

The Impact of Goods and Services Tax (GST) On the Indian Automobile Industry

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Abstract: The Goods and Services Tax (GST) introduction on July 1, 2017, marked a significant milestone in India's economic landscape. This tax reform has influenced various industries, including manufacturing, trade, construction, exports, finance, insurance, and professional services. The implementation of GST has brought changes beyond businesses, affecting multiple levels of government, the judiciary, and consumers.

India's automobile industry is a rapidly growing sector with substantial global relevance. Its expansion is closely linked to the progress of other industries, and the country holds a key position in engine manufacturing. The Indian government aims to establish itself as a global leader in automobile production, particularly in the electric vehicle sector, while enhancing exports. This study examines the impact of GST on the manufacturing, sales, import, and export of both two-wheeler and four-wheeler vehicles, including conventional and electric models.

Keywords: Automobile Industry, Gross Domestic Product (GDP), Goods and Services Tax (GST), Electric Vehicles.

INTRODUCTION

The automobile sector is a crucial component of India's economy. Since the economic liberalization in 1991, its integration into the global value chain has significantly expanded (Miglani & Ray, 2018). By 2019, India ranked as the seventh-largest producer of commercial vehicles and the fourth-largest producer of light vehicles worldwide. Projections indicate that the Indian automobile industry will grow from Rs. 16.16 crore to Rs. 18.18 crore by 2026 (IBEF, 2020). India produces approximately 30 million vehicles annually, encompassing passenger cars, commercial vehicles, two-wheelers, three-wheelers, and other vehicle types (CMIE, 2020). The automotive sector plays a pivotal role in the national economy, contributing 7.1% to the country's GDP and generating employment for millions.

The automobile industry contributes significantly to India's GDP, employing over 35 million individuals.

Between 2000 and 2019, the sector attracted foreign direct investment (FDI) worth Rs 142,111.91 crore, accounting for 5% of the total FDI inflows into the country.

The shift toward electric vehicles (EVs) presents a promising opportunity for industrial growth, though it also comes with notable challenges. Taxation plays a crucial role in vehicle purchases, as past tax structures were complex, leading to higher costs due to cascading effects and multiple tariffs. However, the introduction of input tax credits (ITC) has helped lower vehicle prices by reducing the cascading impact of taxation.

Problems encountered during the implementation of GST

1. The process of registration was cumbersome. It created confusion among the masses.
2. The protest resulted in a questionable situation on the implementation of GST.
3. It was also affected by political factors.
4. It affected the cash flow and working capital of the business organizations.
5. GST was imposed on stock transfer from one state to another state, which previously was not charged.

Comparison of before and after GST implementation of GST

TRANSACTION	NEW SYSTEM	OLD SYSTEM
Sale within the state	State GST & Central GST	VAT & Excise Duty
Sale outside the state	Integrated GST	CST & Excise Duty

Indian Automobile Industry- Over the years:

The Indian automobile industry is a fast-developing sector of great international significance. It encompasses the production of a vast range of vehicles, including two-wheelers, three-wheelers,

tractors, passenger cars, and heavy commercial vehicles. Before India gained independence, the automotive market was heavily dependent on imports. A combination of slow economic growth and low per capita income led to a limited demand for automobiles in the country. Hindustan Motors and Premier Motors were the main players in this market until the 1970s. Although other companies were present, industrial growth was slow until the 1980s. The economic reform policies of 1991 created fresh opportunities for the auto industry. Government programs such as "Make in India" and the Goods and Services Tax (GST) are likely to improve vehicle demand. The GST overhaul has drastically changed India's economic scenario by solving problems in the old tax regime, removing the cascading effect of taxation, and establishing a national market. These reforms have, in most cases, contributed to reduced car prices, producing a healthier market climate. Today, most cars are taxed at 28%, with further taxation dependent on engine size, dimensions, and vehicle category.

LITERATURE REVIEW

The Goods and Services Tax (GST), effective from July 1, 2017, was a significant change in India's indirect tax regime. Research has examined the competitive forces in different industries, including the Indian auto sector, with the observation that government policies—like changes in consumption taxes, tariffs, and the introduction of GST—can have a significant bearing on these forces.

Roopa and Aruna (2020) discussed how GST has impacted the automobile industry, with a decline in the rates of tax for various car segments since the introduction of GST. The fall in tax rates has resulted in reduced prices for customers and enhanced tax certainty for dealerships and producers. The authors suggest that GST is poised to increase the framework of the automobile sector, which may have a favorable impact on the country's GDP and finances.

Jha and Singh (2020) analyzed the potential strengths and weaknesses of a uniform GST framework for the Indian automotive sector. Their study was based on a comparison of the pre- and post-GST tax rates across various vehicle segments, including two-wheelers, small cars, sedans, three-wheelers, and utility vehicles. The research also highlighted how GST would improve logistics efficiency through decreased transit times and associated costs.

Charumathi, Mahesh, and Dr. Ranjith's (2019) research explored the impact of the GST on Tata Motors' sales. Their empirical evidence revealed that the GST boosted sales of export, passenger, and commercial vehicles. Policymakers can help automakers significantly through policies such as the Goods and Services Tax (GST), which foster corporate growth and sales increases.

Nayar and Singh's (2017) study explored how India's indirect tax regime has developed. They compared India's Goods and Services Tax (GST) to others from other countries, examining the potential benefits and setbacks of having GST in various economic sectors. Their forecast indicated that GST can reduce car prices, bringing down the initial cost of vehicles by approximately 8%. This decrease would, in turn, increase sales and provide growth prospects to the Indian automotive sector.

Lourd Nathan and Xavier (2017) discussed the issues in the implementation of GST and potential advantages for producers and consumers. Compared to previous studies, which almost exclusively focused on the theoretical development of GST, empirical work has largely examined its impact on economic growth.

Rizwana (2016) found that the implementation of GST would have a positive impact on employment and economic stability, which in turn would enhance India's growth potential. Kumar (2016) analyzed GST in comparison to the current tax system, highlighting the reduction in tax burdens as a significant advantage.

Sherawat and Dhanda (2015) held the view that the implementation of GST would promote higher productivity, enhanced economic activity, and economic growth as a result of higher transparency. Caruso et al. (2016) posited that GST would propel the economic development of India and perhaps increase GDP by more than 2%. Khurana and Sharma (2016) explained that access to tax set-offs would favor consumers and producers alike in the Indian economy.

OBJECTIVES

1. To examine the effect of the GST on automobile manufacturing, sales, registration, and exports, including electric vehicles.
2. An analysis of the growth in the vehicle industry and FDI flows into the sector before and after the introduction of the GST.

RESEARCH METHODOLOGY

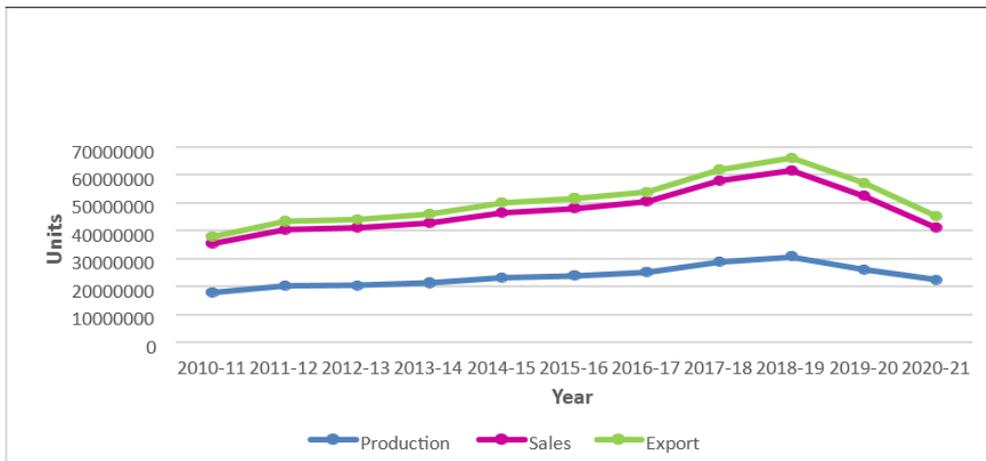
The current research attempts to assess the effects of the Goods and Services Tax (GST) on the auto industry. The research is based on secondary information collected from sources such as the Society of Indian Automobile Manufacturers

(SIAM), the Society of Manufacturers of Electric Vehicles (SMEV), auto industry annual reports, and the Ministry of Commerce and Industry's trade statistics. The analysis employs descriptive statistics such as means, standard deviations, percentages, year-on-year growth rates, paired t-tests, and correlation analysis to make conclusions.

Section	Details
Title	The impact of the Goods and Services Tax (GST) of the Indian Automobile Industry
Hypotheses	H1: There was a significant difference in the production and sales of autos before and after GST. H0: The production and sales of cars before and after GST were not significantly different. H1: Vehicle imports and exports before and after GST do not differ significantly. H0: Vehicle imports and exports before and following GST differ significantly. H1: Sales of passenger cars, commercial vehicles, and two-wheelers before and after GST varied significantly. H0: Sales of passenger cars, commercial vehicles, and two-wheelers before and after GST did not differ much.
Data Collection Source	1. Analysis based on the data from the annual survey of the automobile industry. 2. Analysis based on the data regarding exported and imported vehicles by MOCI.
Tools of analysis	To find out if two sets of linked measures differ statistically significantly, use Excel's Paired T-Test function.

DATA ANALYSIS AND INTERPRETATION

1. Analysis of Production and Sales



Indian automobile production, sales, and exports.

The graph, from SIAM's figures of Automobile Production, Sales, and Exports, represents the trends in India's auto sector. It reflects a rise in production, sales, and exports between 2010-11 and 2018-19. The advent of GST and other reasons appears to be

following this upward trend. Factors such as the implementation of GST, a favorable government policy, and a robust demand from consumers were major contributors to the growth in automobile manufacturing and sales.

Before GST			After GST		
Year	Production	Sales	Year	Production	Sales

2014-15	23358047	23297717	2017-18	29092734	29022548
2015-16	24106068	24112465	2018-19	30909486	30890201
2016-17	25329383	29022548	2019-20	26356187	26306017
Mean	24264499.3	25477576.67	Mean	28786135.7	28739588.67
S.D.	995171.73	3096945.252	S.D.	2292080.9	2305154.057

H1: There was a significant difference in the production and sales of autos before and after GST.

H0: The production and sales of cars before and after GST were not significantly different.

Metric	Before the GST (Mean)	After the GST (Mean)	t-value	p-value
Production in Units	24,264,499	28,786,136	2.55	0.126
Sales in Units	25,477,577	28,739,589	1.09	0.391

1. Standard Deviation (SD_D) = 3,073,424

2. $t\text{-value}(t) = \frac{4,521,636}{(3,073,424/\sqrt{3})} = 2.55.$

3. p-value (p) = 0.126

4. Standard Deviation (SD_D) = 3,003,198

5. $t\text{-value}(t) = \frac{3,262,012}{(3,003,198/\sqrt{3})} = 1.09$

6. p-value(p) = 0.391 (not statistically significant at $p > 0.05$)

Analysis: Even though there is a rise in output and sales after the GST, the p-values are not statistically significant at the 5% level. Nevertheless, the robust p-values (0.126 for output and 0.391 for sales) suggest that these rises could be the result of common industry variations instead of GST. Car production and sales are not statistically significantly different, based on the findings of the paired sample t-test. The null hypothesis is accepted.

2. Analysis of Imports and Exports

Before GST			After GST		
Year	Exports	Imports	Year	Exports	Imports
2014-15	7856975.35	2708044.34	2017-18	10023812	3165315
2015-16	8852545.59	2972245.62	2018-19	11122918	3767386.6
2016-17	9404045.37	3264217.63	2019-20	12653336	4303249.9
Mean	8704522	2981503	Mean	11266689	3745317
S.D.	784085.2	278202.2	S.D.	1320644	569288.3

H1: Vehicle imports and exports before and after GST do not differ significantly.

H0: Vehicle imports and exports before and following GST differ significantly.

Metric	Before the GST (Mean)	After the GST (Mean)	t-value	p-value
Exports (in lakhs of rupees)	8,704,522	11,266,689	7.43	0.018
Imports (in lakhs of rupees)	2,981,503	3,745,317	4.53	0.045

1. Standard Deviation (SD_D) = 569,288

2. $t\text{-value}(t) = \frac{672,662}{(569,288/\sqrt{3})} = 4.53$

3. p-value (p) = 0.045 (significant at $p < 0.05$)

Analysis: Significant increases in imports and exports after the GST are shown by P-values less than 0.05. This implies that there is a favorable correlation between the implementation of the GST and the Indian auto sector, especially in terms of exports. The t-values (7.43 for exports and 4.53 for imports) verify that these variations are related to the implementation

of GST and are not arbitrary fluctuations. Vehicle imports and exports before and after the GST periods

differed statistically significantly, according to the T-test.

3. Sales Analysis Based on Segments

Before GST				After GST			
Year	Commercial Vehicle	Passenger	Two-Wheeler	Year	Commercial Vehicle	Passenger	Two-Wheeler
2014-15	1403774	6445154	36866054	2017-18	1907562	8073894	46030240
2015-16	1577656	6884522	37877454	2018-19	2214488	8107162	48921376
2016-17	1644706	7612618	39860030	2019-20	1556802	6901772	41875710
Mean	1542045	6980765	38201179	Mean	1892951	7694276	45609109
S.D.	124350.9	589652.5	1523014	S.D.	329086.4	686530.1	3541661

H1: Sales of passenger cars, commercial vehicles, and two-wheelers before and after GST varied significantly.

H0: Sales of passenger cars, commercial vehicles, and two-wheelers before and after GST did not differ much.

Segment	Before the GST (Mean)	After the GST (Mean)	t-value	p-value
Commercial vehicle	1,542,045	1,892,951	1.58	0.256
Passengers	6,980,765	7,694,276	0.99	0.427
Two-wheelers	38,201,179	45,609,109	2.69	0.115

1. Commercial Vehicles:

- Standard Deviation (SD_D) = 329,086
- t-value = 1.58
- p-value 0.256 (Not Significant at $p > 0.05$)

2. Passenger Vehicles:

- Standard Deviation (SD_D) = 686,530
- t-value = 0.99
- p-value 0.427 (Not Significant at $p > 0.05$)

3. Two-Wheelers:

- Standard Deviation (SD_D) = 3,541,661
- t-value = 2.69
- p-value 0.115 (Not Significant at $p > 0.05$)

Analysis: While sales volumes increased in all segments, the variations were not statistically significant, considering the observed rising trend in two-wheeler sales. The increase in car and truck sales from 1.54 million to 1.89 million units was not statistically significant, suggesting that there could be other factors at play rather than GST. Two-wheeler sales increased the most, from 38.20 million to 45.61 million units, with a t-value of 2.69; yet, the p-value of 0.115 indicates that this increase may not be entirely due to GST.

Electric Vehicles in India

Despite facing multiple challenges, electric vehicles (EVs) are gaining traction in India. Several factors contribute to this growing interest:

- ✓ The FAME India scheme, initiated by the central government, aims to promote EV adoption, targeting the deployment of 7 million electric vehicles by 2020, in alignment with NEMMP 2020 objectives.
- ✓ Lower maintenance costs make EVs a more economical alternative to conventional fuel-based vehicles.
- ✓ The rising cost of crude oil, with nearly 80% of India's oil being imported, further incentivizes the shift toward electric mobility.

FINDINGS

- Minimal Impact on Domestic Sales: While GST simplified taxation procedures, its effect on local vehicle sales and production remained limited.
- Increase in Exports: The most significant impact of GST was observed in the growth of automobile exports, particularly in the electric vehicle sector.
- Segment-Specific Growth: Government tax benefits and policy initiatives likely contributed to a surge in two-wheeler sales post-GST implementation.

CONCLUSION

The introduction of GST streamlined India's taxation framework, reducing overall costs and improving the automobile sector's export potential. While its immediate impact on domestic sales and production was minimal, the policy played a crucial role in enhancing international competitiveness, particularly in the electric vehicle market. The rise in exports indicates that GST has strengthened India's position in the global trade environment.

Key Takeaways

- The restructuring of the tax system under GST has helped reduce the tax burden and made compliance easier for businesses.
- Although short-term data does not show significant growth in domestic automobile production and sales, there has been an observable shift in market dynamics.
- Electric vehicle exports have notably increased, indicating a transformation in India's automotive industry toward a more globalized approach.

Practical Implications

- Government authorities should explore additional tax incentives to support and sustain the upward trend in exports.
- Automobile manufacturers can leverage the simplified tax structure to enhance supply chain efficiency and reduce operational costs.

Future Research Directions

- Conducting long-term studies to assess the extended impact of GST on domestic automobile sales and production.
- Comparing India's GST implementation with similar tax reforms in other emerging economies.
- Analyzing changes in consumer purchasing behavior influenced by price variations due to GST regulations.

Final Thoughts

While GST has positively influenced India's automobile exports, especially in the electric vehicle segment, further analysis is required to determine its long-term implications for the domestic market.

Continued research will help policymakers refine taxation strategies to maximize GST's benefits for all stakeholders in the automotive sector.

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