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Airlines and Airports

Contact:

Madan Sabnavis

Chief Economist

madan.sabnavis@careratings.com

91-22-67543489

Ashish K Nainan

Research Analyst

ashish.nainan@careratings.com

Mradul Mishra

mradul.mishra@careratings.com

91-022-6754 3515

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The Airline Industry is among the sunrise sectors in India post 2014. India is the fastest growing airline market as per International Air Transport Association (IATA) for the past three years followed by China. As per IATA and Oxford Economics Report, the sector contributes to approximately 1 million jobs directly. The Indian Airline Industry also witnessed addition of new service providers in the last few years as well as multinational airline companies investing into domestic service providers.

Three factors contributing to the growth of this industry in India are-

- Lowering cost of air travel
- Growing middle-income population
- Public transport services over medium/long distances like Railways being unable to deliver efficient alternatives or enough capacity to cater to demand.

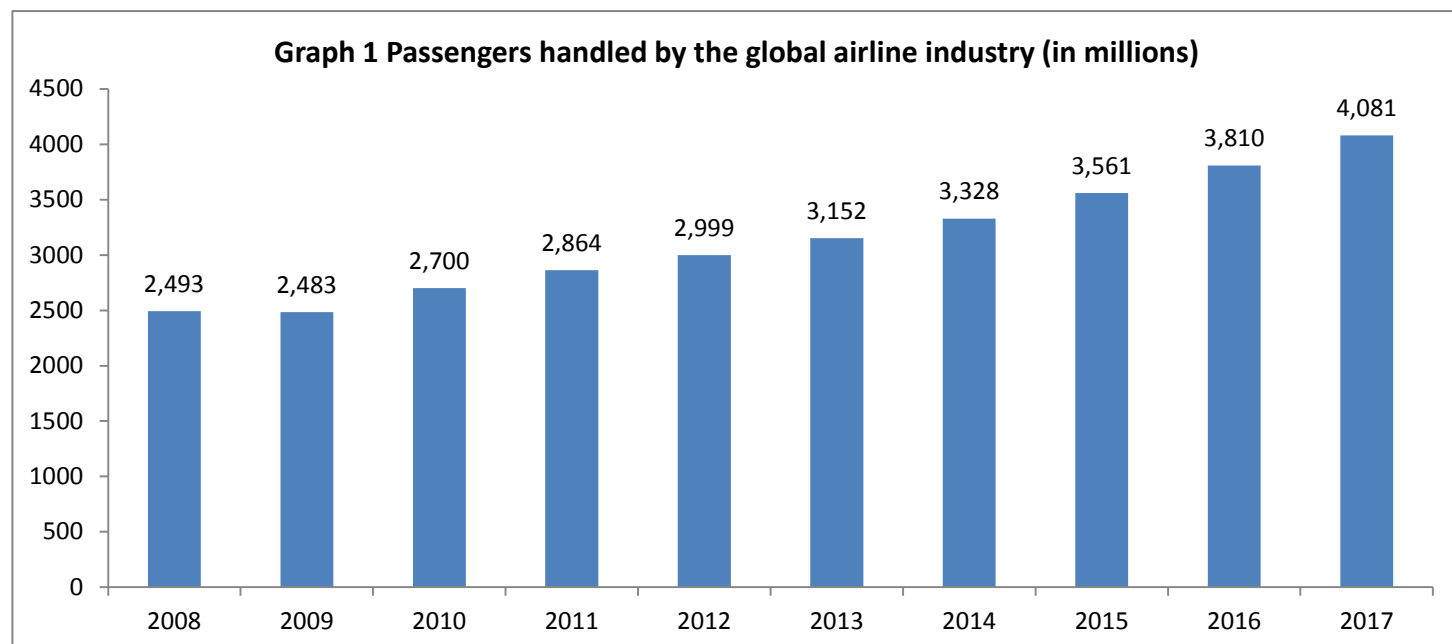
This sudden growth in Airline industry provides opportunities and poses a challenge at the same time. Airline industry has matured over the last decade and the potential market size is expected to grow manifold its current size. At the same time, the evolution of airlines into public transport requires comparable investment into development and expansion of new & existing airports and other aviation facilities.

The Government implemented the “UDAN” (Regional Connectivity Scheme) scheme which aims at connecting tier-3 and 4 cities to larger metro cities and other cities providing an affordable travel medium to a much large population. In the initial two rounds of bidding for the scheme, the Government announced operationalising of 56 new airports and 31 new helipads. The scheme is expected to add 1.3 million new passenger seats across new networks. The major benefit is in terms of strengthening the airline network across the country.

Aviation Industry: Global perspective

The Global aviation industry has been on an uptrend post 2008-09. The negative trend during the years 2008 and 2009 marked significance on the back of two major events-

- High crude prices affected financial performance of airlines
- Global Financial Crisis of 2008 further weakened demand for airline services across major economies like USA, Europe and Japan.



Source: IATA

As per IATA, the number of unique city-pair connections exceeded 16,600 in 2015, 350 more than in 2014 and almost double the connectivity by air 20 years ago. The price to users of air transport has fallen, meanwhile, after adjusting for inflation. Compared with 20 years ago, real transport costs have more than halved. The passengers handled by airlines worldwide grew by 5.4% CAGR during 2013-18. Asian markets like India and China led this growth. Apart from demographic factors and higher economic growth, the industry in these geographies benefitted from the dip in oil prices that began in 2014. Total passenger handled by airlines globally stood at around 4.1 billion during 2016-17. Major countries accounting for this passenger traffic are USA, UK, Germany, China, India and Japan. Region-wise, Asia Pacific led with 1/3rd the total global passenger share followed by Europe (26.5%) and North America (23%). Capacity across these regions grew faster than the previous year with Asia and Latin America reporting a growth of around 9.25% followed by Europe at 8.2% and African region at 7.5%.

Table 1 Major economies and aviation industry statistics

	India	U.S.A.#	China
GDP/Per Capita (in \$)	\$ 2.2 Trillion/ \$1,760	\$ 18 Trillion/ \$56,000	\$ 11 Trillion/ \$ 8,100
Number of airports*	86	909	205
Passengers Ferried (Annual)	158 million	823 million	487 million
International passengers	54 million	104 million	133 million
Domestic Passengers	104 million	719 million	354 million

*As listed by flightradar24 #US Department of Transportation "GDP and Other Data from IMF and World Bank"

Indian aviation industry

In 1953, the Indian Airline Industry was nationalized. With nationalization, eight pre-independence domestic airlines were merged to form two national carriers-

- “Air India International” operating international flights
- “Indian Airlines Corporation”, for the domestic operations.

Airline industry chronology (1990-2018)

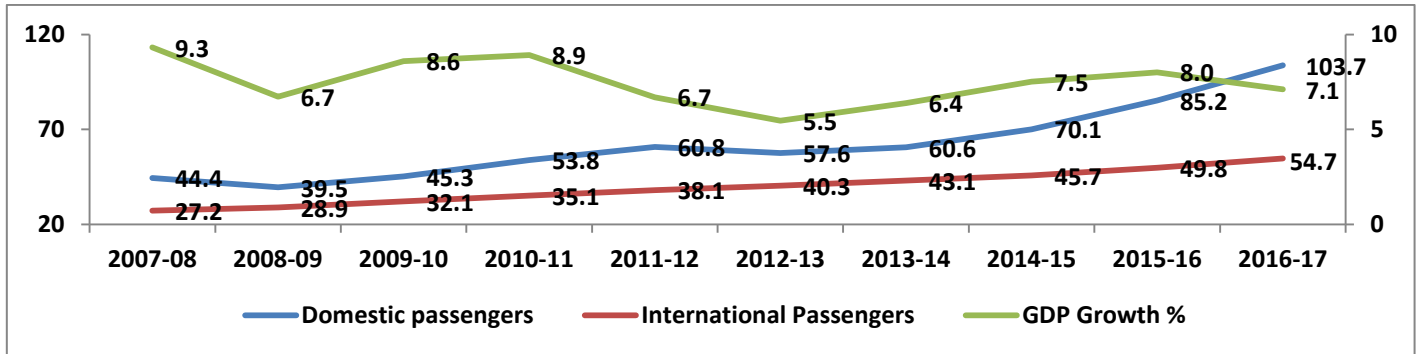
- Post liberalisation of economy, the Government adopted an open-sky policy and private airlines were allowed to participate in the airline sector. East-West Airlines was the first private airline and started its operations in 1990.
- In 1994, the Air Corporations Act was repealed and replaced by a new act, thereby enabling private airlines in India to begin their scheduled airline operations. By 1995, 6 private airlines which included East West, Sahara, Jet Airways, Modiluft, Damania and NEPC accounted for 10% of the domestic traffic. Jet Airways started its operation in 1993. Barring Jet Airways, the other 5 airlines ceased operations during 1995-97.
- **1996-2004:** Successive Government’s introduced legislations and implemented slew of measures which included formation of Airport Authority of India- an umbrella body for operation of airports across the country, setting up of airports under the PPP model etc. These policies and measures shaped the initial contours of the aviation industry in India.
- The concept of “Low Cost Carrier” in India was introduced by Air Deccan in 2003(later acquired and merged with Kingfisher airlines).
- **2004-09:** The Airline Industry witnessed new players being given permission to operate in the country and policy to develop and expand infrastructure of airports in both metro as well as non-metro cities. The policy for domestic airlines to operate overseas was also introduced during this period known as 5/20 rule. As per 5/20 rule, national carriers were required to have five years of operational experience and a fleet of minimum 20 aircraft to fly overseas. This rule was abolished in 2016 and replaced by 0/20 rule.
- Three “Low-Cost-Carriers” (LCC) namely Spicejet, GoAir and Interglobe commenced operations in the year 2005 and 2006.
- **By 2010,** high crude prices and global financial crisis caught up with the Indian airline industry and slowed down the overall industry. Kingfisher Airlines (along with now merged Deccan airways) ceased operations in 2012 which led to major slump in the industry. The same year, Jet Airways acquired Sahara Airways for Rs. 2,300 crore in an all cash deal.
- Falling crude prices led to recovery in demand post 2014. Two new scheduled airlines- AirAsia and Vistara, received licenses to commence operations in 2014 and 2015 respectively.
- Currently, there are 7 scheduled airlines operating in the country and 5-6 regional operators under the regional connectivity scheme-“UDAN”. The 5 largest airlines have a 90% market share in terms of passenger traffic in 2017.
- Among the regional operators, Air Odisha and Zoom Air started operation in 2012 and 2013. Air Deccan has been the latest entrant making a comeback in 2017.

During 2007-2017, the total passengers including international and domestic passengers grew from 71.6 million in to 158.4 million – growth of 121.2% in absolute terms and 8.2% CAGR. The domestic airline passenger traffic grew by 11.4% CAGR during 2012-17. Global passenger traffic soared 5.3% during the same period. Indian railway during the same period recorded a decline in passengers from 700 million passengers in 2012-13 versus 695 million passengers in 2016-17.

Relation between Passenger Traffic and Economic Growth:

The domestic passenger traffic is positively correlated to the GDP growth of the country. As the GDP slowed in the year 2012-13, the domestic passenger growth fell by almost 5%. Recovery in GDP post 2013-14 led to sustained growth in domestic passengers.

Graph 2 Passengers handled and GDP (%) growth



Source: DGCA

The share of domestic passengers has been greater than 55% over the last decade. In 2007-08, the share of domestic passengers was 62%, which dropped to 58% in 2013-14. In 2016-17, the share of domestic passengers to total passengers stood at 65.5% indicating a recovery in domestic passenger numbers in line with the GDP growth.

Market share of Airlines:

In India, low-cost carriers (LCC) have been more successful. LCCs provide low cost airline services with optimum luggage carrying allowance and a no frill service. Interglobe, Air India Express, Spicejet, GoAir can be categorised under this segment. Over 60% of domestic passengers are carried by LCCs.

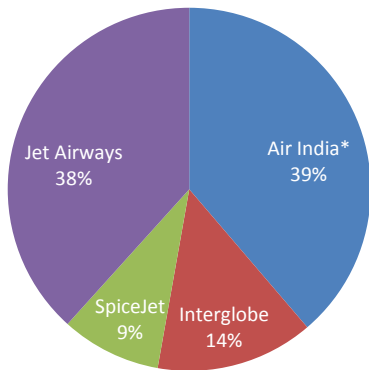
Table 2 Airlines Operating in India

Category	Particulars
Scheduled Airlines	AirAsia, Air India, Go Air, Interglobe, Jet Airways, Spicejet, Vistara
Regional Airlines	Air Deccan, Air Odisha, Alliance Air, Trujet etc
Cargo#	Blue Dart Aviation, DHL etc
Charter Services	Club One, Deccan, Taj Air, Titan Aviation, Ghodawat etc

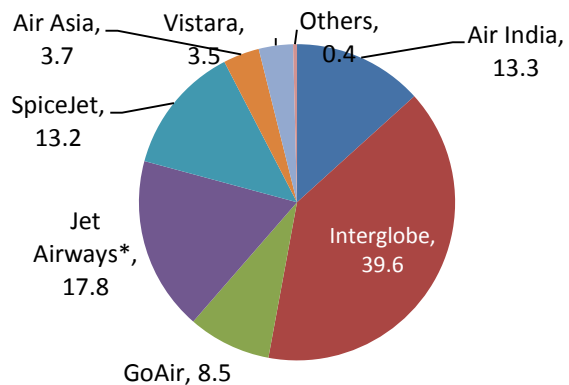
Source: CARE Ratings #Cargo and data pertaining to the segment has been excluded from this report.

Full-Service Airlines (FSA) like Vistara, Air India and Jet Airways offer meals on board, loyalty programmes and other value added services on board the aircraft and at airport. Usually, FSA tickets are priced higher than LCCs. But the difference between the two has been diminishing in the recent past especially in India due to FSAs pricing their tickets competitively in order to retain their market share. FSAs have a larger market share in international operations with a market share of over 77%.

Graph 3(a) Market Share of Domestic Carriers in International Operations



Graph 3(b) Domestic Passenger Share (Jan-Dec 2017)



Source: DGCA * Jet Airways and Air India Includes JetLite and Air India Exp passenger numbers respectively.

Understanding the basics indicators of capacity & growth in Airline Industry and revenue drivers:

Available Seat kilometres (ASK) and **Passenger Load Factor (PLF)** indicate the supply and capacity utilization in the sector. Net commercial fleet analyses the addition in fleet and accounts for replacement and retirement of existing fleet of aircrafts in an airline. These are globally accepted metrics in the airlines industry.

The overall PLF of scheduled Indian airlines stood at 81.7% in 2017, vs 81.2% in 2016. The ASK addition during the year for the industry stood at 16% vs 11.5% in 2016. The improved PLF across airlines could be attributed to a higher passenger growth than the average growth in ASK.

The following four indicators can be used to analyse the demand-supply scenario and operation performance of an airline or the industry as a whole:

Table 3 Indicators and Terminologies

<p>Net commercial fleet growth: The fleet growth indicates sum of</p> <ul style="list-style-type: none"> - New future aircraft deliveries - Existing fleet - Minus aircrafts expected to be removed or retired from the fleet. 	<p>Passenger Load Factor (PLF): The total number of bookings divided by the total number of seats available, across the network of an airline.</p>
<p>Aircraft Utilization: Indicates the capacity utilization in terms of aircraft being in commercial operation during a day out of the total 24 hours. The lesser the idle time, the higher the aircraft utilization. The higher the aircraft utilization, the more ASKs available. Aircraft utilization may also be affected by the turn-around time at airports.</p>	<p>Available Seat kilometres (ASK): The same can be expressed as the number of seats available across the total network miles flown by the airline. Network miles flown can be defined as the total number of miles flown by all aircrafts across destinations served by an airline.</p>

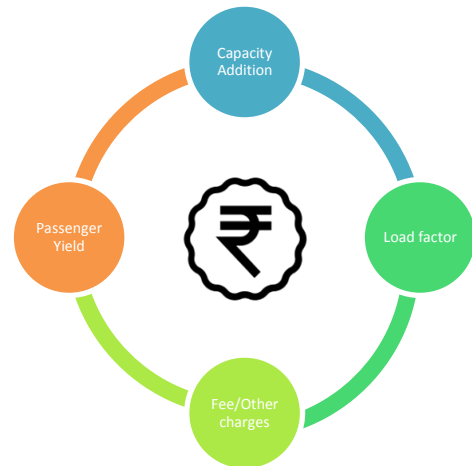
Net Commercial fleet addition in the Indian airline industry is one of the highest across the world with the entire fleet expected to be doubled over the next 10 years, also taking into account replacements and retirement of existing fleet.

PLF across major airlines in India are over 81% with Spicejet posting PLF of around 94%. This indicates both the demand scenario and better utilization of available capacity in the industry.

Revenue Drivers for Airlines:

Capacity: In order to grow revenues, the airlines increase the number of seats across their network. The capacity addition or seat addition takes place by inducting new aircrafts in the fleet. The airlines add narrow and wide bodied aircraft depending upon the operation network requirements (long haul and short haul) and may add small and medium sized aircrafts to service regional connectivity schemes.

The number of airports in the country has almost doubled from 46 airports in 2013 to over 86 in 2017. The 4 year period witnessed addition of 33 domestic airports and 2 international airports which necessitated addition of substantial capacity across new routes by airlines.



Passenger Load Factor: Passenger load factor is important in terms of revenue and profitability for indicates need for addition of ASK so that there is enough supply to meet the forecasted future demand. PLF above 75% is desirable for sustainable and profitable operation of an airline. Airline tickets are sold in buckets with the prices of tickets inching upwards as the PLF increases. A higher PLF also indicates higher revenue realisation.

Passenger Yield: Passenger yield is calculated based on the passenger revenue realized for every mile flown. A higher passenger yield indicates higher revenue and cost realization. It is also indicative of higher operational efficiency of the airline.

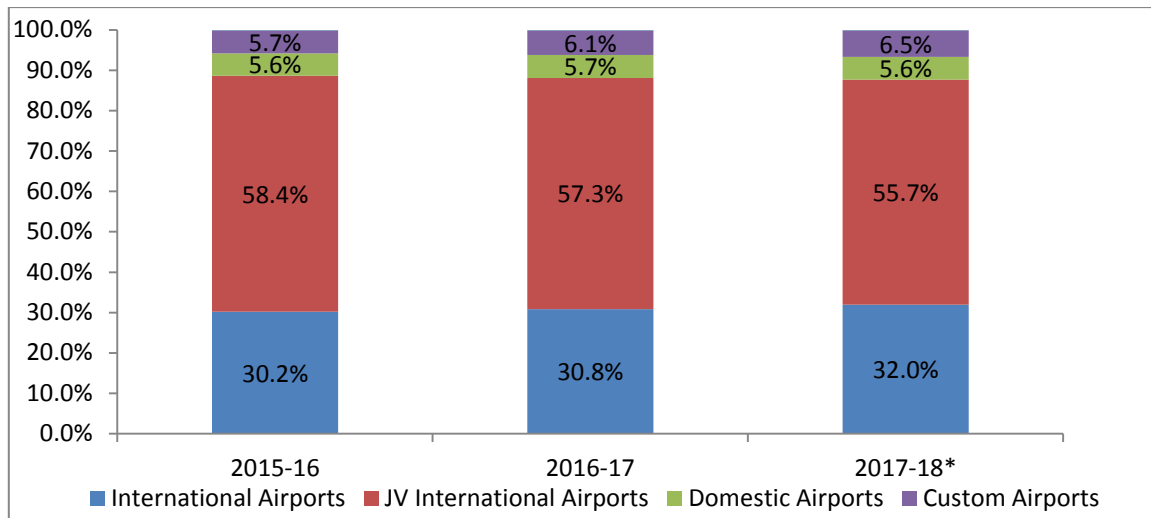
Fee/Other services- Extra luggage charges, paid seats for leg-space, cancellation fee, food on board and other services on board etc. contribute to an airlines revenue stream. Revenue from these services has seen an uptick in the recent past across airlines in India.

Airports:

Airport Authority of India (AAI) was incorporated as a statutory body responsible for creating, upgrading, maintaining and managing civil aviation infrastructure both on the ground and air space in the country. The main objectives and functions of AAI are as follows-

- Control and Management of the Indian airspace extending beyond the territorial limits of the country, as accepted by International Civil Aviation Organisation.
- Construction, Modification and Management of passenger terminals.
- Development and Management of cargo terminals at international and domestic airports.
- Provision of passenger facilities and information system at the passenger terminals at airports.
- Expansion and strengthening of operation area, viz. Runways, Aprons, Taxiway etc.
- Provision of visual aids, communication and navigation aids like radar etc.
-
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Graph 4 Shares of Passengers across Airports Categories between 2016-2018



Source: DGCA

There are 86 airports operating in the country which are governed by Airport Authority of India. These 86 airports are categorized as:

International airport: These airports are designated for scheduled international operations by Indian and foreign carriers. Currently there are 26 international airports which include 20 airports managed by AAI and 6 airports which are Joint-ventures between AAI and private companies.

Custom Airports: These airports have custom and immigration facilities for limited international operations by national carriers and for foreign tourist and cargo charter flights.

Domestic Airports: All other airports are covered in this category.

Civil Enclaves in Defence Airport: There are 26 civil enclaves in Defence airfields. These are civilian aircraft operations at designated defence airports.

Passenger Handled at major airports

The 6 largest airports in the country handled over 175 million passengers in 2016-17. The six metro city airports handle 2/3rd of the total air-passengers in the country. Out of these, 4 airports viz. Delhi, Mumbai, Bengaluru and Hyderabad are handling passengers in excess of their maximum indicative handling capacity. These 4 airports are among the early JV airports developed under PPP model infrastructure projects, where a Private Developer/Company, Central (AAI) and State Government constitute for the majority shareholders.

Table 4 Largest airports in India (in terms of passengers handled per annum)

	Capacity (million)	Passenger Handled (million)			Growth (% yoy)	
		2015-16	2016-17	2017-18*	2017	2018*
Delhi	62	48.4	57.7	54.1	19.2%	13.4%
Mumbai	40	41.7	45.2	40	8.5%	6.2%
Bengaluru	20	19.0	22.9	21.9	20.6%	13.3%
Chennai	23	15.2	18.4	16.8	20.7%	9.3%
Kolkata	25	12.8	15.8	16.3	24.0%	25.8%
Hyderabad	12	12.4	15.1	14.9	22.0%	19%

Source: Airport Authority of India *April-Jan 2018

Mumbai airport has run-out of space for expansion, which has necessitated the development of Navi-Mumbai International airport. Mumbai airport is India's busiest airport in terms of aircraft handled with an average 900 scheduled landing and take-offs every day. Mumbai Airport at present has only one operational runway which limits its capability to handle more aircrafts. This seems to have affected its passenger handled growth which has been falling consistently over the years.

Table 5 Busiest Route Pairs

Domestic		International	
Mumbai	Delhi	Mumbai	Dubai
Bengaluru	Delhi	Delhi	Dubai
Bengaluru	Mumbai	Mumbai	London
Kolkata	Delhi	Delhi	London
Delhi	Hyderabad	Cochin	Dubai
Delhi	Pune	Bengaluru	Dubai
Delhi	Chennai	Delhi	Bangkok
Mumbai	Goa	Hyderabad	Dubai
Mumbai	Chennai	Chennai	Singapore
Mumbai	Hyderabad	Mumbai	Singapore

Source: CARE Ratings

Delhi Airport has 3 runways and handles the highest number of passengers annually in the country. The airport is expected to breach its maximum passenger handling capacity during the year 2018. It is currently undertaking expansion at its Terminal 1 and has two operational terminals (2 & 3). Additionally, Jewar International Airport at Noida is being developed in order to meet the growing passenger traffic to the NCR region.

The next phase of growth in passenger numbers is expected at airports namely Cochin, Ahmedabad, Pune, Goa, Guwahati, Chandigarh and Surat. Even though Surat at present accounts for a very less passenger traffic, but is expected to cross 1 million passengers by the end of 2018.

Table 6 Potentially Large Airports

	Passenger Handled (million)			Growth (% yoy)	
	2015-16	2016-17	2017-18*	2017	2018*
Cochin	7.7	9	8.4	15.6	11.4
Ahmedabad	6.5	7.4	7.6	14.4	24.3
Pune	5.4	6.8	6.8	25.0	21.0
Goa	5.4	6.8	6.2	28.0	12.3
Guwahati	2.8	3.8	3.9	36.1	24.5
Chandigarh	1.53	1.8	1.9	19.0	29.9
Surat	0.1	0.2	0.55	105.3	264.4

Source: Airport Authority of India *April-Jan 2018

Prospect of growth at these airports also underlines the need for Airport Authority of India to accordingly develop and implement expansion projects across these high potential airports and other regional airports. These airports are expected to grow on account of regional business prospects and industrial development, in and around these cities.

Important indicators and parameters for evaluating airports:

The operational indicators help in analysing the infrastructure available and the efficiency at which an airport is operating the entire facility. Financial indicators for airport highlight per passenger revenue ratios. The ratios are breaking down expenses to passenger handled by the airport.

Indicators and Terminologies

Operational indicators

Turnaround times
Arrival inbound efficiency/ Departure outbound efficiency
Total traffic in terms of aircraft movement
Runway occupancy times
Taxi-ing times
Baggage delivery times

Financial indicators

Income per passenger
Traffic income per passenger
Staff cost per passenger
Revenue to expenditure ratio
Expenditure per passenger

Service Quality:

On time performance (OTP) could be considered as an important indicator of an airlines' service quality. Indian airline operators have maintained OTP above 60% with Interglobe and Spicejet leading the OTP between the four major metros at 75.4% and 74.4% respectively. Traffic and congestion at major airports limits the performance of airline providers and these numbers would be much greater given the airport infrastructure could handle the traffic more efficiently.

OTP: Airports

Delhi airport is ranked 18th among the mega airports (30m+ passengers annually) in the world with an on time performance of a little over 70% as per OAG Punctuality League 2018. Chennai and Hyderabad ranked 11th (81.79%) and 17th (80.46%)

respectively among large airports (10-20m passengers annually). Apart from traffic congestion being one factor which delays the incoming flights landing at airports, other factors like emergency landing, availability of parking slots and other regulatory and weather related factors too impact OTP of the airports.

Growth Drivers for the aviation sector:

UDAN (Making air travel affordable and expanding network) “Ude-Desh-ka-Aam-Nagrik” or “UDAN” is a regional airport development and connectivity scheme. What underlines this scheme is the government’s pursuit to make air travel affordable especially for travelers in tier-2, 3 and 4 cities.

The scheme aims at two broad themes:

- Developing and expanding footprint of aviation infrastructure in the country. This includes development of both existing airports, regional airports and new airports at underserved and unserved locations.
- To add several hundred financially-viable capped-airfare new regional flight routes to connect more than 100 underserved and unserved airports in smaller towns with each other as well as with well served airports in bigger cities by using "Viability Gap Funding" (VGF) where needed.

Financial performance

Airlines:

The domestic airlines have been able to maintain operating profits and margins on the back of low crude prices and high demand for airline tickets. During FY17, crude prices witnessed an upward surge which has affected the operating margins and the same is expected to remain to continue as the crude prices firm up.

During 2014-17, the scheduled airline industry which includes data for 8 scheduled airlines revenue witnessed a CAGR of 5.4%. Operating revenue CAGR stood at around 20% on the back of low ATF prices during 2014-16. Few domestic airlines have been able to drive passenger traffic by offering deep-discounts on air tickets which help them gain market share but the same is not reflected on their revenues.

Maintaining high PLF is necessary for airlines to maintain operation margins especially in a low fare market. The operational margins are affected by ATF prices which have been rising steadily post October 2017.

Table 7 Financial Performance of 8 Scheduled Airlines

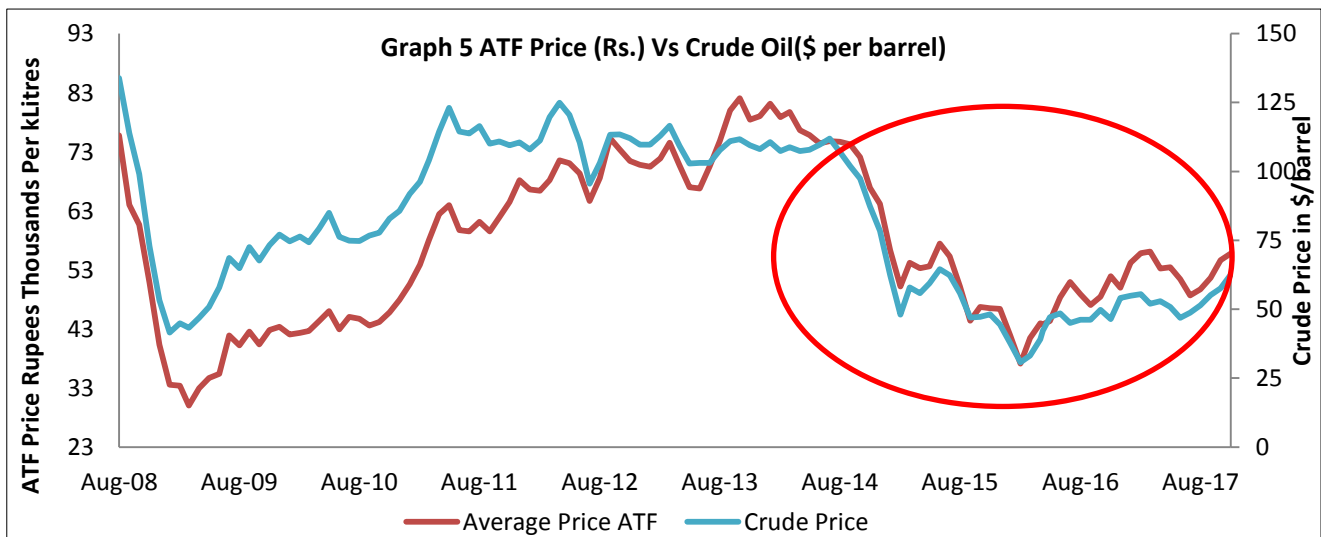
Particulars	FY15	FY16	FY17
Net Sales & Other Operating Income	55,309.1	59,693.6	64,692.5
Total Expenditure	52,604.4	51,467.9	58,043.8
Manufacturing Expenses	14,164.7	16,099.9	18,219.3
Power & Fuel Cost	15,117.9	11,457.2	13,932.1
Power and fuel (as % of Sales)	27.3%	19.2%	21.5%
Crude Oil Price* (Brent) in \$	52.4	44.2	54.4
PBIDT (Excl OI)	2,704.7	8,225.6	6,648.6
OPM (Excl OI)	4.9%	13.8%	10.3%
Other Income	3,794.8	3,268.1	3,591.5
Operating Profit	6,499.5	11,493.7	10,240.1
OPM (%)	11.8%	19.3%	15.8%
Profit after tax	1,199.3	5,610.5	5,114.9
NPM	2.2%	9.4%	7.9%

Source: Aceequity *World Bank Pink Sheet

Cost drivers: The three major cost drivers in the industry are Fuel and Power (21% of Revenue in FY17), Labor (15% of revenue) and operational expenses etc. (23%).

Labor Cost: Labor costs mainly include wages of pilots, ground staff, maintenance staff and cabin crew. For every aircraft maintained in a fleet, an airline requires an average crew of 15 pilots. The industry at present is facing shortage of trained pilots in the country. The airline fleet in the country is expected to witness an addition of 1,000 aircraft in the next 5-7 years which would require an additional 14,000-15,000 trained pilots. At the current rate, the shortage in trained pilots may persist in the country, which would require airlines to retain a mix of Indian and foreign pilots. This is expected to drive employee costs of the airlines.

Operational Costs: As the airlines expand their operation network to newer cities; it has to acquire aircraft parking and slots, terminal space, which leads to additional levy and charges as applicable for each airport. This makes up for a substantial proportion of the revenue they charge from the customers. Airports, which are already congested, may choose to levy a higher charge from the airlines.



Fuel: Aircraft Turbine Fuel or ATF is among the largest cost drivers in the airline industry. On an average, Fuel costs range from 15-20% of the total expenses globally. During 2013 and 2017, the price of fuel fell by almost 40% from its peak. The airlines continued to post consistent profits during this period. ATF prices seem to be on a recovery path with rising crude oil prices. October 17 onwards, prices of crude have witnessed a sharp recovery from \$25 per barrel level. Airline companies would have to rely on higher tariffs and growing passenger traffic in order to keep themselves operationally sustainable.

Maintenance, Repair and Overhauling (MRO) Challenge: MRO is considered to be a Rs. 9,000-10,000 crore industry in India. The segment is yet to pick up due to taxation issues and lack of dedicated hangers at large airports to house full-fledged MRO services. The need to develop a centrally located MRO hub with a balanced taxation regime could help contain the cost of maintenance of aircrafts which otherwise are serviced at foreign countries like Singapore. Sending aircraft to foreign country for MRO services in turn hits the Aircraft Utilization and entails an additional cost of logistics from India to the MRO destination. Currently, a GST rate of 18% is applicable on MRO services. Spares and vital parts continue to be imported in the country with domestic manufacturing limited to low value products.

India's growth to one of the largest aviation market has prompted some of the Global manufacturers to tie-up with Indian conglomerates to set up joint manufacturing and MRO facility in India.

Airports:

Financial performance of JV and Private Airports:

Fee and taxes charged by Indian airports continue to be higher compared to other South Asian countries but lower than countries like Russia.

The revenue collected by JV airports grew by 12.7% CAGR during FY14-17. The airports reported improvement in operating margin by almost 10.5% during the same period. The same can be attributed to higher passenger traffic handling and optimum utilization of resources available. These airports are already operating above their maximum capacity.

During the year 2017, Bangalore International Airport was acquired by Fairfax Group. The company acquired 38% stake from its Private Promoters and some strategic investors. The Airport was valued at around \$ 1 billion for this transaction. This was one of the first and marquee transaction in this space.

Table 8 Financial Performance of PPP Airports

Particulars	FY15	FY16	FY17
Net Sales	6,038.9	7,534.6	8,650.2
Total Expenditure	3,593.2	4,225.3	4,510.3
Other Income	146.1	258.2	458.7
Operating Profit	2,591.7	3,567.4	4,598.6
OPM	42.9%	47.3%	53.2%
Interest	952.9	1,062.6	953.7
PBDT	1,638.9	2,504.8	3,644.9
Depreciation	1,067.9	1,148.6	1,096.8
Profit Before Taxation & Exceptional Items	571.0	1,356.2	2,548.1
Profit After Tax	306.45	1,138.1	1,801.4

*Data for Bengaluru, Kochi, GMR Airports, Hyderabad and New Delhi Airport 2015,16 & 17.

Financial Performance of Airport Authority of India (AAI):

Airport Authority of India manages and operates 80 airports, both domestic and international. It posted a revenue of Rs. 12,542 crore in 2017, a 16% growth over the previous year. The revenue growth is in line with the overall passenger traffic growth across the country. AAI maintained an operating margin of 47.8%, 70 bps improvement over previous year. Its OPM was lower than its JV peer, and the same could be attributed to it operating a mix of high and low traffic airports.

Table 9 Financial Performance of Airport Authority of India

Particulars	2016	2017
Net Sales	10,824.5	12,542.0
Total Expenditure	5,554.3	6,453.2
Employee Cost %	2,700.1	2,789.1
Administrative and other expenses	930.9	1,272.1
Operating Profit	5,098.8	5,990.4
OPM	47.1%	47.8%
Net Profit	2,537.36	3,115.93
NPM	23.4%	24.8%

Source: Annual Report of AAI

Challenges:

Congestion at major airports: Mumbai airport which is a single runway airport, handles over 900 flights everyday on an average. That is almost 38-40 flights every hour. This number is expected to increase as more UDAN flights are operational. Congestion also leads to delay in operations and fall in operating efficiency of both airlines and airports. As the network congestion at major airports increases, they would accordingly curtail on servicing smaller aircrafts by making the services and facilities expensive.

Investment in developing smaller and regional airports: Even though the government is pushing for regional connectivity through UDAN scheme, private investments have not been made beyond airports at Tier-1 and 2 cities. UDAN even though aims at making air travel affordable and reaching unserved and underserved cities, the footfalls generated are limited which further limits the possibility for airport operators. AAI has been instrumental at operating these airports, but the scope to scale up these smaller airports at the moment is limited given the limited capital which could be invested by AAI on new airports.

Connecting airports with cities: Connecting airports with regional city centres with airports continues to be a challenge. New Delhi is a prime example of connecting users to airports from across the city. The Delhi Metro has finalised and is implementing a plan which aims at connecting all metro lines with the Delhi airport, which makes it easy and time saving for commuters to reach the airport from any part of the city. For tier 3 and 4 cities, the onus would be on airline and airport operators to provide public transport.

Maintenance and fleet management: The recent spate of fleets being grounded by many scheduled airlines points towards an urgent need to set up advanced MRO facility by global manufacturers in India. P&W engines which are widely used by airlines have been at the centre of this technical snag incident and have led to a dozen aircrafts being grounded and over 600 flights being cancelled or rescheduled by 2 major airlines.

Outlook:

- **Passenger growth:** The combined passenger traffic is expected to double in the next 5 years with a growth rate of 14-15% annually.
- **Domestic airport traffic:** The proportion of domestic to international passengers is expected to widen further during the coming years as airlines offer tickets priced at par with train tickets between selective destinations.
- **Domestic traffic growth is** expected to emanate from the smaller and UDAN cities which were untapped and unserved till now. The fact that most airlines have not sought Viability Gap Funding to service customers under the UDAN scheme highlights the untapped demand in the sector.
- **Increase in passenger capacity at airports:** Two major airports expected to add sizeable capacity are Navi Mumbai International Airport (Mumbai regions) and Jewar International Airport (New Delhi Noida). Addition of up to 100 million capacity is expected at UDAN scheme airports over the next 3-5years.
- **Cost pressure:** With the prices of crude oil firming up, ATF price rise is inevitable. A 20% rise in crude-oil prices from the current \$65-70 levels may bring down the operation margins (OPM) to 4-6% levels for airlines. Airlines may have to pass on fuel cost to consumers which may affect demand.
- **Fleet addition across airlines:** 500-600 aircrafts are expected to be added over the next 5-7 years in order to meet the passenger traffic. 1/3rd of this fleet addition would make up for replacement of retired aircrafts. Workforce required to operate the additional aircrafts would be an additional 4,500-5,000 pilots; and 30,000-35,000 cabin-crew, engineers and various support staff over the next 3-5 years

CORPORATE OFFICE:

CARE Ratings Limited (Formerly known as Credit Analysis & Research Ltd)
Corporate Office: 4th Floor, Godrej Coliseum, Somaiya Hospital Road, Off Eastern Express Highway,
Sion (East), Mumbai - 400 022; CIN: L67190MH1993PLC071691
Tel: +91-22-6754 3456 | Fax: +91-22-6754 3457
E-mail: care@careratings.com | Website: www.careratings.com

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