Analysis of the Goods and Services Tax Effect on the Indian Economy with A Focus on Pharmaceutical Export Segments

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Abstract: The Goods and Services Tax (GST) was introduced in India on July 1, 2017, to simplify the country's complex indirect taxation system. By replacing many Central and State taxes such as excise duty, service tax, VAT, and CST, GST established a unified tax structure aimed at eliminating the cascading effect of "tax on tax" and enhancing transparency across economic activities.

India's pharmaceutical industry, which plays a crucial role in economic growth and global healthcare supply, was significantly influenced by this tax reform. Before GST, pharmaceutical companies had to navigate through multiple overlapping taxes, which led to higher compliance costs and complicated interstate trade. The introduction of GST brought pharmaceutical products under four tax slabs: NIL, 5%, 12%, and 18%. Essential medicines, including vaccines and treatments for diseases such as tuberculosis, AIDS, diabetes, and malaria, were placed under the lowest tax bracket of 5%, while blood products and contraceptives were exempted entirely.

This study examines the impact of GST on the Indian pharmaceutical sector, particularly focusing on export performance before and after its implementation. Using secondary data from reports published by the Ministry of Commerce & Industry, Government of India, the analysis spans 12 years from 2012–13 to 2023–24, covering both pre-GST and post-GST phases. The findings reveal that India's pharmaceutical exports have consistently recorded a trade surplus throughout the study period. In 2023–24, pharmaceutical exports were composed of 79.3% drug formulations and biologicals, 15.8% bulk drugs and intermediates, 2.5% surgical products, and 2.4% Ayush and herbal products.

The results suggest that despite initial transitional challenges, the implementation of GST has brought about significant improvements in the pharmaceutical export sector. The simplification of the tax structure has reduced complexities, eased the interstate movement of goods, and enhanced the global competitiveness of Indian pharmaceutical products. Overall, GST has contributed positively to strengthening the pharmaceutical export segment and supporting broader economic growth.

Keywords: Exports, Imports, Pharmaceutical Industry, Generic Medicines, Trade, GST, Economic Growth, Drug Formulations, Bulk Drugs, Ayush Products, Tax Reform

INTRODUCTION

Global trade has long been recognized as a crucial driver of economic development. Classical economists such as Adam Smith and David Ricardo emphasized the significance of international trade in promoting national growth through the principles of absolute and comparative advantage (Smith, 1776; Ricardo, 1817). Neo-classical economists further reinforced the idea that global trade fosters efficient resource allocation and enhances overall economic welfare. However, alternative perspectives argue that historically, global trade has also contributed to widening international inequality, wherein wealthier nations disproportionately benefit at the expense of poorer countries (Prebisch, 1950; Frank, 1967).

The economic landscape of India underwent a major transformation with the introduction of Liberalization, Privatization, and Globalization (LPG) reforms in the early 1990s. These policies aimed to reduce government restrictions on economic and social activities, open up the economy to global competition, and integrate India into the world market (Government of India, 1991). As part of these reforms, trade liberalization became a central focus, involving the removal of tariffs, subsidies, quotas, and other barriers to the free flow of goods and services across international borders.

The export marketing system plays a vital role in enhancing a nation's economic strength. It contributes significantly to industrial and business growth, supports foreign exchange earnings, promotes technological advancements, and ensures efficient utilization of domestic resources (Bhagwati, 2002). In recent years, India's export profile has become increasingly diversified. According to the Ministry of Commerce and Industry, Government of India (2024), major export items include pearls, precious and semi-precious stones, and jewelry (16% of total exports); mineral fuels, oils, and waxes (12%); vehicles and vehicle parts (5%); machinery and mechanical appliances (5%); pharmaceutical products (5%); and organic chemicals (4%) (Table-1).

The pharmaceutical sector, in particular, has emerged as a key player in India's export economy, reflecting the country's growing strength in the production of affordable, high-quality generic medicines for the global market. This sector not only contributes to foreign exchange earnings but also supports India's reputation as the "pharmacy of the world."

Table: 1: Major Export Items of India (Recent Years)

S. No	Export Item	Share in Total Exports (%)
1	Pearls, Precious and Semi-Precious Stones, Jewelry	16%
2	Mineral Fuels, Oils, and Waxes	12%
3	Vehicles and Vehicle Parts	5%
4	Machinery and Mechanical Appliances	5%
5	Pharmaceutical Products	5%
6	Organic Chemicals	4%

Indian Pharmaceutical Industry

India has long been a rich reservoir of medicinal plants, with Ayurveda prevailing as the traditional system of healthcare for centuries. The cultivation of medicinal plants expanded over time to meet both domestic and international market demands. Meanwhile, the allopathic system of medicine, introduced during the colonial era, gradually gained dominance due to its faster and more targeted treatment of ailments. At one point, the reliance on imported medicines resulted in India having some of the highest drug prices in the world.

To address this issue, several international pharmaceutical companies established manufacturing facilities within India, while local enterprises also grew to meet domestic demand. Key legislative milestones, such as the Drugs and Cosmetics Act, 1940, the Pharmacy Act, 1948, and the Patents Act, 1970, laid the foundation for the modern pharmaceutical sector. These regulations helped establish regulatory authorities, ensured the quality and safety of drugs, promoted pharmaceutical education, and introduced a process patent system that significantly reduced the cost of medicines (Government of India, 2022). Over the decades, these laws have been updated to align with changing global standards and healthcare needs.

The Indian Pharmaceutical Industry (IPI) has undergone a remarkable transformation through four key developmental phases, evolving from primarily catering to local needs to becoming a significant global player. Although India is not a member of the International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH), Indian pharmaceutical products are now manufactured to comply with stringent international standards, allowing widespread acceptance in regulated markets such as the United States, Europe, and Japan (IBEF, 2024).

This study examines the trends in India's pharmaceutical industry by analyzing import and export performance, along with foreign currency inflows from exports, over the period from 2012–13 to 2023–24. Renowned globally for its affordable generic medicines and low-cost vaccines, India's pharmaceutical sector has evolved into a dynamic and highly competitive industry. Currently, India ranks third globally in pharmaceutical production by volume and fourteenth by value (Pharmaceuticals Export Promotion Council of India, 2024).

Over the past nine years, the Indian pharmaceutical industry has demonstrated a steady growth trajectory, achieving a compound annual growth rate (CAGR) of 9.43% (IBEF, 2024). The sector has consistently maintained a trade surplus. For instance, in 2021–22, pharmaceutical exports reached ₹183,340 crore, while imports were recorded at ₹67,545 crore, generating a substantial trade surplus of ₹115,795 crore (Ministry

of Commerce and Industry, Government of India, 2023).

Key segments of the Indian pharmaceutical industry include generic drugs, over-the-counter (OTC) medicines, vaccines, bulk drugs, contract research and manufacturing services (CRAMS), biosimilars, and biologics. The industry's robust infrastructure, skilled workforce, and commitment to quality manufacturing standards have positioned India as a "pharmacy of the world," especially in supplying affordable medicines to low- and middle-income countries.

REVIEW OF LITERATURE

Hardeep Singh Puri (2017) emphasized that for India to achieve its economic policy goals, both the government and industries particularly the manufacturing sector must proactively adapt to new opportunities in the evolving multilateral trade landscape. Puri stressed the need for aligning domestic policies with international standards and actively participating in the World Trade Organization's (WTO) efforts to reinvigorate multilateral trade negotiations.

Silberberger and Königer (2016) examined the role of regulatory quality in influencing economic growth within global trade. Their study found that strong domestic trade practices, transparent regulations, and robust institutions significantly promote economic advancement across countries.

In their analysis of trade relations between Iran and India from 2001 to 2010, Fathipour and Ghahremanlou (2014) concluded that India's exports of chemicals, pharmaceuticals, and iron products, alongside imports of mineral fuels from Iran, strengthened competitive advantages and contributed to bilateral economic growth.

Barry Eichengreen and Poonam Gupta (2012) highlighted the impact of India's domestic liberalization and trade reforms on boosting service sector growth and merchandise exports. Their regression analysis suggested that factors such as access to foreign technology, improvements in communications infrastructure, and spillover effects between goods and service exports played crucial roles.

At the international level, Baldwin (2016) discussed the concept of "The Great Convergence," showing how global value chains and new trade dynamics have changed the global economic balance. His work indicates that participation in value chains is essential for countries aiming to enhance export competitiveness.

Helpman (2020) revisited the impact of firm heterogeneity on global trade flows, suggesting that countries with supportive trade environments and firm-level innovation policies tend to experience faster export growth and deeper global integration.

According to the World Trade Organization's World Trade Report (2023), international trade is increasingly driven by digitalization, with the pharmaceutical and healthcare sectors among the top beneficiaries of cross-border e-commerce and streamlined customs procedures.

At the national level, the Indian Brand Equity Foundation (IBEF, 2024) reported that India's pharmaceutical exports have remained resilient, supported by cost competitiveness, high-quality generic production, and regulatory compliance with international standards, especially during the COVID-19 pandemic.

Similarly, the Economic Survey of India (2024) emphasized that the pharmaceutical sector has played a crucial role in maintaining India's trade surplus, supported by government initiatives like the Production-Linked Incentive (PLI) scheme for promoting domestic manufacturing and exports.

Furthermore, a study by Sharma and Jain (2023) analyzed the post-GST performance of Indian industries, finding that the pharmaceutical sector, in particular, benefited from the harmonization of taxes, improved supply chain efficiencies, and enhanced global competitiveness.

Research by Rajeev and Mani (2023) examined the link between pharmaceutical exports and foreign direct investment (FDI) inflows into India. They found that FDI, combined with favorable regulatory environments, had a significant positive impact on India's pharmaceutical export growth between 2015 and 2022.

Bhattacharya (2022) analyzed India's pharmaceutical trade policies and argued that India's success in the generic drug industry is closely linked to its flexible intellectual property regime post-TRIPS, combined with strategic government support for research and development.

Finally, a study by Dasgupta and Jena (2023) pointed out that India's policy focus on affordable healthcare

globally through initiatives like "Pharma Vision 2020" has strengthened its position as the "Pharmacy of the World," particularly for low- and middle-income countries.

OBJECTIVE OF THE STUDY

The primary objective of the present study is to analyze the trends and performance of the Indian pharmaceutical export industry before and after the implementation of the Goods and Services Tax (GST) in India. In pursuit of achieving this primary objective, the study is guided by the following sub-objectives:

1. To understand the concept and framework of the Goods and Services Tax (GST) and its relevance to the Indian pharmaceutical industry.
2. To examine and compare the trends, growth patterns, and export performance of the Indian pharmaceutical industry in the pre-GST (before July 2017) and post-GST periods.
3. To identify the key factors influencing pharmaceutical exports during the transition to the GST regime.
4. To evaluate the impact of GST on export competitiveness, supply chain efficiencies, and operational challenges in the pharmaceutical sector.
5. To provide insights and recommendations for strengthening India's pharmaceutical exports in the post-GST environment.

Data source and Methodology: The present study is primarily based on secondary data collected from official government sources, particularly the published reports of the Ministry of Commerce & Industry, Department of Commerce, Government of India. To analyze the export trends of the Indian pharmaceutical industry, a 12-year time frame from 2012–13 to 2023–24 has been selected.

For the purpose of the study, the timeline is divided into two periods:

- Pre-GST Period: 2012–13 to 2017–18
- Post-GST Period: 2018–19 to 2023–24

The pharmaceutical export performance has been analyzed using two key indicators:

- Annual Growth Rate (AGR)
- Compound Annual Growth Rate (CAGR)

These measures provide insight into the growth patterns before and after the implementation of GST.

Goods and Services Tax (GST) The Goods and Services Tax (GST) was implemented in India on July 1, 2017, following the enactment of the 101st Amendment to the Constitution of India. This landmark reform was introduced under the leadership of Prime Minister Narendra Modi, with the primary aim of simplifying India's complex tax structure (Government of India, 2017).

GST is a comprehensive, destination-based tax that is levied on the manufacture, sale, and consumption of goods and services at the national level. It allows for input tax credit across the entire supply chain, significantly reducing the cascading effect of "tax on tax" and enhancing transparency and ease of doing business (CBIC, 2017).

GST operates under three main categories:

1. State GST (SGST) – levied by the state governments
2. Central GST (CGST) – levied by the central government
3. Integrated GST (IGST) – levied by the central government on inter-state supplies of goods and services

This system has particularly impacted industries like pharmaceuticals, where supply chains cross multiple state borders.

GST Rates for Medicines. The GST Council finalized the tax rates for medicines during its meeting held on June 3, 2017. Under GST, medicines are taxed at five different rates: NIL, 5%, 12%, 18%, and 28%, depending on the nature of the pharmaceutical product (GST Council, 2017).

Medicines and pharmaceutical products fall under Chapter 30 (not Chapter 37) of the Harmonized System of Nomenclature (HSN).

- Essential medicines, including life-saving drugs for conditions such as HIV/AIDS, diabetes, malaria, and tuberculosis, are generally taxed at the 5% slab.
- Other medicines and pharmaceutical products may attract 12% or 18% GST, while certain luxury or non-essential products could be taxed at 28%.

The classification based on the HSN Code ensures standardization across domestic and international markets.

Table-2 Growth of Pharmaceutical Exports during 2012-13 to 2023-24

Financial Year	Pharma Exports (₹ crore)	India's Total Exports (₹ crore)	Share of Pharma Exports (%)	Growth Rate (%)
2023–24	1,83,051.61	36,18,952.26	5.058	14.66
2022–23	1,59,643.65	36,21,549.86	4.408	10.42
2021–22	1,44,580.86	31,47,021.48	4.594	0.59
2020–21	1,43,738.39	21,59,043.21	6.658	24.48
2019–20	1,15,473.03	22,19,854.17	5.202	11.85
2018–19	1,03,240.00	23,07,726.18	4.474	20.82
2017–18	85,447.30	19,56,514.52	4.367	-1.45
2016–17	86,705.49	18,49,433.54	0.688 *(seems typo)*	2.63
2015–16	84,481.06	17,16,384.39	4.922	19.3
2014–15	70,815.10	18,96,348.41	3.734	5.06
2013–14	67,403.71	19,05,011.08	3.538	23.06
2012–13	54,773.67	16,34,318.28	3.352	34.19

Source:https://dashboard.commerce.gov.in/commercedashboard.aspx

The above table clearly shows the growth of pharmaceutical exports from 2012-13 to 2023-24 along with the share in total exports and growth rates for each financial year.

Table 2 shows the annual growth rate of Indian pharmaceutical exports from 2012-13 to 2023-24. As evident from the table, the total pharmaceutical exports dramatically increased from ₹54,773.67 crore in 2012-13 to ₹1,83,051.61 crore in 2023-24. This represents a threefold increase in the export value over the study period, with the growth rate significantly improving over the base year (2012-13). The analysis reveals that pharmaceutical exports exhibited a fluctuating trend in the year-on-year growth rate. The highest growth rate was recorded in 2012-13 at 34.19%, followed by 24.48% in 2020-21 and 23.06% in 2013-14.

In the year immediately following the implementation of the Goods and Services Tax (GST) in 2017-18, a negative growth rate of -1.45% was observed. However, subsequent years demonstrated a consistent upward trend in growth, except for 2021-22, which saw a minimal growth of 0.59%. Before the implementation of GST, the export value of pharmaceuticals ranged from ₹54,773.67 crore in 2012-13 to ₹85,447.30 crore in 2017-18. Post-GST, the export value surged to between ₹1,03,240 crore and ₹1,83,051.61 crore.

After the introduction of GST in India, the pharmaceutical industry's exports reached close to ₹2 lakh crore, contributing approximately 5% to the total Indian exports. This growth highlights the significant role of pharmaceuticals in India's export economy post-GST.

The share of pharmaceutical exports in total exports from 2012-13 to 2023-24 showed a gradual increase, from 3.352% in 2012-13 to 5.058% in 2023-24. Despite fluctuations in the year-on-year share, the sector consistently accounted for a substantial portion of India's exports, with shares of 6.658% in 2020-21, 5.202% in 2019-20, and 5.058% in 2023-24. Overall, it can be observed that the pharmaceutical export share remained relatively stable throughout the study period, reflecting the industry's steady contribution to India's export performance.

Table 3: Export, Import, and Balance of Trade

Financial Year	Exports (₹ crore)	Imports (₹ crore)	Total Trade (₹ crore)	Trade Balance(₹ crore)
2023-24	36,18,952.26	56,15,404.82	92,33,840.41	-19,96,452.57
2022-23	36,21,549.86	57,49,801.02	93,71,289.39	-21,28,251.15
2021-22	31,47,021.48	45,72,770.69	77,19,655.45	-14,25,749.21
2020-21	21,59,043.21	29,15,957.54	50,74,987.30	-7,56,914.33
2019-20	22,19,854.17	33,60,954.45	55,80,708.38	-11,41,100.28

2018-19	23,07,726.18	35,94,674.22	59,02,345.17	-12,86,948.04
2017-18	19,56,514.52	30,01,028.71	49,57,229.16	-10,44,514.20
2016-17	18,49,433.54	25,77,671.14	44,17,847.67	-7,28,237.60
2015-16	17,16,384.39	24,90,303.76	41,98,765.47	-7,73,919.37
2014-15	18,96,348.41	27,36,676.99	46,33,014.63	-8,40,328.58
2013-14	19,05,011.08	27,15,420.78	46,20,379.09	-8,10,409.71
2012-13	16,34,318.28	26,69,161.95	43,02,659.63	-10,34,843.67

Source:https://dashboard.commerce.gov.in/commercedashboard.aspx

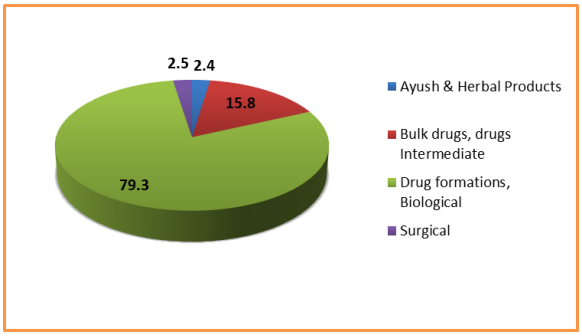
Between 2012-13 and 2023-24, India's exports grew significantly from ₹16,34,318.28 crore to ₹36,18,952.26 crore. Despite this positive trend, India consistently recorded a trade deficit throughout the period. Major imports included cereals, raw materials, intermediate goods for manufacturing, and capital goods. The value of imports also rose steadily, increasing from ₹26,69,161.95 crore in 2012-13 to ₹56,15,404.82 crore in 2023-24. This consistent rise in imports, outpacing the growth in exports, widened the trade gap. The simultaneous increase in both exports and imports reflects the growing integration of India with global markets. Additionally, the growth rates of exports and imports were influenced by global economic conditions, international trade policies, and fluctuations in exchange rates.

Table -3 Category-wise Pharmaceutical Exports, Imports & Trade Balance in 2023-24

Category	Exports	Share (%)	Imports	Share (%)	Trade Balance
Ayush & Herbal Products	2887	2.4	582	1.6	2305
Bulk drugs, intermediate drugs	19089	15.8	19068	53.1	20
Drug formations, Biological	95584	79.3	11062	30.8	84522
Surgical	3007	2.5	5197	14.4	-2191

Source:https://dashboard.commerce.gov.in/commercedashboard.aspx

Figure-1.1 Category-wise Pharmaceuticals Exports Products in 2023-24



Source:https://dashboard.commerce.gov.in/commercedashboard.aspx

The above table and figure present the analysis of category-wise pharmaceutical exports from 2012-13 to 2023-24. During the study period, it is observed that Drug Formulations and Biologicals held the major share of pharmaceutical exports, reaching a value of ₹95,584 crore and occupying the first position. This was followed by Bulk Drugs and Drug Intermediates, which stood in second place with exports worth ₹19,089 crore. Surgical products ranked third, with exports valued at ₹3,007 crore, and Ayush and Herbal Products followed closely with ₹2,887 crore in exports.

In the financial year 2023-24, the composition of pharmaceutical exports was as follows:

- Drug Formulations and Biologicals: 79.3%
- Bulk Drugs and Drug Intermediates: 15.8%
- Surgical Products: 2.5%
- Ayush and Herbal Products: 2.4%

Thus, the analysis highlights that Drug Formulations and Biologicals dominated India's pharmaceutical exports, contributing the largest share throughout the study period.

CONCLUSION

In India, Goods and Services Tax (GST) is levied on pharmaceutical products at five different rates, including a NIL tax (tax exemption) on blood and its by-products, as well as all contraceptives. Other pharmaceutical products are taxed at 5%, 12%, 18%, and 28%, depending on their classification under the Harmonized System of Nomenclature (HSN) codes.

The study found that after the implementation of GST, India's pharmaceutical exports experienced significant

growth, nearly reaching ₹2 lakh crore by 2023-24. The share of pharmaceutical exports in India's total exports showed minor fluctuations during the study period, recording 6.658% in 2020-21, 5.202% in 2019-20, and 5.058% in 2023-24, indicating a relatively stable contribution to the country's overall exports.

Despite the consistent growth in both exports and imports, India continued to experience a trade deficit throughout the period. The growth trends of exports and imports were influenced by global trade dynamics, economic conditions, and currency exchange rates.

An analysis of the category-wise pharmaceutical exports for 2023-24 shows the following distribution:

- 79.3% from Drug Formulations and Biological products,
- 15.8% from Bulk Drugs and Drug Intermediates,
- 2.5% from Surgical Products, and
- 2.4% from AYUSH and Herbal Products.

Overall, the pharmaceutical industry has maintained a strong performance post-GST, contributing significantly to India's export economy while demonstrating resilience in the face of global economic changes.

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