

# A STUDY ON THE STATE OF INDIAN CIVIL AVIATION INDUSTRY

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## Abstract

The role of civil aviation sector of a nation as a facilitator of social, economic, and cultural exchanges needs no exaggeration. Civil aviation plays a central role in the world trade. It acts as a catalyst to the tourism industry. It aids in the generation of employment directly and indirectly. As such, it contributes considerably to the economic growth of a country. In the last two and half decades, the Indian aviation industry has evolved from being highly regulated to a more market-driven sector because of liberalised aviation policies. In this background, the core objectives of the study are (a) To throw light on the current position of the civil aviation sector of India; and (b) To portray the future road-map of Indian civil aviation sector. The study is based on secondary data which have been obtained from different sources like journals, magazines, newspapers, reports, web resources etc. It is evident from the study that Air Passenger Traffic (APT) in India, both domestic and international, registered a positive growth from 2013-14 to 2016-17. During the period between 2006-07 and 2016-17 the capacity, measured in terms of available seat kilometre (ASK), in the domestic market recorded a compound annual growth rate (CAGR) of 7.58%. At the same period, the demand, measured in terms of revenue passenger kilometre (RPK), witnessed a CAGR of 10.03%. It is seen that in all the years SpiceJet registered the highest PLF for scheduled domestic operations. PLF less than break-even load factor (BELF) signifies that the airline is incurring losses. It is seen that in all the years IndiGo and GoAir were operating at a PLF higher than BELF. The Air Turbine Fuel (ATF) consumption registered a CAGR of 5.83% from 2006-07 to 2016-17. Financial performance of the sector is gloomy. Only IndiGo and GoAir registered operating profit in 2014-15 and 2015-16. Problems are ample, but opportunities are enormous as well. It is absolutely essential that the players in the civil aviation space of the nation view these challenges as opportunities and act accordingly for the overall development of the aviation sector.

*(Keywords: APT, ASK, ATF, Civil Aviation, RPK)*

## **1. Introduction**

The aviation sector acts as a facilitator of social, economic, and cultural exchanges. Air transport plays a crucial role in world trade and acts as a catalyst to the tourism industry. It helps in employment generation as well. In this way, it contributes significantly to the economic growth of a nation, particularly in developing countries. In the last two and half decades, the Indian aviation industry has evolved from being highly regulated to a more market-driven sector because of liberalised aviation policies.

India is well on its way to becoming the third largest aviation market by 2020 says the FICCI-KPMG 'India Aviation Report 2016'. The report suggests that aspects such as increasing disposable incomes, fall in prices of Aircraft Turbine Fuel (ATF), increase in tourism, visa reforms, etc. have placed India in a unique position. This is bringing the country closer to achieving its vision of becoming the largest aviation market by 2030.

While the global airline industry is poised to witness the all-time highest absolute profit in 2016, India with its new civil aviation policies emerges to be a wealth of opportunities over the next year. The Indian government was hailed for its reforms in the civil aviation sector (Roy, 2016).

## 1.1 Literature Survey

Research has been carried out on different aspects of aviation sector across the globe. A brief review of some selected studies is presented below.

**Appelbaum and Fewster (2003)** opined that two fundamental forces that drive the strategy in the aviation industry are safety and customer service. **Whyte (2004)** observed that failure to create customer loyalty and trust is one of the major factors for airline and airport failure. **Piga and Bachis (2007)** examined the daily change in airfares for full-service carriers (FSCs) as well as low-cost carriers (LCCs). They concluded that each airline's distribution of prices tends to rise as the departure date comes closer. **Chang et al. (2008)** presented an empirical study on the ways the complaints are dealt with at the airports and the degree to which unsatisfactory experiences are reported and handled. They concluded that solving passengers' problems immediately leads to much higher customer satisfaction, and service quality influences customer satisfaction. **Mahajan and Rau (2010)** suggested that low-cost airlines should improve their in-flight services to meet the satisfaction level of the consumers in order to survive in the competitive environment. **Lubbe et al. (2011)** concluded that opinions towards services offered at the airports differ between business and leisure travellers, and frequent and infrequent travellers. **Arushi and Drews (2011)** observed existence of no real framework to address the environmental impact of aviation in India, except for the "Aviation Environmental Unit" (AEU) Initiative of the DGCA. The AEU in its limited capacity proposed measures to control noise, create emission inventory and encourage fixed power usage at airports. The body needs to be strengthened to implement and enforce further measures. **Obermeyer et al. (2013)**, in a study on European airline markets, established that efficient airlines were better able to differentiate airfares compared to their inefficient counterparts. **Deeppa and Ganapathi (2016)** found that convenience, service, efficiency and brand name are the factors affecting customer's preference of low-cost carriers.

## 2. Objective of the Study and Research Questions

The main objectives of the study are (a) To explore the current position of the aviation sector of India, and (b) To draw the future road-map of Indian airline industry. The main research questions that follow from the objectives are:

- (a) How is the demand and supply in the Indian aviation sector during the period between 2006-07 and 2016-17?
- (b) Is the Indian aviation market dominated by low-cost carriers or full-service carriers?
- (c) How is the capacity utilisation of the Indian aviation sector?
- (d) Is the operating performance of the Indian airline companies satisfactory?
- (e) Have the Indian airline companies achieved efficiency in terms of capacity planning and utilisation of workforce?
- (f) Whether human resources are deployed productively by Indian the airline companies?
- (g) How is the trend of ATF in India during the period between 2006-07 and 2016-17?

## 3. Data Source and Methodology

The study uses secondary data. Data have been collected from articles, reports, and web resources for the purpose of the study. The present study is exploratory and analytical in nature. Data have been primarily obtained from the Hand Book of Civil Aviation Statistics of different years. Collected data have been arranged and tabulated for the purpose of analysis. Logical reasoning and analysis have been made to understand the past trend and the current scenario of the aviation sector in India. Different governmental and non-governmental reports and surveys have been studied to give the study a proper shape.

## 4. State of Indian Aviation Industry: Analysis and Discussion

Table 1 presents a snapshot of passenger traffic.

Table 1: A Snapshot of Passenger Traffic

| Passenger Traffic       | Unit                 | 2013-14       | 2014-15               | 2015-16               | 2016-17                |
|-------------------------|----------------------|---------------|-----------------------|-----------------------|------------------------|
| Domestic Passengers (a) | Departing Passengers | 60.67 million | 70.08 million (15.51) | 85.20 million (21.58) | 103.75 million (21.77) |

|   |                                    |                |                        |                        |                        |
|---|------------------------------------|----------------|------------------------|------------------------|------------------------|
| Domestic Airline Demand (b)                                 | Revenue Passenger Kilometers (RPK) | 59.14 billion  | 67.02 billion (13.32)  | 80.97 billion (20.81)  | 98.64 billion (21.82)  |
| Domestic Airline Capacity (c)                               | Available Seat Kilometers (ASK)    | 80.72 billion  | 84.81 billion (5.07)   | 97.73 billion (15.23)  | 116.94 billion (19.66) |
| International Passengers (d)                                | Departing and Arriving Passengers  | 43.08 million  | 45.74 million (5.85)   | 49.78 million (8.85)   | 54.68 million (9.84)   |
| Total Passengers (Domestic & International) (e) = (a) + (d) |                                    | 103.75 million | 115.82 million (11.63) | 134.98 million (16.54) | 158.43 million (17.37) |

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16 & 2016-17)

Note: (i) Figures in parenthesis refer to percentage change over the previous year. (ii) ASK is calculated as the sum of products obtained by multiplying the total number of seats that are available in each flight by the flight stage distance. (iii) RPK is calculated as the sum of the product obtained by multiplying the number of revenue passengers carried on each flight stage by the stage distance.

It is evident from Table 1 that Air Passenger Traffic (APT) in India, both domestic and international, recorded a positive growth between 2013-14 and 2016-17.

Table 2 incorporates information about the passenger traffic carried by the scheduled carriers over the past decade (2006-07 to 2016-17).

**Table 2: Passenger Traffic Carried by Scheduled Carriers over the Past Decade**

| Year    | DP (a) | IP (b) | TP (DP & IP) (c) = (a) + (b) | Year    | DP (a) | IP (b) | TP (DP & IP) (c) = (a) + (b) |
|---------|--------|--------|------------------------------|---------|--------|--------|------------------------------|
| 2007-08 | 44.4   | 27.2   | 71.6                         | 2012-13 | 57.6   | 40.3   | 97.9                         |
| 2008-09 | 39.5   | 28.9   | 68.4                         | 2013-14 | 60.6   | 43.1   | 103.7                        |
| 2009-10 | 45.3   | 32.1   | 77.4                         | 2014-15 | 70.1   | 45.7   | 115.8                        |
| 2010-11 | 53.8   | 35.1   | 88.9                         | 2015-16 | 85.2   | 49.8   | 135.0                        |
| 2011-12 | 60.8   | 38.1   | 98.9                         | 2016-17 | 103.7  | 54.7   | 158.4                        |

Source: Hand Book on Civil Aviation Statistics (2016-17)

Note: DP: Domestic Passengers (in million), IP: International Passengers (in million), TP: Total Passengers (Domestic & International) (in million)

It is observed from Table 2 that domestic passengers carried by the scheduled carriers during the period between 2007-08 and 2016-17 registered a CAGR of 9.88%, international passengers by the scheduled carriers registered a CAGR of 8.07% and total passengers carried by the scheduled carriers recorded a CAGR of 9.22%.

Demand and capacity in the domestic market between 2007-08 and 2016-17 are presented in Table 3.

**Table 3: Demand (RPK) and Capacity (ASK) in Domestic Market between 2007-08 and 2016-17**

| Year    | RPK   | ASK   | PLF   | Year    | RPK   | ASK    | PLF   |
|---------|-------|-------|-------|---------|-------|--------|-------|
| 2007-08 | 41718 | 60590 | 68.85 | 2012-13 | 56553 | 75843  | 74.57 |
| 2008-09 | 37704 | 59160 | 63.73 | 2013-14 | 59139 | 80716  | 73.27 |
| 2009-10 | 43959 | 61091 | 71.96 | 2014-15 | 67023 | 84805  | 79.03 |
| 2010-11 | 52707 | 68216 | 77.26 | 2015-16 | 80966 | 97728  | 82.85 |
| 2011-12 | 59084 | 78639 | 75.13 | 2016-17 | 98641 | 116945 | 84.35 |

Source: Hand Book on Civil Aviation Statistics (2016-17)

Note: PLF: Passenger Load Factor [(RPK / ASK) X 100]

Table 3 shows that during the period between 2007-08 and 2016-17 the capacity, measured in terms of available seat kilometre (ASK) in the domestic market grew at a CAGR of 7.58% while the demand, measured in terms of revenue passenger kilometre (RPK) grew at a CAGR of 10.03%. ASK measures an airline's passenger carrying capacity. It is calculated as follows: seats available X distance flew. Airlines have to try to match supply with demand for passengers' benefit. While the shortage of seats will often result in higher airfare, excess capacity can lead to reduced margins due to higher fixed costs. So an increase in capacity is positive only if it's supported by an adequate rise in demand for air travel. RPK is a measure of the volume of passengers carried by airline. It is an airline industry metric that shows the number of kilometres travelled by paying passengers. It is calculated as the number of revenue passengers multiplied by the total distance travelled. Since it measures the actual demand for air transport, it is often referred to as airline "traffic". An



increase in RPK is positive for an airline. It means that more passengers are using their service. RPKs are the backbone of most transportation metrics. RPKs give airline senior management a clear indication of the demand in a given market. To support RPK improvement, airlines should add more seats or increase capacity. Another way to do this without adding capacity is to improve efficiency by utilising existing capacity.

Table 4 shows market share in terms of domestic market demand in 2015-16 and 2016-17.

**Table 4: Market Share in Terms of Domestic Market Demand (RPK) in 2015-16 and 2016-17**

| Company     | Market Share (%) |      |         |      | Company      | Market Share (%) |         |
|-------------|------------------|------|---------|------|--------------|------------------|---------|
|             | 2015-16          | Rank | 2016-17 | Rank |              | 2015-16          | 2016-17 |
| IndiGo      | 39.9             | 1    | 42.51   | 1    | Jet Lite     | 2.6              | 2.43    |
| Jet Airways | 17.0             | 2    | 14.54   | 2    | Air Asia     | 2.3              | 2.84    |
| Air India   | 15.1             | 3    | 13.26   | 3    | Vistara      | 1.8              | 3.22    |
| SpiceJet    | 11.5             | 4    | 11.85   | 4    | Air Costa    | 0.7              | 0.52    |
| GoAir       | 8.4              | 5    | 8.18    | 5    | Alliance Air | 0.3              | 0.33    |

Source: Hand Book on Civil Aviation Statistics (2015-16 & 2016-17)

Table 4 reveals that IndiGo retained the top position in both the years. The top five positions remained unchanged during the period. Among the top five airline companies, IndiGo (1<sup>st</sup>), SpiceJet (4<sup>th</sup>) and GoAir (5<sup>th</sup>) were successful in increasing their market share in 2016-17 in comparison to 2015-16. Jet Airways and Air India lost their market share in 2016-17 as against 2015-16.

Table 5 exhibits the domestic passenger load factor of domestic scheduled Indian carriers from 2014-15 to 2016-17.

**Table 5: Domestic Passenger Load Factor (PLF) of Domestic Scheduled Indian Carriers from 2014-15 to 2016-17**

| Company      | 2014-15     | 2015-16     | 2016-17     |
|--------------|-------------|-------------|-------------|
| IndiGo       | 79.4        | 84.1        | 85.2        |
| Jet Airways  | 78.4        | 80.6        | 81.8        |
| Air India    | 77.2        | 79.2        | 79.2        |
| SpiceJet     | <b>81.8</b> | <b>92.0</b> | <b>92.9</b> |
| GoAir        | 79.1        | 83.7        | 88.0        |
| Jet Lite     | 80.1        | 79.3        | 79.2        |
| Air Asia     | 76.1        | 80.2        | 85.6        |
| Vistara      | XXXXXX      | 69.4        | 78.0        |
| Air Costa    | 74.1        | 80.7        | 78.3        |
| Alliance Air | 68.3        | 66.5        | 68.8        |

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16 & 2016-17)

Passenger Load Factor (PLF), which is a measure of capacity utilisation of airlines, figures reveal that in all the three years SpiceJet registered the highest PLF for scheduled domestic operations. PLF is an airline industry metric that measures how much of an airline's passenger carrying capacity is used. PLF is the ratio between RPK and ASK. When the capacity of an airline remains the same, an increase in RPK is directly proportional to an increase in PLF. PLF is a critical metric from the perspective of capacity management. Higher load factor is positive, as it increases revenue and profitability. With higher load factor, profitability increases, as the fixed costs are spread across more passengers. But increase in PLF is always positive, whether demand is high or low. This is because load factor improves operational efficiencies without adding to fixed costs. But the airline will have to bear a small amount of variable cost per additional passenger.

A high load factor indicates that an airline has full planes with most seats occupied by passengers. Airlines have high fixed costs associated with each flight. Every flight must have a full flight crew and support staff, a well-maintained aircraft with enough fuel, and services that entertain and comfort customers. If only half of the seats on a flight are occupied, the airline is not generating as much revenue as it could by flying a full plane. Load factor may help investors understand how the airline covers expenses and generates a profit. A low load factor may be a cause for concern and may indicate an unprofitable airline. Airlines typically have thin profit margins and must have relatively high load factors to stay profitable.

Market share of international passengers carried by the scheduled Indian carriers and the foreign carriers from 2009-10 to 2016-17 are depicted in Table 6.

**Table 6: Market Share (%) of International Passengers Carried by Scheduled Indian Carriers and Foreign Carriers form 2009-10 to 2016-17**

| Year    | Foreign Carriers | Indian Carriers |
|---------|------------------|-----------------|
| 2009-10 | 65.5             | 34.5            |
| 2010-11 | 63.8             | 36.2            |
| 2011-12 | 64.1             | 35.9            |
| 2012-13 | 66.2             | 33.8            |
| 2013-14 | 61.7             | 38.3            |
| 2014-15 | 63.0             | 37.0            |
| 2015-16 | 63.4             | 36.6            |
| 2016-17 | 62.3             | 37.7            |

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16 & 2016-17)

It is seen from Table 6 that no major changes took place with regard to the market share figures. International passengers carried by the foreign carriers ranged between 61.7% (2013-14) and 66.2% (2012-13), while the corresponding figures for the Indian carriers were 33.8% (2012-13) and 38.3% (2013-14).

Table 7 shows the market share of top eight scheduled operators for international operations.

**Table 7: Market Share (%) of Top 8 Scheduled Operators – International Operations, 2014-15, 2015-16 and 2016-17**

| Name of the Airline | Market Share |         |         | Rank    |         |         |
|---------------------|--------------|---------|---------|---------|---------|---------|
|                     | 2014-15      | 2015-16 | 2016-17 | 2014-15 | 2015-16 | 2016-17 |
| Jet Airways         | 14.47        | 14.1    | 14.5    | 1       | 1       | 1       |
| Air India           | 11.93        | 11.4    | 10.6    | 2       | 2       | 2       |
| Emirates Airline    | 11.39        | 10.8    | 9.9     | 3       | 3       | 3       |
| Air India Express   | 5.23         | 5.3     | 6.0     | 4       | 4       | 4       |
| Etihad Airlines     | 3.45         | 4.7     | 5.0     | 7       | 5       | 5       |
| Qatar Airways       | 4.05         | 4.0     | 3.9     | 5       | 6       | 6       |
| Air Arabia          | 3.82         | 3.6     | 3.2     | 6       | 7       | 8       |
| IndiGo              | 3.18         | 3.3     | 3.5     | 8       | 8       | 7       |

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16, 2016-17)

It is observed from Table 7 that top six operators accounted for more than 49% of International Passenger traffic in all the years. Jet Airways had the maximum market share in all the years, followed by Air India, Emirates Airline, and Air India Express. Further, the market share of Air India Express, Etihad Airlines and IndiGo recorded a continuous increase during the period.

Table 8 presents information about the distribution of India's inbound and outbound international passenger traffic from 2014-15 to 2016-17.

**Table 8: Distribution of India's Inbound and Outbound International Passenger Traffic from 2014-15 to 2016-17**

| Country / Region     | Inbound |         |         | Outbound |         |         |
|----------------------|---------|---------|---------|----------|---------|---------|
|                      | 2014-15 | 2015-16 | 2016-17 | 2014-15  | 2015-16 | 2016-17 |
| Africa & Middle East | 54.7    | 55.9    | 56.3    | 55.3     | 56.1    | 56.2    |
| Asia Pacific         | 25.2    | 24.9    | 25.1    | 24.8     | 24.6    | 25.0    |
| Europe               | 14.1    | 12.7    | 12.2    | 13.9     | 12.8    | 12.4    |
| China & North Asia   | 4.1     | 4.2     | 4.1     | 4.2      | 4.2     | 4.1     |
| The Americas         | 1.9     | 2.2     | 2.3     | 1.8      | 2.3     | 2.4     |

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16, 2016-17)

It is seen from Table 8 that more than half of the passenger traffic to and from India is accounted for by the countries in the Africa & Middle East.

Load Factor (PLF) And Break-Even Load Factor (BELF) from 2013-14 to 2015-16 are incorporated in Table 9.

**Table 9: Passenger Load Factor (PLF) And Break-Even Load Factor (BELF) from 2013-14 to 2015-16**

| Name of the Airline | 2013-14     |      | 2014-15     |      | 2015-16     |      |
|---------------------|-------------|------|-------------|------|-------------|------|
|                     | PLF         | BELF | PLF         | BELF | PLF         | BELF |
| Air India           | 73.5        | 86.1 | 74.1        | 81.5 | <b>75.5</b> | 75.1 |
| Air India Express   | XXX         | XXX  | <b>81.4</b> | 69.5 | <b>82.4</b> | 62.9 |
| Alliance Air        | XXX         | XXX  | 68.3        | 91.0 | 66.5        | 78.1 |
| IndiGo              | <b>77.2</b> | 75.3 | <b>79.8</b> | 70.8 | <b>84.0</b> | 71.0 |
| Jet Airways         | 78.2        | 91.2 | 82.4        | 90.6 | <b>82.6</b> | 77.9 |

|          |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|
| Jetlite  | 72.7 | 92.2 | 80.1 | 94.4 | 79.3 | 79.4 |
| SpiceJet | 72.3 | 83.7 | 81.4 | 95.3 | 90.6 | 85.0 |
| GoAir    | 74.3 | 71.1 | 79.1 | 74.1 | 83.7 | 77.5 |

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16, 2016-17)

A higher PLF signifies that an airline is successful in selling available seats. However, higher PLF may not result in higher operating profit. When PLF is less than break-even load factor (BELF), the airline in question is running losses. BELF is a useful indicator that measures the percentage of seats to be sold to cover airline costs. It is calculated by dividing the cost per available seat kilometre (or CASK) by yield (the average fare per passenger per kilometre). Since revenue and costs vary from one airline to another, so does the break-even load factor. Escalating costs push up the break-even load factor, while increasing prices for airline services have just the opposite effect, pushing it lower.

It is seen that in all the years IndiGo and GoAir were operating at a PLF higher than BELF.

Table 10 shows cost Structure of Indian aviation industry from 2013-14 to 2015-16.

**Table 10: Cost Structure of Indian Aviation Industry from 2013-14 to 2015-16**

| Item of Cost                  | 2013-14 | 2014-15 | 2015-16 | Item of Cost                         | 2013-14 | 2014-15 | 2015-16 |
|-------------------------------|---------|---------|---------|--------------------------------------|---------|---------|---------|
| Fuel                          | 41.2    | 38.5    | 30.0    | Other Expenses                       | 3.9     | 0.3     | 8.8     |
| General and Administrative    | 11.7    | 13.5    | 10.9    | Depreciation and amortization        | 7.7     | 5.1     | 5.7     |
| Rentals of Flight Equipment   | 10.4    | 11.0    | 13.3    | MRO (Maintenance, Repair & Overhaul) | 7.6     | 9.2     | 10.4    |
| User charges                  | 7.0     | 7.6     | 9.1     | Pax Services                         | 2.7     | 3.4     | 3.5     |
| Ticketing sales and Promotion | 6.0     | 6.2     | 6.2     | Flight Crew salary & Expenses        | 1.8     | 5.0     | 2.0     |

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16, 2016-17)

Table 10 reveals that fuel is the main cost element of Indian aviation sector. However, it is observed that the fuel cost is continuously declining during the period. The costs which recorded a continuous increase during the period include rentals of flight equipment, user charges, MRO (Maintenance, Repair & Overhaul) and passenger service.

Table 11 depicts passenger yield of the scheduled Indian carriers from 2013-14 to 2015-16.

**Table 11: Passenger Yield of Scheduled Indian Carriers from 2013-14 to 2015-16**

| Name of the Airline | 2013-14 | 2014-15 | 2015-16 |
|---------------------|---------|---------|---------|
| Alliance Air        | 7.80    | 11.5    | 9.1     |
| Jetlite             | 5.40    | 5.6     | 4.9     |
| Air Costa           | 5.13    | 5.8     | 5.0     |
| Jet Airways         | 4.86    | 5.2     | 4.6     |
| GoAir               | 4.67    | 4.5     | 3.8     |
| IndiGo              | 4.47    | 4.9     | 4.1     |
| SpiceJet            | 4.31    | 4.2     | 4.3     |
| Air India           | 4.26    | 4.8     | 4.1     |
| Air India Express   | 3.80    | 3.4     | 4.0     |
| Air Asia            | XXXXX   | 3.7     | 3.3     |

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16, 2016-17)

Passenger yield is a measure of average fare paid per passenger km flown. It is arrived at by dividing Passenger Revenue by Revenue Passenger Kilometers. In the years 2013-14 and 2014-15, Air India Express had the lowest passenger yield. No airline company was successful in increasing the passenger yield continuously during the period.

Table 12 presents a financial summary of all scheduled Indian carriers in 2014-15 and in 2015-16.

**Table 12: Financial Summary of All Scheduled Indian Carriers in 2014-15 and in 2015-16 (Rs. in million)**

|                                    | Operating Revenue |             | Operating Expenses |             | Operating Result |          |
|------------------------------------|-------------------|-------------|--------------------|-------------|------------------|----------|
|                                    | 2014-15           | 2015-16     | 2014-15            | 2015-16     | 2014-15          | 2015-16  |
| <b>SCHEDULED NATIONAL CARRIERS</b> |                   |             |                    |             |                  |          |
| Air India                          | 2,06,131.60       | 1,99,923.30 | 2,26,854.40        | 1,98,873.30 | -20,722.80       | 1,050    |
| AI Express                         | 22,948.20         | 29,179.57   | 19,597.60          | 22,283.43   | 3,350.60         | 6,896.13 |

|  |             |             |             |             |                  |                  |
|--|-------------|-------------|-------------|-------------|------------------|------------------|
| Alliance Air                               | 2,279.50    | 2,738.58    | 3,034.00    | 3,241.62    | -754.50          | -476.04          |
| <b>SUB TOTAL (A)</b>                       | 2,31,359.30 | 2,31,841.45 | 2,49,486.00 | 2,24,371.35 | -18,126.70       | 7,470.09         |
| <b>SCHEDULED DOMESTIC PRIVATE CARRIERS</b> |             |             |             |             |                  |                  |
| Jet Airways                                | 1,95,606.05 | 2,11,117.71 | 2,15,030.10 | 1,99,085.39 | -19,424.04       | 12,032.33        |
| Jet Lite (P) Ltd.                          | 14,229.36   | 11,136.46   | 16,775.22   | 11,154.11   | -2,545.86        | -17.65           |
| GoAir                                      | 30,664.24   | 28,816.96   | 28,715.82   | 26,704.43   | <b>1,948.43</b>  | <b>2,112.53</b>  |
| SpiceJet                                   | 52,015.25   | 50,880.72   | 60,884.99   | 47,735.05   | -8,869.74        | 3,145.67         |
| IndGo                                      | 1,39,253.36 | 1,61,399.09 | 1,23,578.64 | 1,36,370.73 | <b>15,674.72</b> | <b>25,028.36</b> |
| Air Costa                                  | 3,268.62    | 3,191.13    | 4,571.57    | 3,904.73    | -1,302.96        | -713.60          |
| Air Asia                                   | 1,551.87    | 6,588.42    | 2,885.01    | 8,405.43    | -1,333.14        | -1,817.01        |
| Vistara                                    | 691.28      | 6,913.73    | 2,681.94    | 11,154.68   | -1,990.66        | -4,240.95        |
| <b>SUB TOTAL (B)</b>                       | 4,37,280.03 | 4,87,171.19 | 4,55,123.29 | 4,51,944.11 | -17,843.26       | 35,227.08        |
| <b>GRAND TOTAL (A+B)</b>                   | 6,68,639.33 | 7,19,012.64 | 7,04,609.29 | 6,76,315.46 | -35,969.96       | 42,697.17        |

Source: Hand Book on Civil Aviation Statistics (2015-16 & 2016-17)

It is observed from Table 12 that financial performance of the sector is dismal in the sense that only IndiGo and GoAir registered operating profit in 2014-15 and 2015-16.

Table 13 provides information about the number of airline staff from 2013-14 to 2015-16.

**Table 13: Number of Airline Staff**

| Name of the Airline | Total Staff |         |         |
|---------------------|-------------|---------|---------|
|                     | 2013-14     | 2014-15 | 2015-16 |
| Air India           | 23044       | 21313   | 12880   |
| Air India Express   | 634         | 1243    | 988     |
| Alliance Air        | 916         | 705     | 507     |
| Jet Airways         | 13185       | 13478   | 14756   |
| Jetlite             | 855         | 809     | 740     |
| IndiGo              | 8168        | 10536   | 12362   |
| SpiceJet            | 5647        | 4192    | 5365    |
| GoAir               | 2011        | 2180    | 2417    |
| Air Costa           | 610         | 746     | 855     |
| Air Asia            | XXX         | 686     | 757     |
| Vistara             | XXX         | 672     | 948     |
| <b>Total</b>        | 55070       | 56560   | 54092*  |

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16, 2016-17)

\* Total does not include employees of companies like Trujet, Air Pegasus, Blue Dirt etc.

It is seen from Table 13 that more Jet Airways, IndiGo, GoAir and Air Costa continuously increased the number of employees during the period between 2013-14 and 2015-16. On the other hand, it is noticed that civil aviation companies like Air India, Alliance Air and JetLite recorded a continuous decline in their respective employee strength during the period.

ASK per employee data are shown in Table 14.

**Table 14: ASK Per Employee (2013-14, 2014-15 and 2015-16)**

| Name of the Airline  | ASK Per Employee                  |         |         |
|--|-----------------------------------|---------|---------|
|  | 2013-14                           | 2014-15 | 2015-16 |
| Jetlite  | 4.6                               | 3.7     | 3.6     |
| GoAir  | 3.4                               | 3.6     | 3.3     |
| SpiceJet   | 3.3                               | 3.5     | 2.4     |
| IndiGo   | 3.7                               | 3.4     | 3.5     |
| Jet Airways  | 2.9                               | 3.1     | 3.2     |
| National Airlines (Air India, Air India Express, and Alliance Air) | Air India 2.0<br>Alliance Air 0.4 | 2.4     | 4.2     |
| Air Costa  | XXX                               | 1.0     | 0.8     |



|          |     |     |     |
|----------|-----|-----|-----|
| Air Asia | XXX | 1.0 | 3.1 |
|----------|-----|-----|-----|

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16, 2016-17)

Available Seat Kilometre (ASK) per employee is an indicator of efficiency both in terms of capacity planning and utilisation of workforce. It is arrived at by dividing ASK by the number of employees. It is seen from Table 14 that in terms of the ASK per employee, Jetlite is the most efficient airline in 2013-14 and 2014-15 whereas national airlines remained the best performer in 2015-16. Jet Airways succeeded in increasing ASK per employee figure continuously during the period while that of Jetlite witnessed a continuous decline.

Revenue per employee figures for the years from 2013-14 to 2015-16 are presented in Table 15.

**Table 15: Revenue Per Employee (2013-14, 2014-15 and 2015-16)**

| Name of the Airline  | Revenue Per Employee (Rs. in million) |         |         |
|--|---------------------------------------|---------|---------|
|  | 2013-14                               | 2014-15 | 2015-16 |
| Jetlite  | 19.8                                  | 17.6    | 15.0    |
| Jet Airways  | 13.1                                  | 14.5    | 14.3    |
| GoAir  | 12.6                                  | 14.1    | 11.9    |
| IndiGo   | 13.6                                  | 13.2    | 13.1    |
| SpiceJet   | 11.2                                  | 12.4    | 9.5     |
| National Airlines (Air India, Air India Express, and Alliance Air) | Air India 8.3<br>Alliance Air 2.6     | 10.2    | 16.1    |
| Air Costa  | 0.8                                   | 4.4     | 3.7     |
| Air Asia   | XXX                                   | 2.8     | 8.7     |

Source: Hand Book on Civil Aviation Statistics (2014-15, 2015-16, 2016-17)

Revenue per employee is an indicator of productivity of human resource of an airline. It is arrived at by dividing operating revenue by the number of employees. Employee productivity was highest for JetLite in all the years. No airline company was successful in enhancing revenue per employee figures continuously during the period.

The Air Turbine Fuel (ATF) consumption between 2006-07 and 2016-17 is presented in Table 16.

**Table 16: ATF Consumption over the Decade (in thousand metric tonne)**

| Year    | ATF Consumption | Year    | ATF Consumption |
|---------|-----------------|---------|-----------------|
| 2006-07 | 3983            | 2012-13 | 5271            |
| 2007-08 | 4543            | 2013-14 | 5505            |
| 2008-09 | 4423            | 2014-15 | 5723            |
| 2009-10 | 4627            | 2015-16 | 6262            |
| 2010-11 | 5078            | 2016-17 | 7019            |
| 2011-12 | 5536            | XXXXX   | XXXXX           |

Source: Hand Book on Civil Aviation Statistics (2016-17)

It is observed from Table 16 that the ATF consumption recorded a CAGR of 5.83% during the period between 2006-07 and 2016-17.

## 5. Challenges and Driving Factors

Indian aviation industry is crippled by factors like high airport charges, mounting losses of domestic airline companies, deplorable state of the MRO sector, lower yields due to excessive competition, over-capacity, dearth of skilled human resources, safety and security issues, high cost of ATF, weak Indian currency etc. But at the same time, the long-term growth prospect of the industry is attractive which encourages international players to invest in the Indian aviation industry. Key growth drivers of the industry are rising disposable income, dominance of low-cost carriers, enhanced limit of foreign direct investment (FDI) in the airline sector, domestic 'open sky' policy, growing tourism, modern fleet, liberal environment, modernisation of airports, favourable demographics and rapid economic growth.

The civil aviation sector is extremely vulnerable to oil price volatility, economic cycles, natural disasters, epidemics and political upheavals. According to the KPMG-FICCI Report, 2016 the Indian civil aviation industry has exhibited remarkable resilience to the global economic slowdown and ranks ninth in the global civil aviation market. This is attributed largely to the growing economy, increased competition among airlines, especially among low-cost carriers, modern airports, greater use of technology, Foreign Direct Investment (FDI) and increased emphasis on regional connectivity.



## 6. Concluding Observation

The findings on the basis of research questions of the study are summed up below:

- (a) RPK, also known as airline “traffic”, measures the actual demand for air transport. It grew at a CAGR of 10.03% during the period between 2006-07 and 2016-17. ASK measures an airline's passenger carrying capacity. It grew at a CAGR of 7.58% during the same period. Thus, it can be said that the demand is growing faster than supply in Indian aviation sector.
- (b) Indian airline industry is dominated by low-cost carriers like IndiGo, SpiceJet, GoAir etc. The share of full-service carriers like Air India, Jet Airways etc. has been constantly declining over the years. The situation of Air India, in particular, remained precarious.
- (c) PLF is the ratio between RPK and ASK. It is an airline industry metric that measures how much of an airline's passenger carrying capacity is used. Higher PLF is always preferable since it improves operational efficiencies without adding to fixed costs. It is seen that both in all the years SpiceJet registered the highest PLF for scheduled domestic operations.
- (d) On the basis of the figures of 2014-15 and 2015-16, it can be concluded that the financial performance of the sector is dismal because only IndiGo and GoAir registered operating profit in these years.
- (e) ASK per employee indicates the efficiency both in terms of capacity planning and utilisation of workforce. It is seen that in terms of the ASK per employee, Jetlite is the most efficient airline in 2013-14 and 2014-15 whereas national carriers remained the best performer in 2015-16. Further, Jet Airways succeeded in increasing ASK per employee figure continuously during the period while that of Jetlite witnessed a continuous decline.
- (f) Revenue per employee indicates the productivity of human resource of an airline. Employee productivity was highest for JetLite in all the years. No airline company was successful in enhancing revenue per employee figures continuously during the period.
- (g) It is observed that the ATF consumption recorded a CAGR of 5.83% during the period between 2006-07 and 2016-17.

Problems are plenty, but opportunities are huge as well. Indian airline companies should treat the challenges as opportunities and act accordingly for the overall development of the aviation sector. All the stakeholders have to play their part in a positive manner for the growth of the industry. It is indeed a good sign that the government and the industry are collaborating with each other on various issues for the betterment of the industry. This relationship needs to be strengthened. State governments of many states have started contributing positively to the industry's cause by taking measures like reduction in sales tax on ATF, development of airports etc.

In the recent International Civil Aviation Negotiations (ICAN) 2016 held in Nassau, India signed Open Skies agreement with six countries. Allowing an unlimited number of flights to six metro airports in India namely Delhi, Mumbai, Hyderabad, Kolkata, Bengaluru and Chennai, from Jamaica, Guyana, Czech Republic, Finland, Spain and Sri Lanka, the new arrangement will encourage connectivity and passenger travel between India and these countries (Roy, 2016).

### 6.1 Recommendations

India has a vision of becoming the largest aviation market by 2030. All round development is needed for becoming a global aviation hub. Emphasis should be on the following:

- (a) Widening the base of domestic flyers,
- (b) Improving air connectivity in Tier 2 and Tier 3 cities,
- (c) Strengthening human resource development (HRD) infrastructure by employing more trained pilots and other staff,
- (d) Finalisation of the National Civil Aviation Policy at the earliest,
- (e) Creating conducive investment environment through investor-friendly policies and initiatives,
- (f) Encouraging greater private sector participation in airports, MRO, cargo etc.,
- (g) Establishing 'Regional Connectivity Fund' (RCF) for facilitating connectivity to Tier 2 and Tier 3 cities,
- (h) Ensuring passenger satisfaction at all stages,

- (i) Causing minimum harm to the environment,
- (j) Ensuring safety and security.

### 6.2 Scope for Future Research

Further research can be carried out in the following areas:

- (a) A comparative analysis of performance between low-cost carriers (LCC) and full-service carriers (FSC) can be an area of research.
- (b) Research may be undertaken to judge the factors influencing the preference of customers for a particular airline.
- (c) Performance evaluation of airline industry of 'BRICS' countries may be carried out.
- (d) The impact on aviation industry on the environment may be an area of research.

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