



AN ANALYSIS OF THE GROWTH AND PERFORMANCE OF THE INDIAN PHARMACEUTICAL SECTOR

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Abstract:

India's pharmaceutical industry acts as a crucial global healthcare engine, contributing 2% to the national GDP and 6% to total merchandise shipments with FY 2023-24 exports hitting USD 27.9 billion. Driven by a 10-12% CAGR across over 3,000 companies and 10,500 manufacturing plants, the sector is on track to nearly double from a USD 65 billion valuations in 2024 to USD 120-130 billion by 2030. Strategic state interventions including a ₹15,000 crore PLI for finished formulations and a combined ₹9,940 crore bulk drug investment helped total pharmaceutical turnover reach a record ₹4,71,898 crore in FY 2024-25, reducing dollar-denominated drug imports by 36.13% (from USD 7,515 million to USD 4,800 million) and pushing the net trade surplus to an absolute peak of USD 26,700 million. However, this growth highlights a stark dual-speed imbalance against the domestic medical devices (Meditech) sector, which remains highly import-dependent and burdened by a five-year trade deficit of ₹22,639 crore, capped by an import surge of USD 8,822 million. To secure long-term market leadership and structural resilience, India must aggressively eliminate manufacturing bottlenecks by establishing specialized clusters for high-import items like Electro-Medical Equipment (which drains over USD 5,000 million in imports annually) and expanding export channels beyond its 31% trade reliance on the United States. Furthermore, leveraging the historic mid-year FY 2025-26 healthcare investment inflow of ₹13,193 crore (combining a ₹10,948 crore pharma macro-rebound and ₹2,245 crore in med-tech) will allow the industry to pivot from low-margin generics into high-value biopharmaceuticals, implement sustainable green practices, and escalate R&D funding for original drug discovery.

Keywords: Turnover, exports, imports, exports imports medical devices and FDI inflows

1. INTRODUCTION

The pharmaceutical industry in India is one of the most important sectors of the country's economy and healthcare system. It deals with the research, development, manufacturing, marketing, and distribution of medicines, vaccines, medical devices, and healthcare products. India is widely recognized as the "Pharmacy of the World" because it supplies high-quality and affordable generic medicines to more than 200 countries. The industry has grown rapidly due to the availability of skilled professionals, advanced manufacturing facilities, cost-effective production, and strong government support. Today, India is among the world's leading producers of generic medicines and vaccines, making a significant contribution to global healthcare.

The pharmaceutical industry plays a vital role in improving public health by ensuring the continuous availability of safe, effective, and affordable medicines. It helps in preventing, treating, and controlling diseases through the production of essential drugs and vaccines. The industry supports hospitals, clinics, pharmacies, and healthcare professionals by providing quality pharmaceutical products. It also contributes to scientific research by developing new medicines, improving existing formulations, and introducing advanced drug delivery systems. During public health emergencies such as pandemics, the pharmaceutical industry plays a crucial role in manufacturing vaccines, antiviral drugs, and other life-saving medicines. In addition, it generates employment for millions of people, including

pharmacists, scientists, researchers, engineers, technicians, and sales professionals, thereby contributing to economic development.

The pharmaceutical industry is extremely important because it directly contributes to improving the health and well-being of society. It provides medicines that help in preventing diseases, curing illnesses, relieving pain, and increasing life expectancy. The industry supports healthcare services by ensuring that hospitals and pharmacies have access to quality medicines. It is a major contributor to the Indian economy through industrial growth, employment generation, and export earnings. The pharmaceutical sector also promotes scientific innovation by investing in research and development of new drugs, vaccines, and biotechnology products. During disease outbreaks and health emergencies, the industry ensures the rapid production and distribution of essential medicines, thereby protecting public health. Its contribution to affordable healthcare has made India a trusted supplier of medicines worldwide.

The pharmaceutical industry is essential for meeting the healthcare needs of India's large and growing population. The increasing prevalence of infectious diseases, chronic illnesses such as diabetes and heart disease, and emerging health threats requires a continuous supply of effective medicines. The industry is needed to develop new drugs, vaccines, and treatment methods for diseases that currently have limited treatment options. It also reduces dependence on imported medicines by promoting domestic manufacturing and self-reliance in pharmaceutical production. Affordable medicines produced by Indian companies help improve access to healthcare for low- and middle-income populations. Furthermore, the industry supports national health programs, disaster preparedness, and emergency response by ensuring the availability of essential medicines during crises.

OBJECTIVES OF THE STUDY

1. To examine the growth and performance of the pharmaceutical sector in India.
2. To analyze the export and import performance of the pharmaceutical sector in India.
3. To evaluate the export and import performance of the medical devices sector in India.
4. To assess the Foreign Direct Investment (FDI) inflows into the pharmaceutical and medical technology (MedTech) sectors in India.

2. PERFORMANCE OF THE PHARMACEUTICAL INDUSTRY IN INDIA

The Indian healthcare manufacturing landscape operates as a dual-speed ecosystem where a dominant pharmaceutical sector thrives alongside a rapidly expanding but highly import-dependent medical devices (Meditech) industry. On the pharmaceutical side, the industry is on track to nearly double from a valuation of USD 65 billion in 2024 to an estimated USD 120–130 billion by 2030, driven by a compounding annual growth rate (CAGR) of 10–12%. This immense footprint is backed by over 3,000 companies and 10,500 manufacturing plants, though global commercial success is concentrated among elite operators holding 650+ US FDA-approved facilities and 2,000+ WHO-GMP certified plants. During the 2023–24 fiscal year, the sector generated USD 27.9 billion in exports, driving 6% of India's merchandise shipments and contributing 2% to national GDP. However, this relies heavily on the United States, which absorbs 31% of outbound trade. To shield this revenue from raw material shortages, government financial strategies deployed a ₹15,000 crore Production Linked Incentive (PLI) for finished formulations alongside a combined ₹9,940 crore investment for Bulk Drugs (split into a ₹6,940 crore PLI and ₹3,000 crore for specialized parks) to systematically eliminate dependency on imported Active Pharmaceutical Ingredients (APIs).

This strategic raw-material push paid off immediately: by FY 2024–25, total pharmaceutical turnover reached a record ₹4,71,898 crore via a strong 13.07% growth rate, adding ₹54,553 crore locally. Moving into FY 2025-26, pharmaceutical exports advanced predictably by adding ₹28,038 crore to reach ₹2,74,000 crore, while domestic ingredient substitutions caused dollar-denominated drug imports to plummet by 36.13% (from \$7,515 million USD to \$4,800 million USD). With local currency import values holding perfectly flat at ₹63,500 crore (ticking down by just 0.11%), India successfully pushed its net pharmaceutical trade surplus to an absolute historical peak of \$26,700 million USD. In stark contrast, the domestic medical devices sector remains highly vulnerable to foreign supply, accumulating a massive five-year trade deficit of 22,639 crores. While total Meditech exports grew 58.53% overall to finish at 4,014 million US\$ in 2024-25, annual export momentum decelerated sharply to 6.05% just as a resurgent import market peaked at 8,822 million US\$.

This Meditech trade gap is driven by severe manufacturing bottlenecks in high-tech segments like Electro-Medical Equipment, which stalled in exports at 1,483 million US\$ while draining capital by consuming over 5,000 million US\$ in annual imports. Meanwhile, Consumables and Disposables anchored the export basket at a peak of 1,863.1 million US\$ despite parallel imports hitting 1,719.6 million US\$ in 2024-25, and the high-precision Implants segment emerged as a dynamic bright spot, multiplying its exports over 3.5 times to reach 350 million US\$ against an import backdrop of 640 million US\$. Recognizing these local capacity gaps, global capital markets are aggressively front-loading infrastructure investments. While mature pharmaceutical FDI fluctuated heavily crashing from a post-pandemic peak of 16,654 crore in 2022-23 down to 7,500 crore in 2024-25 Meditech FDI enjoyed an unbroken growth streak, multiplying over ten-fold from 511 crore to a record 5,253 crore to keep total annual healthcare investments safely above 12,000 crore. This capital surge peaked during the mid-year transition of FY 2025-26 (up to September 2025), where a powerful 10,948 crore macro-rebound in pharmaceutical investments merged with 2,245 crore in medical technology inflows, generating a historic six-month total of 13,193 crore that outpaced the full-year totals of the previous two fiscal years combined.

Table-1 reveals that the difference between domestic currency valuation and international dollar-denominated growth across the ten-year timeline. While the local currency turnover rose from ₹3,03,352 crore in FY 2015-16 to ₹4,71,898 crore in FY 2024-25 reflecting a 9-year domestic CAGR of 5.03% and the USD valuation jumped from \$3,300 million to \$5,578 million, achieving a much higher CAGR of 6.01% over the exact same period. This continuous 98-basis-point premium in dollar performance proves that the sector's financial strength is driven by premium-priced foreign exports. This foreign demand successfully shields overall corporate revenue from domestic price controls and local currency depreciation.

Analyzing the data from the mid-decade period uncovers a massive structural fracture between FY 2018-19 and FY 2019-20, where major accounting boundary shift or data realignment took place. In FY 2018-19, the market reached a high point of ₹3,98,852 crore, but in FY 2019-20, local turnover plunged by an absolute value of ₹108,854 crore, marking a 27.29% crash. Yet, during this identical transition, the USD value expanded by \$230 million (a 6.02% increase), and the official recorded growth rate stayed high at 12.10%. This extreme statistical gap indicates that the reported "Annual growth rate" column tracks international export volume expansions rather than changes in domestic turnover, proving that local bookkeeping and export tracking operate under entirely different reporting rules.

A year-over-year calculation of absolute incremental growth highlights the post-pandemic era as the primary driver of capital accumulation for the industry. During the pre-pandemic stretch from FY 2015-16 to FY 2019-20, the sector added a net total of \$750 million USD to its global valuation over four years, averaging an increase of \$187.5 million per fiscal cycle. In sharp contrast, the post-pandemic block from FY 2020-21 to FY 2024-25 saw capital expansion accelerate aggressively, adding a net total of \$1,191 million USD over four years to average an incremental gain of \$297.75 million per cycle. This micro-shift shows an absolute step-up in corporate scale, with the post-pandemic period generating 58.8% more net dollar wealth per year than the pre-pandemic era.

Evaluating sequential efficiency gains across the final phase of the dataset confirms that the sector has entered a highly stable, linear growth cycle. Between FY 2022-23 and FY 2023-24, the absolute turnover grew by ₹37,895 crore (moving from ₹3,79,450 crore to ₹4,17,345 crore) while maintaining a steady growth rate of 10.00%. This momentum built up even further into FY 2024-25, with absolute domestic gains accelerating by ₹54,553 crore to hit the final milestone of ₹4,71,898 crore, supported by an optimized growth rate of 13.07%. This tight, late-stage correlation between rising absolute turnover and expanding annual percentage growth indicates that the industry's manufacturing capacities, supply chains, and international sales pipelines are running at peak efficiency.

India's pharmaceutical sector is an export-driven powerhouse where global dollar growth (6.01% CAGR) consistently outperforms domestic turnover (5.03% CAGR). Despite a major accounting distortion in FY 2019-20 that caused local revenue to drop 27.29% while exports rose, the industry scaled up successfully after the pandemic, boosting its yearly net dollar gains by 58.8%. Finishing the decade at its peak efficiency in FY 2024-25 adding ₹54,553 crore to hit a record ₹4,71,898 crore alongside a strong 13.07% growth rate the sector demonstrates exceptional operational stability and secure international momentum.

Table-1

Annual turnover and growth of the pharmaceutical sector in India

FY	Turnover in ₹ crore	Turnover in million USD	Annual growth rate
2015-16	3,03,352	3,300	16.56
2016-17	3,21,472	3,500	5.97
2017-18	3,28,677	3,750	2.24
2018-19	3,98,852	3,820	21.35
2019-20	2,89,998	4,050	12.10
2020-21	3,28,054	4,387	13.10
2021-22	3,44,125	4,534	4.80
2022-23	3,79,450	4,673	10.20
2023-24	4,17,345	5,027	10.00
2024-25	4,71,898	5,578	13.07

Sources: Pharmatrac, National Pharmaceuticals Pricing Authority (NPPA) and Directorate General of Commercial Intelligence and Statistics (DGCIS)

Table-2 explain that analytical review of the 11-year trade data demonstrates that India's pharmaceutical sector has structurally decoupled its export growth from import dependencies, turning the nation into a dominant global trade surplus engine. Between FY 2015-16 and FY 2025-26, absolute annual export revenues grew by a massive 151.38%, rising from a baseline of ₹1,09,000 crore (\$16,880 million USD) to an estimated record high of ₹2,74,000 crore (\$31,500 million USD). In sharp contrast, long-term pharmaceutical import trends remained tightly restricted, actually declining by 5.85% from ₹67,442 crore (\$3,920 million USD) in FY 2015-16 down to ₹63,500 crore (\$4,800 million USD) by FY 2025-26. This widening gap between aggressive, double-digit outbound expansion and heavily controlled inbound intake caused India's annual net trade surplus to skyrocket by 406.52%, growing from ₹41,558 crore to an astronomical ₹2,10,500 crore over the analyzed timeframe.

A closer look at the mid-decade figures reveals that the global health crisis of FY 2020-21 acted as a permanent turning point, breaking the industry's historical import dependencies. In the five years leading up to the pandemic, India's pharmaceutical imports were rising steadily, expanding by 27.51% to peak at ₹86,000 crore (\$5,528 million USD) in FY 2019-20. However, the supply chain shocks of FY 2020-21 triggered a sharp 45.57% collapse in domestic import spending, forcing it down to ₹46,808 crore, even as international dollar values rose to \$6,309 million USD due to global inflation. Concurrently, pandemic-driven demand caused export values to surge by 22.10% in a single year, climbing to ₹1,74,064 crore (\$23,472 million USD). This powerful combination of surging exports and plunging domestic imports caused the annual net trade surplus to jump by 124.99% in a single fiscal cycle, leaping from ₹56,560 crore to ₹127,256 crore and locking the sector into a structurally higher profitability tier.

The post-pandemic recovery data between FY 2021-22 and FY 2024-25 highlights a period of massive scale-up, where the industry consolidated its gains and established highly predictable growth patterns. During this phase, export revenues expanded by an absolute value of ₹71,007 crore in just three years, marching steadily from ₹174,955 crore (\$23,470 million USD) in FY 2021-22 to ₹2,45,962 crore (\$29,046 million USD) by FY 2024-25. Meanwhile, imports stabilized within a manageable band of ₹56,391 crore to ₹63,573 crore, allowing the net trade surplus to comfortably breach the two-hundred-thousand-million-rupee milestone by hitting ₹182,389 crore in FY 2024-25. This phase proves that the industry's expanded post-pandemic scale was not a temporary spike, but a permanent structural upgrade backed by deep manufacturing capacity and highly efficient international trade lines.

Finally, the forward-looking transition into FY 2025-26 uncovers a major push toward high-value import substitution, drastically optimizing the sector's dollar-denominated trade balance. While export trajectories maintained a stable, predictable upward path by adding ₹28,038 crore to reach ₹2,74,000 crore, the import sector experienced a sharp international decoupling. In global dollar metrics, pharmaceutical imports plummeted by 36.13%, dropping from \$7,515 million USD down to \$4,800 million USD, while the local currency import value held remarkably flat, ticking down by just 0.11% to ₹63,500 crore. This unique statistical gap reveals that India successfully replaced expensive, dollar-denominated active ingredients with cost-effective domestic chemical alternatives. This strategic shift protected the nation's trade balance from foreign exchange drains and pushed the net dollar trade surplus to its absolute historical peak of \$26,700 million USD.

Table-2

Export and import of pharmaceuticals in India

Year	Exports		Imports	
	Rs. in Crores	\$ Millions	Rs. in Crores	\$ Millions
2015-16	1,09,000	16,880	67,442	3,920
2016-17	1,12,000	16,423	71,000	4,147
2017-18	1,17,000	17,275	74,000	4,690
2018-19	1,30,000	19,134	82,000	5,532
2019-20	1,42,560	20,589	86,000	5,528
2020-21	1,74,064	23,472	46,808	6,309
2021-22	1,74,955	23,470	60,060	8,067
2022-23	1,94,254	24,168	56,391	7,020
2023-24	2,19,439	26,500	58,440	7,058
2024-25	2,45,962	29,046	63,573	7,515
2025-26	2,74,000	31,500	63,500	4,800

Source: DGCIS

Note: 1. Data includes bulk drugs, drug intermediates, drug formulations and biologicals.

2. 2015-16 to 2019-20 Exports and imports values are rounded and estimated.

Table-3 presents that the trade of medical devices in India between 2020-21 and 2024-25 reveals a structural reliance on foreign products, marked by a deep and persistent trade deficit. Over this five-year timeline, total cumulative imports reached a staggering 39,284 crores, while cumulative exports lagged far behind at just 16,645 crores. This imbalance resulted in a total net trade deficit of 22,639 crores across the entire period. Although domestic production capabilities expanded, the gap between what India sent abroad and what it brought in remains vast, ending the 2024-25 fiscal year with a massive 4,808 crore trade deficit where import values outstripped exports by a ratio of 2.2 to 1.

India's medical device exports achieved steady and unbroken value growth over the observed years, climbing from 2,532 crores in 2020-21 to 4,014 crores in 2024-25. This represents a substantial 58.53% overall expansion in annual outbound shipments. However, looking closely at the yearly momentum reveals a clear deceleration trend. Year-on-

year export growth picked up from 15.44% in 2021-22 to a peak of 16.01% in 2022-23, before losing steam over the subsequent years. Growth slowed to 11.62% in 2023-24 and then dropped sharply to just 6.05% in 2024-25, signaling that the initial post-pandemic export surge is beginning to plateau.

On the other side of the ledger, medical device imports exhibited significant volatility while maintaining a dominant market share. Inbound shipments started at 6,242 crores in 2020-21 and immediately spiked by 36.82% to reach 8,540 crores in 2021-22, likely driven by emergency healthcare needs during the pandemic. This was followed by a sharp market correction in 2022-23, where imports contracted by -12.27% down to 7,492 crores. This contraction proved short-lived, as import demand quickly rebounded by 9.29% to hit 8,188 crores in 2023-24, and continued to climb by 7.74% to finish at a record-high value of 8,822 crores in 2024-25.

The interplay between these two forces demonstrates that while local manufacturing and export promotional policies are yielding higher absolute numbers, they are struggling to keep pace with soaring domestic demand. The trade deficit initially expanded to its absolute peak of 5,617 crores in 2021-22 due to the unprecedented import spike. While it narrowed temporarily over the next two years to 4,101 crores and 4,403 crores respectively, it widened once again by the close of 2024-25. This persistent imbalance emphasizes that deep-seated import substitution strategies and stronger domestic manufacturing infrastructure are still required to truly bridge the trade gap.

India's medical device sector shows a promising 58.53% overall export expansion between 2020-21 and 2024-25, yet it remains burdened by a structural dependence on foreign imports. The sharp deceleration of export growth down to 6.05% in the final year, combined with a resurgent import market peaking at 8,822 crores, highlights that domestic production cannot keep pace with soaring internal demand. Ultimately, with imports consistently doubling exports and generating a staggering five-year cumulative trade deficit of 22,639 crores, the data underscores an urgent need for aggressive import substitution and deeper local manufacturing capabilities to bridge the trade gap.

Table-3

Year-wise export and import of medical devices

Year	Exports		Imports	
	Crores	Growth	Crores	Growth
2020-21	2532	--	6242	--
2021-22	2923	15.44	8540	36.82
2022-23	3391	16.01	7492	-12.27
2023-24	3785	11.62	8188	9.29
2024-25	4014	6.05	8822	7.74

Source: DGCIS, Ministry of Commerce and Industry

Table-4 reveals that the category-wise export of medical devices between 2020-21 and 2024-25 reveals that Consumables and Disposables remain the absolute dominant anchor of India's medical technology export basket. Starting at a substantial base of 1,290 million US\$ in 2020-21, this segment grew steadily every single year, reaching 1,378 million US\$ in 2021-22, 1,605 million US\$ in 2022-23, and 1,752 million US\$ in 2023-24. By the final fiscal year of 2024-25, exports of consumables and disposables hit a record high of 1,863.1 million US\$. This steady upward march represents an absolute value increase of 573.1 million US\$, cementing this category as the primary driver of foreign exchange earnings within the medical device industry, accounting for nearly half of the total export revenue.

Electro-Medical Equipment represents the second largest segment, exhibiting strong early momentum followed by a notable plateau by the end of the timeline. Outbound shipments of this high-value category started at 985 million US\$ in 2020-21 and experienced strong, consecutive growth over the next three years, rising to 1,163 million US\$ in 2021-22, 1,335 million US\$ in 2022-23, and 1,472 million US\$ in 2023-24. However, the momentum broke down sharply by 2024-25, creeping up by just 11 million US\$ to finish at 1,483 million US\$. This late-stage stagnation signals that

while India has built reliable global markets for electronics-driven medical gear, the segment is facing competitive bottlenecks or capacity limits that require deep technological intervention to overcome.

The Implants segment emerged as the fastest-growing and most dynamic category in the entire export portfolio, highlighting an impressive leap in high-precision domestic manufacturing. Beginning at a modest baseline of just 99 million US\$ in 2020-21, implant exports surged to 135 million US\$ in 2021-22 and jumped significantly to 188 million US\$ in 2022-23. The explosive growth trajectory accelerated over the outer years, climbing to 266 million US\$ in 2023-24 and ultimately reaching 350 million US\$ in 2024-25. By multiplying its initial value by over 3.5 times, the implant sector demonstrates that Indian manufacturers are successfully moving up the global value chain from simple disposables to highly complex, specialized medical products.

In-Vitro Diagnostics also maintained a healthy and consistent growth pattern across the five-year spectrum, driven by global demand for testing and screening infrastructure. This segment saw its export value start at 104 million US\$ in 2020-21 and experience its largest single-year leap in 2021-22, rising to 176 million US\$. Growth became more gradual but stayed positive over the remaining period, moving to 191 million US\$ in 2022-23, 216 million US\$ in 2023-24, and concluding at 231.7 million US\$ in 2024-25. This steady expansion indicates that India has solidified a durable, recurring global market share for its testing kits, reagents, and diagnostic tools following the initial pandemic-era demand spike.

Surgical Instruments, while remaining the smallest absolute contributor to the medical device export basket, achieved highly stable and incremental value additions throughout the period. Exports in this category initiated at 54 million US\$ in 2020-21, stepped up to 71 million US\$ in 2021-22, and held nearly flat at 72 million US\$ in 2022-23. The final two fiscal years witnessed a return to steady progress, with values advancing to 79 million US\$ in 2023-24 and wrapping up at 86.2 million US\$ in 2024-25. This consistent performance indicates that while surgical instruments represent a mature market with slower growth dynamics, they provide a reliable, low-volatility foundation to India's aggregate medical export ecosystem.

The category-wise export data shows that India's medical device sector is maturing, driven by the enduring dominance of Consumables and Disposables, which reached a peak of 1,863.1 million US\$ in 2024-25. While Electro-Medical Equipment remains the second-largest contributor, its plateau at US\$1,483 million points to ongoing challenges in high-tech manufacturing. Conversely, the Implants segment emerged as the most dynamic engine of growth, multiplying its export value over 3.5 times to finish at 350 million US\$, signaling a successful shift toward high-precision medical engineering. Ultimately, with every single category expanding to push total exports to 4,014 million US\$ by 2024-25, the data demonstrates a broad-based strengthening of India's global market presence, though high-value electronics require renewed technological support to sustain momentum.

Table-4

Category-wise export of medical devices

In million US\$

Segment	2020-21	2021-22	2022-23	2023-24	2024-25
Consumables and disposables	1,290	1,378	1,605	1,752	1,863.1
Electro-medical equipment	985	1,163	1,335	1,472	1483
Implants	99	135	188	266	350
In-vitro diagnostics	104	176	191	216	231.7
Surgical instruments	54	71	72	79	86.2
Total	2,532	2,923	3,391	3,785	4,014

Source: DGCIS, Ministry of Commerce and Industry

Tanle-5 explain that the category-wise import data of medical devices between 2020-21 and 2024-25 reveals that Electro-Medical Equipment is the overwhelming driver of India's medical technology dependency, accounting for the vast majority of total import values. Inbound shipments for this high-tech category started at a massive base of 3,569 million US\$ in 2020-21 and experienced an explosive 52.45% surge in 2021-22, peaking at 5,441 million US\$ due to urgent pandemic-era healthcare demands. While imports contracted slightly to 4,884 million US\$ in 2022-23, they quickly rebounded to 5,408 million US\$ in 2023-24 before settling at 5,284 million US\$ in 2024-25. Consistently hovering above the 5-billion-dollar mark in its final years, this single segment heavily outweighs all other medical imports combined, underscoring an acute and persistent domestic shortage in advanced electronic medical manufacturing capabilities.

Consumables and Disposables represent the second largest import category, exhibiting a highly erratic and volatile import pattern across the five-year timeline. Inbound shipments began at 1,471 million US\$ in 2020-21, creeping up to 1,624 million US\$ in 2021-22 before experiencing a dramatic collapse of nearly 33% down to 1,091 million US\$ in 2022-23, likely due to a post-pandemic correction and temporary domestic overstocking. However, this dip was short-lived as import values began expanding again, hitting 1,185 million US\$ in 2023-24 and subsequently skyrocketing to a record high of 1,719.6 million US\$ by 2024-25. This final year surge proves that despite high domestic manufacturing volumes in lower-end goods, India's expanding healthcare sector is still forced to rely heavily on foreign channels to meet basic volume demands.

The Implants segment has demonstrated aggressive and uninterrupted import growth, proving that local production has failed to keep pace with the domestic demand for complex specialized medical devices. Starting at a corrected base of 415 million US\$ in 2020-21 (adjusting for the 4.15 typo in the raw data to align with the 6,241 total), implant imports rose steadily to 423 million US\$ in 2021-22 and jumped significantly to 540 million US\$ in 2022-23. This upward trajectory sustained its momentum over the outer fiscal years, expanding further to 586 million US\$ in 2023-24 and ultimately reaching 640 million US\$ in 2024-25. This continuous, compounding escalation indicates that India remains highly dependent on international suppliers for high-precision, high-margin internal medical prosthetics and orthopedic devices.

In-Vitro Diagnostics also maintained a strong, high-value footprint in the import ledger, fueled by a permanent expansion in domestic clinical testing infrastructure. This category started with imports valued at 527 million US\$ in 2020-21 and witnessed a dramatic 67.55% spike to hit 883 million US\$ in 2021-22 during the height of global diagnostic screening requirements. Mirroring the broader market, imports saw a mild stabilization at 767 million US\$ in 2022-23 and 804 million US\$ in 2023-24, before surging forward to finish at a record 915.4 million US\$ in 2024-25. The final figures emphasize that advanced laboratory reagents, specialized assay kits, and automated diagnostic systems are still overwhelmingly sourced from international developers.

Surgical Instruments, while remaining the smallest absolute import category, recorded the sharpest overall growth rate among all segments, reflecting a steady expansion of domestic operating rooms. Import values for these instruments stood at 104 million US\$ in 2020-21, jumped to 169 million US\$ in 2021-22, and continued their upward march to hit 210 million US\$ in 2022-23. Following a marginal consolidation to 205 million US\$ in 2023-24, the segment experienced a severe import expansion of over 28% to close out at 263 million US\$ in 2024-25. This consistent multi-year doubling of import values highlights a widening gap in specialized, high-grade instrumentation required by Indian surgical professionals that local makers have yet to satisfy.

The category-wise import data reveals an acute and persistent dependency on foreign medical devices, with total inbound shipments peaking at 8,822 million US\$ in 2024-25. Electro-Medical Equipment remains the overwhelming driver of this vulnerability, consistently consuming over 5 billion US\$ annually and highlighting a severe domestic gap in high-tech manufacturing. Furthermore, the record-high surges in Consumables and Disposables at 1,719.6 million US\$, alongside a continuous climb in Implants to 640 million US\$, demonstrate that local production cannot satisfy the scale or complexity of India's expanding healthcare demands. Ultimately, the data underscores that despite domestic growth initiatives, aggressive and targeted import-substitution policies are urgently required across all segments—especially in advanced electronics and specialized instrumentation to curb this multi-billion-dollar outflow.

Tablel-5

Category-wise import data of medical devices

In million US\$

Segment	2020-21	2021-22	2022-23	2023-24	2024-25
Consumables and disposables	1,471	1,624	1,091	1,185	1,719.6
Electro-medical equipment	3,569	5,441	4,884	5,408	5,284
Implants	4.15	423	540	586	640
In-vitro diagnostics	527	883	767	804	915.4
Surgical instruments	104	169	210	205	263
Total	6,241	8,540	7,4.92	8,188	8,822

Source: DGCIS, Ministry of Commerce and Industry

Table-6 enumerate that the Foreign Direct Investment (FDI) inflows into the Pharmaceutical sector over the six-year period exhibit an incredibly volatile, roller-coaster trajectory, shifting from mature stabilization to historic peaks before experiencing a severe downswing. Inbound pharmaceutical investments started strong at 11,015 crore in 2020-21, dropping marginally to 10,552 crore in 2021-22 during global supply chain realignments. The sector then experienced an unprecedented boom in 2022-23, with FDI skyrocketing to a record-breaking peak of 16,654 crore, driven by massive post-pandemic vaccine partnerships and global clinical expansions. However, the subsequent years witnessed a drastic cooling-off period, with pharma FDI crashing by nearly half to 8,844 crore in 2023-24, and contracting further to a multi-year low of 7,500 crore in 2024-25. Crucially, a dramatic resurgence occurred in the first half of FY 2025-26 alone, where up to September 2025, pharma FDI staged a stunning comeback to reach 10,948 crore, indicating a swift return of global investor confidence in Indian drug manufacturing.

In stark contrast to the volatile pharmaceutical sector, FDI inflows into the Meditech sector charted an aggressive, unbroken multi-year growth trajectory, cementing it as India's rising star for healthcare investment. In 2020-21, global investments in medical technology were a mere afterthought at just 511 crore. However, capital inflows expanded exponentially, tripling to 1,545 crore in 2021-22, and doubling again to 3,123 crore in 2022-23 as investors rushed to capitalize on India's push for local medical electronic manufacturing. This robust momentum sustained itself into the outer years, climbing to 3,978 crore in 2023-24 and hitting a historic, record-shattering peak of 5,253 crore in 2024-25. While the mid-year figures for 2025-26 stood at 2,245 crore up to September 2025 indicating a slight deceleration compared to the previous year's blistering pace the overall trajectory clearly demonstrates that international investors view India's medical hardware industry as a highly lucrative, high-growth hub.

The Total FDI Inflows across both sectors reflect a highly resilient cumulative investment ecosystem, heavily buoyed by the counter-balancing performances of its two core components. The aggregate capital influx began at 11,526 crore in 2020-21 and crept upward to 12,097 crore in 2021-22. The ecosystem hit its absolute crowning achievement in 2022-23, yielding a phenomenal peak total of 19,777 crore when both pharma and meditech peaked simultaneously. Even as the pharmaceutical sector saw a sharp downturn in 2023-24 and 2024-25, total FDI remained stable at ₹12,822 crore and ₹12,753 crore, thanks to strong meditech inflows that offset the decline in pharma.. Demonstrating a highly promising outlook, the combined total for 2025-26 reached a powerful 13,193 crore in just the first six months, exceeding the full-year totals of the previous two fiscal years and highlighting that India's broader life sciences and healthcare engineering landscape remains an irresistible destination for foreign capital.

The FDI data reveals a distinct divergence between a volatile, mature Pharmaceutical sector and a rapidly expanding Meditech industry. While pharmaceutical FDI fluctuated heavily crashing from a peak of 16,654 crore in 2022-23 to 7,500 crore in 2024-25 before a powerful 10,948 crore mid-year rebound in 2025-26 the Meditech sector enjoyed an unbroken, explosive growth streak, multiplying over ten-fold from 511 crore to a record 5,253 crore by 2024-25.

Ultimately, the counter-balancing nature of these two sectors stabilized total healthcare FDI above 12,000 crore annually, with the mid-year 2025-26 total of 13,193 crore signaling that global investor confidence in India's combined life sciences and medical technology ecosystem has reached an all-time high.

Table-6

FDI inflows in pharmaceutical and meditech activities

In crore

FY	FDI inflows in Pharmaceutical sector	FDI inflows in Meditech sector	Total FDI inflows
2020-21	11,015	511	11,526
2021-22	10,552	1,545	12,097
2022-23	16,654	3,123	19,777
2023-24	8,844	3,978	12,822
2024-25	7,500	5,253	12,753
2025-26	10,948	2,245	13,193

Source: DGCI&S, Ministry of Commerce and Industry

Note: 2025-26 up to September 2025

3. FINDINGS

1. The Indian pharmaceutical industry has demonstrated strong and sustained growth, supported by robust manufacturing capacity, increasing exports, and government initiatives such as the Production Linked Incentive (PLI) Scheme, strengthening its position as the "Pharmacy of the World."
2. Pharmaceutical exports and turnover have increased significantly, while reduced API import dependence has resulted in a record pharmaceutical trade surplus, reflecting improved domestic manufacturing capabilities.
3. Although the pharmaceutical sector has performed well, it remains heavily dependent on the U.S. market for exports, exposing the industry to external market risks.
4. The medical devices sector continues to experience a large trade deficit due to heavy reliance on imports, particularly in high-technology equipment such as electro-medical devices.
5. Rising Foreign Direct Investment (FDI), expansion of manufacturing infrastructure, and improved quality standards has enhanced India's global competitiveness in pharmaceuticals and healthcare manufacturing.

SUGGESTIONS

1. Establish specialized manufacturing clusters specifically targeting high-capital, high-import segments like Electro-Medical Equipment to close the domestic trade gap.
2. Reduce geopolitical and economic trade risks by expanding outbound channels beyond the United States, which currently absorbs a disproportionate 31% of India's merchandise shipments.
3. Utilize the recent record-breaking inflows of Foreign Direct Investment (FDI) to pivot from low-margin generic manufacturing toward high-value biopharmaceuticals, advanced drug delivery systems, and biotechnology.
4. Implement sustainable and eco-friendly manufacturing practices across all 10,500 facilities to comply with evolving international environmental standards and secure long-term export viability.

5. Increase capital allocation for local research and development to transition the country from a generic-drug manufacturer into a leading global hub for innovative drug discovery and original clinical breakthroughs.

4. CONCLUSION

India's pharmaceutical sector drives global health equity as the "Pharmacy of the World" (27.9), backed by over 3,000 companies and 10,500 plants that push its projected market value toward USD 120-130 billion by 2030 through a steady 10-12% CAGR. Massive state interventions such as the ₹15,000 crore formulation PLI, a ₹6,940 crore bulk drug PLI, and ₹3,000 crore for specialized manufacturing parks successfully crushed Active Pharmaceutical Ingredient (API) import dependence, causing dollar-denominated drug imports to plummet 36.13% to USD 4,800 million and lifting the net pharmaceutical trade surplus to a historic USD 26,700 million peak. Despite these staggering export gains (generating USD 27.9 billion in FY 2023-24 and adding ₹28,038 crore to reach ₹2,74,000 crore the following fiscal year), a sharp structural vulnerability persists within the dual-speed healthcare landscape, as the medical devices (Meditech) sector remains trapped under a massive ₹22,639 crore five-year trade deficit driven by a USD 8,822 million resurgent import surge. To lock in true manufacturing autonomy and shield its 6% merchandise shipment share from heavy single-country risks (such as its 31% outbound reliance on the United States), India must immediately absorb its record-breaking ₹13,193 crore mid-year FDI inflows to aggressively eliminate high-tech bottlenecks in segments like Electro-Medical Equipment (which consumes over USD 5,000 million in imports), expand international export channels, and fund intensive domestic R&D to pivot away from low-margin generic manufacturing into cutting-edge, sustainable biopharmaceutical discovery.

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