

Analogy Dissection in Variability of Aircraft-Passenger Movement in Indian Airports

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Abstract This paper examines the movement of passengers through air transportation in India with more emphasis on the rate of arrival and departure in Indian International Airports. Although, people move for various reasons. The aim of this paper is to verify the trend of movement of passengers and flights in and out of the country for the period of (14) years, starting from 2000 to 2014. The movement of people from one geographical location to the other varies in relation to season and air transportation capacity within the country differ with respect to the number of patronage from passengers at different international airports.

Keyword: Arrival, departure, festive, pilgrimage season

Introduction

On February 18, 1911, the first commercial plane flew in India between Allahabad and Naini carrying mails. Mr. JRD TATA is known as the 'Father of Indian Civil Aviation'. Indian Aviation Industry is one of the fastest growing airline industries in the world. The history of Indian Aviation Industry started in December 1912 with its first domestic air route between Karachi and Delhi. It was opened by the Indian Air Services in collaboration with the UK based Imperial Airways as an extension of London-Karachi flight of the Imperial Airways. Tata Sons Ltd., the first Indian airline, started a regular airmail service between Karachi and Madras three years later without any backing from the Indian government. 1st Aug 1953 the AIR CORPORATION ACT was passed by the parliament, whereby all airlines in INDIA were nationalized.

During the period of independence, 9 air transport companies were carrying both air cargo and passengers in the Indian Territory. In 1948, the Indian Government and Air India set up a joint sector company, Air India International to further strengthen the Aviation Industry of India. As part of nationalization in 1953 of Indian Airlines (IA) brought the domestic civil aviation sector under the purview of Indian Government. Later till the mid 1990's government-owned airlines dominated Indian aviation industry. When the government adopted the Open-sky policy in 1990 and other liberalization policies the Indian Aviation Industry made underwent a rapid and dramatic transformation.

By the year 2000 several private airlines have entered into the aviation business in succession and many more were about to enter into the arena. Indian aviation industry

today is dominated by private airlines and low-cost carriers like Deccan Airlines, GoAir, and SpiceJet, Jet Airways etc. And Indian Airlines, the giant of Indian air travel industry, gradually lost its market share to these private airlines. By CAPA these players are likely to double their market share by 2010 -- one of the highest in the world. 'Indian Civil

Aviation' completes 100 years in the year 2011. To commemorate this milestone, 'the year 2011-12' is being declared and celebrated as the "Civil Aviation Centenary Year". The Indian aviation industry has been on a revival path, in the beginning of 2010, with passenger growth by 18 per cent against the year 2009. But in 2011, the growth is forecast to be around 20 per cent, backed by a possible 9 per cent growth in the Indian economy.

The Indian Aviation Industry is divided into three namely; **Airport Authority of India, Ministry of Civil Aviation, Director General of Civil Aviation**. The Indian aviation sector divided into the following 3 categories:

1. Scheduled air transport service.
2. Non-scheduled air transport.
3. Air cargo service

Scheduled air transport service: This is an air transport service undertaken between two or more places and operated according to a published timetable. It includes:

1. Domestic airlines, which provide scheduled flights within India and to select international destinations. Air Deccan, Spice Jet, Kingfisher

Airline and Indigo are some of the domestic players in the industry.

- International airlines operate from scheduled international air services to and from India.

Non-scheduled air transport service: This is an air transport service may be on charter basis or non-scheduled basis. In this case operator is not permitted to publish time schedule and issue tickets to passengers.

Air cargo services: This is cargo and mail. It include on scheduled or non-scheduled basis. These workare within India. For Working outside they have to take specific permission of Directorate General of Civil Aviation demonstrating his capacity for conducting such a work.

India is one of the fastest growing aviation markets in the world. A total of **127 airports** in the country, which include **13** international airports, **7** custom airports, **80** domestic airports and **28** civil enclaves are managed by The **Airport Authority of India (AAI)**. There are about **450** airports and **1091** registered aircrafts in India today

Due to the drastic development of the industry, over the last few years, airports in India also have been modernized. In the past few years, there has been a revolutionary change in the ground services provided by the leading airports of the country. Both domestic and international airports have tried to fulfill the requirements of the passengers, waiting to board their flights. To handle the massive growth of the airline industry in India, new and modern airports have come all over the country. International air travel has also witnessed a great upsurge in recent times The historic decision by the government in Sep-2012 to allow foreign airlines to invest up to 49% in Indian carriers is a vital step in establishing a more professional and corporatized sector in India.

According to the Ministry of Civil Aviation, around 29.8 million passengers travelled to/from India during 2008, an increase of 30 per cent on previous year. In January-September 2010, Indian domestic airlines handled an estimated 373.20 lakhs passengers, a growth of 18.5% from the corresponding period of year 2009.

Indian aviation is set for transformational growth. CAPA projections show airport passenger [traffic](#) growing from 143 million in 2010/11 to 452 million by 2020/21. The incremental growth in Indian domestic airport passengers in the last decade is striking. The increase between 2001 and 2011 was three times the growth that had been achieved in the previous 50 years.

- Presently India that is in 2014 has 450 Airports and 1091 registerd Aircrafts in the country of which 127 are owned by Airport Authority of India(AAI).

Objectives of the Study The main aim of this study is to review the variability of passengers and aircrafts movement pattern across the airports in India. This study will particularly, analyze the trend pattern in passengers and aircrafts movement over years, examine the correlation analysis between the rate of passengers and

aircrafts movement in both international and local airports in the country and scrutinizing the variation between domestic and international aircrafts and passengers over years. The objective of the aviation industry is to provide better service to their customers. So service is the primary product of the industry.

Study Area

Ten years back ther were just two Airlines in India, both state owned. In the last ten years the economy has opened up .India has experienced growth rate of 24% per year .

The main factors which effect the Indian economy are:-

- 1)Increase no of domestic Airlines
- 2) Low cost Airlines
- 3)India's improving Economy

*The other factors are:-

- 1)Increase in no: of business traveller to different countries.
- 2) Increase in no: of tourist and business enterprises.
- 3) Increase business trade due to the rapidly growing economy and free trade agreement with neighbouring countries.
- 4)Favourable Govt: policies and tax reforms

According to the report of civil aviation in November 2010

AIRPORTS

Presently, India has 136 airports, of which 94 are owned by the Airports Authority of India (AAI). Of 136 airports in India, 82 are operational. The airports can be categorised as:

AIRPORTS	NUMBERS
International airports, including joint venture airports	17
Domestic airports	79
Customs airports	8
Civil enclaves	24
Others	8

Source: www.ibef.org accessed on 2nd November 2010

LIST OF DOMESTIC AIRLINES

AIRLINES	COMMENCED OPERATIONS
Air India	October 1932
Air India Express	April 2005
Kingfisher	August 2003
GoAir	June 2004
IndiGo Airlines	August 2006
Jet Airways	May 1993
Jet Lite	April 2007
Kingfisher Airlines	May 2005
MDR Airlines	March 2007
Paramount Airways	October 2005
SpiceJet	May 2005

Source: Ministry of Civil Aviation accessed on 30th October 2010

Barring the exception of recession, it can be said that the civil aviation industry has witnessed a sea-change in India. Gone are the days, when passengers traveling via air had to depend upon the national carriers of the country, to make their trip. Today, with the advent of private airlines and their subsidiary budget carriers, traveling via air is not just confined to business and leisurely travelers. Due to the drastic development of the industry, over the last few years, airports in India also have been modernized. In the past few years, there has been a revolutionary change in the ground services provided by the leading airports of the country.

Both domestic and international airports have tried to fulfill the requirements of the passengers, waiting to board their flights. To handle the massive growth of the airline industry in India, new and modern airports have come all over the country. International air travel has also witnessed a great upsurge in recent times.

The aviation sector – comprising the airlines together with the airports, air navigation and other essential grounds services that make up the air transport infrastructure – carries over 70 million passengers¹ and 1.4 million tonnes of air freight to, from and within India. More than 130,000 scheduled international flights depart India annually, destined for 70 airports in 50 countries. Domestically, more than 664,000 flights make 89 million seats available to passengers annually, destined to 73 airports

Among the many reasons that people and businesses use air transport, people rely on it for holidays and visiting friends and family; while businesses use air transport for meeting clients and for the speedy and reliable delivery of mail and goods often over great distances. For this reason, the air transport network has been called the Real World Wide Web.

The most important economic benefit generated by air transport is the value generated for its consumers, passengers and shippers. Passengers spent INR 1,755 billion (inclusive of tax) on air travel in 2009 and shippers spent INR 165 billion on the transportation of air cargo⁴. With its speed, reliability and reach there is no close alternative to air transport for many of its customers. This means that many are likely to value air services higher than what might be suggested by their expenditure on

these services. Bueconomic value will vary from flight to flight, and from consumer to consumer, making it difficult to measure. The air transport network has been called the Real World Wide Web . In 2010 there were 357 routes connecting major Indian airports to urban agglomerations around the world. On average there were 4 flights per day along these routes. A total of 66 of these routes were connecting India to cities of more than 10 million inhabitants, with an average of 7 flights per day available to passengers. Frequencies are higher to the most economically important destinations. For example, passengers benefited from 8 flights per day between Delhi and Dubai International Airport, and from more than 59 flights per day from Delhi to Bombay, providing high speed access for business and leisure purposes throughout the day.

The five largest airports in India – Indira Gandhi International, Chhatrapati Shivaji International, Chennai International, Bengaluru International and Kolkata International – handle over 77 million passengers a year (. In total over 109 million passengers arrive or depart from Indian airports each year¹⁶. Over 1.4 million tonnes of freight is handled annually

Overall, the Aviation sector contributes over INR 330 billion to the economy (0.5% of GDP) and supports around 1.7 million jobs in India

Indira Gandhi International Airport is India’s principal hub airport. As a hub airport for intercontinental passenger traffic, Indira Gandhi can offer its Indian residents and businesses better access to more destinations, at a higher frequency and at lower priced fares. As discussed in Section 2 of this report, such network benefits enhance a country’s connectivity, which in turn can feed through to the economy’s overall levels of productivity and GDP.

Tourism, both for business and leisure purposes, makes a large contribution to the Indian economy, with foreign visitors spending just over INR 548 billion in the Indian economy each year¹⁸. Around 89% of these visitors arrive by air so that foreign visitors who travel by air spend approximately INR488 billion

Materials and Methods Data used for the analysis were sourced from Airport Authority of India(AAI) and Director General of Civil Aviation(DGCA).The data focused on information about passengers and aircrafts arrival and departure across the major International Airport in India The data covers fourteen years (2000 to 2014).

Trends of foreign tourist Arrivals during the year 1995-2010

Years	China	Singapore	Indonesia	India	Brazil	Veitna
1995	20.0	6.1	4.3	2.1	2.0	1.4
1996	22.8	6.1	5.0	2.3	2.7	1.6
1997	23.8	5.9	5.2	2.4	2.9	1.7
1998	25.1	5.1	4.6	2.4	4.8	1.5
1999	27.1	5.6	4.7	2.5	5.1	1.8
2000	31.2	6.1	5.1	2.7	5.3	2.1

2001	33.2	5.9	5.2	2.5	4.8	2.3	to 2010-11		
2002	36.8	5.9	5.0	2.4	3.8	2.6	Future Trends		
2003	33.0	4.7	4.5	2.7	4.1	2.4			
2004	41.8	6.6	5.3	3.5	4.8	2.9	Considering the forecasts made by different organisation and taking a reasonably pragmatic view, the expected traffic scenario upto the year 2010-11 has been projected by the Foundation for Aviation and Sustainable Tourism. These projects have been extended upto the year 2016-17 by AAI.		
2005	46.8	7.1	5.0	3.9	5.4	3.5			
2006	49.9	7.6	4.9	4.5	5.0	3.6			
2007	54.7	8.0	5.5	5.1	5.0	4.2			
2008	53.1	7.8	6.2	5.4	5.1	4.3			
2009	50.9	7.5	6.3	5.2	4.8	3.8			
2010	Not available	9.2	Not available	5.6	5.2	5.1			
Projected Domestic Traffic Upto 2016-2017									

FTAs in countries like Indonesia, Singapore and China are much higher than FTAs in India. Particularly it is to be noted that FTAs in India is about one-tenth of that in China. In order that India's FTAs is increased, it is essential that the concerned Ministries and Departments like Ministry of Civil Aviation, Ministry of Tourism, Ministry of Culture and State governments work in tandem.

Market share of International Passengers Carried by Scheduled Domestic Carriers from India & Foreign Carriers

Scheduled Carriers of India have made some gains in total international passenger traffic from/ to India during the last 20 years. For instance, International traffic handled by Indian Carriers increased from 31.7% in 1990-91 to 34.6% in 2009-10.

% Year	Scheduled Carries India	Foreign Carriers
1990-91	31.7	68.3
1994-94	29.3	70.7
2004-05	28.9	71.1
2009-10	34.6	65.4

Out bound & Inbound Passengers (Million)

Scheduled Carriers of India have made some gains in total international passenger traffic from/ to India during the last 20 years. For instance, International traffic handled by Indian Carriers increased from 31.7% in 1990-91 to 34.6% in 2009-10. The share of Inbound & Outbound passengers has approximately been in the same proportion viz. 50% each. However, experience in the last seven years show that the Inbound passenger traffic is growing at a faster rate .

Year	Out bound (Embarked)	Inbound (disembarked)
1995-1996	5.4	5.2
2003-2004	8.1	7.6
2010-2011	18.7	18.3
Compound Annual Growth percentage		
1995-96 to 2003-04	5.10%	4.90%
1995-96 to 2010-11	8.60%	8.80%
2003-04	12.70%	13.40%

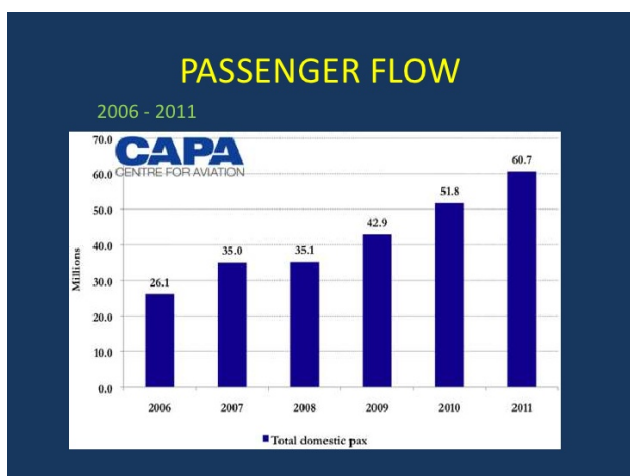
Year	Domestic Passenger	%	International Passenger	%
1996-97	120.00	10.5	108.90	7.0%
1997-98	132.60		116.52	
1998-99	146.52		124.68	
1999-00			133.41	
2000-01	175.62		141.41	
2001-02	190.60	8.5	149.90	6.0%
2002-03	206.80		158.89	
2003-04	224.38		168.42	
2004-05	243.45		178.53	
2005-06	250.50	7.0	188.35	5.5%
2006-07	278.73		198.71	
2007-08	298.24		209.64	
2008-09				
2009-10	341.46		233.33	
2010-11	365.36		246.16	
2011-12	390.93		259.70	

2012-13	414.39	6.0%	272.73	4.9%
2013-14	439.25		285.78	
2014-15	465.61		299.78	
2015-16	493.54		314.47	
2016-17	523.16		329.88	

Year	Aircraft movement In ('000)		
	Inter National	Domestic	Total
	2005-06	190.89	647.42
Growth			
Rate	13.20%	14.70%	14.40%
2006-07	216.14	737.94	954.08
2007-08	243.91	843.1	1087.01
2008-09	275.58	965.54	1241.12
2009-10	311.74	1108.39	1420.13
2010-11	353.09	1275.38	1628.47
2011-12	400.45	1470.99	1871.44
Growth			
Rate %	10.5	9.8	16.2
2012-13	441.58	1653.63	61.01
2013-14	487.36	1862.08	69.05
2014-15	538.38	2100.35	78.23

Market Size of Aircraft movement

Market size of Passengers movement



Indian aviation is set for transformational growth. CAPA projections show airport passenger [traffic](#) growing from 143 million in 2010/11 to 452 million by 2020/21. Over the same period, the scheduled airline [fleet](#) is expected to grow from 430 to 1030 aircraft, while general aviation could see even faster growth from 750 to over 2000 aircraft. These forecasts are based on an average [GDP](#) growth rate of 8% p/a, however, if India achieves its target rate of 9% the demand for air travel

could increase even faster.

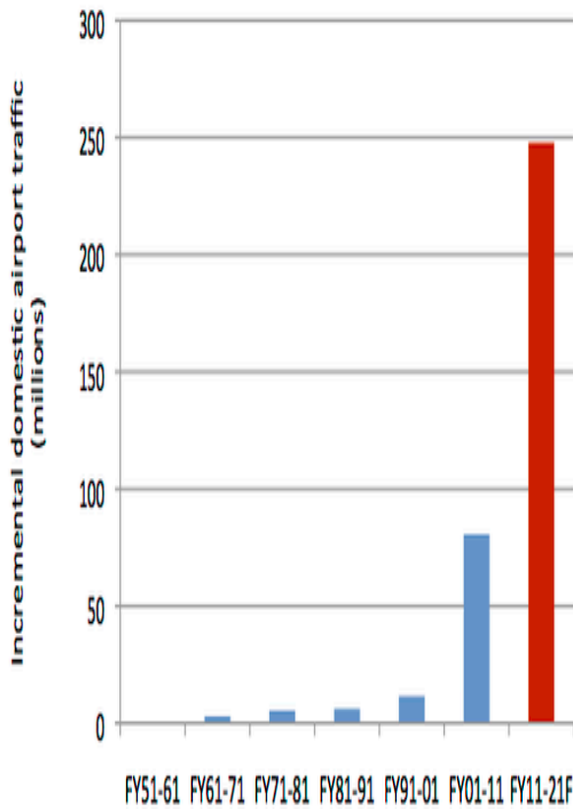
The incremental growth in Indian domestic airport passengers in the last decade is striking. The increase between 2001 and 2011 was three times the growth that had been achieved in the previous 50 years. And with strong growth expected to continue – but this time off a dramatically expanded base – the task ahead is enormous.

Market Size Contd.....

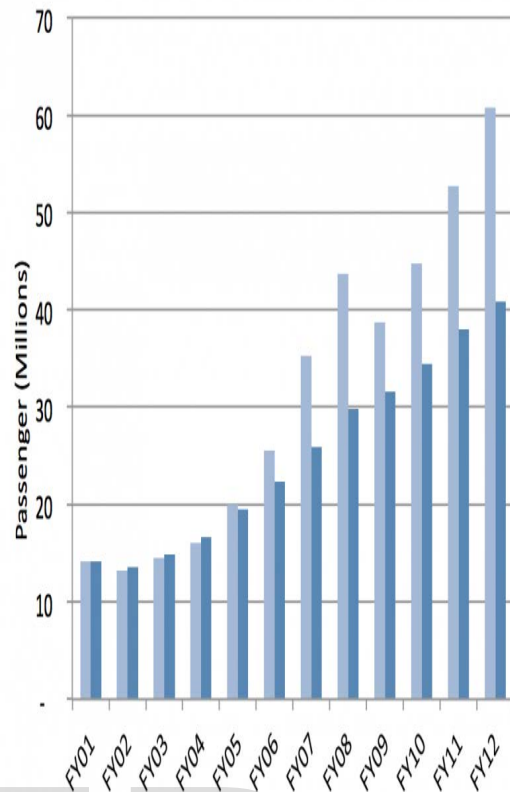
Year	Aircraft Movements (In '000)			Passengers (In Lacs)			Cargo (In '000 MTs)		
	Inter-national	Domestic	Total	Inter-national	Domestic	Total	Inter-national	Domestic	Total
2005-06 (Base Year)	190.89	647.42	838.31	223.62	509.76	733.38	920.15	483.80	1403.95
Growth Rate	13.2%	14.7%	14.4%	15.9%	19.9%	18.8%	12.1%	10.1%	11.4%
2006-07	216.14	737.94	954.08	258.54	609.05	867.59	1028.66	531.64	1560.3
2007-08	243.91	843.10	1087.01	298.54	728.72	1027.26	1151.05	584.61	1735.6
2008-09	275.58	965.54	1241.12	345.31	873.11	1218.42	1289.26	643.31	1932.5
2009-10	311.74	1108.39	1420.13	400.14	1047.51	1447.65	1445.50	708.39	2153.8
2010-11	353.09	1275.38	1628.47	464.54	1258.39	1722.93	1622.33	780.60	2402.9
2011-12	400.45	1470.99	1871.44	540.37	1513.63	2054.00	1822.69	860.78	2683.4

Source: Airport Authority of India

Passengers in Lakhs			
Year	International	Domestic	Total
2005-06	233.62	509.76	733.38
Growth			
Rate %	15.90	19.90	18.80
2006-07	258.54	609.05	867.59
2007-08	298.54	728.72	1027.26
2008-09	345.31	873.11	1218.42
2009-10	400.14	1047.51	1447.65
2010-11	464.54	1258.39	1722.93
2011-12	540.37	1513.63	2054
Growth			
Rate %	13.3	12.8	8.4
2012-13	175.64	1998.45	2174.09
2013-14	203.99	2192.47	2396.46
2014-15	237.13	2406.81	2643.94



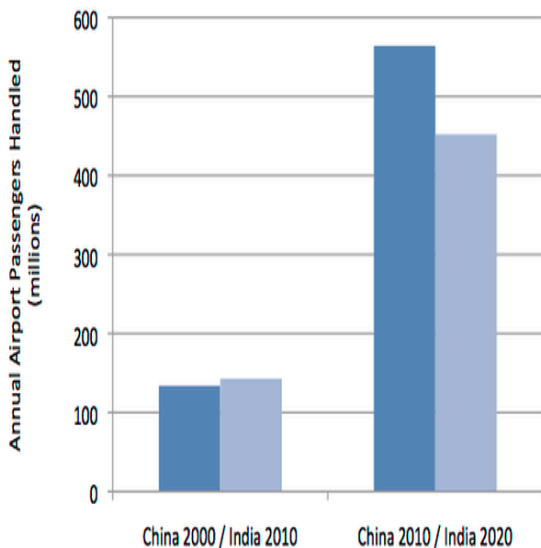
Airline Passengers: FY01 to FY12



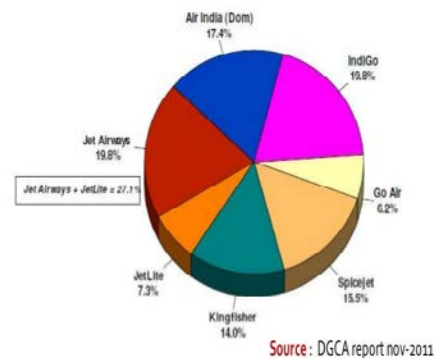
The growth projections for India are staggering, but they are not without precedent. China's airport traffic grew from 134 million to 564 million passengers in the 10 years from 2000 to 2010. India reached a similar base of 143 million passengers in 2010 and CAPA is projecting traffic of 452 million by 2020, slightly slower growth than was achieved in China. This rate of growth will require huge investment in airport and other infrastructure, but our analysis indicates that India is currently under-prepared to meet these challenges

Key Statistics (Nov-2011)

Comparison of airport traffic growth in India 2010-2020 vs China 2000-2010



MARKET SHARE OF SCHEDULED DOMESTIC AIRLINES



Market share of domestic Airlines

India Domestic (light blue) & International (dark blue)

Annual Variation Rate(%) of Change in Passenger and Aircraft Movement

Year	Aircraft Movement	% change	Passengers	% change
2000-01	489786		42026620	
2001-02	509931	10.7	39983339	9.8
2002-03	49.18	9.8	41.35	17.2
2003-04	64139	17.3	48779611	14.2
2004-05	717597	11.9	59283800	21.5
2005-06	680.70	14.4	59.35	18.8
2006-07	879.91	27.9	78.72	31.0
2007-08	1079.38	22.5	97.22	23.4
2008-09	1095.90	1.5	91.07	-6.3
2009-10	1108.51	1.1	102.84	12.9
2010-11	1155.23	4.2	118.50	15.2
2011-12	1292.28	11.8	135.61	14.4
2012-13	1478811	-4.3	159401356	-1.8
2013-14	1280.30	3.7	140.73	6.8

Contribution to Knowledge

The Indian civil aviation industry is proudly celebrating 100 years of its existence (1911-2011). These 100 years have seen wide ranging changes, as the country emerged from colonial subjugation and a long period of slow growth to become an economic powerhouse. The Civil Aviation Sector in India witnessed phenomenal growth in the past few years. Domestic and International passenger traffic grew from 22.3 million and 19.3 million in 2005 to 51.6 million and 34 million in 2010 respectively. The total air traffic in India touched 85.6 million in 2010 as against 41.6 million in 2005. The cargo sector has also seen an increasing trend from 0.8 million tons in the year 2005 to 1.3 million tons in the year 2010. Similarly, aircraft movement increased from 838 thousand in 2005-06 to 1394 thousand in 2010-11. The total passenger throughput in India in 2010-11 grew to 87 million from 40 million in 2000-01. Airports Council International (ACI) estimates (2010-15) suggest that passenger traffic in India in 2015 shall be of the order of 177.71 million whereas as per long term forecasts by ACI (2008-27), the passenger traffic is likely to increase to 580.78 million in 2027, at a growth rate of 9.2% per annum. This increase in air traffic in the past few years has not only increased demand of aircraft but also put demand for enhanced airport and air navigation infrastructure to ensure safe, orderly and efficient operations. This has further resulted in greater demand on DGCA to ensure adherence by service providers to safety standards including safety oversight responsibility. The current and future phenomenal growth can only be handled by strengthening the existing civil aviation safety oversight system in DGCA.

Scheduled air services available to/from 82 airports (only 50 in early 2000).

- Enhanced national and international connectivity - 72 foreign airlines are operating to/from various destinations.
- Bilaterals with 104 countries.
- 1356 International flights utilizing 3,26,705 seats per week.
- 3 Indian carriers are operating 990 flights to 35 destinations in 25 countries.
- North East Connectivity: 87 ft/wk to 286 ft/wk in 5 years (230% increase). Between 2000 and 2010 air operations Air India have expanded by 160% in terms of domestic passenger volume India now ranks 4.

After US, China and Japan. It is expected to grow at a rate of 9-10% annually to reach the level of 150 to 180 million passengers by 2020. Today India has 14 scheduled airlines operating exclusive of cargo airlines. In 1990, there were only 2 airlines in operation. In 1990 there were only 100 aircrafts operating in the country which have now risen to 413. As against 39 non scheduled operators in 2000, the figure has now swollen to 123. The total number of aircrafts in the country too have shown a rapid rise from 225 in 2000 to 735 in 2010.

Similar expansion has been witnessed in airport infrastructure where the number of operational airports has increased from 50 in 2000 to 82 in 2010. The passenger handling capacity has increased from 66 million to 235 million during the same period. The growth in air cargo has been from 3 million tons in 2002 to 4.5 million tons in 2010. This is a remarkable growth story and it could have been even more remarkable but for the downturn in global economy in 2008-09. They have been occasional dips due to economic recessions, epidemics, natural disasters and political upheavals which reflect the extreme sensitivity of the sector to external global factors.

In spite of the above said growth, India continues to be a small player in the international arena. The trips per capita in India still remain very low (0.04) even by the standards of other emerging markets, such as China (0.15), Brazil (0.25) and Malaysia (0.54). China's domestic traffic is 5 times the size of India's despite having a population just 15% larger. The upside potential therefore, remains huge, driven by strong economic and demographic fundamentals. India has 1 aircraft for every 2.89 million population which is miniscule in comparison to 1.14 million in China, 0.96 of Indonesia, 0.89 in Philippines and 0.63 in Brazil. Out of the 32,000 helicopters in the world India has merely 210 while out of 15,750 freighter carriers globally, India has just 12.

Reference Reference

Adan, I.J.B.F., Boxmal, O.J., Resing, J.A.C. (2000), "Queuing models with multiple waiting lines," Department of Mathematics and Computer Science, Eindhoven University of Technology, ACRP Problem No. 12-07-01

Afolayan, Olusola Samuel Department of Geography and Planning Lagos State University Ojo, Nigeria **Variation in Spatial Trend of Passengers and Aircrafts Movement in Nigerian International Airports**

Airport Authority of India(A Miniratna- Category- 1 Public Sector Enterprises

Akanksha 2010MB31Anuradha
2010MB73SwatiSrivastava 2010MB65- **CIVIL AVIATION INDUSTRY**

ByAnshikaSrivastava(07)AviralPundir(15)ChetnaYadav(18)KartikMenon(32)RohitMenon(53)- **CIVIL AVIATION**

Ashish Dhawan, Nidhi Mishra, Nithya R, Payal Yadav, Rajesh B, Siddharth Dahiya, Siddhartha Butalia - Study of the Indian Aviation Industry

Azmat Nafees- QUEUING THEORY AND ITS APPLICATION:ANALYSIS OF THE SALES CHECKOUT OPERATION IN ICA SUPERMARKET Bhavin Patel - Case Study for Bank ATM Queuing Model

CAPA Report: India under-prepared for massive airport capacity challenge

CAPA India Aviation Outlook FY2015: Losses accumulate but AirAsia India, Tata-SIA undeterred

DÍAZ ESTEBAN, PEDRO J. September 2008- Check-in process at Lisbon Airport Event-based Simulations and Collaborative Design [Transportation]

Houda Mehri , Taoufik Djemel , Hichem Kammoun- Solving of waiting lines models in the airport using queuing theory model and linear programming The practice case : A.I.M.H.B hal-00263072, version 2 - 2 Apr 2008

K. C. James- PERFORMANCE IMPROVEMENT STUDIES OF AN AIRPORT TERMINAL USING DISCRETE-EVENT SIMULATION

IO. D. Ogunwale, 2O.A. Olubiyi- A Comparative Analysis Of Waiting Time Of Customers In Banks

Policy on Airport Infrastructure-Task force report

STRATEGIC PLAN MINISTRY OF CIVIL AVIATION Indian Aviation Scaling New Heights [usfifa](#) -Indian Aviation Industry Aviation Sector in India