Industry Report on Logistics in India

June 2025

Prepared for

Skyways Air Services Ltd.

Disclaimer

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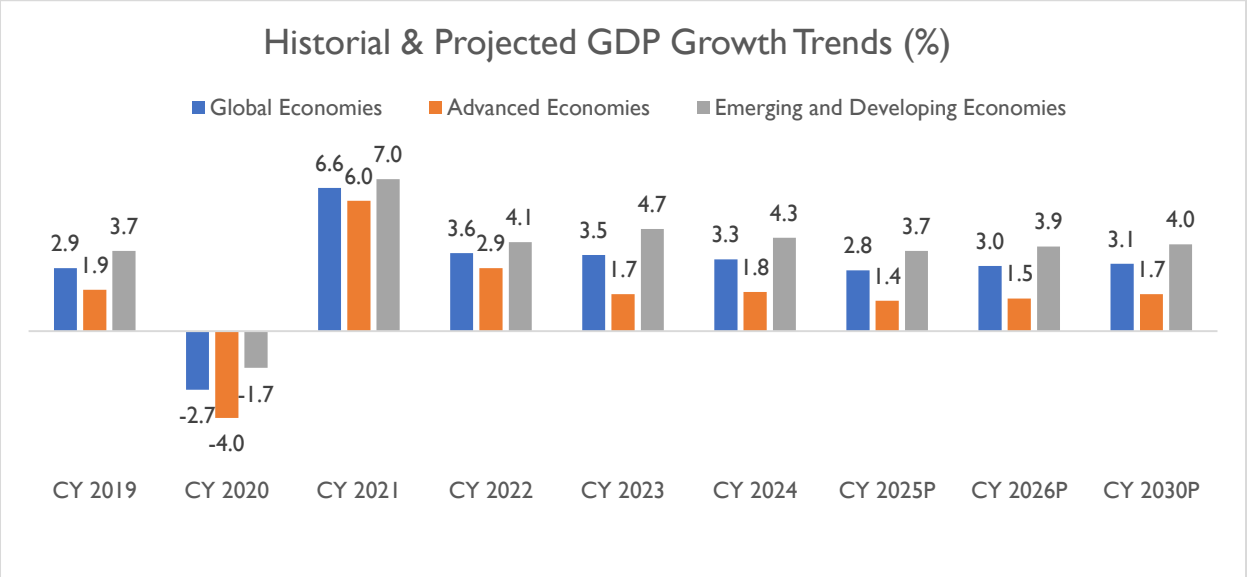
Global Macroeconomic Scenario

Global Economic Overview

The global economy, which recorded GDP growth at 3.3% in CY 2024, is expected to show resilience at 2.8% in CY 2025. This marks the slowest expansion since 2020 and reflects a 0.5%-point downgrade from January 2025 forecast. Moreover, the projection for CY 2026 has also reduced to 3.0%. This slowdown is majorly attributed due to numerous factors such as high inflation in many economies despite central bank effort to curb inflation, continuing energy market volatility driven by geopolitical tensions particularly in Ukraine and Middle East, and the re-election of Donald Trump as US President extended uncertainty around the trade policies as well as overall global economic growth. High inflation and rising borrowing costs affected the private consumption on one hand while fiscal consolidation impacted the government consumption on the other hand. As a result, global GDP growth is estimated to moderation by 2.8% in CY 2025 as compared to 3.3% in CY 2024.



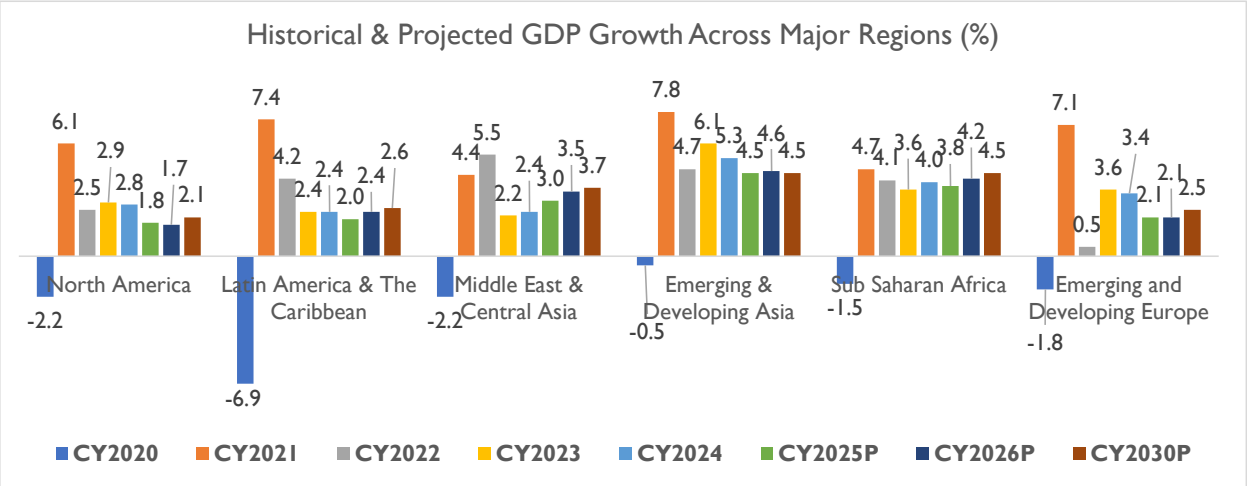
Source – IMF Global GDP Forecast Release April 2025

Note: Advanced Economies and Emerging & Developing Economies are as per the classification of the World Economic Outlook (WEO). This classification is not based on strict criteria, economic or otherwise, and it has evolved over time. It comprises of 40 countries under the Advanced Economies including the G7 (the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada) and selected countries from the Euro Zone (Germany, Italy, France etc.). The group of emerging market and developing economies (156) includes all those that are not classified as Advanced Economies (India, China, Brazil, Malaysia etc.)

Historical and Projected GDP Growth

GDP growth across major regions exhibited a mixed trend between 2022-23, with GDP growth in many regions including North America, Emerging and Developing Asia, and Emerging and Developing Europe slowing further in 2024. In 2025, GDP growth rate in Emerging and Developing Asia (India, China, Indonesia,

Malaysia, etc.) is expected to moderate further to 4.5% from 5.3% in the previous year, while in the North America, it is expected to moderate to 1.8% in CY 2025 from 2.8% in CY 2024.



Source-IMF World Economic Outlook April 2025 update.

Except Middle East & Central Asia, all other regions like Emerging and Developing Asia, Emerging and Developing Europe, Latin America & The Caribbean, Sub Saharan Africa and North America, are expected to record a moderation in GDP growth rate in CY 2025 as compared to CY 2024. Further, growth in the United States is expected to come down at 2.71% in CY 2025 from 2.80% in CY 2024 due to lagged effects of monetary policy tightening, gradual fiscal tightening, and a softening in labour markets slowing aggregate demand.

Global Economic Outlook

The global economy is navigating a period of exceptional uncertainty. Policy shifts, particularly those reshaping trade, have alarmed financial markets and bruised business sentiment. The U.S.'s reciprocal tariffs, which represent additional costs for businesses from almost all countries with which the U.S. trades, charge trade partners an import duty at a discounted rate of approximately half the rate that the trade partner currently imposes on the U.S. According to U.S. President Donald Trump, reciprocal tariffs, ranging from 10% to 50%, are meant to address trade barriers limiting U.S. exports. The *effective* tariff rate includes other tariffs imposed at an earlier date and cumulatively may now be higher than duties charged on U.S. imports. It is unclear whether the reciprocal tariffs represent a negotiating tool, and may therefore be temporary, or form part of broader long-term protectionist measures and industrial strategy.

Responses to reciprocal tariffs have been varied, with some economies promising swift countermeasures. More than 50 markets have sought negotiations with the US. While Malaysia is seeking a united response across ASEAN, the Chinese Mainland has retaliated with duties on all imports from the U.S., declaring it will "fight to the end". In early April, the U.S. confirmed the most aggressive steps yet, with a cumulative 145% tariff on some products imported from the Chinese Mainland. Brazil has readied itself by passing a bill allowing

for retaliation, Australia has ruled out retaliatory levies, and the EU remains open to negotiation while preparing a package of countermeasures.

Tariffs and their unpredictable application have weighed on consumer and business sentiment, sunk global stock markets, raised recession risks, and made a global slowdown more likely. Our latest Global Business Optimism Insights report for indicates a further decline in business optimism as firms continue to grapple with trade-related policy uncertainty and its broader economic implications. Export-driven sectors reported sharp declines in optimism. Financial risk perceptions remain elevated as businesses contend with high borrowing costs and persistent inflation expectations. More broadly, the uncertainty is reflected in delayed capital expenditure and a pullback in hiring.

Tariffs have begun to exert pressure on central banks by contributing to inflationary pressures and increasing financial market volatility. Central banks are adjusting forward guidance and policy frameworks and may begin to consider the likelihood of softer growth being a bigger priority than high inflation by starting to cut interest rates to support economies. For businesses, this uncertainty translates into unpredictable cost structures, fluctuating credit availability, and the management of operational costs through diversified supply networks.

The latest Dun & Bradstreet Global Business Optimism Insights report reveals a further decline in business optimism, though at a more moderate pace than in the prior quarter, as businesses continued to grapple with trade-related policy uncertainty and its broader economic implications. Export-driven sectors such as automotives, electricals, and metals saw sharp declines in optimism, particularly in the U.S., Mexico, South Korea, and Japan, where rising tariffs and shifting trade policies have fueled cost pressures and demand volatility. Financial risk perceptions remain elevated.

Global Growth Projection

At broader level, the global economy is expected to experience a slowdown in 2025, with GDP growth projected to decline to 2.8%, down from 3.3% in 2024. This deceleration reflects persistent inflationary pressure, geopolitical uncertainties and tightened monetary policies. However, a sightly recovery is anticipated in 2026, with growth projected to improve to 3.0%. Global inflation is expected to decline steadily, to 4.3% in 2025 and to 3.6% in 2026. Inflation is projected to converge back to the target earlier in advanced economies, reaching 2.2% in 2026, whereas in emerging market and developing economies, it is anticipated to decrease to 4. 6% during the same period. Trade tariffs function as a supply shock for the countries imposing them, leading to a decrease in productivity and an increase in unit costs. Countries subject to tariffs experience a negative demand shock as export demand declines, placing downward pressure on prices. In each scenario, trade uncertainty introduces an additional layer of demand shock since businesses and households react by delaying investment and spending, and this impact could be intensified by stricter financial conditions and heightened exchange rate volatility. Moreover, Global trade growth is expected to slow down in 2025 to 1.7%. This forecast reflects increased tariff restrictions affecting trade flows and, to a

lesser extent, the waning effects of cyclical factors that have underpinned the recent rise in goods trade. Geopolitical tensions as seen in the past such as the wars in Ukraine and the Middle East could exacerbate inflation volatility, particularly in energy and agricultural commodities.

India Macroeconomic Analysis

India emerged as one of the fastest growth economies amongst the leading advanced economies and emerging economies. In CY 2024, even amidst geopolitical uncertainties, particularly those affecting global energy and commodity markets, India continues to remain one of the fastest growing economies in the world and is expected to grow by 6.2% in CY 2025 and 6.3% in 2026.

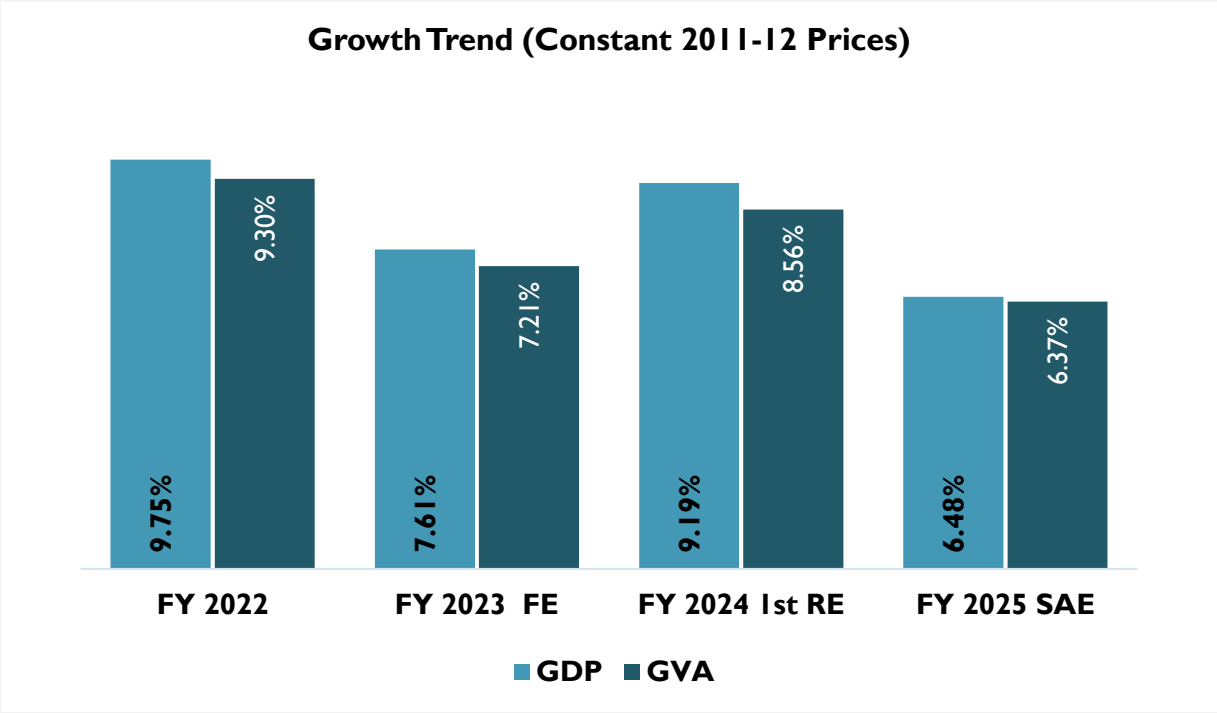
Country	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024	CY 2025	CY 2026 P	CY 2030 P
India	–5.8%	9.7%	7.6%	9.2%	6.5%	6.2%	6.3%	6.5%
China	2.3%	8.6%	3.1%	5.4%	5.0%	4.0%	4.0%	3.4%
United States	-2.2%	6.1%	2.5%	2.9%	2.8%	1.8%	1.7%	2.1%
Japan	-4.2%	2.7%	0.9%	1.5%	0.1%	0.6%	0.6%	0.5%
United Kingdom	-10.3%	8.6%	4.8%	0.4%	1.1%	1.1%	1.4%	1.4%
Russia	-2.7%	5.9%	-1.4%	4.1%	4.1%	1.5%	0.9%	1.2%

Source: World Economic Outlook, April 2025

The Government stepped spending on infrastructure projects to boost the economic growth had a positive impact on economic growth. The capital expenditure of the central government increased by average 26.52% during FY 2023-FY 2024 which slowed to 7.27% in FY 2025 which is expected to translate in moderating GDP growth of 6.5% in 2024. In the Union Budget 2025-2026, the government announced INR 11.21 billion capex on infrastructure (10.12% higher than previous year revised estimates) coupled with INR 1.5 trillion in interest-free loans to states. This has provided much-needed confidence to the private sector, and in turn, expected to attract the private investment.

Historical GDP and GVA Growth trend

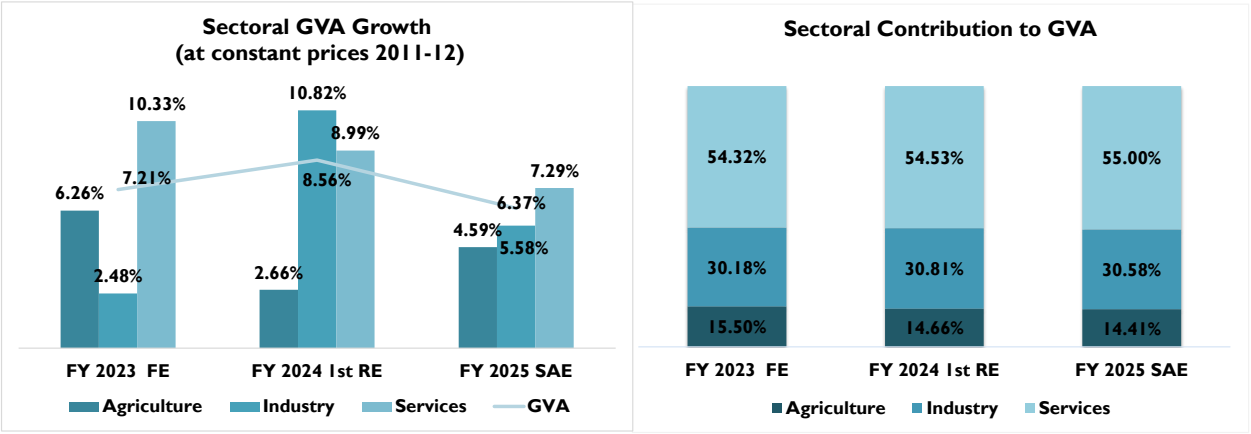
As per the latest estimates, India's GDP at constant prices is estimated to grow to INR 187.95 trillion in FY 2025 (Second Revised Estimates) with the real GDP growth rates estimated to be 6.48% for FY 2025. Similarly, real Gross Value Added (GVA) growth stood is estimated to have moderated to 6.37% in FY 2025. Even amidst global economic uncertainties, India's economy exhibited resilience supported by robust consumption and government spending.



Source: Ministry of Statistics & Programme Implementation (MOSPI), National Account Statistics: FY2025.

FE is Final Estimates, RE is Revised Estimate and SAE is Second Revised Estimates

Sectoral Contribution to GVA and annual growth trend



Source: Ministry of Statistics & Programme Implementation (MOSPI)

FE is Final Estimates, RE is Revised Estimate and SAE is Second Revised Estimates

Sectoral analysis of GVA reveals that the industrial sector experienced a moderation in FY 2025, recording a 5.58% y-o-y growth against 10.82% year-on-year growth in FY 2024. Within the industrial sector, growth moderated across sub sector with mining, manufacturing, and construction activities growing by 2.76%, 4.29%, and 8.64% respectively in FY 2025, compared to 3.21%, 12.30%, and 10.41% in FY 2024. Growth in the utilities sector too moderated to 6.03% in FY 2025 from 8.64% in the previous year. The industrial sector's contribution to GVA moderated marginally from 30.81% in FY 2024 to 30.58% in FY 2025.

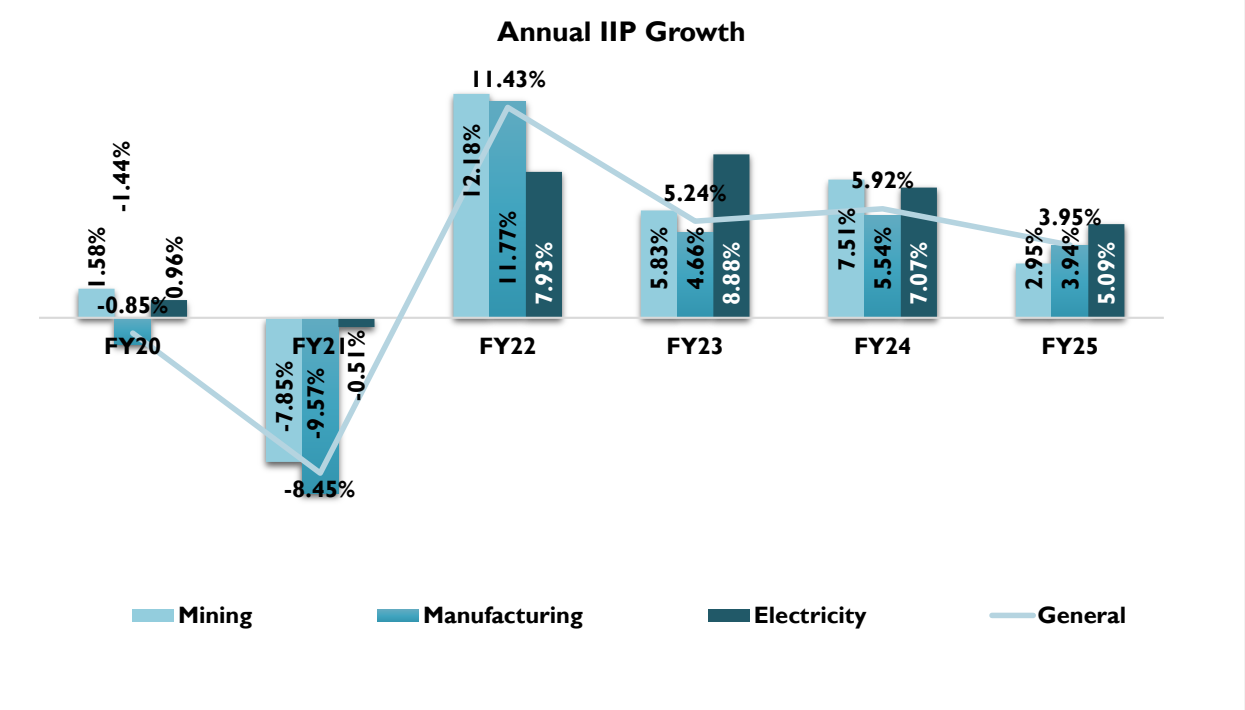
The services sector continued to be the main driver of economic growth, although its pace moderated. It expanded by 7.29% in FY 2025 from 8.99% in FY 2024. The services sector retained its position as the largest

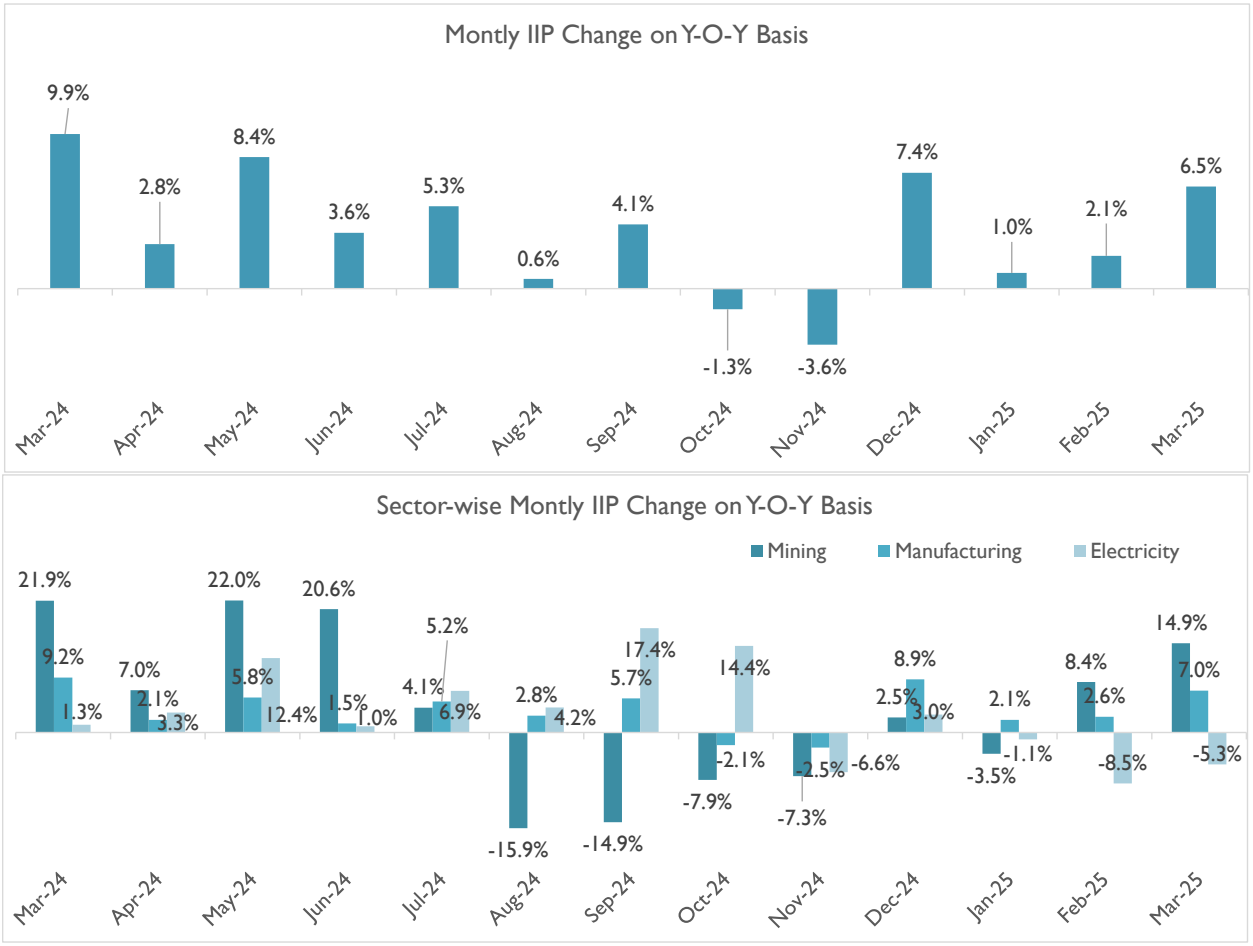
contributor to GVA, rising from 54.32% in FY 2023 to 54.53% in FY 2024, with a further increase to 55.00% in FY 2025.

The agriculture sector saw an acceleration, with growth increasing from 2.66% in FY 2024 to 4.59% in FY 2025. However, its contribution to GVA declined marginally from 14.66% in FY 2024 to 14.41% in FY 2025. Overall, Gross Value Added (GVA) growth moderated to 6.37% in FY 2025 from 8.56% in FY 2024

Annual & Monthly IIP Growth

Industrial sector performance as measured by IIP index exhibited moderation in FY 2025, recording a 3.95% y-o-y growth against 5.92% increase in the previous year. The manufacturing index showed moderation and grew by 3.94% in FY 2025 against 5.54% in FY 2024. Mining sector index too moderated and exhibited a growth of 2.95% in FY 2025 against 7.51% in the previous years while the Electricity sector Index, also witnessed moderation of 5.09% in FY 2024 against 7.07% in the previous year.



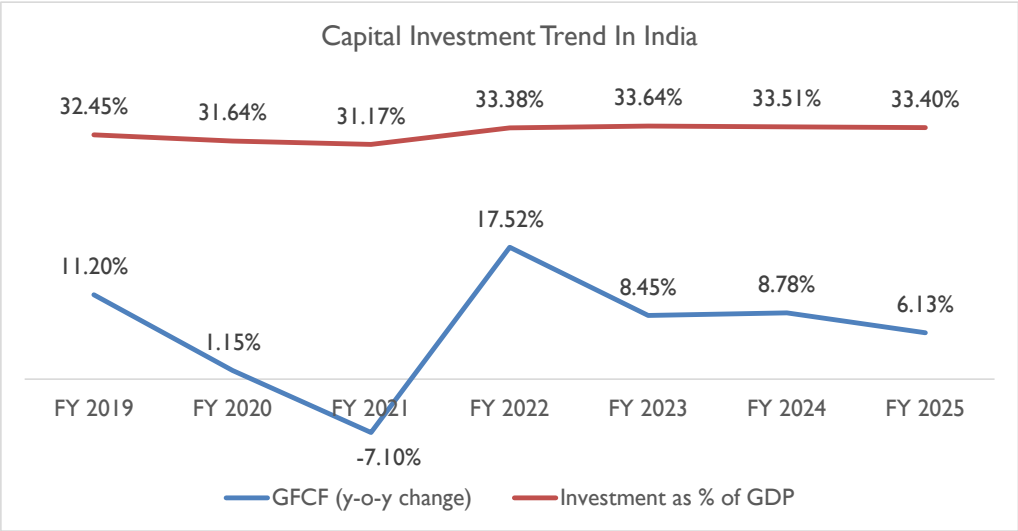


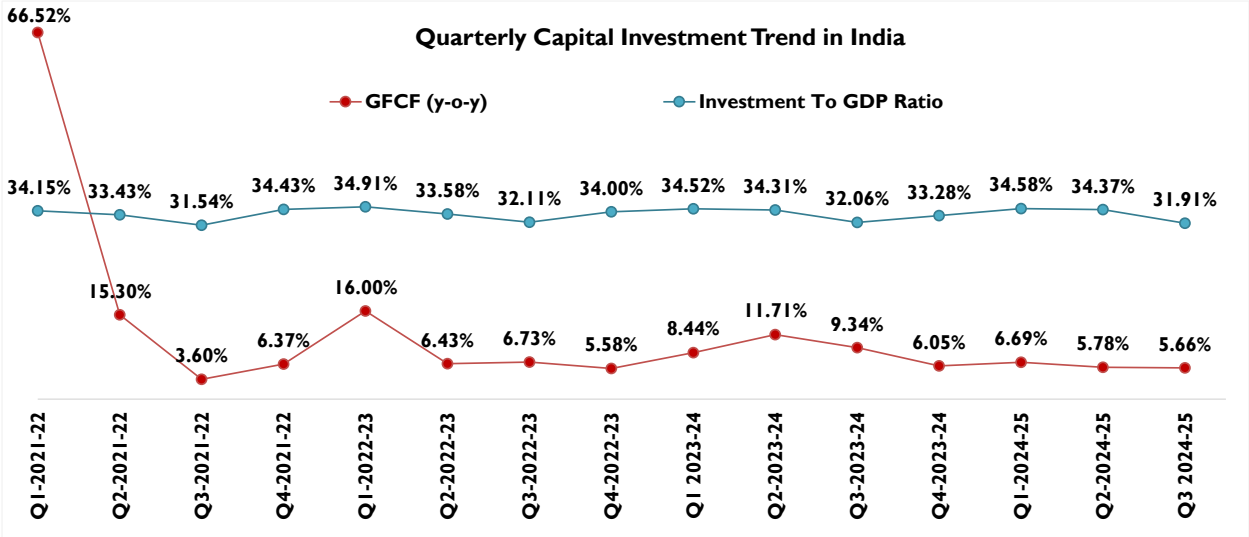
Source: Ministry of Statistics & Programme Implementation (MOSPI)

Overall month IIP index growth grew by 6.5% in March 2025 against 2.1% growth in the February 2025. Both manufacturing and mining index witnessed an improvement in March 2025 over the previous month as well as against January 2025 while electricity Index improved considerably but remained in negative growth trajectory.

Annual and Quarterly: Investment & Consumption Scenario

Other major indicators such as Gross fixed capital formation (GFCF), a measure of investments, has shown fluctuation during FY 2025 as it registered 6.13% year-on-year growth against 8.78% yearly growth in FY 2024, taking the GFCF to GDP ratio measured to 33.40%.

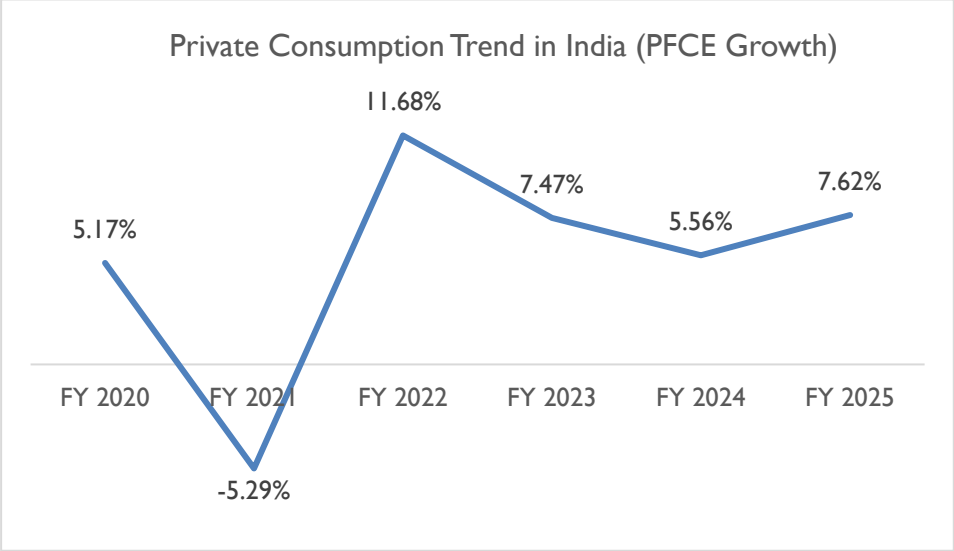


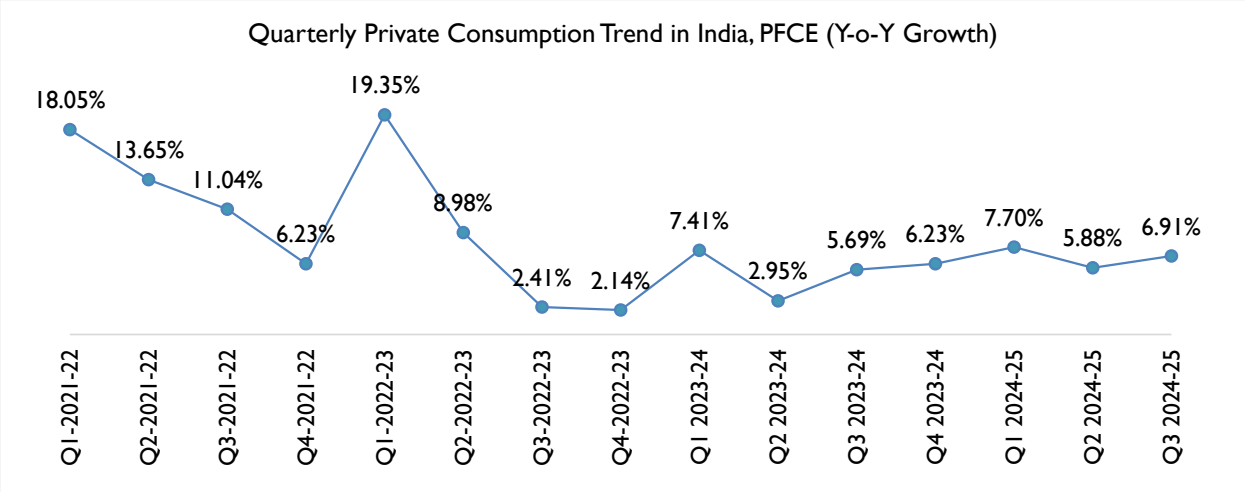


Source: Ministry of Statistics & Programme Implementation (MOSPI)

On quarterly basis, GFCF exhibited a fluctuating trend in quarterly growth over the previous year same quarter. In FY 2024, the growth rate moderated to 6.05% in March quarter against the previous two quarter as government went slow on capital spending amidst the 2024 general election while it observed an improvement in Q1 FY 2025 by growing at 6.69% against 6.05% in the previous quarter and moderated in the subsequent two quarter. On yearly basis, the growth rate remained lower compared to the same quarter in the previous year during FY 2025. The GFCF to GDP ratio measured 31.91% in Q3 FY 2025.

Private Consumption Scenario





Sources: MOSPI

Private Final Expenditure (PFCE) a realistic proxy to gauge household spending, observed growth in FY 2025 as compared to FY 2024. However, quarterly data indicated some improvement in the current fiscal as the growth rate improved over the corresponding period in the last fiscal.

Inflation Scenario

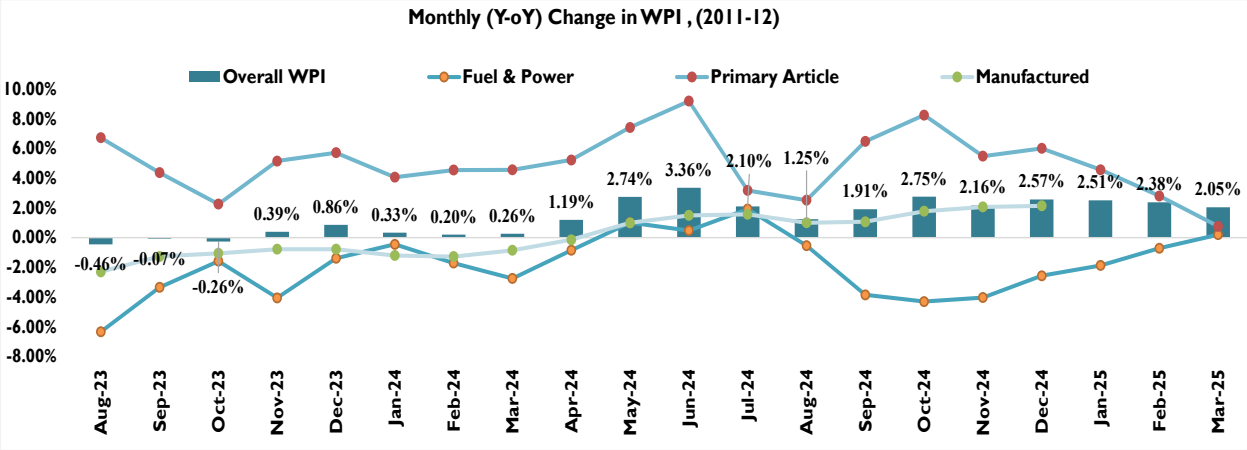
The inflation rate based on India's Wholesale Price Index (WPI) exhibited significant fluctuations across different sectors from August 2023 to March 2025. The annual rate of inflation based on all India Wholesale Price Index (WPI) number is 2.05% (provisional) for the month of March 2025 (over March 2024). Positive rate of inflation in March 2025 is primarily due to increase in prices of manufacture of food products, other manufacturing, food articles, electricity and manufacture of textiles etc.

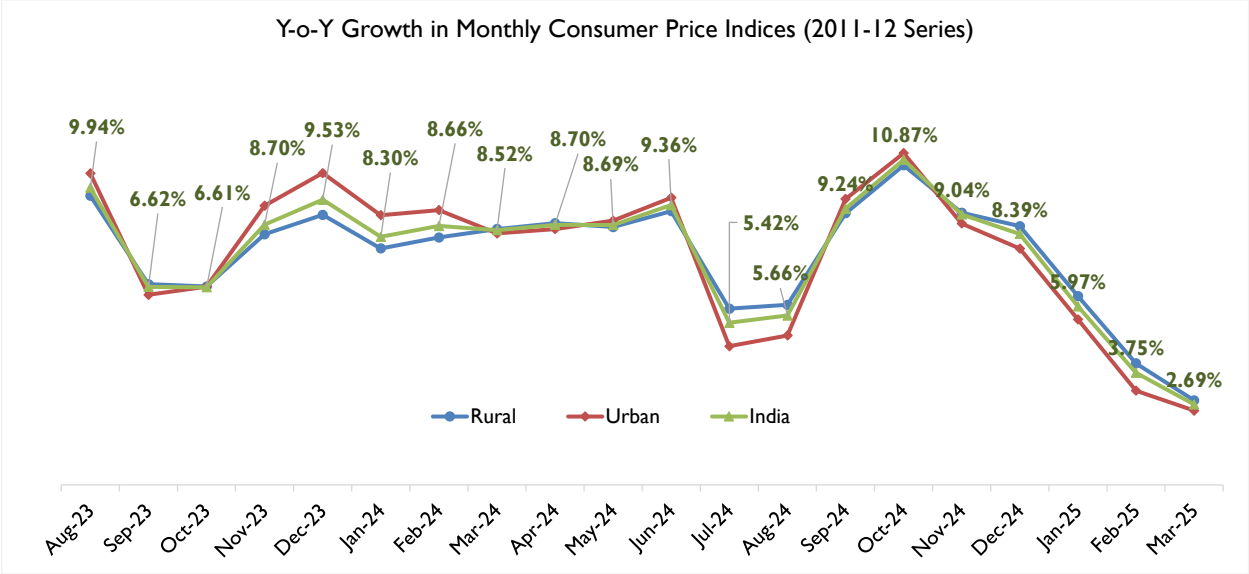
By March 2025, Primary Articles (Weight 22.62%), The index for this major group decreased by 1.07% to 184.6 (provisional) in March 2025 from 186.6 (provisional) for the month of February 2025. Price of crude

petroleum & natural gas (-2.42%), non-food articles (-2.40%) and food articles (-0.72%) decreased in March 2025 as compared to February 2025. The price of minerals (0.31%) increased in March 2025 as compared to February 2025.

Moreover, power & fuel, the index for this this major group decreased by 0.91% to 152.4 (provisional) in March 2025 from 153.8 (provisional) for the month of February 2025. Price of electricity (-2.31%) and mineral oils (-0.70%) decreased in March 2025 as compared to February 2025. The price of coal remained same as in the previous month.

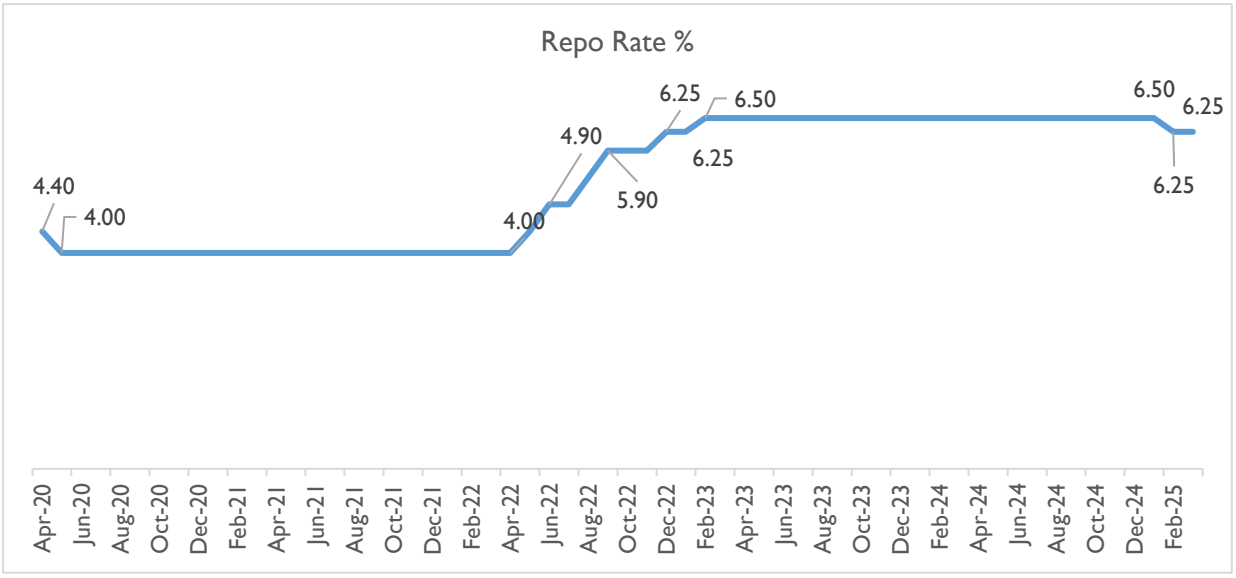
Furthermore, Manufactured Products (Weight 64.23%), the index for this major group increased by 0.42% to 144.4 (Provisional) in March 2025 from 143.8 (Provisional) for the month of February 2025. Out of the 22 NIC two-digit groups for manufactured products, 16 groups witnessed an increase in prices, 5 groups witnessed a decrease in prices and 1 group witnessed no change in prices. Some of the important groups that showed month-over-month increase in prices were manufacture of basic metals; food products; other transport equipment; other manufacturing and machinery and equipment etc. Some of the groups that witnessed a decrease in prices were manufacture of textiles; chemicals and chemical products; computer, electronic and optical products; printing and reproduction of recorded media and furniture etc in March 2025 as compared to February 2025.





Source: MOSPI, Office of Economic Advisor

Retail inflation rate (as measured by the Consumer Price Index) in India showed notable fluctuations between August 2023 and March 2025. Overall, the national CPI inflation rate moderated to 2.69% by March 2025, indicating a gradual easing of inflationary pressures across both rural and urban areas. Rural CPI inflation peaked at 9.67% in August 2023, declining to 2.82 % in March 2025. Urban CPI inflation followed a similar trend, rising to 10.42% in August 2023 and then dropping to 2.48% in March 2025. CPI measured above 6.00% tolerance limit of the central bank since July 2023. As a part of an anti-inflationary measure, the RBI has hiked the repo rate by 250 bps since May 2022 and 8 Feb 2023 while it held the rate steady at 6.50 % till January 2025. In February, RBI reduced the repo rate for the first time in the last 5 year by 25 basis point to 6.25% from 6.50% previously.



Sources: CMIE Economic Outlook

Growth Outlook

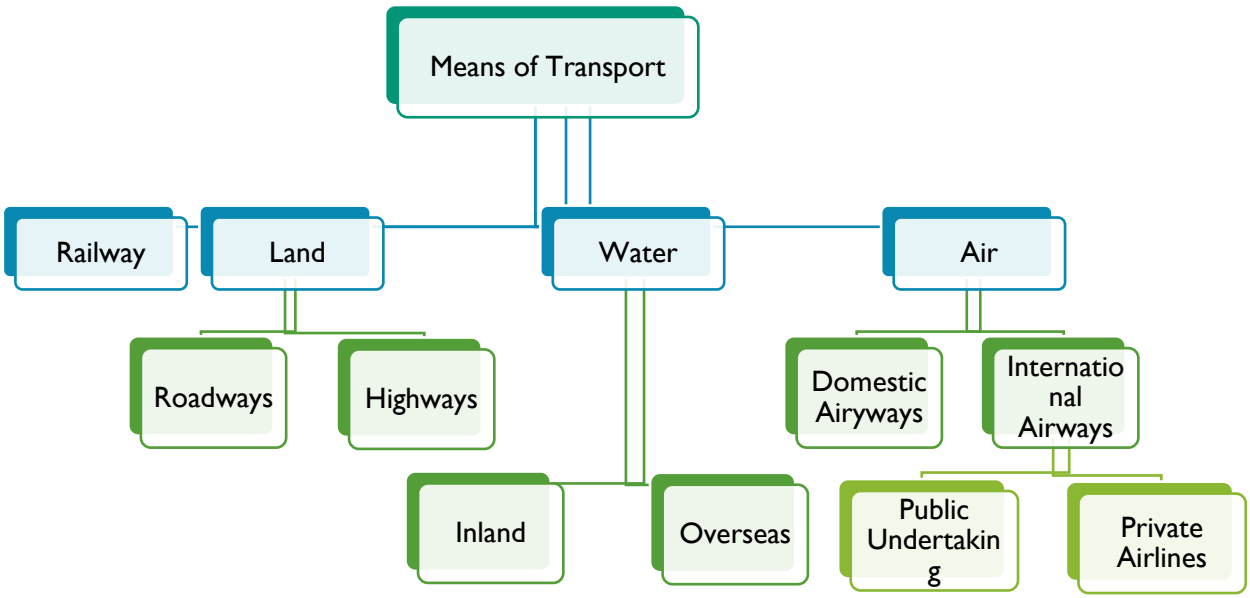
The Union Budget 2025-26 has laid the foundation for sustained growth by balancing demand stimulation, investment promotion and inclusive development. Inflation level is reaching within the central bank's target; the RBI may pursue further monetary easing that will support growth. The medium-term outlook is bright, fueled by the emphasis on physical and digital infrastructure spending. With a focus on stimulating demand, driving investment and ensuring inclusive development, the budget introduces measures such as tax relief, increased infrastructure spending and incentives for manufacturing and clean energy. These initiatives aim to accelerate growth while maintaining fiscal discipline, reinforcing India's long-term economic resilience. The expansion of tax relief i.e zero tax liability for individuals earning up to INR 12 lacs annually under the new tax regime is expected to strengthen household finances and, consequently, boost consumption.

The external sector remains resilient, and key external vulnerability indicators continue to improve. However, tariff-related uncertainty is likely to weigh on exports and investment, prompting us to cut our FY26 GDP growth forecast to 6.3%.

Logistics Industry in India

An Industry Overview and Genesis of Logistics Market: Road Transport, Air Transport, Sea Transport and Rail Transport

Logistics plays a crucial role in a country's economic development by ensuring the efficient movement of goods. An advanced logistics network enhances productivity, reduces costs, and supports industries such as manufacturing, retail, agriculture, and e-commerce. In India, the logistics sector is essential for domestic and international trade, leveraging the country's strategic geographical location. The industry comprises multiple segments, including transportation, warehousing, freight forwarding, and third-party logistics (3PL) services. Economic reforms, globalization, and the rise of e-commerce have accelerated the demand for efficient logistics services, making the sector a critical component of India's infrastructure.



Genesis of Indian Logistics

The evolution of India's logistics industry can be traced back to the economic liberalization of the 1990s. This period marked a shift toward global supply chain integration, attracting foreign investments and modernizing logistics operations. Before liberalization, the sector was highly fragmented, labour-intensive, and reliant on outdated infrastructure and technology.

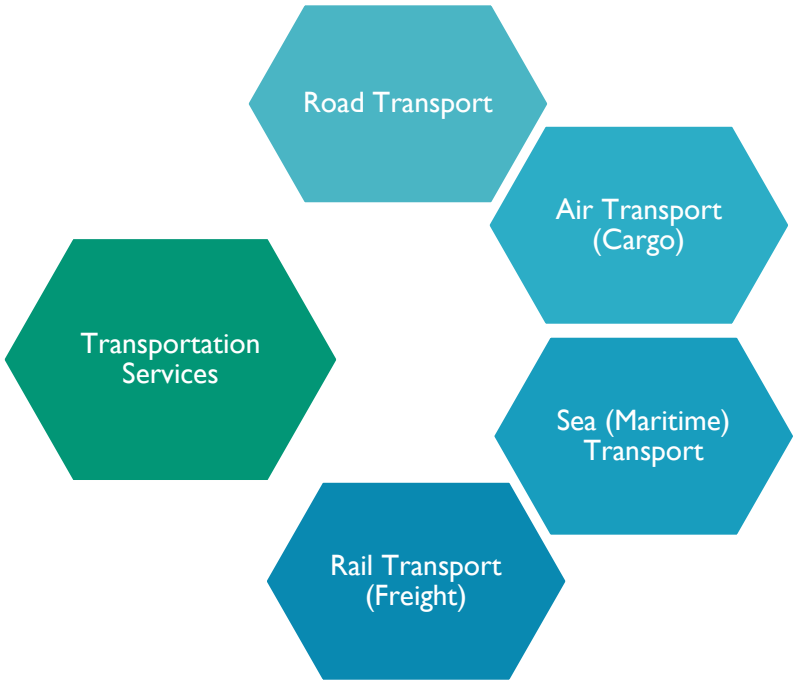
The rapid expansion of e-commerce, manufacturing, and retail sectors has further fuelled the need for streamlined supply chains. Foreign investments have introduced advanced technologies and best practices, significantly enhancing the capabilities of Indian logistics providers.

Recognizing the importance of infrastructure, the Indian government has heavily invested in roads, railways, ports, and airports. Key initiatives like the Goods and Services Tax (GST) and the Dedicated Freight Corridor (DFC) project have improved goods movement efficiency, reduced transit times, and strengthened India's logistics ecosystem.

- **Transportation Services:**

Transportation is the backbone of logistics, ensuring the movement of goods across the country. India's transportation network is shaped by historical developments, geography, and cultural influences. While transportation contributes significantly to economic growth, it also impacts the environment due to emissions and climate change. Advancements in technology have made transportation more cost-effective and efficient.

India's transportation system is classified into four primary modes:



1. Road Transport

Road transport is a vital component of India's logistics sector, offering flexibility and extensive connectivity, including access to remote areas. India has an extensive road network spanning approximately 6.2 million km, which supports trade and commerce.

Key Features of Road Transport:

- **Connectivity:** Links urban and rural areas, ensuring seamless movement of goods.
- **Flexibility:** Provides route flexibility and vehicle options to suit various logistics needs.

Types of Roads in India:

- **Golden Quadrilateral & Superhighways:** Connects major cities like Delhi, Kolkata, Chennai, and Mumbai, along with North-South and East-West corridors.
- **National Highways:** Maintained by the Central Public Works Department, connecting major cities and economic centres.
- **State Highways:** Links state capitals with district headquarters, managed by state authorities.
- **District Roads:** Connects district headquarters to smaller towns and villages.
- **Rural Roads:** Developed under schemes like the Pradhan Mantri Grameen Sadak Yojana.
- **Border Roads:** Constructed by the Border Roads Organisation to improve connectivity in strategic areas.

2. Air Transport (Cargo)

Air freight is essential for transporting time-sensitive and high-value goods. Major airports in India serve as key hubs for domestic and international air cargo operations.

Development of Air Transport:

- Nationalized in 1953, leading to state-owned carriers like Indian Airlines and Air India.
- Private airlines and non-scheduled operators now enhance domestic air cargo connectivity.
- Helicopter services, such as Pawan Hans, facilitate transport to remote areas like the Northeast, Jammu & Kashmir, and Himachal Pradesh.

Although air transport is more expensive than other modes, it offers unmatched speed and accessibility, making it crucial for industries requiring fast delivery.

3. Sea (Maritime) Transport

Maritime transport is one of the oldest and most cost-effective modes of transportation, ideal for moving bulk goods over long distances. India has an extensive coastline of **7,516.6 km**, with **12 major ports** and around **200 minor ports** that handle approximately **95% of India's international trade**.

Key Maritime Transport Features:

- Inland Waterways: India has 14,500 km of inland waterways, but only 5,685 km are navigable.
- Major National Waterways:
  - Ganga Waterway (Allahabad – Haldia, 1,620 km)
  - Brahmaputra Waterway (Sadiya – Dhubri, 891 km)

- West Coast Canal (Kerala, 205 km)
- Godavari-Krishna Waterway (1,078 km)
- Brahmani-Mahanadi Waterway (588 km)

Major Sea Ports in India:

- Kandla (Deendayal Port): First port built after independence, located in Gujarat.
- Mumbai Port: Largest and most important natural harbour.
- Marmagao (Goa): Handles around 50% of India's iron ore exports.
- Chennai Port: One of the oldest artificial ports, second busiest after Mumbai.
- Visakhapatnam Port: A deep inland port with excellent connectivity.
- Kolkata Port: A tidal river port requiring regular dredging.

4. Rail Transport (Freight)

Indian Railways plays a crucial role in bulk transportation, offering a cost-effective and energy-efficient mode for moving goods over long distances. The railway network is divided into **16 zones** and significantly impacts India's industrial and economic activities.

Factors Affecting Railway Development:

- Flat Terrain (Northern Plains): Ideal for railway expansion due to high population density and agricultural activity.
- Difficult Terrain (Hills & Deserts): Rail construction is challenging in hilly regions, deserts, and dense forests.
- New Railway Projects: The Konkan Railway has improved connectivity in western India but faces challenges like landslides.

Rail transport is a weather-resistant mode of transportation compared to road and air, making it a reliable choice for freight movement. Indian Railways continues to modernize with Dedicated Freight Corridors (DFC) and high-speed rail projects to enhance efficiency.

Freight Forwarding Services

Freight forwarding involves the coordination and management of shipments on behalf of shippers. Freight forwarders play a crucial role in selecting optimal transportation routes, handling documentation, and ensuring the timely movement of goods. Their key responsibilities include warehouse planning, customs brokerage, and cargo insurance facilitation. For businesses looking to expand, international trade offers a valuable opportunity to reach a broader customer base. However, navigating global logistics can be complex. Freight forwarders simplify this process by ensuring that shipments comply with regulations, are transported efficiently, and reach their destination on time.

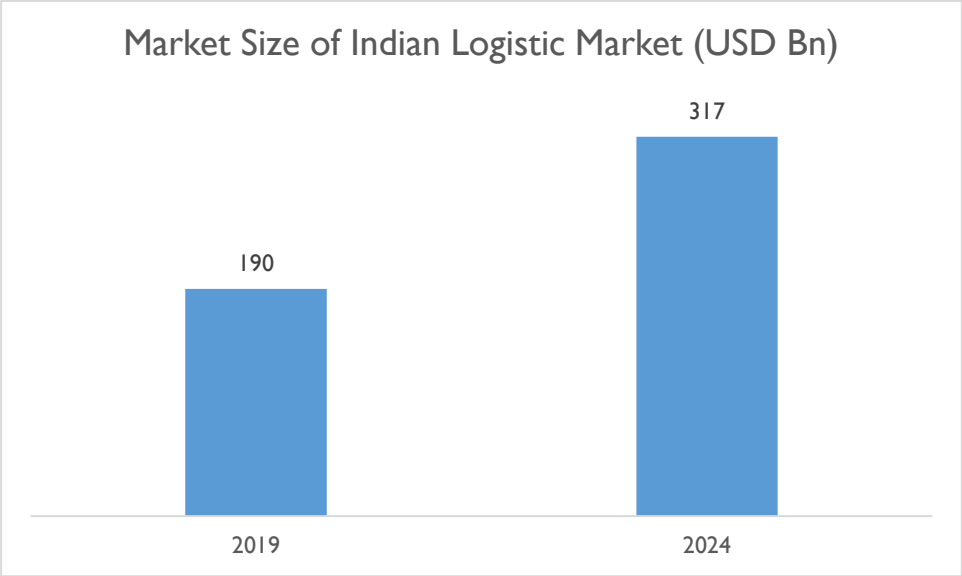
Freight Forwarding and Logistics: Key Service Providers:

International Freight Forwarding:	•As India's trade expands globally, international freight forwarding services are essential for coordinating shipments between countries, dealing with customs regulations, and managing cross-border logistics.
Third-Party Logistics (3PL) and Fourth-Party Logistics (4PL):	•3PL and 4PL providers offer comprehensive logistics solutions to businesses, allowing them to outsource various aspects of their supply chain management:
3PL Providers:	•These companies offer services like transportation, warehousing, distribution, and inventory management. By outsourcing these services, businesses can focus on their core operations.
4PL Providers:	•Going a step further, 4PL providers not only offer logistics services but also manage and optimize the entire supply chain, including selecting other logistics service providers. This strategic approach enhances efficiency and cost-effectiveness

Market Scenario: Estimated Market Size of Logistics Industry

The Indian logistics sector is among the largest in the world, offering significant opportunities for growth. This sector is an integral part of the national GDP value chain, as it connects various components of the economy and encompasses transportation, warehousing, and other supply chain solutions for both suppliers and end customers. Efficient logistics industry is critical component as it secures better market access for goods and services, and boosts consumption growth. Acknowledging the need to strengthen logistics infrastructure, the sector has attracted attention of government and even private participants.

India's logistics industry is thus poised to achieve significant milestones in 2024 due to a surge in e-commerce, government initiatives, and technological advancements. As the Indian economy expands, the logistics sector is expected to see unprecedented growth, driven by a range of factors including enhanced infrastructure and evolving market demands.



Source: D&B Desk Research

The boom in e-commerce has led to increased demand for efficient logistics solutions, particularly in last-mile delivery and rural expansion. This trend opens substantial investment opportunities in warehousing, transportation, and technology-driven solutions. Government initiatives and major infrastructure projects such as Bharatmala and Sabarimala, aim to streamline operations and improve connectivity. Technological advancements, including IoT, AI, blockchain, and automation technologies such as drones and driverless vehicles, are revolutionizing logistics operations by enhancing efficiency and reducing costs.

India's logistics market was valued at USD 317 Bn in 2024[1]. The sector contributes 5% to India's GDP and employs approximately 22 Mn people, underscoring its significant role in the national economy.

[1] logimat 2024

India's Logistics performance index (LPI)

The country successfully ascended from the 44th to the 38th position in the World Bank's Logistics Performance Index (LPI) 2023, demonstrating notable progress. Logistic cost in India currently stands between 7.8-8.9% of GDP,[2] intriguingly closer to a level seen in developed nations.

Parameter	Rank 2023 (Out Of 398 Countries)	Rank 2018 (Out Of 160 Countries)	Rank 2016 (Out Of 160 Countries)
Overall LPI Rank	**38**	**44**	**35**
Custom	38	40	38
Infrastructure	47	52	36
International Shipments	22	44	39
Logistics Quality & competence	38	42	32
Tracking & tracing	41	38	33
Timeliness	35	52	42

Source: World Bank

This advancement is largely due to strategic government initiatives such as the PM GatiShakti National Master Plan and the National Logistics Policy, which have enhanced logistics efficiency and infrastructure. Investments in trade-related infrastructure and the adoption of digital technologies such as the Unified Logistics Interface Platform (ULIP) and the Logistics Data Bank have also played a crucial role. Additionally, the establishment of an Inter-Ministerial team and the National Committee for Trade Facilitation (NCTF) to address key logistics parameters have contributed to this progress. Notable improvements include India's climb in international shipment rankings from 44th to 22nd and an enhancement in infrastructure scores from 52nd to 47th.

Government Initiatives and Infrastructure Development

- **National Logistics Policy (2022)**
  - Launched in September 2022, the National Logistics Policy aims to optimize India's logistics landscape by improving multimodal transportation.
  - A key focus is to increase the railways' share in freight movement, currently at 18%, through investments in Dedicated Freight Corridors (DFCs) and expanded inland waterways.
  - As of April 2024, 96% of DFCs are complete, expected to enhance rail freight capacity and efficiency, thereby improving the modal mix.
  - The government's push for port privatization has led to improved infrastructure and efficiency at Indian ports, benefiting major logistics operators.
- **Logistics Costs and Modal Mix**

[2] National Council of Applied Economic Research (NCAER) estimates in 2021-22

- Logistic cost in India currently stands between 7.8-8.9% of GDP[3] intriguingly closer to a level seen in developed nations.
- The inefficiency in the sector is largely due to the skewed modal mix, where road transport accounts for 71% of freight movement, leaving railways and waterways with a smaller share.
- To address these issues, the government has implemented Goods and Services Tax (GST) and invested heavily in road infrastructure, inland waterways, and DFCs.

Key Market Segments and Growth Trends

The Indian logistics sector is highly diverse, covering road transport, rail transport, air cargo, multimodal logistics, and industrial warehousing.

1. Domestic Express Logistics

- The domestic express logistics segment is projected to grow at a CAGR of **14%** from FY23 to FY28, driven by the expansion of e-commerce.
- Organized players currently control **80%** of the market and are expected to strengthen their dominance by leveraging government policies such as GST and the e-way bill.

2. Less-Than-Truckload (LTL) Segment

- The LTL segment in road transportation is expected to grow at a CAGR of 10% due to increasing demand for smaller, more frequent shipments that bypass warehouse storage to reach retailers directly.

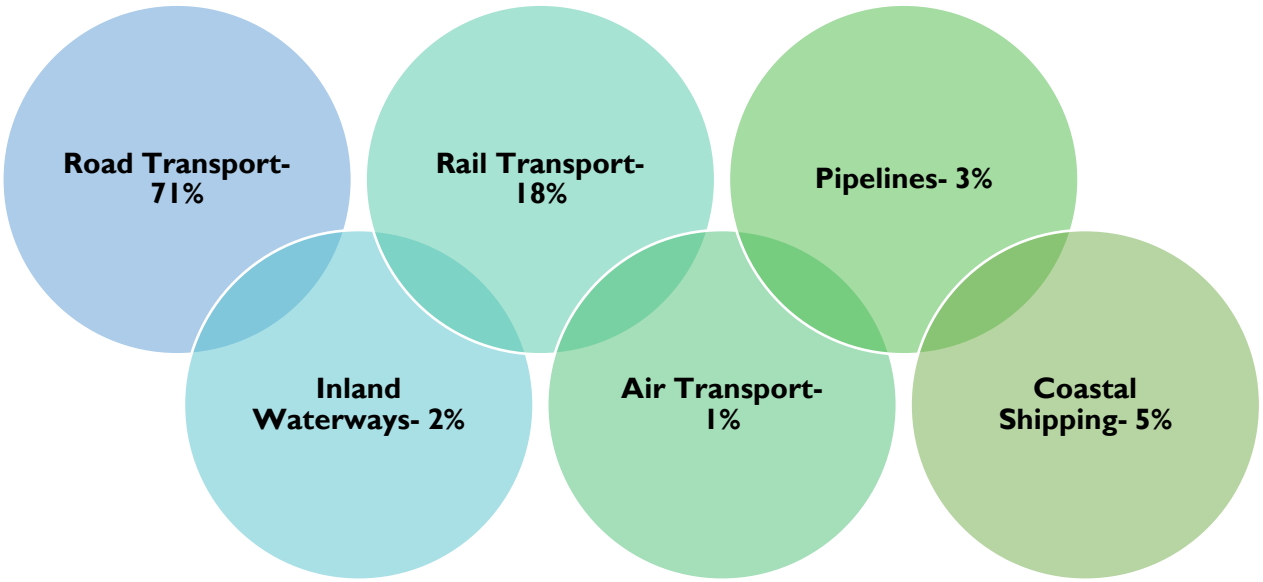
Growth Drivers of the Indian Logistics Market

- **Government Policies & Infrastructure** – National Logistics Policy (2022), 96% completion of Dedicated Freight Corridors (DFCs), road, rail, and port investments.
- **E-commerce & Digitalization** – Rising online shopping, AI, IoT, and automation adoption.
- **Logistics Cost Reduction** – Target to reduce cost-to-GDP ratio from 14% to 8-9% through GST, e-way bills, and digital freight solutions.
- **Multimodal Logistics** – Shift towards rail and inland waterways, reducing road transport dependence (currently 71% of freight movement).
- **Industrial & Warehousing Growth** – Expansion of automated warehouses due to e-commerce, retail, and FMCG demand.
- **Cold Chain Logistics Demand** – Increased need for refrigerated transport in pharmaceuticals, perishables, and food processing.

[3] National Council of Applied Economic Research (NCAER) estimates in 2021-22

Market Segmentation

India's freight transportation industry plays a crucial role in the nation's economy, facilitating the movement of goods across vast distances. The industry is dominated by road transport, followed by railways, waterways, and other transport modes. Below is a detailed breakdown of the freight market, highlighting the share of each mode and its significance.



1. Road Transport

- **Market Share:** Approximately **71%** of India's total freight movement relies on road transport.
- **Key Factors for Dominance:**
  - Versatility**:** Road transport supports diverse cargo types, including perishable goods, consumer products, and industrial materials.
  - Last-Mile Connectivity**:** It provides seamless door-to-door delivery, making it the preferred choice for businesses.
  - Expanding Infrastructure: Government initiatives like the Bharatmala Project are enhancing highway networks to improve efficiency.
- **Challenges:**
  - High fuel costs and dependency on fossil fuels contribute to rising logistics expenses**.**
  - Traffic congestion and inadequate road maintenance slow down freight movement.
- **Future Prospects:**
  - The adoption of electric trucks and alternative fuels can reduce logistics costs and environmental impact.

- Technological advancements like GPS tracking and fleet management systems will enhance operational efficiency.

2. Rail Transport

- **Market Share:** Around 18% of India's total freight traffic moves via railways.
- **Advantages:**
  - Cost Efficiency: Rail transport is cheaper for long-distance bulk shipments like coal, cement, and food grains.
  - Sustainability**:** Lower carbon emissions compared to road transport make it an eco-friendly alternative**.**
- **Challenges:**
  - Limited Availability: Rail networks are often congested due to shared usage with passenger trains.
  - Loading and Unloading Delays: Time-consuming processes at terminals reduce efficiency.
- **Government Initiatives:**
  - The Dedicated Freight Corridors (DFCs) aim to improve speed and capacity, increasing the railway's freight share.
  - Investments in private freight terminals (PFTs) will enhance cargo handling capabilities.

3. Inland Water Transport (IWT)

- **Market Share:** Currently accounts for about **2%** of total freight movement.
- **Advantages:**
  - Lower Costs: Waterways offer a cost-effective alternative for bulk transportation over long distances.
  - Energy Efficient**:** Fuel consumption is significantly lower than road and rail transport.
- **Challenges:**
  - Infrastructure Limitations: Inadequate port facilities and limited navigability hinder the sector's growth.
  - Seasonal Restrictions: Low water levels in some rivers can disrupt freight operations.
- **Government Support:**
  - The Sagarmala Programme focuses on developing inland waterways and coastal shipping to increase their freight share.

4. Other Transport Modes (Coastal Shipping, Pipelines, Air Transport)

The remaining 9% is distributed among various alternative freight modes.

- **Coastal Shipping (5% of Total Freight Movement)**

  - Usage: Primarily handles bulk cargo like coal, iron ore, crude oil, and fertilizers.
  - Advantages:
    - Cost-effective for long-distance freight movement along India's 7,500 km coastline.
    - Energy-efficient with lower carbon emissions compared to road and rail.
  - Challenges:
    - Limited port infrastructure and hinterland connectivity.
    - Slow turnaround times at ports due to congestion.
  - Outlook:
    - The Sagarmala Programme aims to increase coastal shipping's share by modernizing ports and improving connectivity.

- **Pipelines (3% of Total Freight Movement)**

  - Usage: Best suited for liquids and gases, including petroleum products, crude oil, and natural gas.
  - Advantages:
    - Safe and cost-efficient for transporting large volumes over long distances.
    - Minimal human intervention reduces delays and operational risks.
  - Challenges:
    - High capital investment required for construction.
    - Limited network expansion restricts accessibility.
  - Future Outlook:
    - The Indian government is investing in expanding the natural gas pipeline network, which may increase pipeline freight's market share.

- **Air Transport (1% of Total Freight Movement)**

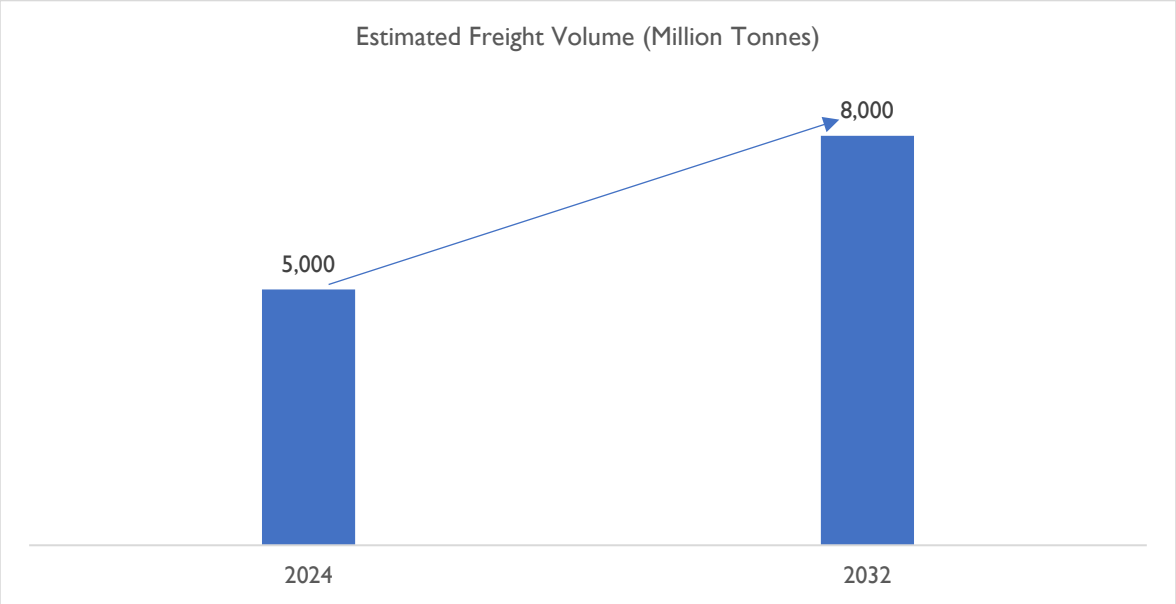
  - Usage: Primarily for high-value and time-sensitive goods such as pharmaceuticals, electronics, and perishable items.
  - Advantages:
    - Fastest mode of transport, reducing lead times for urgent shipments.
    - High security and minimal damage risk for delicate cargo.
  - Challenges:

- High operational costs make air freight impractical for bulk commodities.
- Limited cargo capacity compared to other modes.

Future Outlook: While road and rail dominate India's freight market, coastal shipping, pipelines, and air transport serve specialized roles. Coastal shipping and pipelines hold significant potential for reducing logistics costs and congestion, while air transport will remain essential for express cargo and high-value goods. Government initiatives and private sector investments will be key in improving infrastructure and increasing the efficiency of these transport modes.

Estimated Volume of Freight Carried in India

The freight transportation industry in India has grown significantly due to increasing industrial activity, urbanization, and e-commerce expansion.



Current Scenario (2024):

- The total freight volume in India is estimated to be 5,000 million tonnes as of 2024.
- This includes transportation through multiple modes such as road, rail, waterways, and air.
- The growth is driven by increasing demand in manufacturing, construction, and the retail sector.

Future Projection (2032):

- The total freight volume is expected to reach 8,000 million tonnes by 2032.
- This indicates a substantial increase of 60% over eight years.

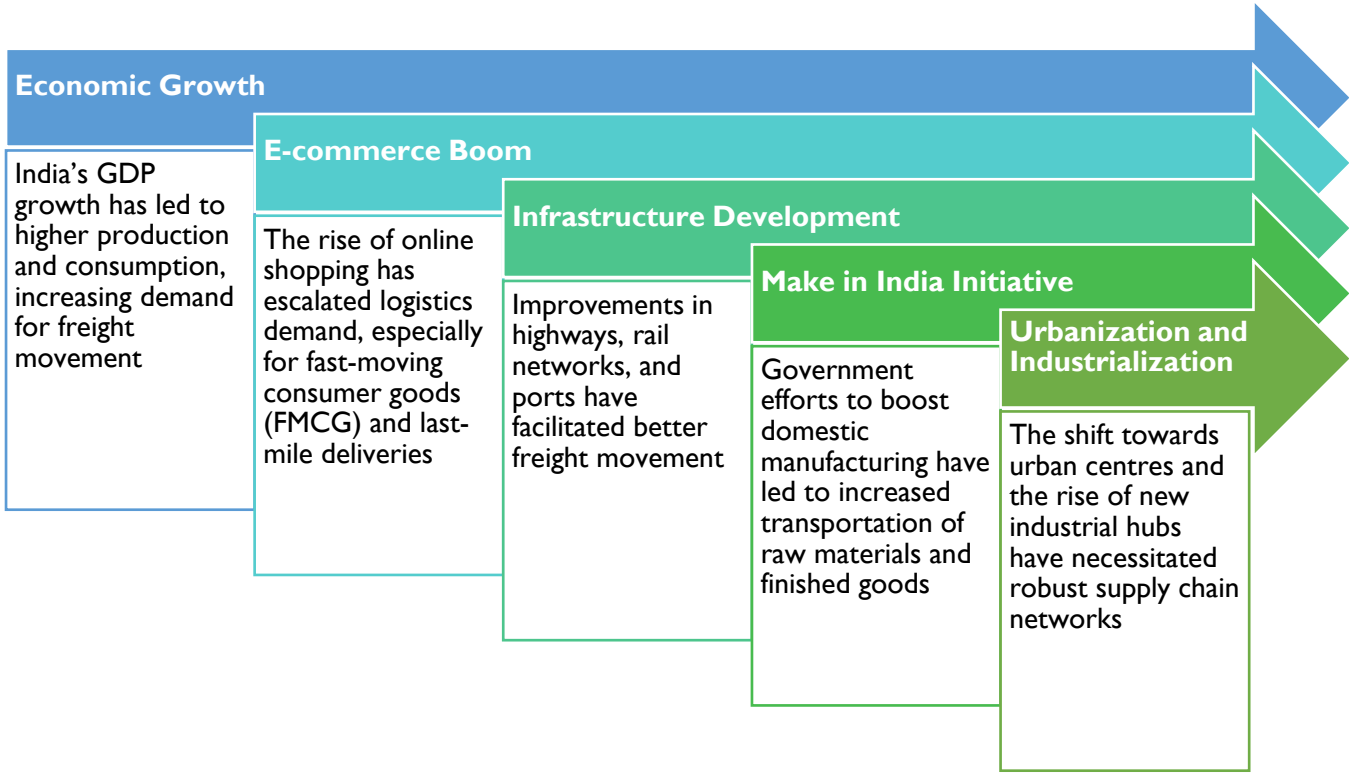
- Government initiatives like the PM Gati Shakti National Master Plan, investment in dedicated freight corridors, and improved infrastructure are expected to support this growth.

Key Factors Driving Freight Growth

- **Economic Expansion:** India's GDP growth directly contributes to higher freight demand.
- **Urbanization & Industrialization:** Increased production and consumption lead to greater freight movement.
- **E-commerce Boom:** The rise of online shopping has increased demand for fast and efficient logistics.
- **Government Policies:** Infrastructure investments, multimodal logistics parks, and policy reforms support logistics efficiency.

India's freight transportation sector is poised for significant growth, with an expected increase from 5,000 MT in 2024 to 8,000 MT by 2032. This reflects a growing economy, improved logistics infrastructure, and a shift toward more efficient supply chain mechanisms. However, challenges such as congestion, environmental concerns, and the need for sustainable logistics solutions must be addressed. Investments in green logistics, technology-driven solutions, and infrastructure upgrades will be key in ensuring efficient and sustainable freight movement in the coming years.

Factors Driving Freight Growth:



Logistics industry contribution to Economic Growth

- **Contribution to GDP**

Logistics industry is a core support area of the Indian economy, generating 14.4% of the GDP as noted in the Economic Survey 2022-23 released by the Ministry of Finance. Until few years back owing to the inefficiencies in warehousing, transportation, and supply chain management, the logistics costs remain disproportionately elevated at 13-14% of GDP, against the international benchmark of 8-10%. However, proving to be aware of this challenge, the Government of India brought out the National Logistics Policy (NLP) in 2022 which is steadily helping to bring down the cost of logistics in India which currently measures 7.8-8.9% of GDP. This steady effort to reduce the logistic cost is anticipated to increase the competitiveness of Indian industries and add a further 1.5-2% to GDP growth every year.

Supporting this endeavour is the PM Gati Shakti National Master Plan, a revolutionary effort that unites infrastructure development among 16 critical ministries, such as roads, railways, ports, and aviation. By

aligning these projects, the plan seeks to do away with delays and minimize expenses, thus enhancing the overall efficacy of the logistics network.

For example, the Bharatmala Pariyojana, a flagship ministry of Road Transport and Highways highway development project, has already slashed freight travel time by 20%, and the Dedicated Freight Corridors (DFCs) being constructed by Indian Railways are expected to save ₹1.3 lakh crore in logistics costs annually once they become operational in full.

- **Employment Generation**

The logistics industry is one of India's biggest jobs creators, and it employs over 22 million people, as documented by the Ministry of Commerce and Industry in 2023. This staff is spread throughout several sub-industries, where road transportation covers 70% of employees, warehousing and cold storage take 15%, and last-mile delivery solutions cover 10%. The growth of online platforms such as Flipkart and Amazon at a faster pace has increased demand for well-skilled logistics professionals even more in urban and semi-urban cities.

In order to meet the skills gap, the National Skill Development Corporation (NSDC) undertakes the Skill India Mission that has trained 5 lakh workers for logistics-specific functions up to 2023. The emerging fields like drone-based delivery, which is being encouraged under the Drone Policy 2022, and AI-powered warehouse management systems, which form a part of the overall Digital India program, are the focus areas for training programs. Through the provision of contemporary skills to the workforce, the government hopes to boost productivity and make sure that the logistics industry remains a key driver of inclusive economic growth.

- **Promoting Trade and Exports**

Adequate logistics are vital to boost India's trade competitiveness because excessive logistics costs have in the past incurred USD 180 billion in unnecessary expenses, as per the Logistics Ease Across Different States (LEADS) Report 2022. In a bid to mitigate this, the National Logistics Policy (NLP) 2022 and PM Gati Shakti program have been initiated with the aim of lowering export logistics costs by 30%. These initiatives are already beginning to bear fruit, with the overall port turnaround time increasing from 4.5 days in 2015 to 2.6 days in 2023, according to the Ministry of Ports, Shipping, and Waterways.

The Dedicated Freight Corridors (DFCs), the bedrock of India's logistics modernization, have decreased freight transit times considerably. For instance, Delhi-Mumbai freight corridor has reduced the travel time from 14 to 8 hours and resulted in saving INR 400 billion annually, according to the Dedicated Freight Corridor Corporation of India (DFCCIL) in 2023. Further, the Sagarmala Programme with its port-led development has brought the cost of coastal shipping down by 40%, improving the competitiveness of Indian exports in overseas markets. These gains are essential in helping the government realize its vision of USD1 trillion in merchandise exports by 2030.

- **Government Programs for Logistics Growth**

The National Logistics Policy (NLP) 2022 is a comprehensive effort to make India's logistics sector more efficient. One of the main elements of this policy is the Unified Logistics Interface Platform (ULIP), which brings together 30+ digital platforms of railways, ports, and customs to track shipments in real-time. Another vital initiative is the creation of Multi-Modal Logistics Parks (MMLPs), which will cut freight costs by 10-12%, as projected by NITI Aayog in its 2023 report.

The Sagarmala Programme, initiated by the Ministry of Ports, Shipping, and Waterways, is another revolutionary initiative to maximize port efficiency and lower logistics costs. With 600+ projects totalling INR 8.5 trillion, the program aims to increase port connectivity, upgrade infrastructure, and encourage coastal shipping. In the same vein, the Bharatmala Pariyojana, under the Ministry of Road Transport and Highways, is building 12,000 km of new highways to enhance freight mobility. These initiatives together seek to make India a global logistics hub.

- **Foreign Direct Investment (FDI) in Logistics**

Foreign Direct Investment (FDI) in the logistics sector has become a cornerstone for enhancing global trade efficiency, infrastructure development, and technological advancement. Between 2000 and 2024, total FDI inflows reached USD 991 billion, with a significant 67% (USD 667 billion) of this investment occurring in the last decade (2014–2024), highlighting a sharp upward trend. Particularly notable is the manufacturing sector, which is closely linked to logistics and saw FDI equity inflows grow by 69%—from USD 98 billion in 2004–2014 to USD 165 billion in 2014–2024. This surge reflects the increasing focus of global investors on integrated supply chains, driving demand for modern warehousing, cold storage, freight networks, and last-mile delivery services.

Emerging markets in Asia-Pacific, the Middle East, and Africa have attracted strong FDI due to rising consumption, infrastructure gaps, and government-led policy reforms. Countries like India, supported by initiatives such as “Make in India” and Gati Shakti, have become key destinations for foreign investment in logistics. At the same time, developed regions in North America and Europe are channeling FDI toward digital logistics infrastructure, sustainability, and automation. Despite challenges such as regulatory barriers and capital-intensive entry, the logistics sector remains a magnet for foreign capital, driven by its critical role in global economic growth and the need for resilient, tech-enabled supply chain systems.

Positioning of India Logistics Industry in the Global Economy

India's logistics sector plays a critical role in the country's economic growth, global trade facilitation, and industrial competitiveness. The World Bank's Logistics Performance Index (LPI) 2023 report highlights significant advancements in India's logistics efficiency, with the country ranking 22nd globally in the International Shipments category and 38th in overall LPI score. This notable improvement is a testament to the government's continued emphasis on enhancing logistics infrastructure, digitization, and policy reforms.

The Logistics Performance Index (LPI) serves as a benchmark for evaluating the logistics capabilities of countries worldwide based on factors such as customs efficiency, infrastructure, international shipments, logistics quality, tracking and tracing, and timeliness. India's recent jump in rankings underscores its growing significance in global trade and supply chain networks.

One of the most noteworthy achievements is the reduction in port turnaround time, a critical indicator of logistics efficiency. As per the World Bank's LPI 2023 report, Indian ports recorded an average turnaround time of 0.9 days, outperforming several developed economies, including:

Sr no.	Country	Turnaround Time (Days)
1	India	0.9
2	Singapore	1
3	Malaysia	1
4	UAE	1.1
5	Indonesia	1.1
6	Ireland	1.2
7	Belgium	1.3
8	Germany	1.3
9	USA	1.5
10	Australia	1.7
11	Russia	1.8
12	Canada	2
13	South Africa	2.8

Maritime Amrit Kaal Vision 2047 – A Blueprint for Future Growth

To further strengthen its logistics and maritime capabilities, India has developed the Maritime Amrit Kaal Vision 2047, aligning with the principles of the blue economy. This strategic roadmap outlines the long-term transformation of India's maritime sector, focusing on:

- Expansion of port capacity: Development of greenfield and brownfield ports to cater to rising trade volumes.

- Operational efficiency: Integration of automation, digitization, and advanced logistics technologies to improve supply chain management.
- Sustainability initiatives: Promotion of green logistics, establishment of hydrogen hubs, and enhancement of eco-friendly shipping practices.
- Boosting coastal tourism: Infrastructure development for island-based tourism and cruise shipping, strengthening India's position as a global maritime hub.
- Maritime capacity building: Investment in workforce training and skill development to create a future-ready logistics workforce.
- Shipbuilding and repair: Strengthening the domestic shipbuilding industry to reduce reliance on foreign manufacturing and boost India's shipping tonnage.
- Global engagement: Increasing participation in international maritime forums, reinforcing India's global maritime presence.

By executing this vision, India aims to position itself as a global logistics leader, ensuring seamless movement of goods, reduced transit costs, and enhanced trade efficiency.

4. Investment Commitments and Policy Reforms

The Global Maritime India Summit (GMIS) 2023 served as a major catalyst in attracting substantial investments in the logistics and maritime sectors. The summit resulted in ₹10 trillion worth of investment commitments, including:

- 360 Memorandums of Understanding (MoUs) signed, accounting for an investment of ₹8.35 trillion, including international collaborations.
- Additional investible projects worth ₹1.68 trillion were announced, further driving growth in logistics infrastructure.

These investments reflect India's commitment to modernizing its logistics ecosystem, ensuring seamless trade facilitation, and enhancing global supply chain integration.

India's ascent in the Logistics Performance Index (LPI) 2023 demonstrates its growing competitiveness in global logistics. The country's strong performance in port efficiency, logistics infrastructure development, and digital integration has positioned it as a critical player in international trade. With initiatives such as Maritime Amrit Kaal Vision 2047 and strategic investment inflows, India is well on track to becoming a global logistics powerhouse. Moving forward, continued policy reforms, technological advancements, and sustainability-driven strategies will be essential in sustaining this momentum and elevating India's position in the global logistics landscape.

Air Transportation in Logistics

Overview of Air Transportation: Significance of air transportation in Logistics, Airports Infrastructure Scenario in India

Air transportation plays a pivotal role in modern logistics, offering unparalleled speed and efficiency in the movement of goods across global markets. In India, the significance of air transport has grown substantially, supported by expansive airport infrastructure developments and strategic initiatives aimed at enhancing connectivity and trade.

Significance of Air Transportation in Logistics

- **Speed and Efficiency:** Air transport is the fastest mode of freight movement, often delivering international shipments within 24-48 hours. This rapid transit is crucial for time-sensitive goods such as perishables, pharmaceuticals, and high-value items, ensuring they reach markets promptly and in optimal condition.
- **Global Reach:** Air freight enables businesses to access international markets swiftly, facilitating global trade and commerce. The ability to transport goods quickly across continents allows companies to respond effectively to market demands and maintain competitive advantages.
- **Supply Chain Optimization:** Utilizing air transport allows businesses to adopt just-in-time delivery models, reducing the need for extensive warehousing and minimizing inventory costs. This efficiency enhances overall supply chain management, allowing for better responsiveness to consumer needs and market fluctuations.

Airports Infrastructure Scenario in India: Current Landscape

As of 2024, India boasts 159 operational airports, a significant increase from 74 in 2014. This expansion reflects the country's commitment to enhancing its aviation infrastructure to support growing passenger and cargo demands.

Source: Airports Authority of India (AAI), as on 31.12, 2024

India's aviation industry has experienced significant growth in the past 10 years. The number of operational airports in the country has doubled from 74 in 2014 to 159 in 2024 and the aim is to increase this number to 350-400 by 2047. The domestic air passengers have more than doubled in the past decade, with Indian airlines significantly expanding their fleets. Indian air cargo is projected to handle 5.8 million tonnes by 2029 The Indian international air cargo market outperformed both the global and Asia Pacific average and is on track for around 19% growth in 2024.

Over the next five years, Indian air cargo traffic is expected to grow from 3.7 million tonnes today to between 5 and 5.8 million tonnes by 2029 or about 6-9% per year. The forecast range for Indian air cargo volumes in the next five years is between 6.2% and 9.1%**.** This is higher than recent performance, but in line with longer-term performance through 2019, according to the India Air Cargo Outlook 2025-2029 by Trade Data Service by Trade and Transport group published in January 2025.

Government Initiatives and Investments:

- The Indian government plans to invest approximately ₹920 billion (USD 11 billion) to increase the number of operational airports to 200 by 2025. This investment aims to bolster connectivity, stimulate economic growth, and accommodate the rising air traffic in the country.
- This has come amid a surge in the aviation sector in India. Naidu said that airlines increased their capacity by about 9% this year, totalling 240 million seats across domestic and international markets. Earlier this year, data from aviation analytics firm OAG showed that India is the third-largest domestic aviation market as its domestic airline capacity increased from 8 million in April 2014 to 15.6 million this year.

Challenges and Future Outlook:

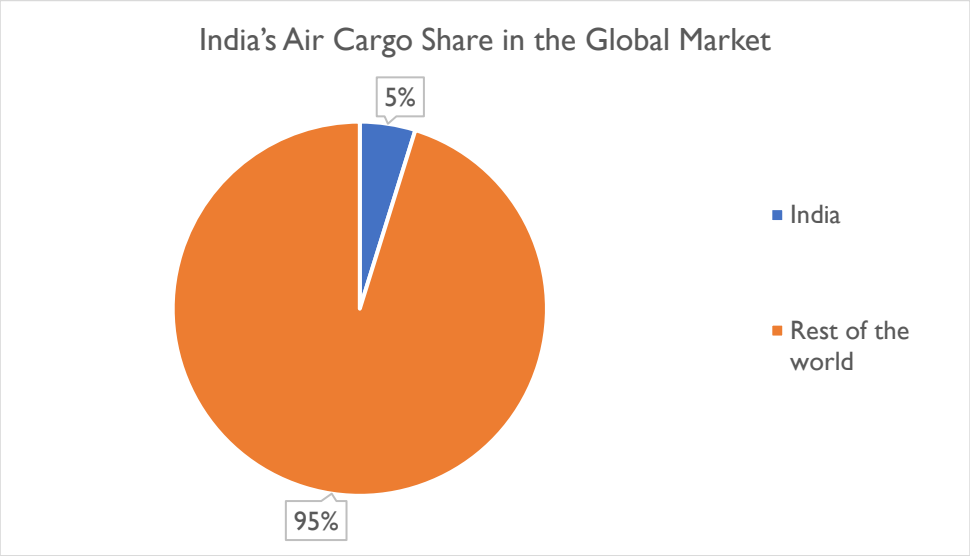
Despite significant advancements, India's aviation sector faces challenges, including the need for over $170 billion in investments by 2030 to fund further expansion and address capacity constraints. Domestic passenger traffic is projected to double to 300 million, necessitating substantial enhancements in airport infrastructure and fleet capacity.

Total Cargo carried by Air in terms of volume (historical growth trend)

Air cargo serves as a critical pillar of global trade, ensuring the efficient and timely movement of goods across international markets. Over the years, the total volume of cargo transported by air has demonstrated a steady upward trajectory, driven by various factors such as economic expansion, technological advancements, and shifting trade patterns.

Air cargo volumes are projected to rise by 5.8% year-on-year, reaching 72.5 million tonnes by 2025. This growth is largely fuelled by increasing global e-commerce activity and supply chain adjustments, particularly due to disruptions in traditional maritime routes, such as the Red Sea crisis. The rise in air freight demand reflects businesses' strategic shift towards faster and more reliable logistics solutions to counter delays in ocean shipping.

India's aviation sector has experienced a significant recovery, reinforcing its role as a crucial hub for global trade. In 2023, Indian airports handled approximately 3.3 million tonnes of air cargo, demonstrating the increasing reliance on air transport for imports and exports. The resurgence in the aviation sector is evident in the air traffic movement, which saw a substantial rise from 188.89 million in FY22 to 327.28 million in FY23. This growth underscores the renewed strength of the industry post-pandemic, further bolstering air cargo transportation.



India has emerged as a key player in global air cargo logistics, reflecting the country's growing trade and economic activities. In 2023, Indian airports handled approximately 3.3 million tonnes of air cargo, contributing significantly to the nation's import and export volumes. When compared to the estimated global air cargo volume of 68.5 million tonnes in 2023, India's share in the global market stands at approximately 4.8%.

Key Drivers of Air Cargo Growth

- E-commerce Expansion: With the rapid rise of online shopping, the demand for express delivery services has significantly increased, contributing to higher air cargo volumes.
- Supply Chain Disruptions: Challenges such as the Red Sea crisis have led businesses to pivot towards air freight for urgent and time-sensitive shipments.
- Post-Pandemic Recovery: The strong rebound in passenger air traffic has also positively impacted cargo movement, as more flights translate into enhanced freight capacity.
- Infrastructure Development: Improvements in cargo-handling facilities and airport expansions have further facilitated efficient air freight movement.

As global trade continues to evolve, the air cargo industry is expected to witness sustained growth. The projected 5.8% annual increase in cargo volumes indicates a promising future, with air freight becoming an increasingly vital component of global logistics. In India, the government's ongoing investments in aviation infrastructure and logistics hubs will further strengthen the country's role in the international air cargo ecosystem. Given the current trajectory, air transport will remain a crucial enabler of economic growth, ensuring seamless global trade and connectivity.

Air Cargo Segmentation by (historical growth trend)- Domestic / International

Domestic

Domestic air cargo refers to the movement of goods within a single country's borders, serving industries such as e-commerce, retail, healthcare, and perishables. Historically, this segment has shown steady growth, propelled by rising consumer demand for faster deliveries, regional trade expansion, and infrastructure improvements. The growth of domestic air cargo has been closely linked to the rise of logistics providers, such as FedEx, UPS, and DHL, which have optimized air freight operations through hub-and-spoke models. Additionally, the increasing adoption of express parcel services and the integration of digital tracking technologies have enhanced efficiency, making air transport a preferred mode for time-sensitive shipments. The demand for domestic air freight surged with the boom in online retail and urbanization, compelling cargo airlines and logistics firms to expand their networks and invest in automation.

International

International air cargo involves the transportation of goods across countries and continents, serving global industries such as electronics, pharmaceuticals, automotive, and cross-border e-commerce. Historically, this segment has exhibited fluctuating growth, influenced by global trade agreements, economic downturns, and geopolitical developments. The emergence of free trade zones, advancements in freight aircraft capacity, and the liberalization of air cargo markets have significantly bolstered international air freight movement. Major global hubs such as Hong Kong, Frankfurt, and Dubai have played a pivotal role in facilitating international cargo transit. However, international air cargo is highly sensitive to external factors, including fuel price volatility, trade disputes, and regulatory restrictions. Despite these challenges, the segment has remained resilient, adapting to new consumer trends such as the rise of cross-border online shopping and the demand for just-in-time inventory replenishment.

Air Cargo Segmentation by Historical Growth Trend – Domestic vs. International

Air cargo plays a crucial role in global trade, providing a fast and efficient means of transporting goods across vast distances. The market is broadly segmented into domestic and international air cargo, each exhibiting unique growth trends over the years. This chapter explores the historical growth patterns of these segments, considering key drivers such as economic fluctuations, technological advancements, trade agreements, and infrastructure developments.

Factor	Domestic Air Cargo	International Air Cargo
Growth Rate	Steady and resilient	Fluctuating due to economic cycles
Key Drivers	E-commerce, urbanization, logistics efficiency	Global trade agreements, supply chain evolution, economic policies
Challenges	High operational costs, regulatory constraints	Geopolitical instability, fuel price fluctuations
Recent Developments	Drone deliveries, last-mile logistics improvements	E-commerce-driven international shipping, sustainability initiatives

The historical growth trends of domestic and international air cargo reflect the dynamic nature of global logistics. Domestic air cargo has shown consistent growth, driven by e-commerce and urbanization, while international air cargo has been subject to economic cycles, trade agreements, and geopolitical events. As air freight continues to evolve, technological innovations and sustainability efforts will play a pivotal role in shaping the future trajectory of both segments.

Range of Services: Priority Overnight/Same day – Economy 2-5 days later

India's air cargo industry offers a range of services tailored to meet varying delivery timeframes and budget considerations. These services typically fall into two main categories:

- **Priority Services:** Designed for time-sensitive shipments requiring expedited delivery.
- **Same-Day Delivery:** Some logistics providers offer guaranteed same-day delivery within select cities. For instance, Delhivery launched a 'guaranteed' same-day delivery service across 15 key cities in India, enabling Direct-to-Consumer (D2C) brands to fulfil orders on the day they are received.
- **Next-Flight-Out (NFO) Services:** Companies like Bombax provide NFO options, ensuring urgent shipments are transported on the earliest available flight for swift delivery.
- **Express Services:** Airlines such as Air India offer express cargo services like 'Air India Rapid,' which guarantees uplift and provides priority handling for shipments, ensuring faster transit times.
- **Economy Services:** Aimed at less time-sensitive shipments, these services offer cost-effective delivery solutions with longer transit times.
- **Deferred Air Freight:** While specific delivery windows can vary, economy air cargo services typically deliver within 2-5 days, depending on factors such as distance and carrier schedules.

It's important to note that service offerings and delivery timeframes may differ among providers. For the most accurate and up-to-date information, it's advisable to consult directly with the respective logistics companies or airlines.

Types of Carriers-Scheduled Airlines, Cargo Airlines

Scheduled Airlines

Scheduled airlines operate fixed-route commercial flights at regular intervals according to a published timetable. These airlines are primarily focused on passenger travel but also carry belly cargo, which is the freight transported in the lower deck of passenger aircraft. Airlines like Air India, IndiGo, Emirates, and British Airways operate scheduled services on both domestic and international routes.

Characteristics of Scheduled Airlines

- **Fixed Timetables** – Operate on predefined schedules, ensuring reliability for passengers and cargo.
- **Passenger & Cargo Services** – Primarily focused on passenger transport, but belly cargo is utilized for freight transportation.
- **Regulated Operations** – Must adhere to government and aviation authority regulations, such as the International Air Transport Association (IATA) standards.
- **Global & Regional Connectivity** – Serve major international hubs and smaller regional airports, enhancing trade and logistics networks.

Examples of Scheduled Airlines Handling Cargo:

- **Air India Cargo** – Uses belly space of passenger aircraft for freight.
- **IndiGo CarGo** – Offers scheduled belly cargo services across domestic and international routes.
- **Emirates SkyCargo** – A division of Emirates, specializing in scheduled air freight operations.

Facilities/Advantages of Air Transport

Air transport plays a crucial role in modern logistics and global trade. Its unique characteristics make it an indispensable mode of transportation, offering unparalleled efficiency and reliability. Below are the key advantages and facilities that define the significance of air transport.

Advantages of Air Transport

Rapid Delivery

- One of the most significant benefits of air transport is its exceptional speed, making it the fastest mode of transportation.
- Frequent flight schedules further enhance delivery efficiency, ensuring timely shipment of goods.

Minimal Physical Constraints

- Unlike road or rail transport, air transport is not restricted by geographical barriers or infrastructure limitations.
- This enables uninterrupted services, making it a highly reliable option for businesses that require seamless logistics.

High Reliability

- Air transport is known for its punctuality and adherence to strict schedules, reducing the risk of delays.
- The chances of cargo misplacement or loss are minimal due to stringent security and tracking measures.

Long-Distance Connectivity

- No other mode of transport covers vast distances as efficiently as air transport.
- It is the most viable solution for international trade, bridging continents and enabling swift movement of goods and passengers.

Facilities of Air Transport

Cargo Handling & Storage Facilities

- **Dedicated Air Cargo Terminals** – Major international airports are equipped with specialized cargo terminals for streamlined processing and efficient handling.
- **Temperature-Controlled Warehousing** – Storage facilities for perishable goods such as fresh produce, pharmaceuticals, and vaccines ensure product integrity.
- **Advanced Security Measures** – X-ray scanners, screening procedures, and tracking systems enhance cargo safety and prevent unauthorized access.

Passenger & Aircraft Maintenance Facilities

- **Modern Airport Infrastructure** – Airports feature advanced runways, air traffic control (ATC) systems, and well-equipped maintenance hangars.
- **Passenger Amenities** – Comfortable waiting lounges, baggage handling services, and duty-free shopping enhance the travel experience.
- **Aircraft Servicing & Refuelling** – Airports provide on-site maintenance, fuelling stations, and technical support to ensure uninterrupted operations.

Multimodal Transport Connectivity

- **Integrated Transport Networks** – Efficient coordination between air, rail, and road networks allows seamless cargo and passenger movement.
- **Logistics & Express Cargo Hubs** – Leading logistics providers such as SpiceXpress, Blue Dart, and FedEx operate specialized hubs to enhance air cargo efficiency.

Air transport remains a cornerstone of global logistics, offering unmatched speed, reliability, and connectivity. Its well-established infrastructure and integrated services continue to drive economic growth and facilitate international trade.

Regulatory Landscape specific to Aviation

India's aviation industry is governed by a comprehensive regulatory system aimed at providing safety, security, and efficiency in diverse areas such as commercial air transport, cargo aviation, and general aviation

- **Ministry of Civil Aviation (MoCA)**

The Ministry of Civil Aviation (MoCA) is the main government agency that makes policies and regulates civil aviation in India. It manages the growth of aviation infrastructure, bilateral air service agreements, and airline operations. One of its major initiatives is the National Civil Aviation Policy (NCAP) 2016, which looks to promote regional connectivity under the UDAN (Ude Desh Ka Aam Nagrik) scheme by offering low fares for flying in smaller cities.

The policy also allows 100% Foreign Direct Investment (FDI) in scheduled airlines with up to 49% possible under the automatic route and over that through government approval. Apart from this, MoCA has also launched the DigiYatra program, which is a digital travel system based on biometrics aimed at streamlining the passenger processing in airports by eliminating the need for manual checks and bolstering security. The ministry also controls fares on some routes under the Route Dispersal Guidelines (RDG) for connecting remote and unserved areas.

- **Directorate General of Civil Aviation (DGCA)**

The Directorate General of Civil Aviation (DGCA) is India's central aviation safety regulatory, licensing, and airworthiness authority. It functions under the Aircraft Act, 1934, and the Aircraft Rules, 1937, enforcing Civil Aviation Requirements (CARs) that cover every aspect of civil aviation. The DGCA issues pilot licenses, such as Commercial Pilot Licenses (CPL) and Airline Transport Pilot Licenses (ATPL), and oversees medical standards compliance. It also issues Air Operator Certificates (AOC) to airlines, insisting on strict compliance with safety regulations, maintenance practices, and operating procedures.

The DGCA manages Flight Duty Time Limitations (FDTL) to avoid pilot fatigue and improve flight safety. It also monitors consumer protection practices, insisting that airlines pay compensation to passengers in case of flight cancellations, delays, or denied boarding according to specified guidelines. The DGCA also certifies aircraft types and ensures that the aircraft flying within India are internationally compliant with standards of safety approved by bodies such as the FAA and EASA.

- **Bureau of Civil Aviation Security (BCAS)**

The central organization for ensuring aviation security in India is the Bureau of Civil Aviation Security (BCAS). It functions under the Aviation Security Programme (ASP) and implements regulations according to ICAO Annex 17 (Security Standards). The BCAS develops the National Civil Aviation Security Programme (NCASP), which provides security procedures for airports, airlines, and passengers. Major duties are the conduct of Pre-Employment Background Checks (PEBC) for airport employees to secure sensitive areas

against unauthorized entry. The BCAS requires rigorous passenger and baggage checks at airports to identify banned items and possible dangers. It also carries out anti-hijacking procedures under the Anti-Hijacking Act, 2016, such as sending armed sky marshals on specific flights. The BCAS also carries out routine security audits and surprise checks in airports to monitor compliance with security standards and thwart possible violations.

- **Airports Authority of India (AAI)**

The Airports Authority of India (AAI) is charged with the management and development of civil aviation infrastructure in the country, such as air traffic control (ATC), navigation facilities, and airport management. Set up under the Airports Authority of India Act, 1994, the AAI is in charge of over 125 airports, ranging from international, domestic, to regional airports. Its key activities involve the provision of air traffic management (ATM) services, the safe movement of aircraft during take-off, landing, and in-route flight, respectively. The AAI also executes airport modernization schemes, terminal expansion, runway extension, and cargo terminals to meet increased passenger and freight traffic. In accordance with the Regional Connectivity Scheme (RCS-UDAN), the AAI develops and upgrades smaller airports to improve connectivity in remote locations. In addition, the AAI controls landing and parking fees at non-major airports, whereas the Airports Economic Regulatory Authority (AERA) controls tariffs at major airports such as Delhi and Mumbai.

- **Airports Economic Regulatory Authority (AERA)**

Airports Economic Regulatory Authority (AERA) is a statutory body set up under the AERA Act, 2008, to regulate major airport tariffs and charges in India. Its main function is to maintain fair prices for aeronautical services such as landing fees, parking charges, and passenger service charges to keep airport operators from monopolizing activities. AERA fixes tariffs for airports with more than 1.5 million annual passenger traffic, including Delhi, Mumbai, Bangalore, and Hyderabad. The authority reviews airport revenue and expenditure from time to time to fix reasonable charges that reconcile the interests of airlines, passengers, and airport operators. Regulating economic aspects of airport operations, AERA encourages competition, efficiency, and investment in India's aviation infrastructure.

- **Cargo Aviation Regulations**

Open Sky Policy for Air Cargo: This policy, initiated in 1990, allows Indian as well as foreign airlines satisfying prescribed operation and safety norms to operate scheduled and non-scheduled cargo services to/from any airport having customs/immigration facilities. The policy was revised in September 2020 to limit foreign ad hoc and non-scheduled freighter charter services to six main airports: Bengaluru, Chennai, Delhi, Kolkata, Hyderabad, and Mumbai. The policy modification is to increase the demand for domestic freight charter services.

Drivers of Air Cargo Traffic in India

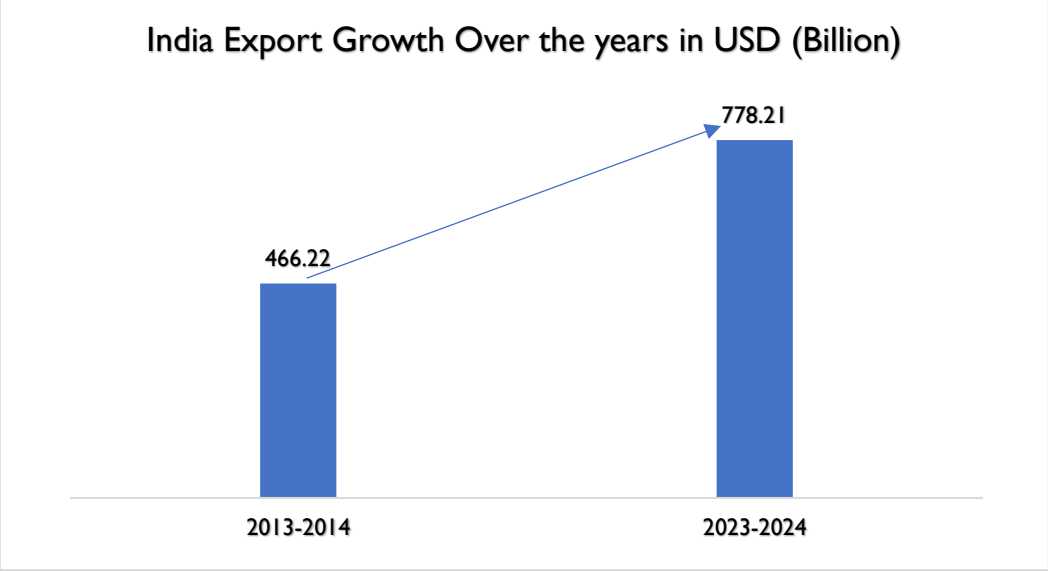
India's Foreign Trade Growth in the last 10 year

Over the past decade, India's foreign trade has experienced significant growth, marked by notable increases in both exports and imports. In the fiscal year 2013-14, India's exports were valued at approximately USD 466.22 billion. By 2023-24, this figure had surged to USD 778.21 billion, reflecting a 67% increase. Imports also saw substantial growth, with figures rising from USD 450.2 billion in 2013-14 to USD 672.6 billion in 2023. Despite this expansion, India has consistently maintained a trade deficit due to higher import values compared to exports. The country's trade balance was recorded at a deficit of USD 73.51 billion in 2023, a 38.5% decline from the previous year.

India's Export Growth and its share in global import[4]

India's exports have seen a historic rise, reaching USD 778.21 billion in 2023-24. This marks a 67% increase from USD 466.22 billion in 2013-14. The growth reflects India's expanding role in global trade, driven by strong performances in both merchandise and services exports.

In 2023-24, merchandise exports stood at USD 437.10 billion, while services exports contributed USD 341.11 billion, demonstrating a well-balanced expansion. Key sectors like electronics, pharmaceuticals, engineering goods, iron ore, and textiles played a vital role in this surge. Strengthened by strategic policy measures, enhanced competitiveness, and broader market access, India's export ecosystem is now more resilient and deeply integrated into the global economy.

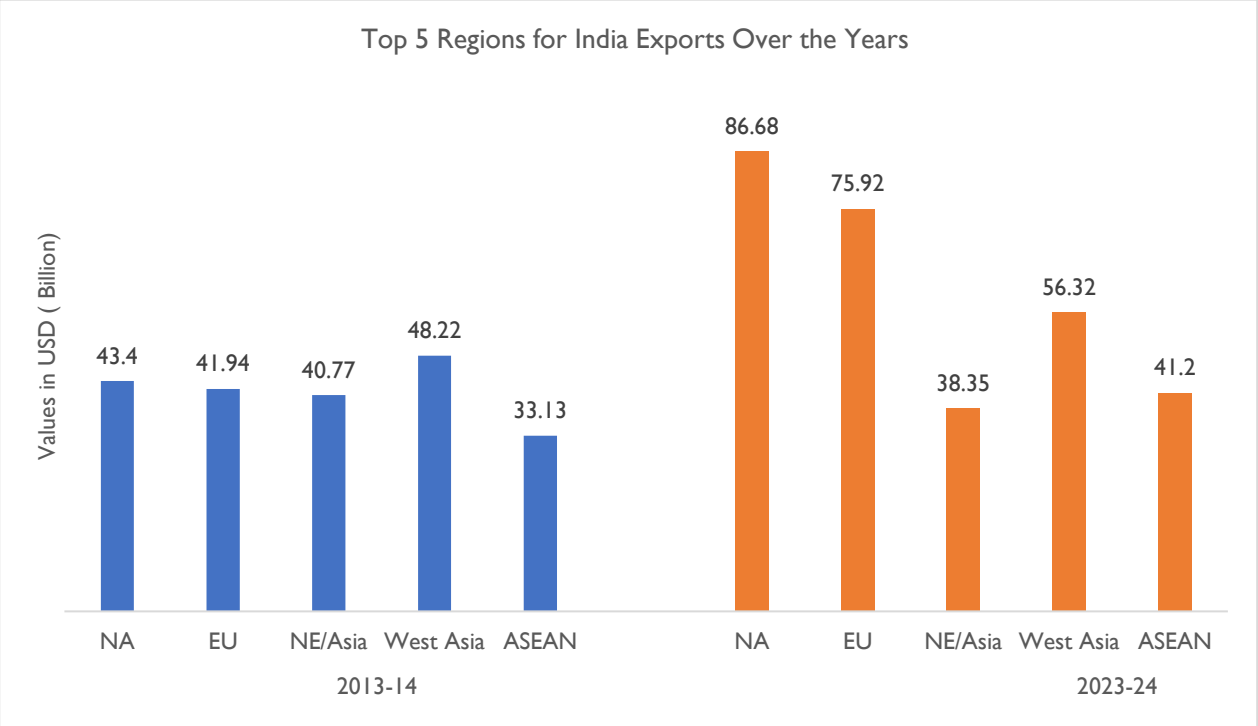


Source: Ministry of Commerce & Industry – PIC Delhi

The momentum has continued into FY 2024-25, with cumulative exports during April-December 2024 estimated at USD 602.64 billion, a 6.03% increase from USD 568.36 billion in the same period of 2023. Strengthened by strategic policy measures, enhanced competitiveness, and broader market access, India's export ecosystem is now more resilient and deeply integrated into the global economy.

Leading Export Regions Over the Years

In 2004-05, India's exports were predominantly directed to regions like North America, the European Union, North-East Asia, West Asia-Gulf Cooperation Council, and ASEAN. By 2013-14, there was a marked increase in export values across these regions, with North America, the EU, and West Asia seeing notable growth. Fast forward to 2023-24, and the export landscape shows continued expansion, with North America leading as the largest destination. The EU, West Asia, and ASEAN also experienced robust growth, illustrating India's diversified and strengthened global trade relationships over the years.



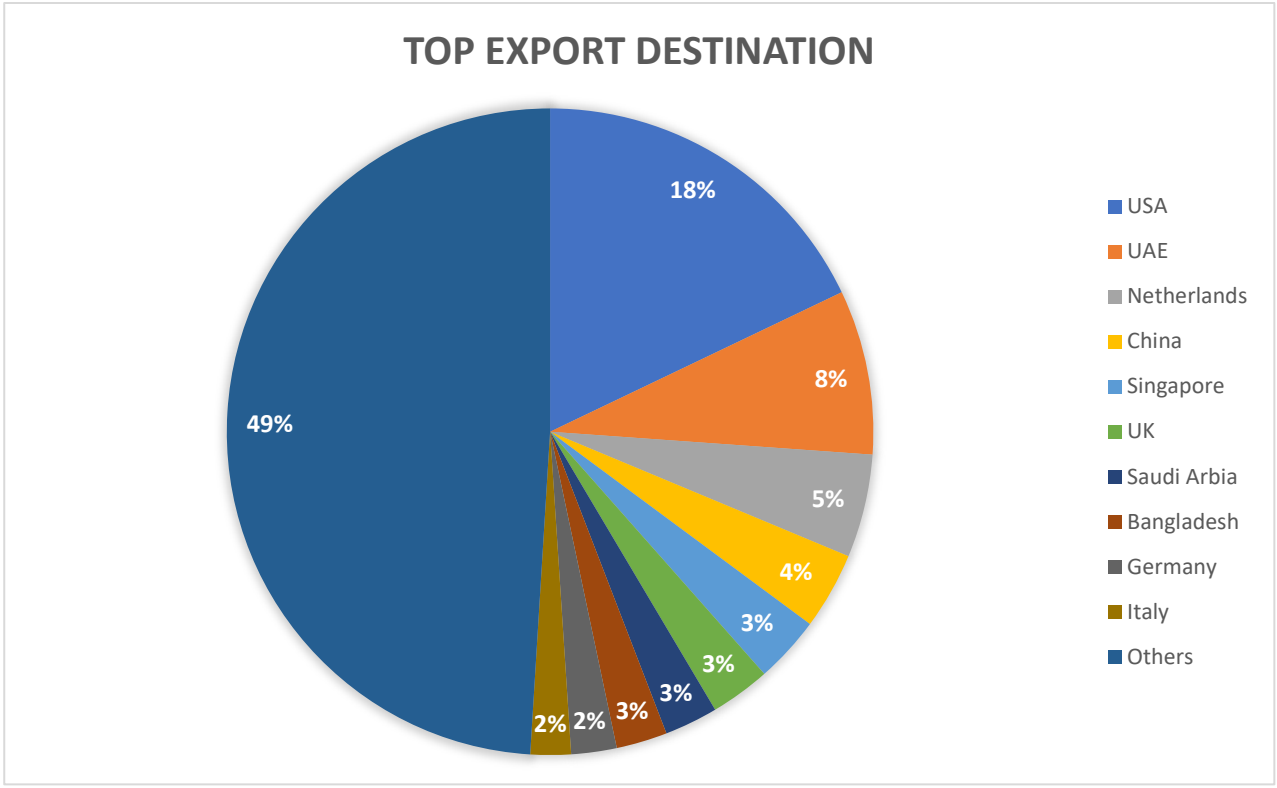
Source: Ministry of Commerce & Industry – PIC Delhi

- The graph shows the top 5 regions for India's exports in 2013-14 and 2023-24, highlighting significant changes over the decade.
- North America (NA) saw the most substantial growth, nearly doubling from $43.4 billion in 2013-14 to $86.68 billion in 2023-24.
- European Union (EU) exports also increased significantly from $41.94 billion to $75.92 billion, reflecting stronger trade ties.
- West Asia exports rose from $48.22 billion to $56.32 billion, indicating moderate growth.
- ASEAN (Southeast Asia) experienced slight growth from $33.13 billion to $41.2 billion.

- Northeast Asia (NE/Asia) exports declined slightly from $40.77 billion to $38.35 billion, potentially due to shifting trade policies or economic conditions.

Key Export Destinations in 2023-24

In 2023-24, the top merchandise export destinations for India included the USA (17.90%), UAE (8.23%), Netherlands (5.16%), China (3.85%), Singapore (3.33%), UK (3.00%), Saudi Arabia (2.67%), Bangladesh (2.55%), Germany (2.27%), and Italy (2.02%).



India's Import Growth and its share in global export.

Imports in India decreased to 50.96 USD Billion in February from 59.42 USD Billion in January of 2025. Imports in India averaged 11.71 USD Billion from 1957 until 2025, reaching an all-time high of 69.95 USD Billion in November of 2024 and a record low of 0.12 USD Billion in August of 1958.

India main imports are: mineral fuels, oils and waxes and bituminous substances (27 percent of total imports); pearls, precious and semi-precious stones and jewellery (14 percent); electrical machinery and equipment (10 percent); nuclear reactors, boilers, machinery and mechanical appliances (8 percent); and organic chemicals (4 percent). India's major import partners are: China (16 percent of total imports), the United States (6 percent), United Arab Emirates (6 percent), Saudi Arabia (5 percent) and Switzerland (5 percent).

Detail Import data from 2014-15 to 2023-24:

SR no.	Year	Import in USD (Billion)
1	2014	529.2
2	2015	465.10
3	2016	480.17
4	2017	582.02
5	2018	640.30
6	2019	602.32
7	2020	510.24
8	2021	760.90
9	2022	897.55
10	2023	850.64

Source-World Bank as per latest data

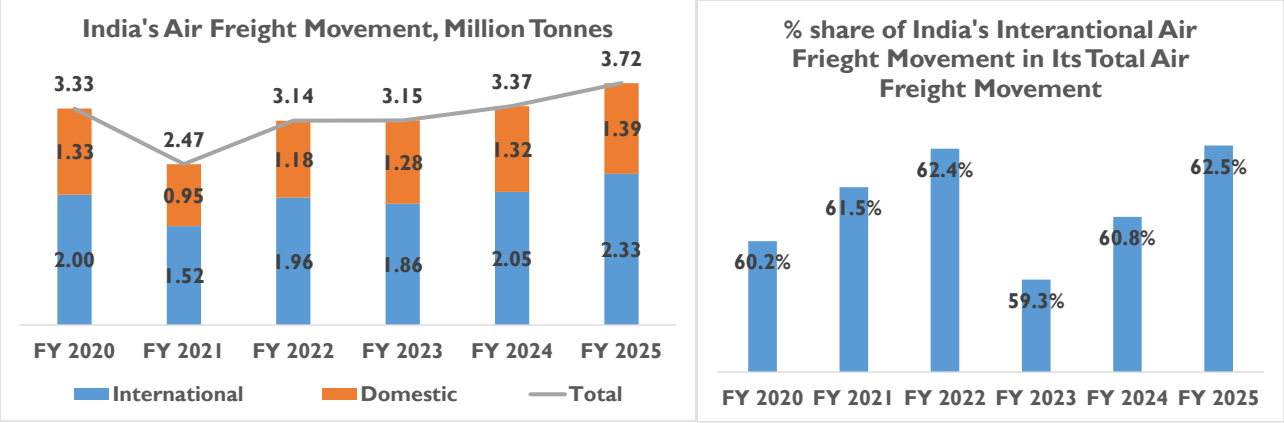
- **2014-2016:** Imports declined from $529.2B (2014) to $465.1B (2015) due to falling crude oil prices and weak demand, but slightly recovered to $480.17B in 2016.
- **2017-2019:** Strong economic growth led to a steady rise, peaking at $640.3B in 2018, before dropping to $602.32B in 2019, likely due to trade tensions and economic slowdown.
- **2020:** Imports fell sharply to $510.24B due to COVID-19, lockdowns, and reduced industrial activity.

- **2021-2022:** A strong rebound was seen, with imports surging to $760.9B (2021) and further to $897.55B (2022), driven by economic recovery and increased global trade.
- **2023:** Imports declined to $850.64B, possibly due to global recession fears, inflation, and reduced demand for some commodities.

Hence, in conclusion, India's import trends have been shaped by various economic factors, including global commodity prices, trade policies, and macroeconomic conditions. The period from 2014 to 2016 saw a decline in imports due to falling crude oil prices, while strong economic growth drove a steady increase between 2017 and 2019. The COVID-19 pandemic caused a sharp decline in 2020, but imports rebounded significantly in 2021 and 2022, reflecting economic recovery and increased global trade. However, the decline in 2023 suggests the impact of global economic uncertainties, inflationary pressures, and shifting demand dynamics. Going forward, India's import trajectory will likely be influenced by global trade policies, domestic industrial growth, and currency fluctuations.

Trends in Export Logistics: Air and Ocean Freight in India

- **Air Freight:**



Sources: Airport Authority of India

India's air freight movement has increased steadily between FY 2020-25 at CAGR of 2.25%, increasing from 3.33 million tonnes to 3.72 million tonnes. On y-o-y basis, India's air freight movement grew by 11% on y-o-y basis in FY 2025 as compared to 7% y-o-y growth in the previous year. Within the total air freight movement, international freight movement contributed majority share ranging between of 59.3% to 62.5% between the FY 2020-25 period.

The International air freight movement from India exhibited fluctuations due to external market condition. In FY 2021, it experienced a COVID induced decline of 24% (on y-o-y basis) and recovered in FY 2022 while in FY 2023 it again observed moderation of 5%. Thereafter, it has observed a yearly growth of 10% and 14% in FY 2024 and FY 2025, respectively. Between FY 2020-25, the International air freight movement observed a growth of 3%.

Economic Activity: The overall growth in freight volume suggests increased economic activity. Higher freight volumes often correlate with increased production, consumption, and trade.

Global Trade Dynamics: The strong growth in international freight could indicate positive trends in international trade. This might be due to factors like increased exports/imports, new trade agreements, or shifts in global supply chains.

Domestic Market Growth: The moderate growth in domestic freight suggests a more stable but less dynamic domestic market. This could be influenced by factors such as internal demand, infrastructure development, or domestic production levels.

Sectoral Performance: Further analysis would be needed to understand which specific sectors are driving the freight growth. For example, growth in manufacturing, agriculture, or e-commerce could have different impacts on freight patterns.

Impact on Air Cargo Traffic:

Increased Demand for Express Deliveries: The surge in e-commerce has escalated the need for expedited shipping solutions. Consumers now anticipate shorter delivery windows, prompting e-commerce platforms and logistics providers to utilize air cargo for its speed and efficiency. This shift is evident as express shipments are projected to constitute a significant portion of air cargo business in the coming decades.

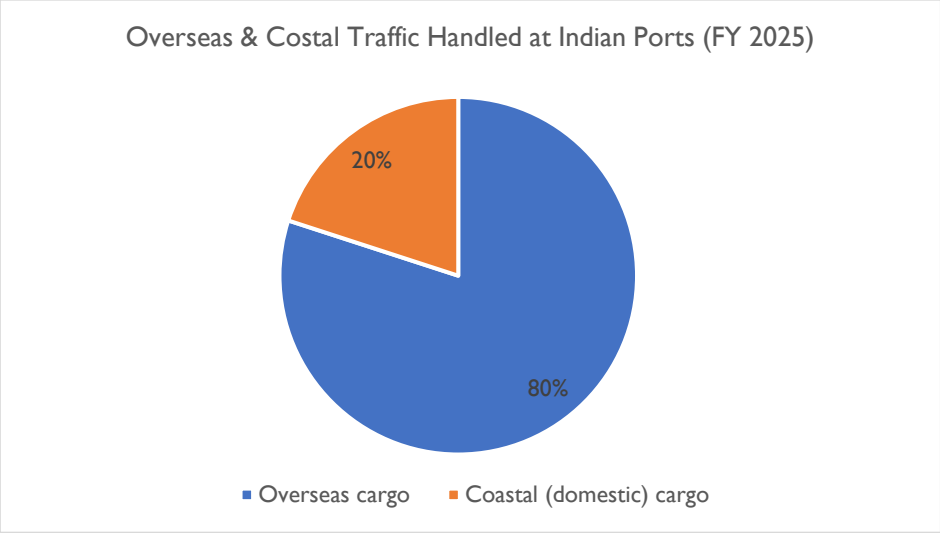
Cross-Border E-Commerce Growth: The expansion of cross-border online sales has further amplified the demand for air cargo services. Air freight is often the preferred mode for international shipments due to its ability to reduce transit times, thereby meeting customer expectations for prompt deliveries.

Infrastructure and Fleet Expansion: To accommodate the burgeoning e-commerce sector, logistics companies and airlines are investing in expanding their air cargo capacities. This includes acquiring additional aircraft, enhancing cargo handling facilities, and optimizing logistics networks to ensure efficient operations

Cargo Movement at Indian Ports

Maritime transport in India is fundamentally driven by the expansion of global trade and economic output. With an extensive coastline stretching approximately 7,517 km (including island territories), ocean routes are instrumental to India's trade logistics. Notably, around **95% of the country's foreign trade by volume and 70% by value** is conducted via maritime channels. These routes not only facilitate international trade but also ensure connectivity between the Indian mainland and its island regions.

India's maritime ecosystem encompasses ports, shipping services, shipbuilding and repair, as well as inland waterway networks. This sector supports a wide array of operations across **overseas trade, coastal trade, and inland transport**. In terms of cargo volume, Indian ports handled a mix of **international (overseas) and domestic (coastal) cargo**, accounting for approximately **80% and 20%**, respectively, of total seaborne traffic:



Sources: Mninisty of Shipping

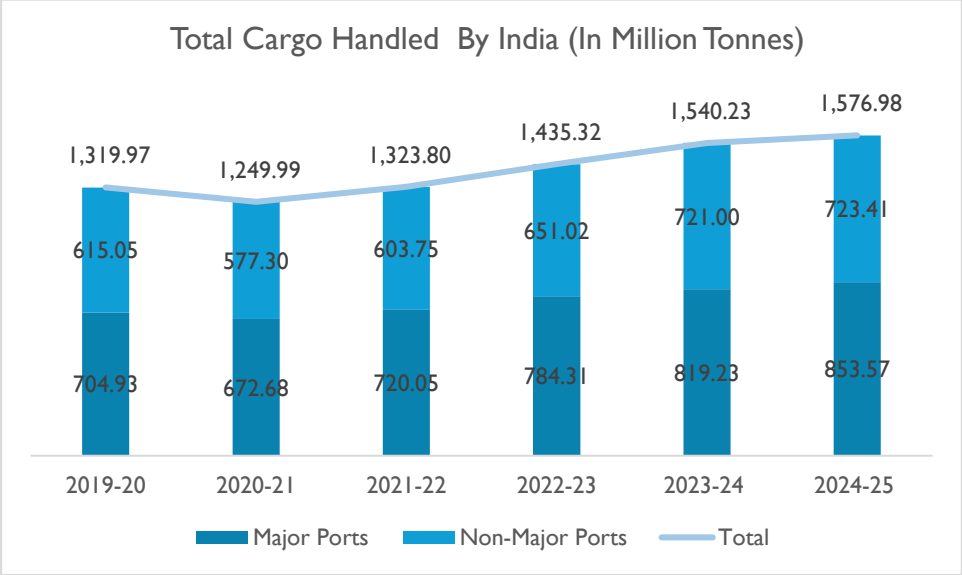
Despite being one of the most cost-effective and environmentally sustainable modes of transportation, **coastal shipping in India remains underdeveloped**. To address this, several initiatives are underway to boost coastal cargo handling capacity, particularly at minor ports. For instance, in June 2024, the **Kerala Maritime Board launched infrastructure enhancements** including the installation of berths and cargo-handling cranes at ports such as **Kollam, Beypore, Azhikkal, and Vizhinjam**.

India's shipping services follow global maritime practices and are broadly classified into **tramp and liner services**. **Tramp services** operate on an ad-hoc basis without a fixed route or schedule, responding to market demand by transporting cargo wherever required. In contrast, **liner services** function on fixed schedules and predetermined routes, typically involving large ocean vessels offering regular service between ports.

In addition to cargo movement, a range of **marine support services** including **tugboat operations, mooring and stevedoring, lighterage, barge operations, and dredging**are essential for ensuring the

smooth flow of vessel traffic. These auxiliary services are especially critical in India, where **port infrastructure remains underdeveloped**. Notably, in government-operated ports, these services are predominantly outsourced to **third-party providers**, with limited involvement from port authorities or shipping companies.

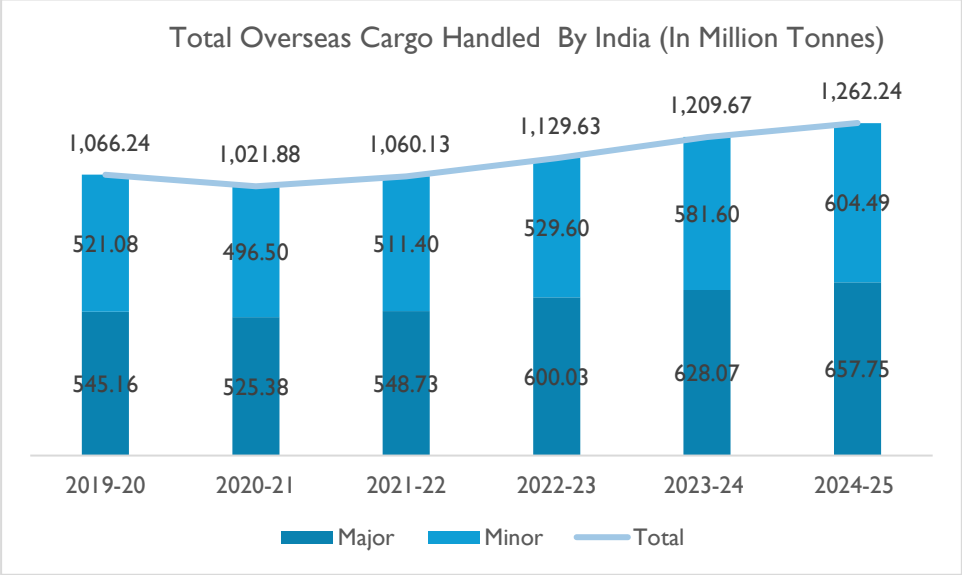
Historical Cargo Handling



Source: Source: - Port Data Management Portal, Ministry of Ports, Shipping and Waterways

Between **FY 2020-25**, cargo volumes handled by Indian ports (Major and Minor) observed steady growth from FY 2022 onwards. In FY 2021, cargo volumes declined by **5.3%%**, primarily due to the **COVID-19 pandemic**, which disrupted global supply chains, halted industrial activity, and impacted port operations. This marked the only year in the period with negative growth. A strong recovery was observed in **FY2022,** as cargo volumes rebounded to **1,576.98 Million tonnes**, registering a **5.98%** CAGR growth. This resurgence was driven by the revival in domestic industrial activity, improvement in global trade flows, and increased movement of key commodities such as coal, fertilizers, and crude oil, in tandem with infrastructure growth post-pandemic, However, the y-o-y growth momentum moderated in **FY2024-25 to 7.3% and 2.4% respectively from 8.4% in FY 2023.** The relatively slower pace suggests a **normalization of growth rates** post the high-recovery phase, and impact of **geopolitical tensions, volatile global trade routes, and tightening economic conditions** in key markets.

India's International Ocean (Overseas) Cargo Volume:



Source: - Port Data Management Portal, Ministry of Ports, Shipping and Waterways

Between **FY 2020-25**, overseas cargo volumes handled by Indian ports (Major and Minor) observed steady growth from FY 2022 onwards. In FY 2021, India's ocean borne cargo volumes declined by **4.2%%**, primarily due to the **COVID-19 pandemic**, which disrupted global supply chains, halted industrial activity, and impacted port operations. This marked the only year in the period with negative growth. A strong recovery was observed in **FY2022,** as cargo volumes rebounded to **1,262.24 Million tonnes**, registering a **5.4%** CAGR between FY 2021-25. This resurgence was driven by the revival in domestic industrial activity, improvement in global trade flows, and increased movement of key commodities such as coal, fertilizers, and crude oil, in tandem with infrastructure growth post-pandemic.

Globalization of Supply Chains

The globalization of supply chains has played a crucial role in driving air cargo growth in India. As businesses expand internationally, the need for fast and efficient transportation has increased, making air freight an essential part of global trade logistics.

- **Integration into Global Manufacturing Networks:** India's growing participation in global manufacturing has increased the need for quick transportation of raw materials and finished goods. Air freight is preferred for its speed and reliability. The sector is expected to grow annually by 6% to 9%, with cargo volumes projected to reach between 5 and 5.8 million tonnes by 2029.
- **Just-in-Time Production Models:** Many industries, especially automotive and electronics, follow just-in-time manufacturing, where materials must arrive precisely when needed. Air cargo enables this system by reducing delays and minimizing storage costs.

- **Diversification of Sourcing Strategies:** Companies are expanding their supplier networks globally to avoid disruptions. With India emerging as a key manufacturing hub, businesses rely on air cargo to transport critical goods quickly.
- **Government Support for Logistics:** The Indian government has introduced policies like the **National Logistics Policy** and **PM Gati Shakti** to enhance the efficiency of freight movement, benefiting air cargo operations.

Sectoral Growth: Pharmaceuticals Sector and Air Cargo Demand

The growth of India's air cargo traffic is significantly driven by key industries such as **pharmaceuticals, manufacturing, and agriculture**. These sectors rely heavily on-air freight due to the need for speed, efficiency, and global market integration. Air cargo plays a crucial role in ensuring timely delivery, maintaining product quality, and expanding India's trade presence worldwide.

Pharmaceuticals Sector and Air Cargo Demand

- **Why Air Cargo is Important for Pharmaceuticals?**
    - The pharmaceutical industry requires temperature-controlled and time-sensitive logistics to transport medicines, vaccines, and other medical supplies worldwide.
    - The demand for fast and secure transportation has increased, especially after the pandemic, with India emerging as a major supplier of essential drugs and vaccines.

- **Key Growth Indicators:**
    - Surging Exports: India's pharmaceutical exports grew by 9.67% in FY 2023-24, reaching $27.9 billion. This surge highlights the growing international reliance on Indian pharma products.
    - Major Global Supplier: India supplies approximately 20% of the global generic drug market, making it a key player in international healthcare.
    - Increase in Specialized Air Cargo: Pharmaceutical shipments via air cargo increased by 22% in 2023, indicating the rising demand for temperature-controlled logistics.

Manufacturing Sector and Air Freight Growth

- **Why Air Cargo is Essential for Manufacturing?**
    - Manufacturing companies depend on just-in-time (JIT) production, where components must arrive at the exact time they are needed.
    - High-value and time-sensitive goods like electronics, auto components, and industrial machinery require air freight to maintain supply chain efficiency.

- **Key Growth Indicators:**

  - Growth in Export-Oriented Manufacturing: India's manufacturing exports have surged due to global supply chain shifts and trade agreements.
  - Air Freight Usage by Global Brands: Companies such as Inditex (Zara's parent company) increased their air freight shipments from India by 37% to avoid ocean shipping delays and meet fast-fashion demands.
  - Make in India & PLI Schemes Boosting Air Cargo: Government initiatives like Make in India and Production Linked Incentives (PLI) have driven manufacturing growth, increasing demand for faster international shipments.

Agriculture Sector and Air Freight Expansion

- **Why Air Cargo is Vital for Agriculture?**

  - Agricultural products such as perishable fruits, vegetables, seafood, dairy, and flowers require quick transportation to international markets to maintain freshness.
  - India's growing Agri-export market benefits from air cargo services, ensuring reduced transit times and better market access.

- **Key Growth Indicators:**

  - Rising Agricultural Exports: Since FY2020, India's agricultural exports have grown by 47.3% in volume and 41.5% in value, reaching new global markets.
  - Government's Agriculture Export Policy: The policy aims to double agricultural exports by 2030, enhancing India's position as a leading food supplier.
  - Development of Agri-Air Corridors: The Indian government is developing dedicated air freight corridors to improve agricultural exports, reducing spoilage and increasing efficiency.

Disruptions in Ocean Shipping

The global shipping industry has faced multiple disruptions in recent years, leading to significant shifts in freight transport trends. These disruptions have had a direct impact on India's air cargo industry, as businesses seek faster and more reliable alternatives to ocean shipping. Factors such as **port** congestion, geopolitical conflicts, capacity shortages, and supply chain delays have driven an increasing number of exporters and importers to choose air freight over traditional sea routes.

Key Factors Driving the Shift from Ocean to Air Freight

- **Port Congestion and Capacity Constraints**
    - Major seaports worldwide, including those in Asia, have experienced severe congestion, resulting in long delays for cargo shipments.
    - Container shortages and lack of available shipping slots have further increased wait times, affecting supply chains that depend on predictable schedules.
    - To mitigate these delays, businesses have turned to air freight, which, despite being more expensive, offers a faster and more reliable delivery alternative.
    - Reports indicate that ocean freight disruptions have had a direct impact on air cargo demand, with companies increasing their reliance on air shipments to avoid supply chain bottlenecks.

- **Geopolitical Conflicts and Trade Route Disruptions**
    - Geopolitical tensions and conflicts, such as those affecting the Red Sea and Suez Canal, have caused shipping diversions, longer transit times, and increased costs.
    - The recent crisis in the Red Sea region has significantly impacted sea trade routes, forcing businesses to seek alternative transport methods.
    - Global brands, including Inditex (Zara's parent company), have increased air freight shipments from India by 37% to avoid the risks associated with sea freight disruptions.

- **Rising Air Cargo Demand Due to Ocean Shipping Delays**
    - International air cargo volumes from India have surged as exporters shift from sea to air transport.
    - In Ahmedabad, international air cargo volumes rose by 33% from April to October 2024 compared to the same period the previous year, showing a significant shift in logistics trends.
    - Sectors such as electronics, pharmaceuticals, and fast fashion are particularly affected, as they require time-sensitive shipments that cannot afford prolonged ocean transit times.

- **Shift in Logistics Strategy: From Ocean to Air Freight**
    - Due to continued uncertainties in ocean freight, businesses are modifying their logistics strategies and incorporating air freight into their supply chain planning.
    - Companies that previously relied heavily on sea transport are now diversifying their shipping methods, ensuring they have air freight options available in case of further maritime disruptions.
    - Analysts predict that the increased reliance on air cargo due to ocean shipping issues will continue, potentially reshaping long-term logistics trends.

Government Initiatives

The Indian government has implemented several policies and infrastructure development projects to boost air cargo traffic. These initiatives aim to enhance logistics efficiency, improve airport infrastructure, and support trade and manufacturing growth. By addressing bottlenecks in cargo handling, streamlining customs procedures, and fostering private sector participation, the government is positioning India as a key player in global air freight.

National Civil Aviation Policy (NCAP) 2016

The NCAP 2016 was introduced to promote the aviation sector, including air cargo. It includes several measures to improve cargo operations:

- Air Cargo Logistics Promotion Board (ACLPB): Established to facilitate faster movement of cargo by reducing clearance times and enhancing coordination between various regulatory bodies.
- Air Cargo Community System (ACCS): A digital platform to streamline documentation and reduce paperwork delays, ensuring quicker cargo processing.
- Service Delivery Modules (SDMs): Implemented to monitor cargo handling performance and minimize inefficiencies.

These reforms have contributed to reducing air cargo dwell times and increasing efficiency at airports**,** making air freight a more attractive option for businesses.

Make in India Initiative

The Make in India program was launched to boost domestic manufacturing, which has directly impacted air cargo demand.

- Encouragement of exports: By expanding industrial production, the program has led to increased shipments of electronics, pharmaceuticals, and textiles—sectors that heavily rely on air freight.
- Development of the Maintenance, Repair, and Overhaul (MRO) sector: This has reduced India's reliance on foreign MRO facilities for aircraft maintenance, increasing domestic cargo movement.
- Promotion of indigenous manufacturing in high-tech industries, which has driven air freight shipments of precision components and machinery to global markets.

Infrastructure Development for Air Cargo

The Indian government is investing approximately $1.83 billion **in** airport modernization and cargo infrastructure expansion by 2026. Some key developments include:

- Upgrading 150 airports to improve cargo handling efficiency, including the establishment of cold storage facilities for perishable goods.
- Expansion of dedicated air freight corridors, ensuring faster movement of high-value goods.
- Development of satellite freight cities near major airports to improve connectivity and reduce congestion.

- **National Logistics Policy (NLP)**

The National Logistics Policy, launched to enhance supply chain efficiency, has played a crucial role in strengthening India's air cargo sector:

- Reducing logistics costs by integrating different modes of transport (air, rail, road, and waterways).
- Development of multimodal logistics parks to facilitate seamless cargo movement.
- Simplification of regulatory procedures and digitalization of logistics operations to boost efficiency.

- **Open Sky Policy**

The Open Sky Policy has liberalized cargo movement**,** allowing foreign airlines to operate unrestricted freighter services**.**

- This has increased competition, leading to better pricing and improved services in the air cargo sector.
- The policy has also helped Indian exporters access more international markets through expanded air connectivity.

- **Regional Connectivity Scheme (RCS) – UDAN Cargo**

The UDAN (Ude Desh Ka Aam Nagrik) Cargo Scheme aims to enhance air connectivity for smaller cities and improve last-mile logistics.

  - Establishment of air cargo terminals at smaller airports, reducing dependence on metropolitan hubs.
  - Encouraging e-commerce logistics through air transport, benefiting businesses in remote locations.
  - Boosting agricultural exports by providing better access to international markets for perishable goods.

- **Stakeholder Collaboration and Industry Consultations**

The government is actively engaging with logistics companies, airlines, and exporters to simplify air cargo operations.

  - The goal is to handle 10 million tonnes of air cargo annually by 2030.
  - Policies are being refined based on feedback from industry leaders, ensuring practical implementation of reforms.

Additional Key Drivers of Air Cargo Traffic in India

- **Rise of the Defence and Aerospace Sector**

India's growing investment in defence and aerospace manufacturing has led to increased air cargo movement of military equipment, aircraft components, and drones. With initiatives promoting indigenous production, exports in this sector are rising, necessitating efficient air freight solutions.

- **Growth in Space Technology and Satellite Exports**

The expansion of India's space sector, led by ISRO and private players, has resulted in frequent air shipments of satellite components and research equipment. The commercialization of satellite launches is further boosting the demand for specialized air cargo services.

- **Surge in Luxury Goods and Consumer Electronics**

The increasing demand for high-end electronics, luxury fashion, and premium automobiles has driven higher air cargo imports. Global brands expanding their presence in India rely on air freight for quick market replenishment, ensuring timely availability of their products.

- **Regional Airports Enhancing Air Cargo Connectivity**

The development of tier-2 and tier-3 city airports under government schemes has expanded the reach of air cargo services. These airports are emerging as regional logistics hubs, improving connectivity and reducing dependency on major metro airports.

- **Medical Tourism and Healthcare Logistics**

India's position as a global medical tourism destination has led to greater demand for air freight in pharmaceuticals, biotech, and organ transplant logistics. The need for fast and temperature-controlled cargo solutions has increased as a result.

- **Expansion of Dedicated Freighter Services**

Airlines are investing in dedicated freighters and cargo terminals to meet rising air freight demand. The establishment of exclusive cargo airports and specialized infrastructure is streamlining cargo handling and improving overall logistics efficiency.

- **Consumer Shift Towards Faster Deliveries**

The demand for same-day and next-day deliveries, particularly in urban markets, has accelerated the use of air cargo. E-commerce giants and hyperlocal delivery platforms are increasingly relying on air freight to fulfil customer expectations for rapid shipments.

- **AI and Automation in Air Cargo Operations**

The integration of artificial intelligence, automated warehouses, and real-time tracking systems is enhancing air freight efficiency. Advanced logistics technology is optimizing cargo handling, reducing delays, and improving supply chain visibility.

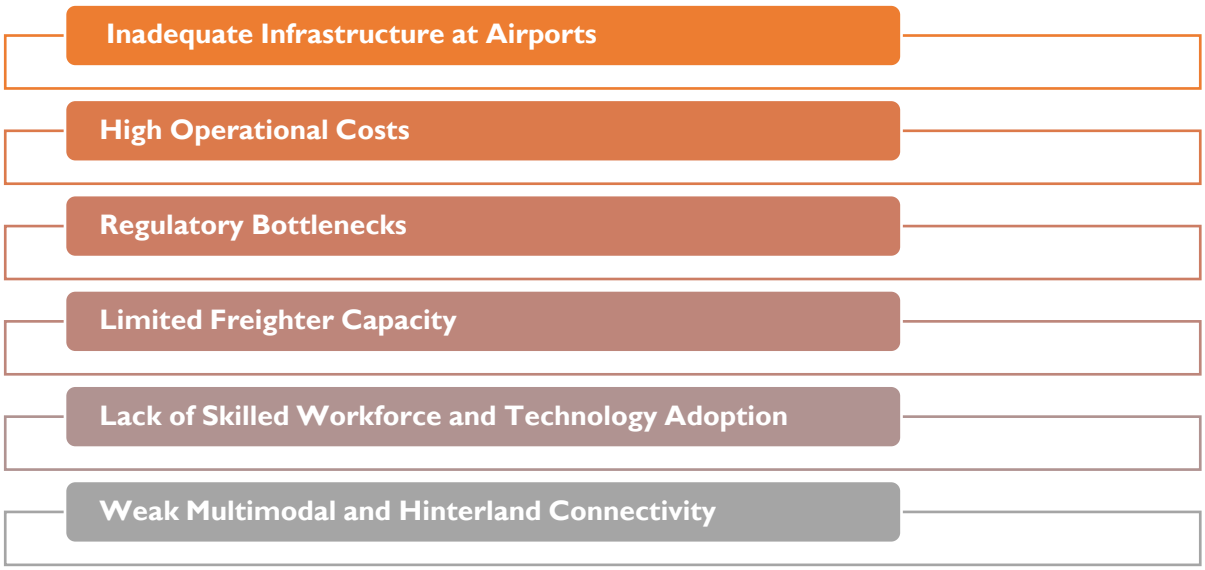
- **Growth of Semiconductor and EV Battery Manufacturing**

With India promoting semiconductor and electric vehicle (EV) battery production, air cargo is becoming crucial for the transport of high-value and sensitive components. The need for safe and fast logistics solutions is driving specialized air freight services in this sector.

Challenges for Air Cargo Traffic in India

India's air cargo sector is steadily growing, driven by rising e-commerce, pharmaceutical exports, and demand for time-sensitive logistics. Despite its vast potential, air cargo contributes only around 1% of total cargo volume by weight, though it accounts for a significant share in terms of value. Key airports like Delhi, Mumbai, and Bengaluru handle most of the cargo traffic, while regional connectivity remains limited. Government initiatives like Gati Shakti, PM Gati Shakti Master Plan, and the National Air Cargo Policy aim to improve infrastructure and reduce logistics costs. However, the sector continues to face several operational and systemic challenges.

Below are the key challenges for Air Cargo Traffic In India:



- **Inadequate Infrastructure at Airports:** Many Indian airports, especially Tier-2 and Tier-3 cities, lack dedicated cargo terminals, cold storage, and automated handling systems. This leads to inefficient cargo movement and increased dwell time. Even major hubs face congestion due to limited warehousing and apron space. The disparity in infrastructure between passenger and cargo services hampers overall cargo throughput. Without seamless multimodal connectivity, the logistics chain remains fragmented. Upgrading infrastructure is capital-intensive and slow-moving, often delayed by regulatory and land acquisition hurdles.
- **High Operational Costs:** Air cargo in India faces high costs due to expensive ground handling charges, fuel prices, and airport tariffs. These expenses reduce competitiveness, especially against surface transport modes. Fragmentation among service providers increases logistics costs and adds to the complexity. Additionally, high warehousing rentals and lack of economies of scale further push up the overall cost. Small and medium exporters often find it unaffordable to use air freight regularly. Cost rationalization through policy and private sector collaboration is essential for sustained growth.

- **Regulatory Bottlenecks:** The air cargo sector in India is burdened with complex documentation and slow customs clearance procedures. Despite the implementation of digitization initiatives like e-freight and Single Window Clearance, adoption remains inconsistent. Multiple clearances from different authorities create delays and add to compliance costs. Regulatory uncertainty also discourages private investment in cargo infrastructure. The lack of harmonization between various ministries and departments results in a fragmented policy framework. Simplifying processes and ensuring inter-agency coordination is vital for efficiency.
- **Limited Freighter Capacity:** India's air cargo network relies heavily on belly space in passenger aircraft due to limited dedicated freighter services. This restricts capacity, especially for bulky, time-sensitive, or specialized cargo. The availability of freighter aircraft is also skewed toward a few major routes, leaving secondary markets underserved. High aircraft leasing and maintenance costs discourage airlines from expanding freighter fleets. The lack of incentives or a national cargo airline strategy adds to the problem. Enhancing freighter operations would unlock growth for sectors like e-commerce, pharma, and perishables.
- **Lack of Skilled Workforce and Technology Adoption:** Air cargo logistics require specialized handling, especially for hazardous, perishable, or high-value goods. However, there is a shortage of skilled manpower trained in cargo-specific operations. Limited use of automation and AI-based cargo tracking systems further impacts operational efficiency. The sector lags behind in adopting global best practices in digitization, warehouse robotics, and real-time visibility tools. Training programs are fragmented and lack industry-academia collaboration. Investing in workforce development and tech adoption is crucial for modernization.
- **Weak Multimodal and Hinterland Connectivity:** Poor road and rail links between airports and key production or consumption centres affect the seamless flow of goods. Cargo often gets delayed due to traffic bottlenecks, lack of last-mile connectivity, and poor integration between modes. Inland Container Depots (ICDs) and logistics parks are not efficiently connected to airports, impacting the supply chain. This is especially critical for time-sensitive goods like pharmaceuticals and perishables. Addressing multimodal connectivity is key to improving air cargo efficiency and reducing costs.

Infrastructure: An Overview of Warehousing Infrastructure in India

India's air cargo traffic plays a crucial role in facilitating trade and economic growth, yet it faces significant challenges due to inadequate warehousing infrastructure. Many airports lack dedicated cargo handling facilities, leading to congestion, inefficiencies, and delays in shipment processing. The absence of modern storage solutions, including temperature-controlled warehouses for perishable goods, further hampers the efficiency of air cargo logistics. Additionally, limited multimodal connectivity between airports and other logistics hubs restricts the seamless movement of goods, increasing transportation costs and turnaround times. Despite government initiatives to improve infrastructure, the existing warehousing facilities remain insufficient to meet the growing demands of e-commerce, pharmaceuticals, and international trade.

Another major challenge is the high logistics cost associated with inefficient warehousing operations. India's logistics expenses account for nearly 13-14% of GDP, significantly higher than the global average. This is largely due to outdated warehouse management systems, manual cargo handling processes, and cumbersome customs clearance procedures. Regulatory hurdles and complex documentation requirements further slowdown air cargo movement, increasing operational costs for businesses. Additionally, the sector faces a shortage of skilled professionals trained in cargo handling and digital logistics, limiting the potential for automation and technology adoption. These inefficiencies make India's air cargo sector less competitive compared to global standards.

To overcome these challenges, India must prioritize investments in modernizing warehousing infrastructure, integrating digital technologies, and improving regulatory frameworks. The adoption of artificial intelligence, automated cargo handling systems, and real-time tracking can significantly enhance operational efficiency. Furthermore, strengthening multimodal connectivity and streamlining customs clearance processes can reduce delays and lower logistics costs. Encouraging private sector participation and foreign direct investment in airport warehousing can also accelerate infrastructure development. By addressing these challenges, India can enhance its air cargo capabilities, supporting its ambition to become a global trade and logistics hub.

Major Gaps in Indian Warehousing Sector

The Indian warehousing sector plays a critical role in the country's logistics and supply chain ecosystem. However, despite significant growth in recent years, several major gaps hinder its efficiency and global competitiveness. Compared to international benchmarks, Indian warehouses are estimated to be 40-50% less productive due to various structural, technological, and operational inefficiencies. These deficiencies lead to increased costs, longer processing times, and higher error rates in inventory management. This chapter explores the key gaps in the Indian warehousing sector and their impact on the overall supply chain.

1. Technology Deficiency and Automation Gap

One of the most significant shortcomings in Indian warehousing is the lack of advanced technology and automation. In global markets, warehouses leverage robotic automation, artificial intelligence (AI)-driven

inventory management, and Internet of Things (IoT)-enabled real-time tracking. In contrast, many Indian warehouses still rely on manual processes and outdated software, leading to:

- **Longer Order Processing Times**: Without automation, warehouses require extensive human intervention, slowing down order fulfilment.
- **Higher Error Rates**: Manual inventory tracking results in frequent discrepancies, increasing stockouts and overstocking.
- **Limited Real-time Visibility**: The absence of IoT-based tracking and cloud integration hampers real-time inventory monitoring, leading to inefficiencies in supply chain coordination.

2. Poor Infrastructure and Inadequate Storage Facilities

The Indian warehousing landscape is plagued by substandard infrastructure, including:

- **Outdated Storage Systems**: Many warehouses lack high-rise racking systems, automated retrieval systems, and temperature-controlled storage, affecting the handling of perishable and high-value goods.
- **Unorganized and Scattered Warehouses**: A significant portion of the sector is still unorganized, with fragmented and small-scale warehouses operating with limited capacity.
- **Inadequate Transportation Connectivity**: Poor last-mile connectivity and inefficient road infrastructure lead to delays in goods movement.

3. Regulatory and Policy Challenges

Despite government initiatives such as the Goods and Services Tax (GST) and the National Logistics Policy, regulatory bottlenecks continue to impede warehousing growth. Key issues include:

- **Complex Land Acquisition Procedures**: Setting up modern warehouse facilities requires navigating lengthy legal and bureaucratic hurdles.
- **High Compliance Costs**: Multiple regulatory approvals and licensing requirements increase operational costs.

4. Skilled Workforce Shortage

Warehousing operations demand specialized skills in inventory management, material handling, and data analytics. However, India faces a shortage of trained warehouse professionals due to:

- **Limited Training and Skill Development Programs**: Most warehouse workers receive minimal technical training, affecting operational efficiency.
- **High Dependence on Manual Labor**: A lack of skilled automation specialists prevents the adoption of advanced warehouse management systems.

5. Inefficient Supply Chain Integration

A well-integrated supply chain requires seamless coordination between warehouses, transporters, and retailers. Indian warehouses often struggle with:

- **Poor Data Synchronization**: The lack of real-time data exchange leads to stock mismatches and delayed order fulfilment.
- **Fragmented Logistics Ecosystem**: Small and medium-sized enterprises (SMEs) often face difficulties in accessing efficient warehousing solutions due to high costs and limited infrastructure.

6. Limited Adoption of Sustainable Practices

Environmental concerns and sustainability measures are gaining prominence in global warehousing. However, India lags in implementing green warehousing practices, including:

- **Low Usage of Renewable Energy**: Warehouses rarely utilize solar panels or energy-efficient lighting.
- **High Carbon Footprint**: Inefficient logistics and outdated equipment contribute to excessive emissions.
- **Waste Management Issues**: Poor recycling and disposal mechanisms lead to increased environmental degradation.

Bridging these gaps is essential for India to enhance its warehousing sector's productivity and competitiveness. By investing in technology, improving infrastructure, simplifying regulations, upskilling the workforce, and promoting sustainable practices, the country can develop a more efficient and globally aligned warehousing ecosystem. Addressing these challenges will not only reduce operational costs but also strengthen India's position as a global logistics hub.

Capex trend and other initiative to strengthen the Warehousing Infrastructure in India

India's warehousing infrastructure is undergoing rapid transformation, driven by increasing capital expenditure (Capex), government policies, and technological advancements. The sector is a critical component of India's logistics ecosystem, influencing supply chain efficiency, trade competitiveness, and economic growth. To enhance warehousing capacity and optimize storage and distribution networks, India is implementing large-scale infrastructure projects, production-linked incentives (PLI) schemes, and policy-driven investments. These initiatives aim to position India as a global manufacturing and logistics hub by fostering innovation, improving multimodal connectivity, and promoting sustainable storage solutions.

The Indian government and private sector players have significantly increased investments in warehousing infrastructure to meet the growing demands of e-commerce, manufacturing, and cold chain logistics. Some key trends in Capex allocation include:

1. Large-Scale Investments in Multi-Modal Logistics Parks (MMLPs)

The PM Gati Shakti National Master Plan, launched in 2021, has accelerated Capex deployment in warehousing and logistics infrastructure. This initiative integrates 16 ministries to create 35 Multi-Modal Logistics Parks (MMLPs), reducing transit time, optimizing resource utilization, and improving last-mile connectivity.

- Chennai MMLP: A ₹7,200 crore investment with 5 million sq. ft. of automated warehousing, linked to Chennai Port via dedicated rail corridors.
- GIS-Based Planning: AI-powered site selection optimizes warehouse locations, reducing duplication and improving operational efficiency.
- Investment Inflow: Over ₹1.2 lakh crore has been committed, leading to a 40% decline in warehouse-to-port transit times, as per the PM Gati Shakti Progress Report (Q1 2024).

2. Production-Linked Incentive (PLI) Scheme Driving Investment

The PLI scheme is a transformative policy designed to boost domestic manufacturing and enhance warehousing capabilities. With ₹1.61 lakh crore in investment approvals and ₹14 lakh crore in production output, this scheme is strengthening warehousing through:

- Capacity Expansion: Increased investment in automated storage and retrieval systems (ASRS), high-density racking, and cold storage to support high-value manufacturing sectors.
- Export-Oriented Growth: Warehousing facilities designed to meet international standards, ensuring smooth trade flow and regulatory compliance.
- Job Creation: Over 11.5 lakh new jobs generated, expanding the logistics workforce and skill development opportunities.

3. Rise of Private Sector Investments in Grade-A Warehousing

Private investments in Grade-A warehouses (large, modern, tech-enabled facilities) have surged, particularly in high-demand regions such as Delhi-NCR, Mumbai, Bengaluru, and Chennai. Key drivers include:

- Institutional Funding & REITs: Warehousing-focused Real Estate Investment Trusts (REITs) and global private equity firms have injected billions into the sector.
- E-Commerce Boom: Increasing demand for fulfilment centres and just-in-time inventory management has led to 10-12% annual growth in warehouse leasing.
- Sustainability Focus: Green warehousing initiatives with solar-powered storage, thermal energy storage (TES) backup, and rainwater harvesting are gaining traction.

Key Initiatives to Strengthen Warehousing Infrastructure

1. Solar-Powered Cold Storage Systems with TES Backup

To address energy inefficiencies in cold chain logistics, the government has introduced new guidelines regulating solar-powered cold storage systems. These systems incorporate thermal energy storage (TES) backup, reducing reliance on conventional power grids and enhancing operational efficiency.

- Impact: Lower energy costs, increased uptime, and improved cold storage capacity for perishable goods, benefiting the pharmaceutical and food sectors.
- Scalability: Encouraging private investments in renewable energy-powered warehousing infrastructure.

2. Logistics Vision 2030 – Attracting $50 Billion in FDI

The NITI Aayog's Logistics Vision 2030 aims to attract $50 billion in foreign direct investment (FDI) in warehousing and logistics by:

- Policy Reforms: Streamlining land acquisition, reducing regulatory bottlenecks, and offering tax incentives.
- Technological Integration: AI-driven warehouse management systems (WMS) and IoT-enabled tracking to optimize storage operations.
- Global Competitiveness: Positioning India as a preferred destination for third-party logistics (3PL) and contract warehousing solutions.

3. Digital & Smart Warehousing Development

The government is promoting **smart warehousing solutions** that integrate:

- Automated Guided Vehicles (AGVs) and Robotics: Enhancing efficiency in sorting, picking, and packaging.
- Blockchain for Supply Chain Transparency: Ensuring traceability of goods, reducing fraud, and improving compliance.
- 5G & IoT Connectivity: Real-time inventory monitoring and predictive analytics to minimize disruptions.

India's warehousing infrastructure is undergoing a structural transformation with high Capex allocations, government-driven policies, and technological innovations. The convergence of initiatives such as PM Gati Shakti, PLI schemes, solar-powered cold storage, and smart warehousing solutions is set to elevate India's logistics ecosystem to global standards. With sustained investment momentum, India is well-positioned to enhance supply chain resilience, boost exports, and emerge as a logistics powerhouse by 2030.

Regulatory Hurdles

1. Land Acquisition and Zoning Issues

The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR Act) imposes huge hurdles for warehouse development. Section 4 prescribes a compulsory Social Impact Assessment (SIA) for all acquisitions over 50 acres in urban/100 acres in rural regions, taking 6-9 months. The Act's Section 10 requires 80% of landowners' consent for private projects and 70% for PPP projects, causing huge delays.

State-level differences add to these hindrances:

- Maharashtra Land Revenue Code (1966): Section 42 requires 50-75% ready reckoner rate conversion fees for agricultural land conversion
- Haryana Development and Regulation of Urban Areas Act (1975): Section 3 demands NOCs from 5+ departments for developing industrial zones
- Karnataka Town and Country Planning Act (1961): Section 14A necessitates additional zoning clearances that take 120-180 days.

2. Multi-Layered Approval Framework

Warehouse projects need to abide by 47 individual approvals according to Ease of Doing Business Report 2023:

Fire Safety Compliance: National Building Code 2016 (Part IV): Mandates

- Minimum 6m wide motorable access (Clause 3.4.2)
- Automatic sprinklers for storage >500m³ (Clause 5.2)
- Fire NOC process takes 90-120 days (Source: BIS Notification No. CD-1/2023)

Environmental Clearances: Environment Impact Assessment Notification (2006)

- Category B2 projects need EC for >20,000m² built-up
- Form I and IA applications require 6 months of processing

Municipal Approvals: Model Building Bye-Laws 2016:

- Extra 2% of project cost as scrutiny fee
- 45-day compulsory waiting period for objections

Performance Standards

1. Structural & Safety Standards

- Structural building standards provide assurance that warehouses can withstand mechanized handling and heavy loads. The National Building Code 2016 requires a minimum ceiling height of 9 meters to support modern stacking equipment such as high-reach forklifts and automated storage systems (BIS SP 7:2016, Part IV). For heavy-duty flooring, floors need to be able to support 5-7.5 metric tons per square meter load capacity according to WDRA specifications, essential for the storage of industrial products or bulk commodities. Earthquake resistance standards conform to IS 1893:2016, necessitating certain structural reinforcements dependent upon seismic zones - with the most protection being required for Zone V.
- Fire safety measures are also stringent. Automatic smoke detection systems need to cover all spaces according to NBC Part IV requirements, with heat/smoke detectors at 9m intervals. Hydrant systems as per IS 3844:2019 standards need to be installed every 30 meters with sufficient water pressure. These are supplemented by mandatory Fire NOCs from local authorities, which include inspections of emergency exits (at least two per warehouse), fire extinguisher locations (one per 500 sqm), and electrical safety compliance.

2. Cold Chain Standards

- Temperature regulation is critical for perishable items. FSSAI Regulation 4.1.5 allows only ±2°C deviation from specified temperatures, with the need for precision cooling systems and digital monitoring. Frozen foods require -18°C to -25°C conditions according to NCCD TS-102, with ongoing temperature recording. Pharmaceutical warehouses require even more stringent controls - the CDSCO requires ±1°C for vaccines with backup power for cooling equipment.
- Cold storage design specifications ensure proper air circulation. The mandated 0.5-1.0 m/s airflow velocity (IS 14812) prevents hot spots while minimizing product dehydration. Pharma facilities require dual redundant cooling systems - if primary fails, backup must activate within 90 seconds. All units need temperature mapping reports showing uniform distribution across storage zones.

3. Technology Compliance

- Automation grading divides facilities into capability. Grade-A warehouses employ Automated Storage/Retrieval Systems (ASRS) with less than 5% manual handling - including robotic pallet movers, conveyor systems, and automated guided vehicles. Grade-B facilities combine Warehouse Management Systems (WMS) with barcode scanners and semi-automated picking.
- Data reporting requirements harmonize synchronizations with taxation systems. Real-time GSTN portal updates monitor inventory movements, while E-way bill integration provides automatic documentation for dispatches. Cybersecurity standards (ISO 27001) require encrypted databases,

biometric access controls, and penetration testing once a year - particularly essential for e-commerce warehouses dealing with customer data.

4. Environmental & Sustainability Standards

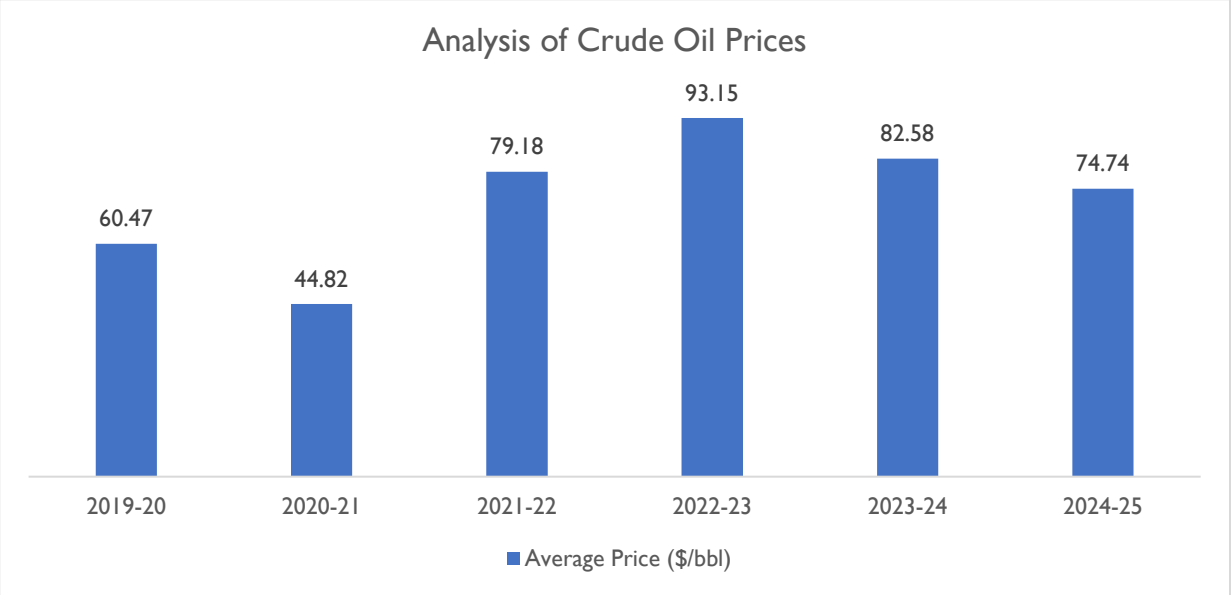
- Energy efficiency standards conform to climate objectives. The 1-star BEE rating (ECBC 2017) mandates LED lighting, insulated panels, and energy-efficient HVAC systems. Big warehouses (50,000+ sqft) have to get 15% of the power from on-site solar as per SECI guidelines, usually through rooftop installations.
- Water management adheres to CPWD standards with no liquid discharge - treating and reusing all wastewaters. Rainwater collection systems require at least 50,000-liter capacity for every acre of roofing area. Handling of materials moves to electric fleets - the NITI Aayog 2025 target eliminates diesel-operated forklifts with a carbon-reduction of 8-10 tons per warehouse per year.

5. Labor & Safety Standards

- Work conditions laws strike a balance between production and well-being. The 48-hour work week maximum (OSH Code 2020) supports 8-hour shifts with 30-minute mandatory meal breaks. For material handlers, 15-minute breaks each 2 hours avoid musculoskeletal damage - a requirement from the Ergonomics Code (DGMS Circular 5/2021).
- Safety gear regulations prescribe ANSI-quality hard hats, high-stacking full-body harnesses, and NFPA-approved PPE kits. Biennial medical screening tests for hearing loss (due to conveyor noise) and respiratory problems. The 100-hour biennial training (NSDC Standards) involves equipment operation, first aid, and computer systems for inventory.

Impact of Crude Oil Volatility on Logistics Cost Structures

An analysis of Crude Oil Prices impact on Overall Logistic industry and Post Covid impact of Crude oil Prices on Logistic sector.



Crude oil prices play a pivotal role in shaping the logistics industry, as fuel costs directly impact transportation expenses for shipping, trucking, aviation, and rail. A surge in oil prices leads to increased freight rates, affecting supply chains, consumer prices, and overall business profitability. The data from 2019 to 2025 reveals significant fluctuations, with a sharp dip in 2020-21 due to COVID-19, followed by a steep rise in subsequent years. These price movements have forced logistics companies to adopt fuel-efficient technologies, optimize routes, and explore alternative energy sources to mitigate cost pressures.

The COVID-19 pandemic had a profound impact on crude oil prices, with an unprecedented collapse in demand during 2020-21, driving prices to record lows. This decline provided temporary relief for logistics firms but was overshadowed by global supply chain disruptions, labour shortages, and reduced consumer demand. However, the post-pandemic recovery saw a dramatic rebound in oil prices due to supply chain constraints, geopolitical tensions, and increased energy demand. The logistics industry faced higher operating costs, forcing companies to adjust freight pricing, implement fuel surcharges, and enhance supply chain resilience through digital transformation.

Looking ahead, while crude oil prices have shown signs of stabilization in 2024-25, they remain a key factor in logistics profitability and inflationary pressures. The transition towards sustainable logistics, including electric vehicles (EVs) and alternative fuels, is gaining traction to counter oil price volatility. Additionally, governments and businesses are focusing on energy efficiency and policy interventions to ensure cost-effective logistics operations. The long-term impact of fluctuating crude oil prices will continue to shape industry strategies, with an emphasis on sustainability, resilience, and cost optimization.

Belly cargo space

Belly cargo space, the underfloor cargo hold of an aircraft, plays a crucial role in air freight operations. While freighters are dedicated to carrying cargo, passenger aircraft also utilize their belly capacity to transport goods, providing an additional revenue stream for airlines. The efficiency of belly cargo utilization depends on factors such as aircraft type, baggage allowance, and overall cargo demand.

Utilization of Belly Cargo Space in Passenger Aircraft

- Passenger airlines maximize their revenue by optimizing available belly space for cargo transport. However, there are limitations to how much cargo can be carried, primarily due to the allocation of space for passenger baggage.
- Typically, airlines offer a baggage allowance of 15 kg per passenger in the domestic sector. For an aircraft carrying 200 passengers, this translates to 3,000 kg of baggage, reducing the available belly capacity for additional cargo. Despite this limitation, airlines have been making concerted efforts to enhance belly cargo efficiency, ensuring optimal utilization of available space.

Belly Cargo Capacity in Different Aircraft Types

The belly cargo capacity varies based on the type of aircraft:

- Narrow-body aircraft: These aircraft, commonly used for domestic and short-haul international routes, can accommodate up to 6 tonnes of cargo in their belly compartments, depending on configuration and baggage load.
- Wide-body aircraft: Used for long-haul and international flights, wide-body aircraft have significantly larger belly capacities, often exceeding 20 tonnes.
- Freight-dedicated aircraft primarily focus on maximizing main deck capacity, with belly space serving as an additional cargo area.

Growth of Belly Cargo Utilization in India

In recent years, Indian airlines have significantly improved belly cargo utilization. There has been a steady increase in belly cargo utilization rates:

Year	Belly Cargo Utilization Rate %
2020-21	75.6%
2021-22	79.5%
2022-23	81.5%

Note: as per latest data of June 2024

This growth highlights the importance of belly cargo in the Indian air freight sector. With increasing demand for e-commerce and time-sensitive shipments, airlines continue to optimize cargo operations to enhance revenue potential.

Challenges and Future Prospects

Despite its advantages, belly cargo space has some challenges:

- Limited Capacity: Passenger baggage reduces the space available for cargo, especially on high-density routes.
- Load Balancing: Cargo distribution must align with aircraft weight and balance requirements to maintain safety.
- Regulatory Compliance: Cargo transport regulations, including weight restrictions and security screening, impact operational efficiency.

Going forward, advancements in cargo handling technology, automated loading systems, and real-time tracking solutions will further enhance belly cargo efficiency. Additionally, airlines may introduce flexible baggage policies to optimize space utilization while maintaining passenger convenience. Belly cargo space remains a vital component of air cargo operations, providing a cost-effective way to transport goods alongside passengers. As airlines continue to refine cargo strategies, the utilization of belly capacity is expected to grow, contributing to overall industry efficiency and revenue generation.

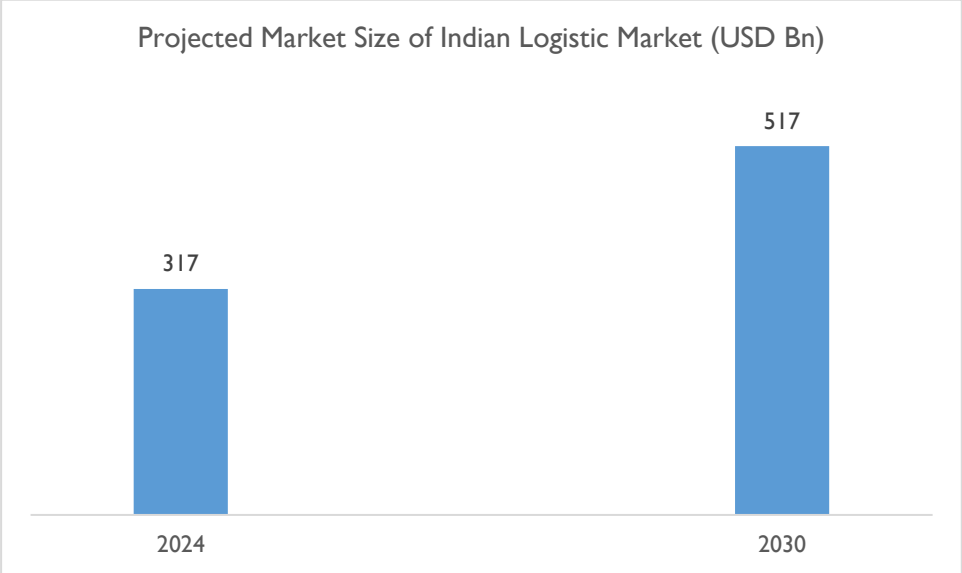
Others: Regulatory and Procedural Challenges

- Complex Customs Procedures: Lengthy and intricate customs clearance processes can lead to delays in cargo movement, affecting the efficiency of supply chains.
- Compliance with International Standards: Ensuring adherence to global aviation and security standards requires continuous updates to policies and procedures, posing a challenge for regulatory bodies and industry players.

Growth scenario

By nature, logistic demand corresponds to the healthy economic GDP growth which facilitate demand of goods in domestic as well as in global market. Economic growth is expected to augment the freight movement. India's has emerged as one of the fastest growing countries globally even amidst challenging operating environment driving the demand for logistics services. The necessity of having improved logistic services to have an efficient supply chain management which fulfil the growing need of economy has made government to undertake several focused initiatives in terms of improving road infrastructure, power supply, policy reforms etc. Increasing government spending on infrastructure is expected to support the growth of the logistic sector in long run.

The Indian government's Union Budget aims to achieve inclusive and sustainable growth while adhering to the fiscal glide path. The growth in coming years would be majorly backed by growing freight traffic, substantial government spend planned under the PM Gati Shakti scheme, Comprehensive Logistics Action Plan, the National Logistics Policy, and other projects like Sagarmala and Bharatmala. Additional effort like DFC, the e-way bill, introduction of lead index and technological advancement are expected to streamline the logistic operations translating in reduce cost and enhanced efficiency of the freight movement across the country.



Sources: Dun & Bradstreet Desk Research

In the light of above factors, the overall market size of logistic industry in India is estimated to reach USD 517 Bn by 2030, registering a CAGR of 8.5% between 2024-2030.

Several factors are fuelling this market expansion:

1. Government Reforms and Infrastructure Development: Investments in highways, rail freight corridors, airports, and ports have significantly improved logistics efficiency.

2. Growing Trade and Manufacturing: The rise in domestic manufacturing under initiatives like *Make in India* and an increase in imports and exports have driven logistics demand.
3. Booming E-Commerce Sector: Online shopping has created a need for advanced supply chain management and last-mile delivery solutions.
4. Technological Integration: Digital solutions like AI, IoT, and blockchain have revolutionized supply chain visibility, tracking, and inventory management.

1. Infrastructure Development

- The Bharatmala Project is enhancing road connectivity, with initiatives like the Delhi-Mumbai Industrial Corridor facilitating faster freight movement between industrial hubs.
- The Sagarmala Project focuses on port-led development, modernizing ports and integrating them with special economic zones to improve maritime logistics.
- The Dedicated Freight Corridors, such as the Delhi-Mumbai and Amritsar-Kolkata corridors, are expanding rail freight infrastructure, reducing transportation costs, and boosting trade efficiency.

2. E-Commerce Expansion

- India's quick commerce sector, led by Blinkit and Swiggy Instamart, accounted for over two-thirds of all e-grocery orders in 2024, reflecting the growing demand for rapid delivery services.
- Companies like Swiggy have invested heavily in logistics, with a 115-million-dollar investment in its supply chain subsidiary, Scootsy, to support its expanding Instamart operations.

3. Implementation of the Goods and Services Tax (GST)

- The GST reform has streamlined tax structures, reduced logistics costs and increasing the average daily distance travelled by trucks from 225 kilometres to 300-325 kilometres, significantly enhancing efficiency in goods transportation.

4. Technological Advancements

- Rivigo, a logistics startup, has integrated IoT technology to enable real-time tracking of truck metrics like fuel levels and engine temperature, improving operational efficiency.
- Companies are increasingly exploring blockchain technology to enhance transparency and secure documentation in supply chains, ensuring trust and efficiency.

5. Growing Demand for Cold Chain Logistics

- India's cold storage capacity has expanded to 39.37 million metric tons, with Uttar Pradesh and West Bengal leading due to their strong agricultural production.

- The COVID-19 vaccination drive required over 2,000 ultra-low temperature freezers, emphasizing the critical role of cold chain logistics in distributing temperature-sensitive vaccines.

Future Trends and Opportunities in the Indian Logistics Market

The Indian logistics industry presents immense opportunities for growth and innovation in the coming years. Several key trends will shape the future of the sector:

1. **Adoption of 3PL and 4PL Services**
    - Companies are increasingly outsourcing their logistics operations to third-party (3PL) and fourth-party (4PL) logistics providers to enhance efficiency and reduce costs.
    - This shift allows businesses to focus on core competencies while leveraging professional logistics expertise.
2. **Sustainable and Green Logistics**
    - With growing concerns about carbon emissions, companies are shifting toward electric vehicles (EVs), eco-friendly packaging, and energy-efficient warehouses.
    - The Indian government is promoting green supply chain initiatives to achieve sustainability goals.
3. **Expansion of Cold Chain Logistics**
    - Rising demand for perishable food, dairy products, and pharmaceuticals will drive investments in temperature-controlled warehouses and refrigerated transport.
    - The Indian government is offering incentives and subsidies to support the expansion of cold storage facilities.
4. **Smart Warehousing and Automation**
    - Adoption of AI-driven inventory management, automated storage systems, and robotics is enhancing warehouse productivity.
    - Smart warehouses equipped with IoT sensors and predictive analytics improve real-time stock monitoring and reduce wastage.
5. **Investment in Multi-Modal Transportation**
    - Integration of road, rail, air, and water transport will optimize freight movement and reduce transit times.
    - The expansion of logistics parks and inland container depots (ICDs) will further facilitate seamless goods transportation.

The Indian logistics industry is undergoing rapid transformation, fuelled by technological advancements, policy reforms, and infrastructure investments. While the market is set to grow at a CAGR of 10.7%, addressing

high logistics costs, regulatory challenges, and infrastructure gaps remains crucial for sustainable development. With continued investments in digitalization, automation, green logistics, and multi-modal transport, India is well-positioned to emerge as a global logistics hub in the near future. Strengthening supply chains, streamlining operations, and fostering collaborations between government and private players will be key to unlocking the full potential of India's logistics sector.

Air Transportation

India's aviation industry has undergone a remarkable transformation in the past decade, emerging as one of the fastest-growing air transport markets globally. The sector has seen a surge in domestic air travel, infrastructure expansion, and fleet growth. The rapid expansion of operational airports and an increase in air passengers underscore the industry's bright future.

India's aviation industry has witnessed rapid growth, with the number of operational airports more than doubling from 74 in 2014 to 157 in 2024. The government's expansion plan aims to reach 350-400 airports by 2047, significantly improving regional connectivity.

By 2030, the number of airports is expected to cross 200, driven by increasing air travel demand. By 2040, around 300 airports are projected, aligning with India's infrastructure growth. The long-term goal of 350-400 airports by 2047 highlights strong government commitment to making India a global aviation hub. This expansion will enhance connectivity, boost economic development, and support India's growing air passenger market, which is set to become the third-largest globally by 2030.

Source: Government of India - Press Information Bureau

Key factors affecting Air Transport Industry:

- **Growth in Air Passenger Traffic**

Over the past decade, domestic air passenger traffic in India has more than doubled, reflecting the increasing affordability and accessibility of air travel. According to the International Air Transport Association (IATA), India is poised to become the third-largest air passenger market by 2030, surpassing China and the United States. This growth is fuelled by rising middle-class incomes, improved regional connectivity, and government initiatives such as the UDAN (Ude Desh Ka Aam Nagrik) scheme, which promotes affordable regional air travel.

- **Fleet Expansion**

To meet growing passenger demand, Indian airlines have significantly expanded their fleets. Major airlines like IndiGo, Air India, and Akasa Air have placed large aircraft orders, ensuring fleet modernization and increased capacity. The increase in fleet size will enhance connectivity, reduce congestion, and improve service efficiency across domestic and international routes.

- **Future Growth Prospects**

India's commitment to increasing its number of operational airports to 350-400 by 2047 suggests a strong focus on infrastructure development. The expansion of airports in tier-2 and tier-3 cities will play a crucial role in enhancing regional air connectivity, reducing dependency on metro hubs, and promoting economic growth in smaller cities.

Rising Passenger Demand

- India's domestic air passenger traffic is projected to grow at a CAGR of 8-10% over the next decade.
- By 2030, India will become the third-largest air passenger market, overtaking the U.S. and China.
- Increased disposable incomes, business travel, and tourism will continue to fuel this demand.

- **Increase in Aircraft Fleet**

With rising passenger demand, Indian airlines are expected to double their fleet size by 2035. Fleet expansion will enable greater connectivity between domestic and international destinations, reinforcing India's position as a key global aviation hub. India's aviation industry is on a robust growth trajectory, driven by increasing airport infrastructure, rising passenger traffic, and fleet expansion. Government policies, economic growth, and technological advancements will further enhance connectivity and efficiency in the sector. With the projected increase in operational airports and air passenger traffic, India is set to become one of the world's leading aviation markets in the coming decades.

Factors and Trends Impacting the Growth of Air Transportation in India

1. Infrastructure Development

- The Bharatmala Project is enhancing road connectivity, with initiatives like the Delhi-Mumbai Industrial Corridor facilitating faster freight movement between industrial hubs.
- The Sagarmala Project focuses on port-led development, modernizing ports and integrating them with special economic zones to improve maritime logistics.
- The Dedicated Freight Corridors, such as the Delhi-Mumbai and Amritsar-Kolkata corridors, are expanding rail freight infrastructure, reducing transportation costs, and boosting trade efficiency.

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Threats and Challenges

India's logistics sector is undergoing a transformation driven by rising demand from manufacturing, e-commerce, and international trade. The government's infrastructure push, digitalization efforts, and policy interventions like the National Logistics Policy (NLP) and Gati Shakti are steps toward streamlining operations and reducing logistics costs. Despite these positive developments, the sector remains complex, with operational inefficiencies, cost pressures, and infrastructural constraints impacting its full potential. Air cargo logistics, in particular, has emerged as a crucial mode for time-sensitive and high-value shipments, yet it faces specific hurdles that distinguish it from surface logistics.

Key Threats

- **Fuel Price Volatility:** Crude oil price movements have a direct and substantial impact on air logistics. Jet fuel accounts for a large portion of air cargo operating expenses, and fluctuations can sharply erode margins. For instance, the dramatic rise in fuel prices in 2022 following the Russia-Ukraine conflict significantly increased freight costs for air cargo operators, prompting them to introduce fuel surcharges or renegotiate rates. While some large players could partially absorb or pass on the cost, mid-sized firms like Skyways Air Services Ltd. had to optimize routes and reduce non-essential legs to stay competitive.
- **Geopolitical and Global Trade Risks:** Disruptions like the COVID-19 pandemic, U.S.-China trade tensions, and the Suez Canal blockage in 2021 have highlighted how fragile global supply chains can be. These events had cascading effects on international cargo schedules, customs clearance times, and freight pricing, particularly for air shipments requiring just-in-time delivery.
- **Climate Change and Environmental Concerns:** The global shift toward sustainable logistics is placing pressure on air cargo operators to lower emissions and carbon footprints. European regulations, for example, are increasingly favoring low-emission freight alternatives, which could marginalize non-compliant air carriers. Companies like Lufthansa Cargo and FedEx have started integrating Sustainable Aviation Fuel (SAF), while Indian players are still in early stages, indicating a widening technology gap.
- **Cybersecurity Threats:** The logistics sector is increasingly reliant on digital tools for inventory management, cargo tracking, and customs documentation. However, this reliance exposes firms to data breaches and cyber-attacks. In 2021, global shipping giant CMA CGM suffered a ransomware attack that disrupted its booking systems. For Indian firms transitioning to digital platforms, a lack of robust cybersecurity measures makes them vulnerable to similar threats.

Major Challenges

- **Fragmented Industry Structure**

  India's logistics space remains dominated by small, unorganized players lacking integrated systems. This fragmentation leads to inefficiencies in cargo handling, poor intermodal coordination, and limited scalability. For air cargo, which demands time-bound and precision-driven execution, working with multiple disconnected vendors increases risks of delay and service inconsistency.

- **Infrastructural Gaps**

  While metro cities like Delhi and Mumbai have reasonably advanced cargo facilities, many secondary airports lack dedicated air freight terminals, cold-chain support, and night-handling capabilities. For example, a pharma shipment requiring temperature control may get delayed or damaged in Tier-2 airports due to lack of cold storage or skilled handling staff.

- **Regulatory Complexity**

  Logistics players often deal with overlapping regulations from customs, aviation, and GST departments. Delays in customs clearances, frequent changes in documentation requirements, and inconsistent enforcement across states result in operational bottlenecks. For instance, exporters frequently report delays in DGFT approvals or scanning clearances, even when shipments are time-sensitive.

- **Limited Skilled Workforce**

  Specialized logistics—especially air freight involving hazardous or perishable goods—requires trained manpower in cargo handling, packaging, documentation, and compliance. The industry currently suffers from a shortage of such skilled professionals, increasing reliance on on-the-job training and risking errors or shipment rejections.

- **Technology Adoption Gap**

  Although many large logistics firms are adopting AI, IoT, and blockchain solutions to enhance efficiency, smaller and mid-tier companies often struggle with the cost and complexity of implementing these systems. As a result, companies like Skyways Air Services Ltd. may find it difficult to offer end-to-end visibility or real-time tracking at the level of global competitors.

Competitive landscape

India's air cargo logistics sector forms a vital link in the broader supply chain, facilitating the rapid movement of time-sensitive and high-value goods across domestic and international markets. As the economy grows and global trade volumes increase, the demand for efficient air freight services continues to rise. Sectors such as pharmaceuticals, electronics, automotive components, and e-commerce are increasingly reliant on the speed and reach that air cargo offers.

The segment is also witnessing structural improvements driven by government support, including logistics infrastructure development, cargo-specific airport terminals, and digital initiatives aimed at enhancing transparency and turnaround time. While air cargo represents a smaller share compared to surface freight, its significance lies in handling urgent consignments and servicing regions with limited access.

Operational complexity, infrastructure limitations at key airports, and the need for specialized handling remain challenges in this space. However, advancements in cargo tracking technologies, growing adoption of multimodal logistics models, and the expansion of express logistics services are steadily reshaping the sector. Service providers are focusing on improving agility, optimizing capacity, and ensuring reliability to meet evolving client expectations.

Key players in the Indian air cargo logistics segment include a mix of specialized freight forwarders and diversified logistics providers. Companies like **Skyways Air Services Ltd.** focus primarily on-air freight and international cargo movement, offering tailored solutions for time-sensitive shipments. On the other hand, larger integrated logistics firms such as **Delhivery Ltd**, **Mahindra Logistics Ltd**, and **TVS Supply Chain Solutions Ltd** incorporate air cargo as part of a broader multimodal logistics portfolio, combining it with surface transport, warehousing, and last-mile delivery. These companies leverage scale, technology, and a pan-India presence to serve varied industry verticals. Together, they shape a competitive market where niche specialization and end-to-end service capabilities both find relevance depending on client needs.

Analysis of key factors shaping competition in the air transportation sector

The Indian air transportation sector is a dynamic and evolving industry, influenced by various competitive factors and dominated by key players who shape its trajectory.

1. Market Structure and Dominant Players:

- **IndiGo Airlines:** Holding over 60% of India's domestic market share, IndiGo has established itself as the largest carrier in the country. The airline is transitioning from its budget airline image by expanding internationally and introducing business-class seating, aiming to compete with global long-haul carriers.

- **Air India:** Under the ownership of the Tata Group, Air India is undergoing modernization efforts. The airline is in discussions with Boeing and Airbus for a substantial order of 30 to 40 widebody jets, aiming to elevate its modernization efforts and recapture market share lost to global rivals.

2. Fleet Expansion and Modernization: Airlines are investing heavily in expanding and modernizing their fleets to meet growing demand and enhance competitiveness. For instance, Air India's potential order of widebody jets from Airbus and Boeing is part of its strategy to modernize its fleet and expand its international presence.

3. Infrastructure Development: The Indian government has been investing in airport infrastructure to support the burgeoning aviation sector. This includes the development of new airports and the expansion of existing ones to accommodate increased air traffic.

4. Regulatory Environment: The regulatory framework in India has been evolving to support the growth of the aviation sector. Policies aimed at enhancing safety, improving passenger experience, and encouraging investment have been implemented to create a more competitive environment.

5. Pilot Shortage: India's aviation sector is facing a critical pilot shortage, with a deficit of about 12-15% of trained pilots. Despite having 4,000-5,000 newly licensed pilots unemployed, airlines prefer experienced candidates due to the high costs and lengthy training associated with new pilots.

6. Technological Advancements: Airlines are increasingly investing in technology to enhance the passenger experience. From mobile check-in to in-flight Wi-Fi, technology is playing a crucial role in improving efficiency and convenience for travellers.

7. Sustainability Initiatives: With growing concerns about climate change, airlines are under pressure to reduce their carbon footprint. Many airlines, including Air India, are investing in more fuel-efficient aircraft and exploring sustainable aviation fuel options.

The competitive landscape of India's air transportation sector is shaped by a combination of market dominance by key players, strategic fleet expansions, infrastructure developments, regulatory changes, workforce challenges, technological innovations, and sustainability efforts. These factors collectively influence the strategies adopted by airlines to maintain and enhance their competitive positions in this rapidly growing market.

8. Market Dominance by Foreign Carriers: Foreign airlines command a substantial share of India's international air cargo market, accounting for approximately 94-95% of the total volume. This dominance is largely due to their extensive fleets, global networks, and capacity to operate dedicated freighter aircraft, enabling them to serve long-haul destinations effectively.

Peer Profiling

Delhivery Limited

Established in 2011 and headquartered in Gurgaon, Haryana, Delhivery Limited is a leading logistics and supply chain services provider in India. The company has developed a wide-reaching pan-India presence, servicing over 18,700 pin codes with infrastructure comprising 24 automated sort centres, 94 gateways, and 2,880 direct delivery centres. As of August 2023, Delhivery has fulfilled over 2 billion orders and employs a workforce of more than 57,000 individuals. The company's logistics network operates year-round, offering uninterrupted service across all days of the year.

Delhivery's logistics capabilities are designed to cater to businesses of all sizes, from small and medium enterprises to large-scale e-commerce platforms. Its infrastructure is supported by robust automation and process engineering that facilitate high-speed, accurate order sorting, tracking, and delivery. The company has built strategic partnerships both domestically and globally, enabling seamless cross-border and multi-modal transportation options.

The firm's operational footprint extends beyond metropolitan hubs, reaching Tier 2 and Tier 3 cities to provide inclusive logistics coverage. With significant investments in technology and process innovation, Delhivery has positioned itself not only as a service provider but also as an enabler of modern commerce. It continues to expand its infrastructure, including warehousing space and transport fleet, to support a growing and diverse customer base.

Product & Service Offerings:

Delhivery provides a wide range of logistics and supply chain services designed to meet the diverse needs of its customers across various sectors:

- **Express Parcel:** Time-bound delivery services for high-volume e-commerce and direct-to-consumer shipments, covering first mile, line haul, and last-mile logistics.
- **Part Truckload** (PTL): Freight solutions that allow multiple clients to share space on a single vehicle, offering cost efficiency and regular dispatches across key routes.
- **Full Truckloa**d (FTL): Dedicated truck services for businesses with bulk transportation needs, providing direct connectivity between manufacturing units, warehouses, and retail points.
- **Warehousing & Fulfilment**: A network of warehousing facilities offering inventory management, order processing, packaging, and fulfilment services. These are supported by technology platforms for inventory visibility and control.

- **Cross-border Services**: International shipping solutions including import/export clearance, freight forwarding, and last-mile delivery in select markets through global partnerships.
- **Supply Chain Software**: A proprietary logistics operating system enabling shipment tracking, network optimization, demand forecasting, and operational analytics.
- **Data Intelligence Solutions**: Technology-driven insights for customers to optimize their logistics planning, demand prediction, and cost structures.
- **Solutions for D2C and SMEs:** Customizable logistics services to support direct-to-consumer brands, small sellers, and businesses with flexible scale requirements.

Key Customer Segments Serviced:

Delhivery caters to a broad and diversified customer base across industries, offering tailored logistics solutions to meet varying supply chain needs:

- **E-commerce Marketplaces**: Serves some of India's largest online platforms by providing high-frequency express parcel and reverse logistics services across the country.
- **Direct-to-Consumer (D2C) Brands**: Supports digitally native and emerging consumer brands with scalable fulfilment and delivery services, enabling faster market reach and customer responsiveness.
- **Small and Medium Enterprises (SMEs)**: Offers flexible warehousing, PTL, and last-mile solutions to SMEs across sectors, helping streamline logistics and improve delivery timelines.
- **Large Enterprises**: Works with established firms in automotive, retail, FMCG, and manufacturing sectors, providing end-to-end transportation and supply chain management solutions tailored to complex business needs.
- **Consumer Durables & Electronics**: Facilitates safe and timely movement of high-value and bulky goods, leveraging tracking systems and secure delivery protocols.
- **Retail Chains**: Enables intra-city and inter-city movement of inventory for organized retail outlets through structured warehousing and FTL services.

Key Strengths

- **Integrated Multi-Modal Logistics Network:** Delhivery's extensive infrastructure includes road, air, and cross-border logistics capabilities, allowing it to offer express parcel, part-truckload (PTL), full-truckload (FTL), and warehousing services. Its ability to manage multi-modal movement enhances network flexibility.
- **Proprietary Technology Platform:** The company's logistics operating system integrates warehousing, last-mile delivery, order management, and real-time visibility. This tech-led approach supports dynamic

routing, shipment optimization, and predictive analytics, improving service performance and cost efficiency.

- **Diverse Customer Base:** With over 30,000 active customers as of FY24, Delhivery supports a varied clientele ranging from new-age e-commerce startups to traditional enterprises, enabling it to mitigate demand concentration risk and maintain a balanced business portfolio.
- **Strong Emphasis on Automation and Scale:** The company continues to invest in automation across its sortation centers and delivery operations. These investments are aligned with cost management goals and operational scalability.
- **Strategic Partnerships and Expansions**: Delhivery has partnered with several international logistics providers and engages with ONDC (Open Network for Digital Commerce), allowing it to explore collaborative opportunities in both B2B and B2C segments.

Mahindra Logistics Ltd

Mahindra Logistics Limited (MLL), founded in 2008, is based in Mumbai, Maharashtra. It provides integrated logistics and mobility solutions across India and is part of the Mahindra Group. The company operates a non-asset-based model to offer supply chain management and people transport services. MLL has established a broad network of over 500 business partners, supported by advanced digital systems to optimize operations.

The company focuses on delivering efficient and practical logistics solutions through the application of technology. It incorporates tools such as Artificial Intelligence (AI) and machine learning for data analysis, route optimization, and supply chain management. MLL's services cater to a variety of sectors, including automotive, e-commerce, healthcare, and consumer goods, offering tailored solutions to meet specific business requirements.

MLL also seeks to expand its presence beyond India, offering logistics services for international supply chains. This reflects the company's ongoing commitment to enhancing operational efficiency and supporting the logistics needs of a wide range of industries.

Product Profile & Operational Infrastructure

Mahindra Logistics operates primarily through two business segments:

- **Supply Chain Management (SCM):**
  - Inbound and outbound logistics
  - Distribution and network design
  - Fulfilment and warehousing
  - Freight forwarding (domestic and international)

  - E-commerce logistics
  - Project cargo and express logistics
- **Enterprise Mobility Services (People Transport Solutions):**
  - Employee transportation solutions for corporates
  - Tech-enabled routing, scheduling, and fleet management
  - Electric vehicle fleet options to support sustainability

MLL also offers end-to-end logistics consulting and design through its integrated service platform.

Key Customer Segments Serviced

Mahindra Logistics serves a wide range of customer segments across various industries, providing logistics and mobility solutions tailored to specific needs. Key customer segments include:

- **Automotive Industry:** Serving original equipment manufacturers (OEMs) and component suppliers with transportation, warehousing, and distribution services.
- **E-Commerce:** Providing end-to-end logistics solutions to e-commerce platforms, including fulfillment, last-mile delivery, and reverse logistics.
- **Consumer Goods & Retail:** Offering supply chain management services for fast-moving **consumer goods (FMCG) companies and retail networks.**
- **Pharmaceuticals & Healthcare:** Ensuring efficient and safe transportation of pharmaceutical products, medical devices, and healthcare equipment.
- **Engineering & Manufacturing**: Delivering project logistics, specialized transport services, and warehouse management solutions for industrial sectors.

Key Strengths

Integrated Logistics Platform: Mahindra Logistics provides a range of services across the supply chain, including transportation, warehousing, and fulfillment. This integration helps streamline operations and improve efficiency for various industries.

Technology-Driven Operations: The company uses technologies like AI, IoT, and automation to optimize routes, manage inventory, and enhance tracking. These tools help improve operational performance and provide valuable insights for decision-making.

Asset-Light Business Model: Operating with a non-asset-based model, Mahindra Logistics avoids heavy investments in infrastructure, relying on a network of partners and technology to offer scalable and flexible logistics solutions.

Sustainability Focus: Mahindra Logistics integrates electric vehicles into its fleet and focuses on green logistics practices, such as energy-efficient warehouses and optimized routing, to reduce the environmental impact of its operations.

Strong Parentage and Brand Equity: As part of the Mahindra Group, the company benefits from brand recognition and access to a wide network of resources, which strengthens its position in the logistics market.

Experienced Workforce and Operational Expertise: Mahindra Logistics invests in its workforce by providing ongoing training, ensuring that its team is equipped to handle the complexities of logistics and supply chain management.

Customer-Centric Approach: The company focuses on understanding and addressing the unique needs of its customers, offering tailored solutions for industries such as automotive, e-commerce, and healthcare.

TVS Supply Chain Solutions Ltd

TVS Supply Chain Solutions Ltd. (TVS SCS), established in 2004, is headquartered in Chennai, India. It operates as part of the TVS Mobility Group and offers comprehensive supply chain solutions both domestically and internationally. The company has expanded its presence across 26 countries, serving customers in automotive, industrial, consumer goods, technology, healthcare, and defense sectors.

The organization manages over 100 operating facilities globally and has built capabilities in integrated supply chain and network-based solutions. Its services are tailored to support varying customer needs, from managing complex in-plant logistics to handling cross-border freight movements. With a workforce of over 18,000, TVS SCS focuses on improving operational efficiency through technology-driven platforms and process optimization.

The company emphasizes long-term partnerships and operational resilience by developing customized service models for its clients. Its approach integrates physical logistics with digital systems, enabling better visibility and control over supply chain processes. In India, TVS SCS caters to both public and private sector enterprises and is also engaged in government contracts, particularly in defense logistics.

TVS SCS has also grown inorganically through strategic acquisitions in Europe, the UK, and the US. These acquisitions have strengthened its presence in time-critical services and international freight forwarding. The global operating structure enables collaboration between regional teams to ensure service consistency and scalability.

Product & Service Offerings

TVS SCS delivers supply chain solutions under two key business segments:

- **Integrated Supply Chain Solutions (ISCS):** Includes inbound logistics, outbound distribution, warehousing, inventory planning, packaging, and in-factory logistics operations.
- **Network Solutions (NS):** Covers international freight forwarding (air, sea, road), express logistics, time-sensitive final mile deliveries, and aftermarket support including spare parts logistics and returns management.

The company also offers industry-specific solutions with a strong emphasis on technology integration to streamline operations and improve turnaround time.

Key Customer Segments Serviced

TVS SCS serves a wide spectrum of industries including:

- Automotive and Auto Components
- Engineering and Industrial Equipment
- Consumer Electronics and Appliances
- Retail and E-commerce
- Pharmaceuticals and Healthcare
- Aerospace and Defense
- Utilities and Infrastructure

Key Strengths

- **Global Reach with Local Expertise:** Operates in over two dozen countries with an ability to localize services to meet specific market needs. This enables the company to offer consistent service quality while adapting to regional regulatory and logistical requirements.
- **Multi-Sector Experience:** Provides supply chain solutions across varied industries, enabling adaptability and scalability. The cross-industry exposure supports process innovation and allows transfer of best practices across segments.
- **Technology-Driven Operations:** Leverages proprietary digital tools to improve visibility, enhance control, and drive data-informed logistics planning. These platforms also facilitate performance tracking, automated reporting, and predictive analytics.
- **Tailored Logistics Models:** Designs solutions that align with customer-specific operational challenges and regulatory environments. This customization helps improve turnaround time and ensures alignment with client objectives.

- **Integrated Capabilities:** Offers a seamless supply chain experience by combining warehousing, transportation, freight forwarding, and aftermarket services. Such integration simplifies vendor management and improves coordination across the supply chain.
- **Focus on Efficiency:** Works toward optimizing logistics networks and operational processes to support cost-effective service delivery. Continuous improvement initiatives and lean practices help in minimizing waste and reducing delivery timelines.

Financial Analysis

Particular	Unit	Skyways Air Services Ltd.				Delhivery Ltd		
		As at and for Fiscal				As at and for Fiscal		
		Fiscal 2025	Fiscal 2024	Fiscal 2023	Fiscal 2022	Fiscal 2024	Fiscal 2023	Fiscal 2022
Revenue From Operations	₹ in Crore	1,637.22	1,289.11	1,484.12	1,658.56	8,141.50	7,225.30	6,882.20
EBITDA	₹ in Crore	63.85	48.34	58.71	68.58	112.87	-438.04	-475.30
EBITDA Margin	in %	3.90%	3.75%	3.96%	4.13%	1.39%	-6.06%	-6.91%
PAT	₹ in Crore	36.84	34.49	37.90	46.04	-249.10	-1,007.77	-1,011.00
PAT Margin	in %	2.25%	2.68%	2.55%	2.78%	-3.06%	-13.95%	-14.69%
Operating Cash Flow	₹ in Crore	-22.02	-9.04	71.59	20.88	472.40	-29.60	-240.30
Net Worth	₹ in Crore	238.89	186.06	130.23	100.87	9,144.60	9,177.10	5,957.30
Debt Equity Ratio	Multiple	1.77	1.92	1.34	1.62	0.01	0.02	0.06
Return on Equity (RoE)	in %	15.42%	18.54%	29.10%	45.65%	-2.72%	-10.98%	-16.97%
Return on Capital Employed (RoCE)	in %	11.00%	12.36%	21.34%	27.02%	-1.68%	-10.28%	-14.73%
Return on Asset (RoA)	in %	4.31%	4.36%	8.45%	9.91%	-2.17%	-8.99%	-12.25%

Note : For All companies consolidated balance sheet is considered.

Particular	Unit	Mahindra Logistics Ltd			TVS Supply Chain Solutions Ltd		
		As at and for Fiscal			As at and for Fiscal		
		Fiscal 2024	Fiscal 2023	Fiscal 2022	Fiscal 2024	Fiscal 2023	Fiscal 2022
Revenue From Operations	₹ in Crore	5,505.90	5,128.29	4,140.76	9,199.98	9,994.38	9,249.78
EBITDA	₹ in Crore	232.79	259.76	184.27	668.51	656.95	576.97
EBITDA Margin	in %	4.23%	5.07%	4.45%	7.27%	6.57%	6.24%
PAT	₹ in Crore	-52.07	27.42	15.06	-90.49	41.76	-46.48
PAT Margin	in %	-0.95%	0.53%	0.36%	-0.98%	0.42%	-0.50%
Operating Cash Flow	₹ in Crore	226.86	119.40	190.98	161.58	817.61	601.28
Net Worth	₹ in Crore	504.24	560.30	546.76	1,844.73	760.02	753.91
Debt Equity Ratio	Multiple	0.67	0.72	0.07	0.43	2.62	2.34
Return on Equity (RoE)	in %	-10.33%	4.89%	2.75%	-4.91%	5.49%	-6.17%
Return on Capital Employed (RoCE)	in %	4.96%	8.95%	9.56%	6.32%	8.40%	6.60%
Return on Asset (RoA)	in %	-2.10%	1.07%	0.76%	-1.55%	0.67%	-0.80%

Note: For All companies consolidated balance sheet is considered.

Financial Analysis for 9 Months FY2025:

Particular	Unit	Skyways Air Services Ltd.	Delhivery Ltd	Mahindra Logistics Ltd	TVS Supply Chain Solutions Ltd
		As at end for Fiscal	As at end for Fiscal	As at end for Fiscal	As at end for Fiscal
		December 31, 2024	December 31, 2024	December 31, 2024	December 31, 2024
Revenue From Operations	₹ in Crore	1,637.22	6,740.34	4,535.32	7,496.89
EBITDA	₹ in Crore	63.85	575.05	220.00	546.27
EBITDA Margin	in %	3.90%	8.53%	4.85%	7.29%
PAT	₹ in Crore	36.84	89.55	-24.68	-5.72
PAT Margin	in %	2.25%	1.33%	-0.54%	-0.08%
Operating Cash Flow	₹ in Crore	-22.02	NA	NA	NA
Net Worth	₹ in Crore	238.89	NA	NA	NA
Debt Equity Ratio	In Times	1.77	NA	NA	NA
Return on Equity	in %	15.42%	NA	NA	NA
Return on Capital Employed	in %	11.01%	NA	NA	NA
Return on Assets	in %	4.31%	NA	NA	NA

Parameter	Formula
Total Revenue	Total Income includes Revenue from Operations and Other income.
Revenue From Operations	Revenue from operations means the revenue from operations as appearing in the restated statement of profit & loss for the relevant year/period.
EBITDA	PBT + Finance Cost + Depreciation
EBITDA Margin	EBITDA/Revenue from Operations
PAT Margin	PAT /Revenue from Operations
Net worth	Shareholder Equity
Debt Equity Ratios	Short term Borrowing +Long Term Borrowing/Shareholder Equity
Return on Equity (ROE)	PAT /Shareholder Equity
Return On Asset (ROA)	PAT/Total Asset
Return on Capital Employed (RoCE)	(PBIT/(Shareholder Equity + Short Term Borrowing + Long Term Borrowing

Industry SWOT Analysis

The Indian logistics industry is a cornerstone of the nation's economy, ensuring the seamless movement of goods across its vast and diverse landscape. A detailed SWOT analysis examining Strengths, Weaknesses, Opportunities, and Threats offers a comprehensive understanding of the industry's current state, with a particular emphasis on airways logistics.

Strengths:

- **Strategic Geographic Position:**

  India's central location in South Asia positions it as a crucial hub for international trade routes connecting the East and West. This strategic advantage facilitates efficient distribution channels for both domestic and international markets.

- **Robust Economic Growth:**

  India's consistent economic expansion drives demand for sophisticated logistics services. As industries grow and consumer markets expand, the need for timely and reliable transportation, especially via air freight, becomes increasingly critical.

- **Expanding Air Cargo Market:**

  The Indian air cargo market has demonstrated significant growth, reaching approximately USD 13.44 billion in 2024. Projections indicate a compound annual growth rate (CAGR) of 5.80% between 2025 and 2034, potentially attaining a market value of USD 23.62 billion by 2034. This growth is fuelled by factors such as increased export activities and advancements in airport infrastructure.

- **Technological Integration:**

  The adoption of advanced technologies, including automation, real-time tracking, and data analytics, has enhanced operational efficiency within the air cargo sector. These innovations lead to improved cargo handling, reduced turnaround times, and increased customer satisfaction.

Weaknesses:

- **Infrastructure Limitations:**

  Despite growth, many Indian airports face challenges like inadequate cargo handling facilities, limited warehousing space, and outdated equipment. These limitations can cause delays and increase operational costs.

- **Regulatory Challenges:**

  Complex customs procedures and bureaucratic hurdles often impede the swift movement of goods. Lengthy clearance processes can diminish the advantages of air freight's speed, affecting overall supply chain efficiency.

- **High Operational Costs:**

  Air freight is inherently more expensive than other transportation modes. Factors such as volatile fuel prices, high airport charges, and maintenance expenses contribute to elevated operational costs, which can deter price-sensitive customers.

- **Limited Domestic Connectivity:**

  While major metropolitan areas are well-served, regional connectivity remains underdeveloped. This gap restricts the reach of air cargo services, particularly affecting businesses in remote or underserved regions.

Opportunities:

- **E-commerce Expansion:**

  The rapid rise of e-commerce in India has escalated demand for quick and reliable delivery services. Air cargo is uniquely positioned to meet these needs, offering expedited shipping that aligns with consumer expectations for speed.

- **Government Initiatives:**

  The Indian government has launched several initiatives aimed at bolstering the logistics sector. Policies focused on modernizing infrastructure, streamlining regulations, and promoting public-private partnerships are set to enhance the efficiency and capacity of air cargo operations.

- **Investment in Infrastructure:**

  Ongoing and planned investments in airport infrastructure, including the development of dedicated cargo terminals and integrated logistics parks, present opportunities to alleviate current bottlenecks and improve service delivery.

- **Regional Trade Agreements:**

  India's participation in regional trade agreements can open new markets and increase cargo volumes. Strengthening ties with neighbouring countries and trading blocs can lead to enhanced cross-border air cargo movement.

Threats:

- **Intense Competition:**

  The air cargo sector faces stiff competition from other modes of transport, such as road, rail, and sea, which may offer more cost-effective solutions for certain types of cargo. Additionally, international carriers operating in India add to the competitive pressure.

- **Environmental Concerns:**

  The environmental impact of air freight, particularly its carbon footprint, is under increasing scrutiny. Regulatory measures aimed at reducing emissions and promoting sustainability could impose additional costs and operational constraints on air cargo operators.

- **Global Economic Fluctuations:**

  The air cargo industry is vulnerable to global economic downturns, trade restrictions, and geopolitical tensions. Such factors can disrupt supply chains, reduce trade volumes, and impact profitability.

- **Pandemic and Health Crises:**

  Health crises, like the COVID-19 pandemic, have demonstrated the potential for severe disruptions in air cargo operations. Travel restrictions, reduced flight frequencies, and lab or shortages can significantly impact the industry's ability to function effectively during such events.

Company Profiling: Skyways Air Services Ltd.

Skyways Air Services Ltd. is a professional aviation and logistics company specializing in air cargo transportation, freight forwarding, and related services. Established in 1984 by Chairman Mr. S.L. Sharma, the company has built a strong foundation in the aviation sector, offering reliable and efficient solutions for cargo movement across domestic and international routes. Headquartered in New Delhi, Skyways Air Services Ltd. operate with a focus on streamlined logistics, ensuring timely and secure deliveries for a diverse range of industries.

With a well-established regional presence, the company serves key markets presence across India with 31 locations, including major cities such as Ahmedabad, Bangalore, Chennai, Cochin, Delhi, Hyderabad, Jaipur, Kolkata, Mumbai, Panipat, and Surat., enabling seamless connectivity between major trade hubs. Internationally, the company expanded its operations to Germany, Vietnam, Bangladesh, Dubai, Hong Kong, and Thailand. Skyways Air Services Ltd. collaborates with a network of carriers, ground handling agents, and logistics partners to provide customized transport solutions that cater to the specific needs of businesses. By leveraging industry expertise and technology-driven processes, the company continues to enhance its service offerings and expand its operational footprint in the aviation and logistics industry.

Product profile & operational infrastructure

Skyways Air Services Ltd. provides a range of logistics and freight solutions tailored to diverse industry needs directly and through its subsidiaries. The company's key services include:

1. **Air Freight Services**
    - Direct and consolidated air cargo solutions
    - Time-sensitive and high-value cargo handling
    - Partnerships with major airlines for efficient routing
    - Specialized handling of perishable, dangerous, and oversized goods
2. **Ocean Freight Services**
    - Full Container Load (FCL) and Less than Container Load (LCL) shipping
    - Multi-modal transport solutions (sea-air, sea-road)
    - Global partnerships with shipping lines for optimized costs
3. **Road Transportation Services**
    - Domestic and cross-border road freight solutions
    - Full truckload (FTL) and less than truckload (LTL) options

- Real-time tracking and end-to-end logistics support

4. **Express & Courier Services through its subsidiary sKart Global Express Pvt. Ltd.**
    - Fast-track delivery for documents and parcels
    - Domestic and international courier services
    - Last-mile delivery solutions
5. **Warehousing & Distribution**
    - Temperature-controlled and general warehousing
    - Inventory management and order fulfilment
    - Distribution network across key locations
6. **Customs Clearance & Regulatory Compliance**
    - Import and export documentation support
    - Customs brokerage and duty management
    - Trade compliance advisory
7. **Specialized Logistics Solutions**
    - Handling of hazardous materials and live animals
    - Cold chain logistics for pharmaceuticals and perishables
    - E-commerce and retail supply chain solutions

Operational Infrastructure:

1. **Network & Regional Presence**
    - Headquartered in New Delhi, India
    - Operational presence in 31 locations across India, including major cities such as Mumbai, Bangalore, Chennai, Hyderabad, Kolkata, and Ahmedabad
    - International offices in Germany, Vietnam, Bangladesh, Dubai, Hong Kong, and Thailand
2. **Logistics Hubs & Facilities**
    - Strategically located warehouses near major transport hubs
    - Cold storage facilities for temperature-sensitive shipments

- Automated handling systems for faster processing

3. **Technology Integration**
    - Digital tracking and real-time shipment visibility
    - AI-driven logistics optimization
    - Integrated supply chain management systems
4. **Certifications & Compliance**
    - IATA-accredited air freight services
    - AEO (Authorized Economic Operator) certified
    - ISO 9001:2015 for quality management in logistics

Key customer segments serviced:

Skyways Air Services Ltd. provides logistics solutions to businesses across multiple industries, ensuring seamless supply chain management tailored to each sector's specific requirements. The key customer segments include:

1. **Fast-Moving Consumer Goods (FMCG)**
    - Supports large FMCG brands such as Parle and Britannia in the efficient distribution of food products and packaged goods.
    - Ensures timely deliveries to maintain stock availability in retail chains and supermarkets.
    - Offers warehousing and last-mile delivery solutions to optimize supply chain efficiency.
2. **Pharmaceuticals & Healthcare**
    - Provides cold chain logistics for temperature-sensitive medications and vaccines for companies like Morepen and IPCA.
    - Ensures regulatory-compliant transportation of medical devices and pharmaceutical products.
    - Offers express delivery services for urgent medical supplies, reducing lead times for critical healthcare shipments.
3. **Automotive Industry**
    - Partners with leading automotive brands such as Tata Motors and Eicher to manage the transport of vehicle parts and assemblies.
    - Supports just-in-time (JIT) supply chains, ensuring uninterrupted production lines.

- Provides multimodal transport options, including air, sea, and road freight, for the global automotive supply network.

4. **Textiles & Apparel**

   - Works with major textile manufacturers such as Vardhman and Arvind to streamline fabric and garment transportation.
   - Ensures smooth international trade logistics for raw materials and finished clothing.
   - Offers warehousing and distribution services to manage seasonal inventory fluctuations.

5. **Engineering Goods & Industrial Equipment**

   - Supports companies like Honeywell and JCB Power Systems in transporting heavy machinery, industrial tools, and engineering components.
   - Provides secure logistics solutions for high-value industrial goods, ensuring safety during transit.
   - Manages global freight forwarding for manufacturing units, ensuring smooth operations across supply chains.

Skyways Air Services Ltd. continues to cater to a broad spectrum of industries by offering specialized logistics solutions, advanced tracking systems, and a robust global network to support businesses in managing their supply chain operations efficiently.

Financial Performance Snapshot

Particular	Unit	Skyways Air Services Ltd.			
		9M FY 2025	Fiscal 2024	Fiscal 2023	Fiscal 2022
Revenue From Operations	₹ in INR Cr	1,637.22	1,289.11	1,484.12	1,658.56
EBITDA	₹ in INR Cr	63.85	48.34	58.71	68.58
EBITDA Margin	in %	3.90%	3.75%	3.96%	4.13%
PAT	₹ in INR Cr	36.84	34.49	37.90	46.04
PAT Margin	in %	2.25%	2.68%	2.55%	2.78%
Operating Cash Flow	₹ in INR Cr	-22.02	-9.04	71.59	20.88
Net Worth	₹ in INR Cr	238.89	186.06	130.23	100.87
Debt Equity Ratio	Multiple	1.77	1.92	1.34	1.62
RoE	in %	15.42%	18.54%	29.10%	45.65%
RoCE	in %	11.00%	12.36%	21.34%	27.02%
RoA	in %	4.31%	4.36%	8.45%	9.91%