2018) states that GST reforms will attract foreign investment and boost exports from India because it will escalate the ease of doing business in the country. Also, the authors claim that it will increase the revenue from indirect taxes, and the fiscal deficit will remain ideal. Leemput and Wiencek (2017) analyzed the effect of GST on the economic growth of India. The study states that India's domestic and international business correlated with the ease of doing business which is proxied by the complexity of tax structure and tax rates. International trade barriers such as shipping costs and tariffs are also addressed under the GST regime. It is pinpointed that half of the country is landlocked, and they do not have access to an international port which ultimately will lead to a higher cost for trading globally. It reveals that shipping costs and cross-state taxes can have an adverse impact on the growth of the economy. It is assumed that the reforms in tax structure will bring transparency and compliance. Khan and Shadab (2012) tried to explain the significance and prospects of GST implementation in India. It is observed that GST indeed can modernize the tax administration, but it needs simplification, transparency and involuntary compliance. It also states that the differential multiple tax regime cost in distortion of export competitiveness of India in the global market, which would have been avoided through offset of taxes imposed on the foreign export prices. It is suggested that there is a dire need for efficient allocation of resources for production and full tax-offset to gain from production factors and export business of India. Chadha (2010), in the thirteenth finance commission report, analyzed the possible outcomes of the implementation of GST in India. On the basis of results, it is advised that the implementation of GST could lead to the allocation of production factors more efficiently, which can help the Indian economy to attain gains in GDP and exports. Apart from export improvement, it can create a playing field for the country's production and imports. Also, the sectors which heavily rely on taxed inputs would face a substantial impact, such as exports and imports. It is believed that GST uplifts the exports at the cost of import and domestic consumption. The study shows that there is no significant impacts of GST on exchange rates, trade pattern of the country, fail to provide adequate rebates and tax offsets.

3. Data and methodology

3.1 Data source

The data for the study were collected through a field survey from the month of January 1, 2021 to September 30, 2021. The pre-designed and pre-tested questionnaire is used for the collection of primary data (refer to Appendix Table A1). We tested the pre-designed questionnaire on 35 exporters where we asked their opinion on drawback rates (Thowseaf & Millath, 2016; Revathi *et al.*, 2019), long-run performance (Deshmukh, 2022), harmonization (Tiwari & Singh, 2018; Mukherjee, 2020), logistics cost (Deswal, 2019; Ojha & Vrat, 2018), IGST (Kumar, 2018), filing process, technical complications (Rao, 2019), transaction cost (Khoja & Khan, 2020), etc. In the later stage (main data collection), we added a few more variables based on the suggestions from motor and pump exporters and an extensive literature review. The addresses and contact details of exporters for the collection of primary data and field research were collected from the SIEMA, Coimbatore Productivity Council (CPC),

EEPC and Pumps India directory. The 220 responses were collected through a proportional sampling method from the seven taluks of the Coimbatore district.

3.2 Methodology

3.2.1 Sampling method. We used the proportional sampling method for the appropriate distribution of samples from the population. Proportional sampling is a type of probability sampling method where researchers split up the finite population into subpopulations, and after that, samples are selected from each subpopulation based on a random sampling technique (Salkind, 2010).

In this technique, the finite population is divided into subpopulations as per the attributes.

$$n_h = n\frac{N_h}{N} \; and \; \sum_{h=1}^{h} n_h = n$$

Here,

N = Population Size

H = Subpopulation

n_h and $\sum_{h=1}^{h} n_h = n$ = Size of *h*th strata

After that as per the simple random sampling the n_h will be selected from each stratum for sample size.

In the Coimbatore district, 600 manufacturers and 500 ancillary units are established who are involved in motor and pump manufacturing and export business (TERI, 2016) in which 500 manufacturing units are exporting fully functional motor, and pumps are taken for this study (Kannan, 2005). The sample selection criteria are as follows:

$$\mathbf{n} = \frac{\mathbf{N_X}}{\left((\mathbf{N}-1)\mathbf{E}^2 + \mathbf{X}\right)}$$

Here N is the population size which is 500, X is confidence level at 95% and E is margin of error which is at 5%. The sample size arrived through the calculation is 218, but the researcher has considered 220 samples size for the study. The researchers have collected data from the 220 motor and pump exporters from the total population size of 500 firms who are actively engaged in manufacturing and export operations in the Coimbatore region.

3.3 Statistical tools used in the study

The reliability analysis (Cronbach, 1951) studies the properties of scales measurement and items which compose the scales. The reliability analysis is mandatory for performing exploratory factor analysis (EFA) in any research. After the reliability test, the EFA (Thurstone, 1931) was used to explore the underlying factors in a large set of variables and to establish its reliability. It is used while developing a scale to uncover the underlying sets of latent constructs in variables that are measured in research. The confirmatory factor analysis (CFA) (Jöreskog, 1969) verifies the factor structure of a large set of observed variables. The CFA test the consistency of a factor measurement and assist the researcher in understanding the nature of that factor. The study conducted by Hussain (2018) used CFA to confirm the factors they explored through EFA technique in their studies. Unlikely EFA, the researchers eliminate the factors that are irrelevant to the model fit.

4. Empirical evidence and discussion

In this section, the result derived from the empirical analysis briefly explains the advantages and disadvantages of GST policies.

Internal consistency is also known as reliability which is used to determine the reliability of Likert scales as well as the statements included in the survey. Table 1 shows that the Cronbach's alpha value is 0.743, which is greater than 0.70 (close to 1.0). It means the internal consistencies of data sets are acceptable and reliable, which indicates that the researcher can proceed further with the analysis.

The values close to 1.0 (higher value) generally stipulate that the factor analysis can be useful with the data taken for the study. Table 2 exhibit that the Kaiser-Meyer-Olkin (K-M-O) value is 0.730; which means the data are acceptable, and we can proceed further with the principal component analysis because the value is greater than 0.70 (close to 1.0). Also, Bartlett's test of sphericity reveals that the model is fit for the factor analysis because the significance value is 0.000, which is less than 0.05 ($p < 0.05$).

4.1 Factors extractions

After carefully evaluating the communality table we studied the total variances explained in the table where the factors have been extracted on the basis of eigenvalues. The eigenvalues with more than 1 are extracted on the basis of rotation sums of squared loadings that will be named at the later stage. The nine factors describe 65.86% of the total dispersion of datasets which is ideal according to the set criterion in the statistics handbooks. The result reveals the major impact of GST on the motor and pump exporters in the Coimbatore region in 9 factors.

4.2 Factors reductions

The factor reductions based on the correlation component matrix allowed us to reduce the number of statements. The statement in the factor reduction process is eliminated on the basis of the factor loading, which is not higher than 0.4 and explains the smallest part of dispersion. After the elimination of statements in factor analysis, the researchers have to repeat the factor analysis each time the statements are removed. In this study, 25 statements were taken, and the factor loading score for 24 statements was more than 0.4; so 1 of the statements was eliminated in this process. It is found that there are nine components that recline above the 1 eigenvalue. So, we can further divide these 24 statements into nine components/factors.

Table 1.
Reliability test

Reliability statistics Cronbach's alpha	No. of items
0.743	25

Source(s): Computed

Table 2.
Sampling Adequacy test

Kaiser–Meyer–Olkin measure of sampling adequacy		0.730
Bartlett's test of sphericity	Approx. Chi-square	1658.484
	df	300
	Sig.	0.000**

Note(s): *Significant at the 0.05 level **Significant at the 0.01 level

Source(s): Computed

4.3 Factors extractions after the reduction of factors

The 24 statements were grouped into nine factors based on the eigenvalues higher than 1 because 1 statement was eliminated during the factor reduction process. The 11 factors described 68.12% of the total dispersion of data sets which is ideal for the clustering and distribution of the statements into the factors.

Table 3 shows that the intercorrelation between the identified variables is relatively high because Cronbach alpha's estimated to be ≈0.743 (close to 1.0). The results cluster the 24 statements into nine components based on the variances between the variables.

Also, the components in Table 3 reveal that the first component is highly correlated with the harmonization, duty drawbacks and long-run performance of the tax structure in the export operations. The second component is highly correlated with the logistics cost and IGST (refer Table 3).

It is noticed that the third component is evidently correlated with unbiased tax and tax barriers. Also, it clearly states that the fourth component is highly correlated with the duty drawback and filing process issues.

Code	Components and description	Loadings
	Harmonization, duty drawback and long run performance	
IMP14	Differences in drawback rates	0.724
IMP9	Smooth trade and effective long-run performance	0.678
IMP23	HSN codes simplified the trade and harmonized globally	0.503
	Logistics cost and IGST	
IMP21	Logistics cost reductions	0.754
IMP20	Interstate check-post operations	0.640
IMP5	The exports of either through bond/LUT or by paying the IGST	0.546
	Unbiased tax and tax barriers	
IMP24	Barriers of the indirect tax system (earlier VAT) are wiped off	0.805
IMP25	Abolished the unbiased tax	0.751
	Duty drawbacks and filing process	
IMP13	Duty drawback provision and all industry rates (AIR) of drawback	0.738
IMP6	Filing process	−0.597
IMP19	BRC is not required, It is however required for meeting the FEMA/RBI guidelines	0.593
	Technological barriers and structural design	
IMP10	Technical complications	0.675
IMP18	Advances from buyer is not subject to tax	0.622
IMP2	Filing of tax returns is time consuming and causes the unnecessary delays	0.570
	Export provisions and incoterms	
IMP15	There is a lack of clarity on GST provisions	0.770
IMP16	The IGST is to be paid on FOB basis	0.463
	Cost and revenue, tax slabs and foreign exchange	
IMP11	Unstable tax slabs	0.401
IMP1	Revenue turned to be less responsive	0.718
IMP17	Responsibility of realizing foreign exchange lies with the third party	0.543
IMP7	Decrease in transaction cost	0.426
	Bonds and ease of doing business	
IMP3	Removal of earlier CT1 Bond and for 100% EOU, the B12 bond	0.756
IMP22	Ease of doing business	0.544
	Structural harmonization and invoices	
IMP12	Harmonization in design, structure and administration	−0.728
IMP4	Raising invoice on merchant exporters	0.543

Note(s): *Extraction Method: Principal Component Analysis
*Rotation Method: Varimax with Kaiser Normalization
*Rotation converged in 29 iterations
Source(s): Computed

Table 3. Factors identified through rotated component matrix

The fifth, sixth and seventh components are subsequently correlated with the technological barriers and structural design, export provisions and INCOTERMS, and transaction cost, revenue, Forex and tax slab issues (refer Table 3). The components in Table 3 simultaneously exhibit that the eighth component is highly correlated with the bonds and ease of doing business for the export firm in the Coimbatore region. The ninth component is highly correlated with the structural harmonization and invoices issues in the motor and pump export companies in the Coimbatore region (refer Table 3). From Table 3 the researchers labeled nine components which pinpoint the impact of GST on motor and pump exports in the Coimbatore region.

4.4 Confirmatory factor analysis (CFA)

Confirmatory factor analysis helped us to reduce the number of observed variables into latent factors on the basis of commonalities within the data. We obtained the results from principal component analysis, where 24 statements were grouped into nine components will be taken for further analysis where we further eliminated the statements and factors based on their factor loadings and their relationship with the observed variables and underlying latent constructs.

The four statements were eliminated in the confirmatory factor analysis (CFA) due to the poor factor loadings, which were less than 0.4 (<0.4). The raising of invoice on merchant exporter was also excluded due to the absence of additional component. The component with a single variable is not suitable for deriving a model or to measure a model and model fit. The nine statements were eliminated due to the poor relationship between the model's constructs and indicators.

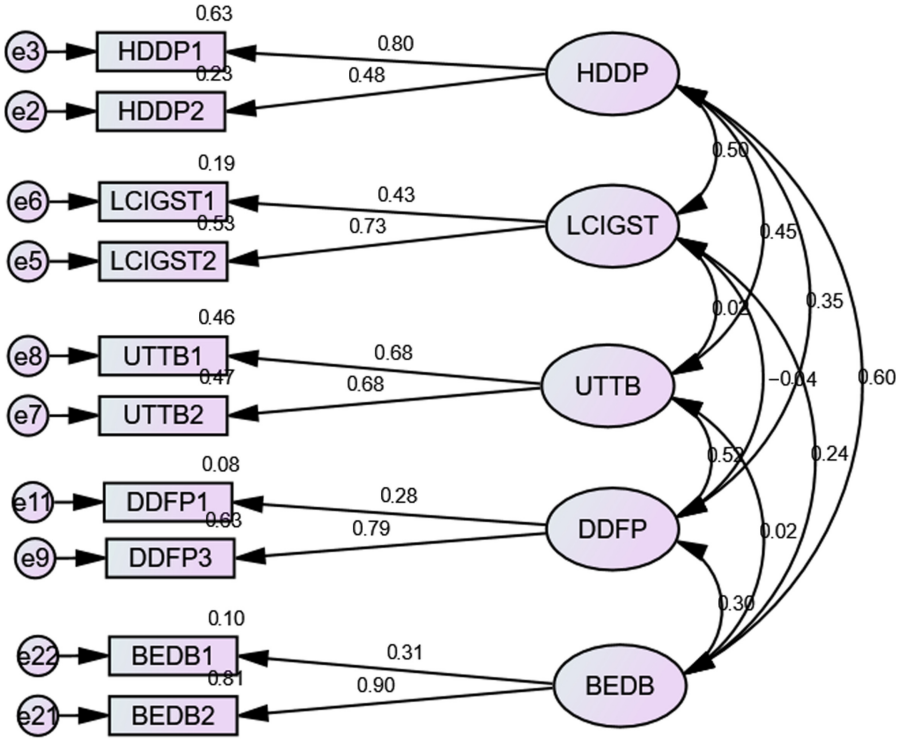
Figure 1 shows the measurement model confirms mainly five components consisting of 10 major impacts on motor and pump exports in the Coimbatore region. Figure 1 shows that under harmonized systems, duty drawbacks and long-run performance (HDDP) component later renamed as harmonized system and long-run performance (HSLRP) due to elimination of statement reveals that the GST lead to harmonized system and long-run performance.

The logistics cost and integrated goods and service tax (LCIGST) component renamed as logistics cost and check-post operation (LCCPO) due to elimination of statement exhibits the impact on motor and pumps in terms of reduction in the cost of logistics operations and interstate check-post operations (refer Figure 1). It is noted from Figure 1 that the unbiased tax and tax barriers (UTTB) component reveals the impacts of GST on the indirect tax system and biasness in the tax structure. The duty drawback and filing process (DDFP) component was renamed as duty drawback and document filing (DDDF) due to the elimination of statements exhibiting the impact of GST on duty drawbacks and document filling. Also, it is observed from Figure 1 that the bonds and ease of doing business (OP) component show the impact of GST on bonds and ease of doing business.

It is observed that the Chi-square is significant (refer Table 4) in this model. The modification indices are done to improve the model where the threshold for the modification indices was set to 4. The error terms were low due to that the error term was not covaried. The critical ratios exceeded the standard value (>1.96) for all the model's constructs.

Also, Figure 1 states that the standardized regression weight for HDDP, later renamed HSLRP, was between 0.48 (HDDP2) and 0.80 (HDDP2). In the case of LCIGST, later renamed LCCPO, the standardized regression weight lies between 0.43 (LCIGST1) to 0.73 (LCIGST2). It is observed that the standardized regression weight for UTTB was 0.68 for both (UTTB1 and UTTB2). It is that noted in Figure 1 the standardized regression weight for DDFP, later renamed DDDF, was between 0.28 (DDFP1) and 0.79 (DDFP3). It is found that the standardized regression weight for BEDB was between 0.31 (BEDB1) to 0.90 (BEDB2). The squared loadings for BEDB were 0.10 to 0.81.

The results from Table 4 state that the obtained p-value is 0.019, a value less than the recommended value, which is 0.05. The Chi-square is 1.669 (between 1 and 5) and emphasizes that it is a good fit. The GFI (Goodness of Fit) index is 0.964, a value greater than 0.9 and the



Note(s): *HDDP denotes Harmonization, Duty Drawbacks and Performance, LCIGST denotes Logistics Cost and IGST, UTTB denotes Unbiased Tax and Tax Barriers, DDFP denotes Duty Drawback and Filing Process, and BEDB denotes Bonds and Ease of Doing Business

Source(s): Computed

Figure 1. The measurement model

Criteria	Recommended values	Results
p-value	<0.05	0.019
Chi-square/df (CMIN/df)	Between 1 and 5	1.669
GFI	>0.9	0.964
AGFI	>0.9	0.920
NFI	>0.9	0.868
CFI	>0.9	0.938
RMSEA	<0.08	0.055
PCLOSE	>0.05	0.355

Source(s): Computed

Table 4. Estimation of measurement model fit

AGFI (Adjusted Goodness of Fit) is 0.920, a value greater than 0.9, which indicates that the model is a good fit. Also, the RMSEA (Root Mean Square Error of Approximation) is 0.055, a value less than 0.08 and P-Close value is 0.355, a value greater than 0.05 that pinpoints the "Absolute Fit" of the model (refer Table 4).

Additionally, NFI (Normed Fit Index) is 0.868, a value close to 0.9, which is acceptable and CFI (Comparative Fit Index) is 0.938, a value greater than 0.9, which indicates that the model is a good fit (refer Table 4).

The result reveals that the GST leads to a harmonized system and long-run performance. Also, it is observed that the GST reduced the cost of logistics operations and interstate check-post operations. It is noted that the indirect tax system and biasness in tax structure still prevail under the GST regime. The refund of duty drawback is pending or delayed, and the filing process is still a tedious job under the GST regime. Also, it is observed that there is a positive impact of GST on bonds and ease of doing business.

5. Conclusion and policy implication

In this study, we examined the impact of GST on the motor and pump exports in the Coimbatore region using various parameters and scales. The data collected from exporters were used to identify the pros and cons of GST, stating their opinions on variables considered for goods and service tax in this study. The chapter depicts the major advantages of good and service tax, such as harmonized system, long-run performance, reduction in logistics cost, check-post operation, bonds and ease of doing business. Also, the study highlights the major cons of goods and service tax (GST), such as biasness in the indirect tax system remaining the same, the reimbursement of duty drawback being late or pending, and document filing was still a tedious job under the GST regime. The timely reimbursement of duty drawbacks under the GST regime is also a matter of concern for motor and pump exporters in the Coimbatore region. The efficiently managed duty drawback system can contribute significantly toward export promotion. It is suggested that the government should amend the GST regime and take necessary steps to eliminate the biases in the tax system; the reimbursement of duty drawbacks should be timely, and document filing should be less tedious for export operations under the GST regime. The biasness in the tax system can be reduced by ceasing the differentiation between goods and services for deemed exports (for example, under article 243 W the services rendered to the state are exempted from GST, but in the case of goods, it is not applicable). Also, the tax slabs should be reasonable during export operations, and reduced-input tax credits (ITC) can help exporters throughout financial dealings with their banks or vendors. The collection of concise and precise information during document filing in the ICEGATE, ACES-GST and GST common portals can ease export operations. Also, the exporters can claim the refunds under the scheme by simply using the E-shipping bill itself instead of filing separate drawback claims. The government should penalize (monetary or non-monetary) CHAs, audit firms and stakeholders involved during the filing process in case of partial information, carelessness and input error because improper filing is the main cause of delay in duty-drawback reimbursement. And, ever-changing tax slabs for motor and pump exports should be more reasonable, passive and static.

6. Limitations and future scope for the study

Although the study offers conclusive insights on the impact of GST on motor and pump exports, there is always room for further advancement in the research. First, the data were collected during the COVID-19 lockdown period, so the data collection process got interrupted more than once. Also, the exporters were hesitant and resisted the entry of individuals who did not play an active role in facilitating their business or growth. Second, the study is limited to the Coimbatore region only in spite of its significance; future research can be extended to other regions such as Ahmedabad, Batala, Jalandhar, Kolhapur, Rajkot and Hyderabad. Also, the research can be extended in the form of a case study on Kirloskar Brother's operations in Kirloskarwadi (Sangli, Maharashtra) due to its significance in the global market. Third, during our field visit, lots of exporters emphasized more on the challenges they faced due to COVID-19 restrictions and lockdown so future research can be conducted on the impact of the COVID-19 crisis on motor and pump exports. It will ultimately equip the policy-makers,

exporters and various stakeholders to brace themselves during the sudden unnatural calamity. Finally, future studies can extend the study by performing the structural equation modeling or path analysis, citing the appropriate theories from taxation, accounting or finance.

Reference

Agarwal, V., Manglani, K., Agarwal, N., & Sinhal, K. (2020). A study on the impact of GST on foreign trade. *Aegaeum Journal*, *8*(4), 194–202. Available from: http://aegaeum.com/gallery/agm.j-2599.21-f.pdf

CBIC. (2019). Goods and service tax (GST) concept & status. Central Board of Indirect Taxes and Customs (CBIC). Department of Revenue, Ministry of Finance, Government of India, 1–55. Available from: https://www.cbic.gov.in/resources//htdocs-cbec/gst/GST-Concept%20and%20Status01052019.pdf;jsessionid=E0958E67BC72920FB62897B94DB49AB8

Chadha, R. (2010). Moving to goods and services tax in India: Impact on India's growth and international trade. Prepared for the Thirteenth Finance Commission, Government of India, National Council of Applied Economic Research. Available from: https://www.ncaer.org/publication_details.php?pID=30

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*(3), 297–334, doi: 10.1007/BF02310555.

Deshmukh, A. K., Mohan, A., & Mohan, I. (2022). Goods and services tax (GST) implementation in India: A SAP–LAP–Twitter analytic perspective. *Global Journal of Flexible Systems Management*, *23*, 165–183. doi:10.1007/s40171-021-00297-3.

Deswal, S. (2019). GST: A revolutionary step towards tax reforms in India. *International Journal of Research and Analytical Reviews (IJRAR)*, *6*(1), 1–5. Available from: http://ijrar.com/upload_issue/ijrar_issue_20543174.pdf

Gupta, S. (2016). Goods and Services Tax (GST): A comprehensive and uniform indirect tax reform in India. *VISION: Journal of Indian Taxation*, *3*(2), 31–53. doi:10.17492/vision.v3i2.7899.

Hussain, A. A. (2018). A study on the various dimensions of conflict and its impact on work relationship and financial performance with special reference to Indian pump industry. Doctoral thesis. ICFAI University. Available from: http://hdl.handle.net/10603/222940

IBEF. (2017). Goods & services tax (GST). India Brand Equity Foundation. Available from: https://www.ibef.org/research/india-study/goods-and-services-tax

IBEF. (2021). Engineering goods exports from India. India Brand Equity Foundation. Available from: https://www.ibef.org/exports/engineering-goods-exports-from-india.aspx

Jöreskog, K. G. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika*, *34*(2), 183–202.

Kannan, K. V. (2005). A study on the export performance of pump manufacturers with special reference to Coimbatore district of Tamil Nadu. Doctoral thesis. Bharathiar University.

Kar, N., & Sahore, N. (2018). Relevance of GST HSN codes for indirect tax implementation in India. *BULMIM Journal of Management and Research*, *3*(2), 39–45. Available from: https://www.indianjournals.com/ijor.aspx?target=ijor:bulmim&volume=3&issue=2&article=001

Khan, M. A., & Shadab, N. (2012). Goods and services tax (GST) in India: Prospect for states. *Budgetary Research Review (BRR), BugetFinante*, *4*(1), 38–64. Available from: https://www.econstor.eu/handle/10419/157646

Khoja, I. A., & Khan, N. A. (2020). Goods and services tax, cascading, and revenue performance: Analyzing Indian commodity taxation market. *Journal of Public Affair*, *16*(1), 1–11. doi: 10.1002/pa.2109.

Kumar, A. (2018). Prospects of GST on Indian economy-an econometric approach. *International Journal of Management, IT and Engineering*, *8*(7), 147–164. Available from: https://www.indianjournals.com/ijor.aspx?target=ijor:ijmie&volume=8&issue=7&article=013

Leemput, E. V., & Wiencek, E. A. (2017). *The effect of the GST on Indian growth. IFDP notes*. Washington: Board of Governors of the Federal Reserve System, March 24. doi: 10.17016/2573-2129.29.

Mujalde, S., & Vani, A. (2017). Goods and Service Tax (GST) and its outcome in India. *Journal of Madhya Pradesh Economic Association*, *27*(1), 1-4. Available from: http://mpea.co.in/wp-content/uploads/2017/02/8.GOOD-AND-SERVICE-TAX.pdf

Mukherjee, S. (2020). *Goods and services tax efficiency across Indian states: Panel stochastic frontier analysis*. NIPFP Working paper series, Working Paper No. 310. New Delhi: National Institute of Public Finance and Policy. Available from: https://www.nipfp.org.in/media/medialibrary/2020/07/WP_310_2020.pdf

Ojha, R., & Vrat, P. (2018). Implications of Goods and Services Tax reform on the Makein India initiative: A system dynamics perspective. *Systems Research and Behavioral Science*, *36*, 551–563. doi:10.1002/sres.2570.

Paliwal, U. L., Saxena, N. K., & Pandey, A. (2020). Analyzing the impact of GST on tax revenue in India: The tax buoyancy approach. *International Journal of Economics and Business Administration*, *8*(1), 254–262. Available from: https://www.ijeba.com/journal/364

Patra, S. (2018). A study on impact of GST on the prices in Odisha. *Amity Business Review*, *19*(2), 97–105. Available from: https://www.amity.edu/abs/abr/pdf/ABR-Vol-19-No-2/8.pdf

PRS. (2017). Standing committee report summary-impact of goods and services tax (GST) on exports. PRS legislative report, 1. Available from: https://prsindia.org/files/policy/policy_committee_reports/Standing%20Committee%20Report%20on%20Impact%20of%20GST%20on%20exports.pdf

Rao, M. G. (2019). Goods and services tax in India: Progress, performance & prospects. Working Paper No. 2019-02. Deepak and Neera Raj Center on Indian Economic Policies, School of International and Public Affairs, Columbia University. Available from: https://indianeconomy.columbia.edu/sites/default/files/content/201902-Govinda%20Rao%20-%20GST.pdf

Revathi, R., Madhushree, L. M., & Aithal, P. S. (2019). Review on global implications of goods and service tax and its Indian scenario. *Saudi Journal of Business and Management Studies*, *4*(1), 337–358. Available from: https://mpra.ub.uni-muenchen.de/95152/

Roy, S. (2016). Transition to goods and services tax (GST) regime: Rationale and impasse. *The NEHU Journal*, *16*(1), 51–67. Available from: https://nehu.ac.in/public/downloads/Journals/Journal_Vol_XIV_1_Jan-June_2016_A4.pdf

Roychowdhury, P. (2012). VAT and GST in India - a note. *Paradigm*, *16*(1), 80–87. doi: 10.1177/0971890720120109.

Salkind, N. J. (2010). *Encyclopedia of research design*. Thousand Oaks, CA: SAGE Publications.

The Energy and Resources Institute. (TERI) (2016). Energy profile: Coimbatore pump set cluster New Delhi. The Energy and Resources Institute, 24, [Project Report No. 2015IE18]. TERI Press. Available from: http://sameeeksha.org/pdf/clusterprofile/CoimbatorePumpsetReport.pdf

The Southern India Engineering Manufacturers' Association (SIEMA). (2022). SIEMA Library. Available from: https://www.siema.org/firstpump.php.

Thowseaf, S., & Millath, M. A. (2016). A study on GST implementation and its impact on Indian industrial sectors and export. *International Journal of Management Research and Social Science (IJMRSS)*, *3*(2), 27–130. Available from: https://www.academia.edu/24836048/A_Study_on_GST_Implementation_and_its_Impact_on_Indian_Industrial_Sectors_and_Export

Thurstone, L. (1931). Multiple factor analysis. *Psychological Review*, *38*(5), 406–427. doi: 10.1037/h0069792.

Tiwari, H., & Singh, S. N. (2018). Goods and service tax: Economic revival of India. *Paradigm*, *22*(1), 17–29. doi: 10.1177/0971890718758198.

Wiencek, E. V. (2017). *The effect of the GST on Indian growth*. Washington: Board of Governors of the Federal Reserve System.

World Bank Group. (2018). *The challenges of the goods and service tax (GST) implementation in India (English)*. Washington, DC: World Bank Group. Available from: http://documents.worldbank.org/curated/en/846611542608567754/The-Challenges-of-the-Goods-and-Service-Tax-GST-Implementation-in-India

Appendix

Study	Country	Methodology	Variables
Thowseaf and Millath (2016), Revathi *et al.* (2019), PRS (2017)	India	Conceptual study	Drawback rates
Mujalde and Vani (2017), Khan and Shadab (2012), Gupta (2016)	India	Conceptual study	Foreign trade
Deshmukh (2022)	India	Descriptive and case study	Long-run performance
Khan and Shadab (2012), Tiwari and Singh (2018), Mukherjee (2020), Roychowdhury (2012)	India	Descriptive and conceptual study	Harmonization
Ojha and Vrat (2018), Roy (2016), Deswal (2019)	India	Descriptive and conceptual study	Logistics cost
Mujalde and Vani (2017), Rao (2019)	India	Descriptive	Interstate check-post operations
Mujalde and Vani (2017), Roychowdhury (2012), Kumar (2018)	India	Regression	IGST
Rao (2019)	India	Conceptual study	Barriers in indirect tax system, filing process, technical complications
Agarwal, Manglani, Agarwal, and Sinhal (2020), Khoja and Khan (2020)	India	Conceptual and system dynamics modeling	Unbiased tax
PRS (2017)	India	Standing committee report	Duty drawback and AIR
Gupta (2016)	India	Conceptual study	Advances not subject to tax
World Bank Group (2018)	India	Working paper	Filing of tax returns
Mujalde and Vani (2017)	India	Regression	Lack of clarity on GST provision
Paliwal, Saxena, and Pandey (2020)	India	ANCOVA regression model	Unstable tax slabs, revenue
Khoja and Khan (2020)	India	System dynamics modeling	Transaction cost, ease of doing business

Source(s): Compiled by authors

Table A1. Observed variables used in the study through literature survey

Corresponding author
Raghuveer Negi can be contacted at: ragskc094@gmail.com