

EXPERT REPORT

# Research Study of the Civil Aviation Sector in India



**SUBMITTED TO:**

The Ministry of Corporate Affairs,  
Govt. of India, India

**SUBMITTED BY:**

Nathan Economic Consulting India  
Pvt. Ltd., India

January 24, 2012

## Table of contents

1. Executive Summary.....	1
2. Introduction .....	7
3. Market Structure and Competition Issues.....	11
4. Identification of Anti-Competitive Provisions and Practices .....	15
5. Analysis of the Identified Issues.....	24
5.1 Fleet and Equity Requirements.....	24
5.2 Route Dispersal Guidelines.....	29
5.3 Slot Allocation.....	34
5.4 Airports .....	39
5.5 Anticompetitive Behavior and Pricing .....	44
5.6 Taxation and Pricing of Air Turbine Fuel (ATF) .....	46
5.7 Preferential Treatment to Air India.....	49
5.8 Foreign Direct Investment in Airlines .....	51
5.9 Procurement .....	52
5.10 Exemption Rule.....	54
6. Conclusion.....	55
7. Annexure .....	55
8. Stakeholder Interviews.....	61
9. References.....	62

## 1. Executive Summary

In accordance with the requirements set forth by the Ministry of Corporate Affairs of the Government of India, this report aims to identify and analyze potentially competition inhibiting provisions of statutes, rules, policies and practices found within the regulatory framework of India's civil aviation sector. This report hopes to assist the Ministry with the following:

- a. Framing of the National Competition Policy (NCP);
- b. Formulating a strategy for competition advocacy with government and private sectors.

This report considered a variety of rules and regulations and picked out individual statutes which we believe inhibit competition. The study mostly focuses on rules and regulations guiding air carriers, briefly addresses taxation of airports, air turbine fuel, air carriers and passengers as well as procurement by regulating agencies.<sup>1</sup>

All highlighted rules and regulations were evaluated according to the following parameters:

- a. Regulations that limit the number and range of suppliers;
- b. Limit the suppliers' ability to compete;
- c. Reduce the incentive of the suppliers to compete;
- d. Affect investment.

This report also compares India's current regulatory framework with pre- and post-deregulation of the United States of America and Brazil, as models of potential sector growth and future reform. Furthermore, the report also presents regulatory solutions of the European Union, UK, and Australia as alternative models. The report offers policy recommendations that will minimize and, in some cases eliminate, certain prevailing barriers to competition.

---

<sup>1</sup>However, a thorough analysis of procurement procedures requires a separate report exclusively dedicated to these specific regulations and their effect on competition of service and equipment.

This report identified a number of rules and regulations which according to our evaluation parameters inhibit competition within India's civil aviation sector. In the next few pages, this report will briefly list the regulation, its competitive implications and recommendation. Sections beyond this executive summary will address each issue in more detail.

Civil Aviation Requirement (CAR) Section 3, Series C, Part II sets out fleet and capital requirements for scheduled air carrier service providers, while CAR Section 3, Series C, Part III sets out fleet and capital requirements for non-scheduled air carrier service providers. Fleet and equity requirements create artificial barriers to entry into a sector which is characterized by high natural barriers to entry. Based on international precedents of the United States', Australia, and European Union, as well as India's experience of reform of the cargo sector, fleet and equity requirements may be abandoned in favour of rules of financial disclosure that would help establish financial viability of a new air carrier service provider.

Aeronautical Information Circulars (AIC) No. 08 of 2009 set out fleet, equity and experience requirements for Indian domestic air carrier service providers that wish to begin international air carrier services. These requirements serve as artificial barriers to entry and bias the civil aviation market towards big airlines which already have economies of scale to qualify.

Furthermore, this regulation creates incentives for mergers and acquisitions of small air carrier service providers by large service providers, resulting in a reduction in the number of competitors. Finally, consumers who wish to travel internationally will have fewer choices of service providers. Based on experiences of the European Union and United States', fleet and equity requirements should be abandoned in favour of financial feasibility rules, while domestic service requirements may be reduced to two years.

Government of India Order No. AV 11012/2/94-A sets out service requirements for flight routes for different parts of the country in order to ensure adequate service to remote areas. The route dispersal regulation creates artificial barriers to entry for new air carrier service providers by limiting their ability to compete and respond to changes in demand for air transport. This regulation creates a disincentive for fleet and service expansion, as the service provider may not get adequate return on his investment; due to government requirements to travel to low demand

unprofitable destinations. Based on experiences of Brazil, United States, and European Union, route dispersal regulation may be replaced by an incentive or subsidy based program for providing adequate service to all airports.

In terms of allocation of take-off and landing slots, India follows the International Air Transport Association (IATA) guidelines, which include the 'grandfathering' of slots, according to which a service provider will control slots that he utilizes in perpetuity. The IATA slot guidelines also entail a 'use it or lose it' principle which adversely affects competition in cases of mergers since the merged entity will retain slots based on historic precedence as long as they are utilized. Application of the 'grandfather' rule limits the ability of new service providers to compete with incumbent service providers at different airports, since the only slots that new service providers can access are underutilized slots which tend to be at odd times and off peak hours. Therefore, application of the 'use it or lose it' rule after mergers, limits the ability of other service providers to compete with the merged service provider.

Based on experiences of the United Kingdom, United States, and European Union, India may want to expand its slot allocation system to include more market based tools such as allowing slot trading and auctioning off a fraction of underutilized slots by an independent authority, modelling the process after the UK. Proceeds of the auction can be used to incentivise airports to improve and expand available airport infrastructure.

The Operation, Management, and Development Agreements which privatized Mumbai and Delhi international airports have a 'right to first refusal' clause. While this clause was intended to attract a greater number of bidders in the privatization scheme, once the first generation agreements with the abovementioned clause were signed, the competitive environment for following generation agreements changed by narrowing the range and number of new suppliers. This clause creates the possibility of a regional monopoly in airport development. Studies of the United Kingdom and European Union indicate that airports are not natural monopolies and can compete with each other. In order to compete with other Asian hubs, privatization and development of new airports in India should have a sunset (expiration) provision within the 'right to first refusal' clause.

The Aeronautical Information Circulars No. 08 of 2009 and the Air Corporation Act of 1953 give preferential treatment to Air India, the national carrier, with respect to allocation of traffic rights

and access to government funding. These regulations make it difficult for private airlines to compete with the national carrier both operationally and financially. Furthermore, preferential treatment creates disincentives for the national carrier to become a more efficient and financially leaner service provider. In order to level out the competitive field between private service providers and national carrier, preferential treatment legislation needs to be revised. Furthermore, in order to incentivise Air India to become a leaner and more competitive service provider, the national carrier may be partially privatized.

Civil Aviation Requirements (CAR), Air Transport, Series C, Part II does not allow foreign air carrier service providers to invest in Indian service providers. Since companies that are in the business of air carrier services, understand the risks involved best, excluding foreign air carrier service providers from investing into Indian air carrier service providers may negatively impact growth of India's civil aviation sector. Currently, the Government of India is discussing allowing foreign direct investment (FDI) by foreign air carrier service providers into Indian service providers. Allowing FDI by foreign air carrier service providers into India's civil aviation sector would create the possibility of code-shares, optimal utilization of a carrier's fleet, and an expansion of consumer choice.

The Airports Authority of India (AAI) Materials Management Manual 2010 mandates that procurement tenders must have a period of issue of at least three weeks. Furthermore, the manual requires that in order to supply the AAI with certain goods and services, the contractor must meet certain operational and experience with Indian government transportation agencies. In practice, some procurement tenders have periods of issue far shorter than the required amount, which reduces the number of applicants, resulting in decreased competition. Requirements for potential contractors to have minimum experience in working with other transportation agencies, indirectly creates a list of preferred vendors and reduces the number of eligible contractors.

Based on experiences of the Russia and United States', government procurement of goods and services should be centralized into a searchable database with public access. Furthermore, application timelines for tenders should meet requirements set out by the AAI, in order to allow the greatest number of competitive bids.

There are two pieces of regulation that are analyzed but do not have recommendations - Rule 160 of the Aircraft Rules of 1937 and Airports Economic Regulatory Order No. 13 2010-11. Our research has indicated that these two rules do not significantly impact competition.

### ***Critical Findings***

Our research indicates that the following recommendations are the most critical:

- i. Ensure competitive neutrality between private carriers and the national carrier by;
  - a. removing regulations ensuring preferential treatment of Air India with regards to recapitalization;
  - b. removing regulations ensuring preferential treatment of Air India with regards to flying rights;
- ii. Consider reducing fleet and equity requirements for passenger air carriers by looking at how India's regulators reduced requirements for cargo carriers;
- iii. Consider introducing an incentive-based route program of servicing all India's airports;
- iv. Consider introducing market-based tools in distribution of slots.

Thus, formulation of a single civil aviation policy taking into account the recommendations highlighted above would be a major step towards ensuring competition in India's civil aviation sector.

### ***Structure of the Study***

The report analyses the abovementioned issues in detail. Section 2 serves as a brief introduction to India's civil aviation sector; Section 3 provides an overview of market structure of India's civil aviation sector; Section 4 identifies anti-competitive provisions and practices within the civil aviation regulatory framework; Section 5 analyzes identified issues and compares India's civil aviation sector with other countries; Section 6 offers a set of conclusions and policy recommendations; Section 7 briefly outlines other countries' regulatory frameworks with respect to the civil aviation sector and also provides a framework to address the issue of airline pricing; Section 8 lists the stakeholders interviewed for the purpose of this study; Section 9 lists sources of information used to compile this report.

***Thank you***

The team compiling this report would like to thank the following government and private agencies for feedback, meetings, advice and guidance: the Ministry of Civil Aviation, the Airports Economic Regulatory Authority, the Association of Private Airport Operators, airline industry experts, and CUTS Institute for Regulation and Competition and Indian Institute of Corporate Affairs under the aegis of the Ministry of Corporate Affairs of the Government of India.



## 2. Introduction

A country's transportation sector plays an integral role in the growth and development of an economy. According to the —Indian Aerospace Industry Analysisl report,<sup>2</sup> in terms of passenger traffic, India is currently the ninth largest aviation market in the world. With regards to air cargo tonnage, India leads the South Asian region -consisting of Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.<sup>3</sup> Currently, India has 128 airports - including 15 international airports.<sup>4</sup>

Over the past ten years the Indian civil aviation sector grew by 14.2% in terms of domestic passengers and 7.8% in terms of air cargo (in CAGR - compound annual growth rate).<sup>5</sup> In 2010-11 six major Indian carriers with around 400 aircraft catered to 143 million passengers, including 38 million passengers that originated abroad.<sup>6</sup> In 2010-11, Indian airlines carried approximately 1.6 million tons of air cargo.<sup>7</sup> Further growth of the aviation sector between 2011- 2013 is estimated at 15%.<sup>8</sup>

India's civil aviation sector has evolved over time. On February 18, 1911 India's first commercial airplane flew between Allahabad and Naini. In 1912, India's first commercial international flight operated by the erstwhile Imperial Airways took place and connected Delhi to Karachi and beyond.<sup>9</sup> In 1932, J.R.D. Tata flew an air mail service airplane, after which Tata Airlines ventured into scheduled<sup>10</sup> air transport services.<sup>11</sup>

At the time of India's independence in 1947, nine air transport companies, carrying both air cargo and passengers, operated in the country.<sup>12</sup> To further strengthen the national aviation

---

<sup>2</sup>—Indian Aerospace Industry Analysisl, RNCOS, January 2011

<sup>3</sup>—World Air Cargo Forecast 2010-11l, Boeing <<http://www.boeing.com/commercial/cargo/wacf.pdf>>

<sup>4</sup>—Transportation in India, World Bank <<http://www.worldbank.org.in/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/INDIAEXTN/0,,contentMDK:22354859-pagePK:141137~piPK:141127~theSitePK:295584,00.html>>

<sup>5</sup>Ibid

<sup>6</sup>—Skewed priorities failing airlines' mergers: Experts, Business Standard, 3 October 2011 <sup>7</sup>—

Transportation in India, World Bank <<http://www.worldbank.org.in/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/INDIAEXTN/0,,contentMDK:22354859-pagePK:141137~piPK:141127~theSitePK:295584,00.html>>

<sup>8</sup>Ibid

<sup>9</sup>—Airports to light up for 100 years of aviationl, Times of India, Mangalore, 15 February 2011

<[http://articles.timesofindia.indiatimes.com/2011-02-15/mangalore/28544590\\_1\\_mangalore-airport-m-r-vasudeva-flight](http://articles.timesofindia.indiatimes.com/2011-02-15/mangalore/28544590_1_mangalore-airport-m-r-vasudeva-flight)>

<sup>10</sup>Air transport operations undertaken between two or more places according to a published time table or with flights so regular that they constitute a recognizably systematic series are known as scheduled air transport services

<sup>11</sup>Air India website <[http://www.airindia.ch/joomla/index.php?option=com\\_content&task=view&id=19&Itemid=45](http://www.airindia.ch/joomla/index.php?option=com_content&task=view&id=19&Itemid=45)>

<sup>12</sup>Transport Corporation of India Limited website <<http://www.tcil.com/ca.asp#air>>

sector, the Government of India and Air India - Tata Airlines was renamed Air India in 1946 - set up a joint sector company, Air India International Ltd. In order to address the deteriorating financial health of India's civil aviation sector, the Government of India passed the Air Corporations Act of 1953, which nationalized all carriers providing services within India's civil aviation industry.

Up until the late 1980s, India's civil aviation sector remained monopolized by India's government owned airlines. However in 1986, the Indian government once again granted permission to private sector companies to provide air taxi service. Additionally, India's Open Sky Policy of 1990<sup>13</sup> and the Air Corporations (Transfer of Undertakings and Repeal) Act of 1994<sup>14</sup> further freed up India's civil aviation industry and eradicated the government carrier monopoly. While these policy changes led to a dramatic increase in the number of private airline carriers; due to viability issues, by the end of the 20th century all private air carriers, except Jet Airlines and Air Sahara, exited the market.

In 2003 the introduction of a new type of airline service called low cost carriers - LCCs or no-frills air service - by Air Deccan, reinvigorated India's civil aviation sector. By bringing competition into the Jet Airlines-Air Sahara duopoly, Air Deccan brought a new competitive spirit to India's civil aviation. Furthermore, introduction of low cost airlines also changed the perception that air travel was reserved only for the elites. By 2007 mergers and acquisitions became common in India's civil aviation sector. Within a span of two years Air India and Indian Airlines merged, as did Jet Airways and Air Sahara, and Kingfisher Airlines and Air Deccan.

Currently, India maintains bilateral Air Service Agreements (ASAs) with 108 countries.<sup>15</sup> While 72 foreign airlines fly in and out of India,<sup>16</sup> four private domestic carriers - Jet Air, IndiGo, SpiceJet<sup>17</sup> and Kingfisher - fly to 35 destinations in 25 countries.<sup>18</sup> Air India, the national carrier

---

<sup>13</sup>It specified that any carrier, both Indian and foreign, which meet operational and safety requirements will be allowed to operate scheduled and non-scheduled cargo services to and from any airports in India where there are custom and immigration facilities available

<sup>14</sup> Directorate General of Civil Aviation website <<http://dgca.nic.in/rules/natleg-ind.htm>>

<sup>15</sup>—Government to set up aviation university, says Vayalar Ravi | The Economic Times 17 October 2011

<<http://economictimes.indiatimes.com/news/news-by-industry/transportation/airlines/-aviation/government-to-set-up-aviation-university-says-vayalar-ravi/articleshow/10392218.cms>>

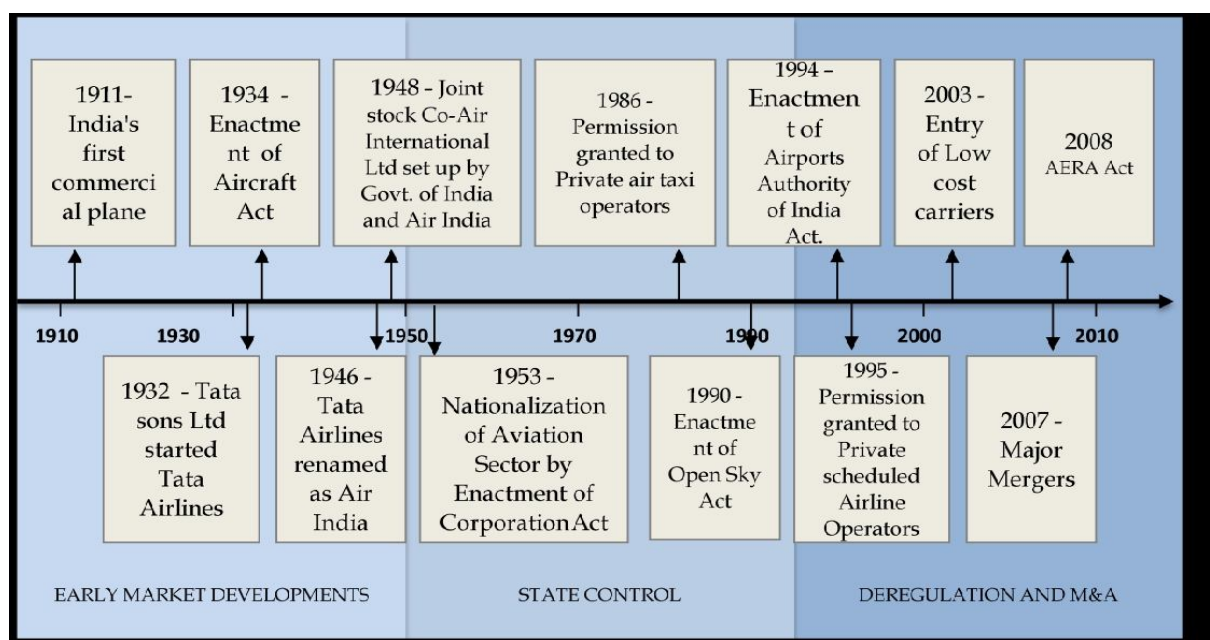
<sup>16</sup> Ibid.

<sup>17</sup> Shukra, Tarun —New international flying rights to boost local airlines' market share | Live Mint 23 January 2011 <<http://www.livemint.com/2011/01/23224938/New-international-flying-right.html?d=1>>

maintains a number of international routes: seven destinations in North America, nine destinations in Europe, 12 destinations in the Gulf, two destinations in the Middle East, two destinations in Africa, and 13 destinations in West and East Asia.<sup>19</sup>

Recently, India’s Ministry of Civil Aviation hosted 65 International Civil Aviation member nations (ICAO) at the 4<sup>th</sup> International Civil Aviation Negotiation Conference (ICAN 2011) during the week of 17 October 2011. The conference provided a forum for nations to amend and modernize existing ASAs. While India’s international carriers lobbied the Indian government to allow them to run more flights to Oman, Saudi Arabia and Hong Kong, representatives from the Persian Gulf lobbied the Indian government for additional seats.<sup>20</sup>

**Table 1: Developments in the Indian Aviation Industry**



As India’s civil aviation sector developed and evolved over time, in order to guide market participants the Ministry of Civil Aviation and Government of India periodically responded to new industry challenges by setting up and amending existing regulatory frameworks. Until 1994 the Directorate General of Civil Aviation (DGCA) controlled every aspect of flying including the

<sup>18</sup>—Government to set up aviation university, says Vayalar Ravil The Economic Times 17 October 2011 <<http://economictimes.indiatimes.com/news/news-by-industry/transportation/airlines/-aviation/government-to-set-up-aviation-university-says-vayalar-ravi/articleshow/10392218.cms>>

<sup>19</sup> Air India website < <http://home.airindia.in/SBCMS/Webpages/Destinations.aspx?MID=26>>

<sup>20</sup> Ibid.

licensing of pilots, certifying aircraft and issuing all rules and procedures governing Indian airports and airspace. However, in 1994 an Act of Parliament established the Airports Authority of India (AAI).<sup>21</sup> This Act gave the AAI the power to manage all national and international airports and administer every aspect of air transport operation through the air traffic control.

In 2008, the Airports Economic Regulatory Authority of India Act established the Airports Economic Regulatory Authority (AERA) of India. AERA regulates tariffs and other aeronautical charges, as well as monitors airports' performance standards. Within the Indian context of airport regulation, AERA takes the following things into consideration: airports are natural monopolies; airports are public goods, both in the case of Brownfield and Greenfield airports the Government of India has made land available for acquisition, often under the Land Acquisition Act, to airport developers at a very low cost.<sup>22</sup> Lastly, the same Act established the Appellate Tribunal which handles appeals from service providers and consumer groups.

---

<sup>21</sup> Airports Authority of India:< [http://www.aai.aero/public\\_notices/aaisite\\_test/orign.jsp](http://www.aai.aero/public_notices/aaisite_test/orign.jsp) >

<sup>22</sup> Feedback from AERA Secretary Shri Sandeep Prakash, New Delhi

### 3. Market Structure and Competition Issues

According to economic theory, market structures range from a perfectly competitive market to a monopoly. A perfectly competitive market is one where there are numerous producers selling the same product or service to a very large number of customers. Each producer supplies the good or service to a fraction of the market and hence does not have any influence on the market price.<sup>23</sup> Competition among the suppliers drives the prices down to a point where they just recover their average cost.<sup>24</sup>

On the other hand, in a monopoly there exists only one producer/service provider. The monopolist has the ability to set the price by restricting the output.<sup>25</sup> This in turn results in the consumers being worse off than in a perfectly competitive market where consumers enjoy the benefits of competition among the producers.

A market structure that falls between the two extremes - perfect competition and monopoly - is an oligopoly. In an oligopoly there are few suppliers who control a significant share of the market. Pricing in an oligopoly falls between a perfectly competitive market where the market players have no pricing power and a monopoly where a single producer can fix the highest price possible, subject to demand.

Competition in an oligopoly can lead to two outcomes. Producers can engage in 'ruinous competition,' to the detriment of all of them, or set output and prices taking into account the market conditions and the reactions of their competitors. The noncompetitive outcome of an oligopoly is cartel behavior, *i.e.*, when producers/service providers explicitly agree to coordinate their output and pricing decisions to mimic the behavior of a monopolist.

There are no civil aviation markets in the world that could be characterized as a perfectly competitive market. Generally civil aviation markets exhibit either monopolistic or oligopolistic market characteristics. The Indian civil aviation market post deregulation can be characterized as an oligopoly.

---

<sup>23</sup> Shepherd, William G. The Economics of Industrial Organization: Fourth Edition, Prentice Hall 1996: p 38.

<sup>24</sup> Ibid: p. 85

<sup>25</sup> Ibid: p. 41.

Keeping in mind the characteristics of the oligopolistic market structure, the regulator of such a market needs to engage in positive regulation that both creates a level competitive playing field and mitigates anti-competitive behavior of market participants. In order to mitigate anticompetitive behavior regulation should ensure the reduction of artificial and natural barriers to market entry, to the extent that this is practically possible. Furthermore, the regulator would need to ensure that regulation does not create artificial barriers to entry.

In order to monitor firms' behavior, assess whether or not anti-competitive behavior is taking place, the regulator needs to put in place a system that allows the agency to collect and analyze market information. Lastly, the regulator needs to install regulatory mechanisms ensuring transparency in behavior of market participants.

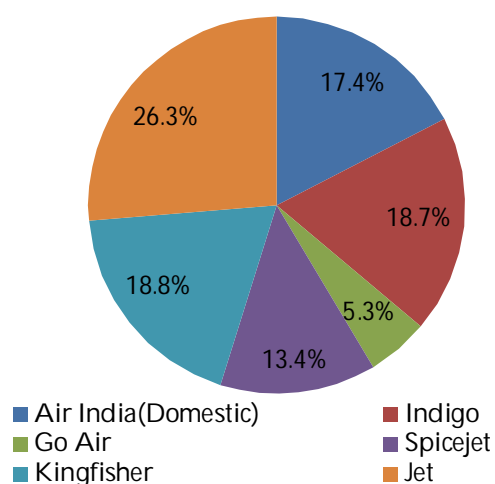
### ***India's Civil Aviation - Market Structure***

India's civil aviation sector is much younger than other modes of transportation, and its market structure has changed frequently over the last few decades. India's civil aviation sector evolved from a market tightly controlled by the government with two air carrier service providers to a relatively competitive market with a somewhat small number of domestic and international air carriers.

Some features of India's civil aviation sector include a large number of consumers (passengers and cargo), a relatively small number of airlines with significant market share, significant cost barriers to market entry, differentiated services, and competitive firms affecting each other's business decisions. These market characteristics indicate that India's civil aviation sector has an inherent oligopolistic market structure. Since within India's civil aviation sector, economies of scale and scope exist; in order for each market participant to break even, the firm must achieve a minimum efficient scale of operation.

The key characteristics of India's aviation sector are as follows:

**Figure 1: Market Share by Airlines**



Source: DGCA

1. A small number of large carriers such as Air India, Go Air, Kingfisher, IndiGo, Spice Jet, and Jet dominate this industry. Currently, India's civil aviation sector is made up of just six domestic air carriers with each maintaining a market share of at least five percent. The top four firms' concentration ratio adds up to 81.3% and the Herfindahl-Hirschman Index (HHI) stands at 1,905. A high four firm concentration ratio and HHI above the 1,800 benchmark, indicates a high degree of concentration within the industry. This type of market concentration can be defined as a tight oligopoly, where India's four firms hold more than 60% of the market share.<sup>26</sup>
2. Barriers to market entry in India's civil aviation sector include a high mortality rate within the airline business with respect to both regular and low cost private carriers. Additionally, during the gestation period, a private carrier needs adequate staying power to buy aircraft and capacity in order to absorb initial operating losses. Furthermore, to succeed, new market entrants must be able to absorb market entry costs (sunk costs<sup>27</sup> in nature) and withstand the incumbents' response to the entry of a new competitor. Other important barriers to entry include capacity and investment constraints, as well as the absence of a level playing field or

<sup>26</sup> Shepherd, William G. *The Economics of Industrial Organization: Fourth Edition*, Prentice Hall 1996: p 16.

<sup>27</sup> A sunk cost is a cost that has already been incurred and that cannot be changed by any decision made now or in future.

competitive neutrality with respect to the national carrier which impedes the private carriers' freedom to compete on a route.

3. India's civil aviation sector is a differentiated oligopoly with a few firms providing services different enough - in terms of quality, frills offered, and frequent flyer programs - for each firm to have some control over the price of their service. The strategy of each firm depends on the behavior of rival firms.



## 4. Identification of Anti-Competitive Provisions and Practices

This section of the report identifies anti-competitive provisions and practices, and lists their potential effects on competition within this sector.

S.No	Name of the law/regulation/policy/practice	Section/clause number and text	Effect	Impact
1.	Civil Aviation Requirement Section 3, Series C, Part II	<p><b><u>Section 3.2</u></b></p> <p>Before the Scheduled Operator's Permit is issued, an applicant shall have:</p> <p><u>3.2.1.</u> Paid up Capital for new applicants for which the applicant shall submit a certificate from the banker or chartered accountant to confirm the paid up capital of the company:</p> <p>(i) Airlines operating with aircraft with take-off mass equal to or exceeding 40,000 kg.</p> <p>a) up to 5 aircraft - Rs 50 crores</p> <p>b) for each addition of up to five aircraft, additional equity investment of Rs 20 crores will be required.</p> <p>(ii) Airlines operating with aircraft with take-off mass not exceeding 40,000 kg.</p>	<p>The civil aviation sector is already a capital intensive sector and so a minimum paid-up capital requirement for issuance of an operational permit results in a higher entry cost, thus limiting the number of aircraft operators present within the sector. This particular barrier to entry is an important reason for the presence of few firms in the civil aviation sector.</p> <p>The minimum five aircraft fleet requirement to start carrier operations indirectly results in the entry of only big corporate firms into this sector. The fleet requirement is a major deterrent to entry, because it imposes an additional cost that is unrecoverable, reducing the number of new market entrants, thus reducing the possibility of a larger number of market participants within the industry.</p>	<p>Limits the number or range of suppliers.</p> <p>Limit ability of the supplier to compete.</p> <p>Reduces incentive of suppliers to compete.</p>

		<p>a) up to 5 aircraft - Rs 20 crores</p> <p>b) for each addition of up to five aircraft, additional equity investment of Rs 10 crores will be required.</p> <p><u>3.2.3</u> A fleet of minimum five aeroplanes or five multi-engine helicopters either by outright purchase or through lease.</p>		
2.	Civil Aviation Requirement Section 3, Series C, Part III	<p><b><u>Section 4.2</u></b></p> <p>An applicant for the grant of a non-scheduled<sup>28</sup> operator's permit shall:</p> <p>a) be in possession of at least one aircraft, either by outright purchase or on lease (without crew), which shall be registered in India and shall have a valid Certificate of Airworthiness<sup>29</sup> in Normal Passenger Category.</p> <p>b) have a minimum Paid Up Capital as given below:</p> <p>Fleet Strength Minimum Paid Up</p>	<p>By requiring paid-up capital, this regulation creates a financial entry barrier for new entrants into the non-scheduled air transport sector, thus reducing the number of non-scheduled air transport service providers.</p>	<p>Limits the number or range of suppliers.</p> <p>Limit ability of the supplier to compete.</p> <p>Reduces incentive of suppliers to compete.</p>

<sup>28</sup>Non-scheduled air transport services are those where time schedules are not published and passenger tickets are not issued

<sup>29</sup>Directorate General of Civil Aviation website <<http://dgca.nic.in/rules/car-ind.htm>>

		<p>Capital (Rs. in Crores)</p> <p>(i) Up to 2 aeroplanes/helicopters - 2.00</p> <p>(ii) Between 3 and 5 aeroplanes/helicopters - 5.00</p> <p>(iii) Between 6 and 10 aeroplanes/helicopters - 10.00</p> <p>(iv) Above 10 aeroplanes/helicopters - 15.00</p>		
3.	Aeronautical Information Circulars No. 08 of 2009	<p><b><u>Section 2.1</u></b></p> <p>Any Indian air transport undertaking shall be eligible to apply for operation of international scheduled air transport services, if it is in possession of:</p> <p>(i) a valid permit for operation of scheduled air transport services</p> <p>(ii) a minimum of five years' experience of continuous operation of domestic scheduled air transport services and</p> <p>(iii) at least twenty aircraft in its fleet</p>	<p>These requirements create barriers to entry for domestic operators that wish to expand their carrier services into international air transport arena. Fleet size requirements incur a large start-up capital cost. Domestic operators are worse off because while their entry is restricted due to these eligibility conditions, the scope of foreign operators' services to and from India has been steadily expanding.</p> <p>This policy works as a barrier to entry for small domestic operators who wish to provide carrier services internationally and biases the market towards big airlines which already have economies of scale. Furthermore, this rule incentivizes mergers</p>	<p>Limits the number or range of suppliers.</p> <p>Limit ability of the supplier to compete.</p> <p>Reduces incentive of suppliers to compete.</p>

			and acquisitions of small air carrier service providers by relatively large operators which creates a relatively small number of market participants and eventually impedes competition.	
4.	Aeronautical Information Circulars No. 08 of 2009	<p><b><u>Section 3.6</u></b></p> <p>Due consideration shall be given to the operational plans submitted by National Aviation Company of India Ltd (NACIL is the national carrier formed by Air India-Indian Airlines merger) before allocation of the traffic rights to other eligible applicants.</p>	<p>This rule gives preferential treatment to Air India under certain circumstances by refusing permission to other eligible operators to fly internationally to a place where Air India is a well established service provider. Such preferential treatment may reduce Air India's overall losses, but the rule creates a two tier system of allocation of international traffic rights; with preferential consideration of Air India followed by consideration of private carriers. Application of this rule potentially gives unfair competitive advantage to Air India while operating on a specific international route, which limits carrier options available to the consumer.</p>	Limit ability of the supplier to compete.

5.	Government of India Order No. AV 11012/2/94-A	<p>The operator will deploy on routes in category - II at least 10% of the capacity he deploys on routes in category - I and of the capacity thus required to be deployed on Category - II routes, at least 10% would be deployed on services or segments thereof operated exclusively within the North-Eastern region, Jammu &amp; Kashmir, Andaman &amp; Nicobar and Lakshadweep.</p> <p>The operator will deploy on routes in Category - III, at least 50% of the capacity he deploys on routes in Category - I.</p>	<p>This route dispersal guideline limits the operators' ability to choose routes where carriers can capture the most rents from service, as they are required by this government order to operate in regions which may not be economically viable.</p> <p>The volume of traffic to Category II and III routes is smaller than to popular destinations in Category I. Operating a large aircraft to service relatively unpopular and small routes is economically inefficient, while acquiring smaller aircraft just for these routes would imply a higher capital cost of entry into the civil aviation market.</p> <p>Additionally, new entrants who want to provide air carrier services only on these small regional routes would need to compete with large established firms that are obligated by law to provide services on these routes, thus creating further barriers to market entry for small regional air carriers.</p>	<p>Limits the number or range of suppliers.</p> <p>Limit ability of the supplier to compete.</p> <p>Reduces incentive of suppliers to compete.</p>
----	---	---	--	--

6.	Government of India Order No. AV 11012/2/94-A	A service operated on a category - I route as a part of international air service will not be reckoned for the above purpose.	This rule provides incentives for existing Indian international air carrier service providers to count Category I routes - in cases when there is a stopover of an international flight in one Indian city before proceeding to a final Indian destination - as part of their international operation, thus reducing the carrier's overall responsibility in servicing Category II and III routes. This puts exclusively domestic Indian air carrier service providers at a competitive disadvantage as they cannot avoid servicing the other two categories of destinations based on the entire volume of Category I routes, in the same way as their international Indian air carrier competitors.	Limit ability of the supplier to compete.
7.	Air Corporation Act 1953	<b>Section 10</b> (1) All non - recurring expenditure incurred by the Central Government for, or in connection with, each of the Corporations up to the date of establishment of that Corporation and declared to be capital	Air India, India's national airline, has less incentive to compete as it gets preferential treatment from the Indian government.  Air India has an unfair competitive advantage over private carriers, since	Reduces incentive of suppliers to compete.

		<p>expenditure by that Government, shall be treated as capital provided by the Central Government to that Corporation.</p> <p>(2) The Central Government may provide any further capital that may be required by either of Corporations for the carrying on the business of the Corporation or for any purpose connected</p> <p>Therewith on such terms and conditions as the Central Government may determine.</p>	<p>private carriers do not enjoy the same kind of government support, thus they are unable to compete with Air India on equal terms.</p> <p>Given the comparatively large size of India's public carrier combined with preferential treatment dispensed by the government, the carrier has no incentive to become leaner and more efficient in order to compete with private carriers.</p>	
8.	<p>Procedure Manual Directorate of Information and Regulation - 2010 (in accordance with IATA world slot allocation guidelines Edition)</p>	<p><b>Chapter 8</b> _(Procedure Manual Directorate of Information and Regulation 2010)</p> <p><b>Section 7.1.1 parts e, f, g</b>(IATA guidelines)</p>	<p>India's use of the 'grandfather' rule to distribute airport slots to incumbent and new air carriers creates a barrier to entry for new carriers. Use of the 'use it or lose it' rule post-merger of two carriers inhibits the ability of incumbent and new carriers to compete with the merged entity.</p>	<p>Limits the number or range of suppliers.</p> <p>Reduces incentive of suppliers to compete.</p>
9.	<p>The Civil Aviation Requirements (CAR), Air Transport,</p>	<p><b>Section 4</b> 4.1.5 Foreign equity in air transportation services is permitted up to 49%. Non Resident Indian (NRI) / Person</p>	<p>Inflow of both investment and technology is crucial for development of civil aviation in India.</p>	<p>Investment issue</p>

	Series C, Part II	of Indian Origin (PIO) is permitted to invest up to 100% in domestic air transport services	Foreign direct investment (FDI) policy in terms of exclusion of foreign investment adversely affects development of the sector.	
10.	Non-enforcement of the Materials Management Manual-2005	<b>Section 10.10.5.1</b> Adequate notice should be given for sale of tenders. Likewise, sufficient time should also be given to the tenderers to submit their bids after the date of sale of tenders is closed. Ordinarily period of sale of tender should not be less than three weeks. However, in case of exigencies, this period can be reduced as per discretion of authority competent to award	From the tenders for goods and services awarded details as seen in the AAI website; some tenders appear to have been issued for a period of just a day, with others for periods less than three weeks - a minimum period required by the Materials Management Manual. Short duration to apply for a tender reduces the number of applicants leading to decreased competition.  Additionally, tender rules for providing different goods and services to the AAI require a minimum amount of experience working with other transportation agencies, which indirectly creates a list of preferred contractors.	Limits the number or range of suppliers.
11.	State and Central Government Fuel Taxes	Excise Duty, Sales Tax levied by the state governments (varying between 4 and 30%)	Aviation turbine fuel (ATF) is excessively priced and taxed has adversely impacted the health of India's civil aviation sector.	Limits the number or range of suppliers.  Limit ability of the supplier to compete.



		<b><u>Section 2.3 Other Material Investments</u></b>		
13.	Operation, Management and Development Agreement between the Airports Authority of India and Delhi International Airport Private Limited	Right of First Refusal	The 'right of first refusal' gives priority to a private airport developer to engage, design, construct, finance, operate, manage, develop or maintain a second airport within a certain distance from the Brownfield airport. <sup>30</sup> This rule gives first priority to an airport developer already vested in one airport to develop and run another airport within a specified distance from the already operational airport, creating a regional monopoly on airport operation and development. <sup>31</sup>	<p>Limits the number or range of suppliers.</p> <p>Reduces incentive of suppliers to compete.</p> <p>Limit ability of the supplier to compete.</p>

<sup>30</sup> Operation, Management and Development Agreement between the Airports Authority of India and Delhi International Airport Private Limited <[http://www.aai.aero/righttoinformation/OMDA\\_DIAL.pdf](http://www.aai.aero/righttoinformation/OMDA_DIAL.pdf)>

<sup>31</sup> Operation, Management and Development Agreement between the Airports Authority of India and Delhi International Airport Private Limited <[http://www.aai.aero/righttoinformation/OMDA\\_DIAL.pdf](http://www.aai.aero/righttoinformation/OMDA_DIAL.pdf)>

## 5. Analysis of the Identified Issues

In this section, competition impeding issues are discussed in depth. In addition, these rules and regulations are compared with those in the United States, the United Kingdom, and the European Union. As a developing economy, India's civil aviation sector may benefit from positive and negative regulatory experiences of these countries' large developed civil aviation sectors - 'standing on the shoulders of giants' to craft and reform the country's civil aviation sector in order to encourage growth and competition. Furthermore, in order to compare and contrast India's civil aviation sector with a developing country's path to industry liberalization and growth, this report uses the deregulation experience of Brazil's civil aviation sector, whenever applicable.

### 5.1 Fleet and Equity Requirements

#### 5.1.1 Fleet and Equity Requirements for Domestic Passenger Air Service:

##### A. Regulation

India's Civil Aviation Requirement (CAR) Section 3, Part II and III mandates that a scheduled service operator that applies to provide services using aircraft with a takeoff mass of 40,000 kg or more must purchase or lease a minimum of five aircraft with start-up equity requirement of Rs 50 crore. Additionally, as an airline's fleet grows in increments of up to five planes, equity requirements grow by Rs 20 crore. With regards to aircraft with take-off mass of less than 40,000 kg, the start-up fleet minimum remains at five aircraft - purchased or leased - with the minimum equity requirement starting at Rs 20 crore and growing by Rs 10 crore with every five additional aircraft.<sup>32</sup>

For non-scheduled operators, the fleet requirements as stated in Civil Aviation Requirement Section 3, Series C, Part III Section 4.2 are minimal - requires possession of just one aircraft - there exist equity requirements based on the number of aircraft owned or leased by the operator, which create an additional financial barrier to entry.

##### B. Impact on Competition

Given that the cost of entry into the civil aviation sector is naturally high (even in the absence of fleet and equity requirements), these regulations unnecessarily raise barriers to entry. Therefore, fleet and equity requirements instituted by these regulations limit not only the number of new market

---

<sup>32</sup>Civil Aviation Requirement Section 3, Series C, Part II - Sections 3.2.1 and 3.2.3

entrants, but also the size of firms that enter, as they should possess enough capital to fulfill these requirements.

Incumbent market participants are cognizant of these barriers, thus their business decisions take into account a reduced chance of new market competitors that may potentially enter and reduce the incumbent carriers' market share. Since all market participants will likely come to similar conclusions, incumbent market participants will feel no urgency to change their prices, services and business models. In the case of India's civil aviation sector, there are relatively few market participants, who are fairly large service providers and are generally familiar with their competitors' strategies, tactics and pricing. Without new and unfamiliar competitors entering the market, there exists no incentive to change the way these established airlines operate and therefore, customer service and choice are adversely affected.

### C. Comparison-International and Cargo Regulations in India

In countries like Australia, the European Union and the United States, the fleet requirement is minimal (one aircraft) and equity requirements do not exist; rather financial viability of the potential entrant is taken into consideration.<sup>33</sup> For example, the US Federal Aviation Administration (FAA) requires financial information regarding assets and liabilities, ongoing litigation, insurance policy information, as well as a six month plan of operation<sup>34</sup> from applicants for the Air Carrier Certificate.<sup>35</sup> Similarly, both Australia and EU require no fixed paid-up capital; potential market entrants must only provide information on the firms' financial background.

These international regulations are similar to India's operational requirements for cargo air carriers. An Indian company that wants to engage in providing air cargo carrier services needs a minimum of one plane - leased or purchased - and has to submit details of proposed operations, a project feasibility report, proposed financial structure, proof that the applicant firm can run air cargo services on a sustained basis, and a timeline of the firm's proposed realization of various stages of the project. The Civil Aviation Requirement Section 3, Series C, Part IV, states that barriers to entry for cargo air carrier services have been removed.

According to AERA's assessment of the size of India's civil aviation sector, the minimum fleet requirements were introduced to ensure that only viable carriers enter the market; competition

---

<sup>33</sup> The Annexure gives details of the civil aviation regulations of these countries

<sup>34</sup>Doc. No. 28154, 62 FR 13254, Mar. 19, 1997; 62 FR 15570, Apr. 1, 1997

<sup>35</sup> This Air Carrier Certificate legally permits a company or individual to operate an aircraft in the US

within the sector was not a priority at that time.<sup>36</sup> However, there are instances in other countries where a viable airline started its operation with a single aircraft.

### Case Study: Ryanair

#### **History**

Ryanair started its operations in 1985 with the Ryan family's share capital of just £1 and 25 staff and one 15 seater aircraft carrying people from Waterford in the southeast of Ireland to London Gatwick. In its first year Ryanair carried 5000 passengers on one route that the company serviced. In 1986, with just a year of experience, Ryanair competed with British Airways and Aer Lingus' high on the Dublin-London route by introducing two 46-seater turbo prop aircrafts in this route and offering lower fares. This started the first fare war in Europe.

Today, Ryanair operates more than 1,400 flights per day from 44 bases and 1100+ low fare routes across 27 countries, connecting 160 destinations. Ryanair operates a fleet of 250 new Boeing 737-800 aircraft and employs over 8,000 people and expects to carry approximately 73.5 million passengers this fiscal year.

#### **Strategy**

Ryanair's a low cost carrier business strategy, based on United States' Southwest airlines low cost model, allowed the firm to maintain a profit margin via reduced operating costs. Ryanair began operations using a fleet of one type of aircraft which allowed for economies of scale in scheduling and training crews, maintenance, and stocking of spare parts. Currently, the company is diversifying its fleet by introducing new aircraft.

Ryanair also uses point to point secondary airports for its services. Secondary airports offer lower landing and gate fees than larger traditional airports. Since secondary airports tend to be less congested, this allows for a greater turnaround and aircraft utilization time. The company gives special focus to on-time departure because it means maximizing aircraft utilization. Furthermore, secondary airports welcomed the business brought by Ryanair, which the airline used to negotiate favourable access fees, thus reducing operating costs further.

#### **Success**

Ryanair's success story lies not in its capital or fleet strength but its understanding that consumers desire fast and inexpensive transportation. Thus, Ryanair transformed the industry business model by offering —no frills services to consumers.

In conclusion, Ryanair created a strategy that drastically differed from established market players such as British Airways, Lufthansa and Air France, which infused fresh competition into the European civil aviation sector.

*Sources: Ryanair Website, Ryanair Case Study Analysis, 19 February 2008 and Ryanair Market Buster" by Manpreet Dhalla*

<sup>36</sup> Meeting with AERA Secretary Shri Sandeep Prakash, AERA Offices, New Delhi, 4 November 2011

#### D. Recommendation

While minimum fleet and equity requirements, with respect to air carrier service providers are one way of assessing the firms' viability in the market, we suggest an alternative approach. Instead of fleet and equity requirements, new and incumbent air carrier service providers can submit financial information which establishes their financial viability and illustrates how they plan on succeeding within the civil aviation sector. Financial disclosures of potential airlines should demonstrate the new entrant's knowledge of India's aviation sector's dynamics and adequate liquidity to cover aviation business startup and initial operational costs.

As in the United States', UK Europe, Australia in order to demonstrate viability potential air carriers in India should disclose assets, liabilities, past and ongoing litigation, and operational insurance. Furthermore, new market entrants should also submit a concrete six month or yearlong business plan detailing how the firm plans to finance its operational expenses. Lastly, India's cargo sector regulations can serve as a model for reduction of artificial barriers to entry in the industry.

#### 5.1.2 Fleet, Equity and Experience Requirements for International Air Transport

##### A. Regulation

According to the Aeronautical Information Circulars No. 08 of 2009, a domestic carrier that wishes to start international air carrier service must fulfill the following conditions: possess a valid permit of operation, lease or purchase at least 20 aircraft and have at least five years domestic scheduled transport experience.

##### B. Impact on Competition

Such fleet, equity and experience requirements deter entry and thereby reduce consumer choice of international passenger air carriers. For example, from 2004 to 2010 the Indian government raised capacity entitlements for international carriers four-fold; however, Indian carriers were unable to take advantage of this increase, because these carriers did not have enough planes - as required by Civil Aviation Requirements (CAR) - while foreign carriers such as Emirates benefited from this policy tremendously.<sup>37</sup>

---

<sup>37</sup> Sanjai, P.R. — India to talk to 40 countries on bilateral air service pacts| Live Mint 7 October 2011  
<<http://www.livemint.com/2011/10/07000747/India-to-talk-to-40-countries.html>>

Consumers choose from a limited number of passenger air carriers and if they find their current airline service provider unsatisfactory, their choice of another service provider is constrained by the relatively small number of carriers. For example, currently, a passenger who wishes to fly directly to Paris chooses from two international carriers: Air India and Air France. Jet Air has thus far unsuccessfully sought flying rights to Paris from the Indian government.<sup>38</sup> Furthermore, due to prevailing market conditions, these incumbents have lower incentive - than their domestic counterparts in other countries - to significantly change their operations in order to maintain their customer base as well as attract new customers.

Furthermore, the Open Sky policy allows foreign airlines into India as long as they abide by Indian safety regulations and are licensed by their home country, which may not require minimum 20 aircraft fleet size and five years operational experience. In effect, this policy creates a two-tier competitive environment for international carriers - foreign and Indian - putting Indian domestic carriers that want to provide international services at a disadvantage.

#### C. International Comparison

In Australia, the United States, and the European Union, a carrier needs to show financial viability and operational income to implement the firm's business plan; no explicit equity or fleet requirement exists. For example, in order to provide international air carrier service, a US carrier must only comply with the air traffic rules of the foreign country, the pertinent U.S. airports' rules, and other regulations related to safety and environment.<sup>39</sup> EU regulations<sup>40</sup> require an operational history of only two years.<sup>41</sup>

#### D. Recommendation

The current state of the civil aviation sector in India indicates that air traffic has increased considerably in the past few years and removing historic barriers to entry would infuse competition into the sector and expand the provision of air carrier services as recommended by Naresh Chandra in his "Competition Issues in Civil Aviation sector" report.<sup>42</sup> Therefore, the regulator may want to consider removing fleet, equity and experience requirements for international carrier service providers. Specifically, equity requirements should be replaced by requirements for carrier service

---

<sup>38</sup> Ibid.

<sup>39</sup> Doc. No. 28154, 62 FR 13254, Mar. 19, 1997; 62 FR 15570, Apr. 1, 1997

<sup>40</sup> 24 September 2008 Regulation (EC) 1008/2008 of the European Parliament and of the Council

<sup>41</sup> See Annexure 1 for details

<sup>42</sup> —Report Of The Committee On A Road Map For The Civil Aviation Sector, Ministry of Civil Aviation, Government of India, 30<sup>th</sup> of November 2003

providers to demonstrate financial viability, using India's cargo service sector as well as international practices as models of reform.

## **5.2 Route Dispersal Guidelines**

### **A. Regulation**

Government of India Order No. AV 11012/2/94-A regulates how a carrier service provider allocates his fleet to various parts of the country. This regulation divides civil aviation routes into three categories. Category I includes the popular and extensively serviced routes - large Indian city hubs. Categories II and III tend to be remote, relatively small and unpopular service routes.<sup>43</sup> This regulation intends to ensure adequate service to all domestic Indian destinations by compelling Indian airlines to fly there.

### **B. Impact on Competition**

While this regulation may serve a social need, economically it results in losses for India's domestic airlines, since they must allocate their scarce resource, aircraft, to service routes that experience light passenger traffic.<sup>44</sup> Air carriers flying to these regions may not be able to recover the cost of operation. This redistribution implies that airlines may need to take planes away from routes where sizable passenger demand exists. This adversely impacts the entry of potential carriers, and their ability to compete and respond to prevailing demand for air transport.

Furthermore, this rule also creates a disincentive to further expand an airline's fleet and service, as investment in new equipment and additional flights may not earn a competitive rate of return due to the route dispersal guideline. Thus this formula that sets out standards for compulsory service to underserved destinations reduces the competitive drive of incumbent airlines. Before entering the market, potential air carrier service providers must consider the effect of this loss due to government re-allocation of air carrier service on their viability as a service provider. Therefore, this regulation indirectly limits the number of new market entrants to those capable of absorbing this loss and staying in business. This rule indirectly skews the market towards entrance of large firms possessing more resources.

---

<sup>43</sup> Category I includes comparatively popular and high density routes: Mumbai-Bangalore, Kolkata-Delhi, Delhi-Mumbai, Kolkata-Bangalore, Mumbai-Delhi, Kolkata-Chennai, Mumbai-Hyderabad, Delhi-Bangalore, Mumbai -Chennai, Delhi-Hyderabad, Mumbai -Trivandrum, Delhi-Chennai. Category II routes connect stations in the North-Eastern region: Jammu and Kashmir, Andaman and Nicobar, and Lakshadweep. Category III includes all smaller cities that are not listed in categories I and II.

<sup>44</sup> Shah, Nancy —Competition Issues in the Civil Aviation Sector| Competition Commission of India July 2007  
<[http://www.cci.gov.in/images/media/ResearchReports/F1\\_NancyShah\\_20080411102237.pdf](http://www.cci.gov.in/images/media/ResearchReports/F1_NancyShah_20080411102237.pdf)>

Lastly, this rule also indirectly gives Indian international carriers an unfair competitive advantage in the domestic market. Indian international airlines such as Air India, Jet Airways, IndiGo and Kingfisher provide both international and domestic service. International flights operated by Indian firms connect in many hubs of India. These kinds of flights originating in a foreign destination, connecting in a Category I hub in India and moving on to another Indian city or vice versa are categorized as entirely international flights. However, local legs - for example a flight leaving from Chennai stopping over in Delhi and continuing on to Frankfurt - do not necessarily have entire planes full of international passengers. Counting the entire trip as an international flight lowers an Indian international carrier's volume of traffic to Category I, thus also lowering the carrier's responsibility - in terms of volume - to service Category II and III routes.

### C. International Comparison

#### i. *United States*

The United States stands as a good example of a civil aviation sector functioning under regulation, followed by de-regulation and market re-alignment. Prior to 1978, the US Civil Aeronautics Board assigned air routes as well as determined which new air carriers gained entry into the civil aviation market. After the Board's dismantling which led to the elimination of market entry barriers, the United States civil aviation sector underwent a market-based re-structuring, where unpopular routes were abandoned by large air carriers, but were picked up by new and smaller regionally based carriers.

To guarantee that all small and rural airports get a minimal level of scheduled service from certified air carriers, the Air Deregulation Act of 1978, created the —Essential Air Service Program,<sup>45</sup> which is currently funded by the United States Congress through budget appropriations of the Federal Aviation Authority.<sup>46</sup> Currently, the United States Federal Aviation Authority, which is part of the Department of Transportation, subsidizes commuter airlines which provide carrier services to approximately 140 rural destinations, which otherwise would not receive any scheduled air carrier services.<sup>47</sup> The United States civil aviation market realignment together with subsidies from the

---

<sup>45</sup> —Essential Air Service: Changes in Subsidy Levels, Air Carrier Costs, and Passenger Traffic | United States General Accounting Office (GAO) April 2000: p5. < [http://ostpxweb.dot.gov/aviation/x-50%20role\\_files/GAO%20EAS.pdf](http://ostpxweb.dot.gov/aviation/x-50%20role_files/GAO%20EAS.pdf)>

<sup>46</sup> To keep up with rising subsidy costs, Congress passed the Rural Service Survival Act of 1996, which instructed the EAS program to be funded from fees assessed on international aircraft flying over but not landing or taking off in the United States. However, none of these —overflight fees! were collected due to a successful challenge of the fees' legality by foreign airlines in US courts. (Source: GAO, please see above citation)

<sup>47</sup> —Essential Air Service Program | US Department of Transportation: Office of Aviation Analysis 19 July 2010 <[http://ostpxweb.dot.gov/aviation/x-50%20role\\_files/essentialairservice.htm](http://ostpxweb.dot.gov/aviation/x-50%20role_files/essentialairservice.htm)>



—Essential Air Service Program<sup>l</sup> resulted in geographic coverage of the entire country without the government's need to assign specific routes.

*ii. European Union*

The UK and European Union also have regulations that provide incentives for carriers to service routes that the government believes to be underserved. The government can designate a route as a Public Service Obligation (PSO) route. Designating a route as a PSO will help the regional authorities and airport to attract an airline which will agree to provide adequate service to the region in exchange for a negotiated package of operational and financial incentives. Public Service Obligation (PSO) legislation<sup>48</sup> is used by EU member states to enable carrier service on routes which cannot sustain commercial air service on their own.

To receive the PSO designation, the route must satisfy the following conditions: the route must be located in a 'peripheral region', 'development region' or 'thin route to any regional airport', and it must be 'vital to economic development of the region.' Furthermore, the imposition of the PSO must ensure 'adequate' provision of scheduled services taking into consideration: the public interest, other forms of transport, air fares and conditions, and the combined effect of all airlines operating or intending to operate on the route.

When no airline is attracted to this PSO-designated route, a European Member State may also offer incentives in the form of an open public tender to operate carrier services. A contract resulting from a successful bid would outline minimum service requirements, fares, a possible subsidy from the Member State which would take into account cost and revenue generated by this service. Furthermore, the Member State may limit access on the PSO route to one airline for a period of up to three years.<sup>49</sup>

The Member State also has the right to ring-fence slots at airports on the PSO route, to prevent the chosen carrier from using slots from a PSO route to service alternative destinations, thus abusing its position of power. For example, designating the London - Inverness (and Highlands and Islands) route as a PSO increased passenger traffic to and from London and made it easier for passengers from Inverness to both connect to London and travel to other destinations beyond. Before the PSO

---

<sup>48</sup> Council Regulation (EEC) No. 2408/92 of 23 July 1992 on access for Community air carriers to intra-Community air routes. Regulation (EC) No. 1008/2008 of the European Parliament and of the Council of 24 September 2008.

<sup>49</sup> Ibid.

designation and regular carrier service, a minimum eight hour train ride was the only travel option open to Inverness passengers.<sup>50</sup>

The European Union also allows airport operators to tap into the Route Development Fund - funded by regional bodies - which can be used to provide incentives to carriers to initiate new routes in the form of package discounts on airport charges and marketing support. To gain access to the Route Development Fund the operator must show that these services will be beneficial to the region's overall economic development by encouraging inbound tourism or new business.<sup>51</sup>

### *iii. Brazil*

Lastly, Brazil's civil aviation de-regulation and development presents a good example of how a developing nation used liberalization policies to develop its civil aviation sector. The early nineties brought about continuous liberalization of Brazil's civil aviation sector. Brazil looked at other countries' air transport markets and recognized the fact that the civil aviation regulation in place hindered the development of a competitive market and prevented air carriers and airports from supplying services efficiently.<sup>52</sup> Brazil's Ruling 340/GM5 of 1 June 1991 created new rules for establishment, approval, modification and cancellation of regular domestic routes.<sup>53</sup> Law 11.182/2005 further freed the domestic air carrier service sector, granting the right to providers —to explore any routes upon prior registration at Agencia Nacional de Aviacao (Brazil's Civil Aviation Authority) or ANAC, exclusively observing the operational capacity of each airport and rules on adequate services provision issued by ANAC.<sup>54</sup> ANAC follows the following criteria with regards to allowing an airline operate an existing route or create a new route: properness and convenience of the route and time, productivity rates, punctuality and regularity of the air carrier in domestic and international operations, market concentration index, and economic feasibility.<sup>55</sup>

The second set of reforms with respect to route distribution in Brazil, allowed market participants to take over the distribution and creation of new routes with ANAC as a government partner which

---

<sup>50</sup> —CAP 754: UK Regional Air Services: A Study by the Civil Aviation Authority| Civil Aviation Authority 24 February 2005 <<http://www.caa.co.uk/docs/33/CAP754.PDF>>

<sup>51</sup>—Guidelines on the application of Articles 92 and 93 of the EC Treaty and Article 61 of the EEA Agreement to State aids in the aviation sector| European Regions Airline Association < <http://www.eraa.org/issues/government-affairs/629-state-aid-for-airport-financing-and-route-start-up-aid-to-airlines>>

<sup>52</sup> —Regulatory Performance Report 2008| ANAC: AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL(Brazil's Civil Aviation Authority) < [http://www2.anac.gov.br/portal/templates/htm/Portal/arq/relatorio\\_anac\\_ing.pdf](http://www2.anac.gov.br/portal/templates/htm/Portal/arq/relatorio_anac_ing.pdf)>

<sup>53</sup> Salgado, Lucia H. , —The Regulation of the Airline Industry in Brazil| American Law & Economics Association Annual Meetings, Berkley Electronic Press 2005

<sup>54</sup> —Regulatory Performance Report 2008| ANAC: AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL(Brazil's Civil Aviation Authority) < [http://www2.anac.gov.br/portal/templates/htm/Portal/arq/relatorio\\_anac\\_ing.pdf](http://www2.anac.gov.br/portal/templates/htm/Portal/arq/relatorio_anac_ing.pdf)>

<sup>55</sup> Ibid.

oversees the feasibility and safety of route expansion. This liberalization of access to routes in Brazil by the Government of Brazil led to the expansion of the ability of incumbent and new air carriers to compete due to the new freedom to choose from existing routes or working with ANAC to develop new routes, thereby using their available fleet to maximize return on their capital investment. This new freedom resulted in the expansion of Brazil's civil aviation market, increase in competition between air carriers, passenger and cargo choice, and consumer welfare.<sup>56</sup> Furthermore, it is important to note that Brazil's civil aviation sector exhibited significantly faster growth than the nation's entire economy.<sup>57</sup>

#### D. Recommendation

Consider phasing out compulsory government regulated route dispersal and put out a call for input from stakeholders for different incentive programs that will help create more air carrier traffic to smaller airports. Recently, the AAI considered a number of proposals for such incentive programs from air carriers.<sup>58</sup> Input from India's civil aviation stakeholders can generate an alternative solution on how to ensure service to all of India's operational and future airports.

Furthermore, the United States' experience of deregulation in 1978 can serve as a model of how all routes received adequate service with limited government involvement. The —Essential Air Service Program provides subsidies to air carrier service providers that agree to fly to underserved airports. However, government subsidies are expensive solutions. Economic theory states that once instituted subsidies tend to weaken the subsidized market participants' incentive to cut costs and are difficult to eliminate, because those benefitting from government subsidies would lobby against elimination of those sources of income.<sup>59</sup>

Another model to consider is the European Union, which also provides incentives to attract carriers to routes to underserved airports. While the United States' —Essential Air Service Program does not limit the time which the carrier will benefit from incentives to fly to underserved destinations, the European Union Public Service Obligation regulation limits the time that incentives will be

---

<sup>56</sup> Consumer welfare refers to the individual benefits derived from the consumption of goods and services. In theory, individual welfare is defined by an individual's own assessment of his/her satisfaction, given prices and income. Exact measurement of consumer welfare therefore requires information about individual preferences. (Source: OECD Glossary of Statistical Terms).

<sup>57</sup> Salgado, Lucia H. , —The Regulation of the Airline Industry in Brazil American Law & Economics Association Annual Meetings, Berkley Electronic Press 2005

<sup>58</sup> Das, Dabrata —Regional Routes: the next big thing?|[The Hindu](#) 18 September 2011

<<http://www.thehindubusinessline.com/industry-and-economy/logistics/article2465324.ece>>

<sup>59</sup> Shepherd, William G. [The Economics of Industrial Organization: Fourth Edition](#), Prentice Hall 1996: p 416.

provided to a participating carrier. Conversely, Indian route dispersal regulation does not provide significant incentives to Indian carriers to fly to underserved areas of India.

The Indian government may wish consider incentives beyond reductions of airport fees of underserved airports,<sup>60</sup> e.g., such as providing limited route service subsidies. This can have significant positive social impacts, such as creating economic opportunities for people living in underserved regions and improvements in connectivity between rural airports and Indian hubs. While addressing a social need, limiting the duration of the subsidies will help limit the expense by the government.

### **5.3 Slot Allocation**

#### **A. Regulation**

In India, AAI and DGCA allot slots in accordance with the IATA worldwide slot guidelines.<sup>61</sup> According to the IATA principles of slot allotment 7.1.1 Sections e and f, an incumbent airline is entitled to retain a group of slots based on historic precedence, if the slots in question have been allocated by the slot coordinator to a passenger air carrier and have been utilized at least 80% of the time in the preceding season.<sup>62</sup> Furthermore, Section g states that slots may not be withdrawn from a carrier in order to accommodate new entrants.<sup>63</sup> From the pool of available slots, new entrants have access to only 50% of the slots.<sup>64,65</sup> This is termed as —grandfatherl type of allocation of slots.

Furthermore, in accordance with IATA guidelines, when airlines merge, the AAI applies the ‘use it or lose it’ rule which allows a merged entity to retain access to all infrastructure, including slots, controlled by the airlines prior to the merger.<sup>66</sup>

#### **B. Impact on Competition**

These rules create barriers to entry for new entrants, thus limiting the number and range of air carrier service providers. By keeping all allotted pre-merger slots, a newly merged carrier has time to

---

<sup>60</sup> AAI Materials Management Manual - 2005

<[http://www.aai.aero/righttoinformation/MATERIALS\\_MANAGEMENT\\_MANUAL.pdf](http://www.aai.aero/righttoinformation/MATERIALS_MANAGEMENT_MANUAL.pdf)>

<sup>61</sup>— IATA Worldwide Slot Guidelines| [IATA August 2011](http://80.168.119.219/UserFiles/File/w-slot-g.pdf) < <http://80.168.119.219/UserFiles/File/w-slot-g.pdf> >

<sup>62</sup> As per IATA regulation, in a year, there are two seasons of 6 months each for slot utilization—summer season and winter season. This guideline is abided in India. (Source: Procedure Manual Directorate of Regulations & Information, Government of India Office of the Director General of Civil Aviation, p 10)

<sup>63</sup> IATA Worldwide Slot Guidelines| [IATA August 2011](http://80.168.119.219/UserFiles/File/w-slot-g.pdf) < <http://80.168.119.219/UserFiles/File/w-slot-g.pdf> >

<sup>64</sup> Ibid.

<sup>65</sup> Slots used less than 80% of the times in a season - winter or summer - are categorized as underutilized.

<sup>66</sup> Report of the Sub-Group on Infrastructure Development for Civil Aviation [for formulation of 11<sup>th</sup> Five Year Plan], p 71

capture a greater share of the aviation market at the expense of other incumbent carriers and new entrants.<sup>67</sup>

Slot allocation regulations also limit the ability of suppliers to compete. Application of the ‘grandfather’ rule limits the ability of new carriers to compete for slots at different Indian airports. Underutilized slots only free up every six months. Furthermore, slots that are utilized 80% or more during an assignment season by a carrier are controlled by that carrier service provider the following season. Slots that meet utilization requirements tend to bring high revenue and as a result of the ‘grandfather’ rule are not available to new carriers, thus limiting the new air carriers’ ability to compete on lucrative routes and maximize new carriers’ return on investment.

In the ‘Competition and Regulatory Deficit Civil Aviation Sector in India’ report, the author points to the ‘use it or lose it’ rule application - at times of mergers and acquisitions of India’s domestic airlines - as another competition impeding slot allocation procedure.<sup>68</sup> Application of the ‘use it or lose it’ rule following a merger of two air carriers limits the ability of other carriers to compete with the merged carrier. While this ‘use it or lose it’ rule is not inherently anti-competitive, the application of this rule at the time of mergers and acquisitions of Indian airlines restricts the supply of slots for all carriers.<sup>69</sup>

More specifically, according to the ‘use it or lose it’ rule, post-merger slots of both merging companies stay with the merged entity and slots are only returned to the unallocated slot pool if the merged airline fails to utilize individual slots. Underutilized slots tend to be at odd times and not peak hours. Since the number of slots controlled by an air carrier is positively correlated with market power, the merged air carrier can potentially increase its market power since the firm controls all slots of the previously independent carriers, thus giving the merged air carrier an unfair competitive advantage over other air carriers.<sup>70</sup> Therefore, airline mergers create an artificial scarcity of slots and restrict competition.

Lastly, while trading of slots between carriers is allowed by the IATA guidelines, provided that the member country creates regulations guiding such activities,<sup>71</sup> this activity is not legal within the

---

<sup>67</sup> Kacker, Mukesh ‘Competition and Regulatory Deficit in Civil Aviation Sector in India’ CIRC  
<<http://www.oecd.org/dataoecd/8/56/44934012.pdf>>

<sup>70</sup> Ibid.

<sup>69</sup> Ibid.

<sup>70</sup> Czerny, Achim, Tegner, Henning ‘Secondary Markets for Runway Capacity’ Berlin University of Technology  
<[http://www.imprint-eu.org/public/Papers/IMPRINT\\_Czerny&Tegner.pdf](http://www.imprint-eu.org/public/Papers/IMPRINT_Czerny&Tegner.pdf)>

<sup>71</sup> Ibid.

Indian regulatory framework.<sup>72</sup> Slot distribution and assignments in India, while guided by the IATA are managed by separate agencies including the DGCA, AAI, Bureau of Civil Aviation, which all coordinate with individual airports.<sup>73</sup> Regulatory overlap exists; as a result it is difficult to distill a clear and uniform slot allocation policy.<sup>74</sup> The resulting regulatory overlap and lack of a clear policy hampers the ability of incumbent and new market participants to compete due to a lack of a predictable path of outcomes.

### C. International Comparison

While the United Kingdom and European Union recognize and apply IATA slot allocation guidelines, the United States does not, due to anti-trust reasons.<sup>75</sup> The UK,<sup>76</sup> United States<sup>77</sup> and EU<sup>78</sup> all allow slot trading with financial incentives - the EU amended its legislation with regard to slot trading on 30 April 2008.<sup>79</sup> While slot trading is not a perfect solution, allowing slot trading creates a market-based structure within which carriers can seek to obtain access to the best slots in order to serve their customers.

However, slot trading with financial incentives sometimes leads to instances of hoarding, since positive correlation exists between the number of slots a carrier controls at a particular airport and that carrier's market power at that site.<sup>80</sup> Taking the negative outcomes highlighted above into consideration, allowing a limited supply of slots to be traded creates more efficient outcomes than government assignments of slots every six months.

---

<sup>72</sup> Meeting with Satyan Nayar, Association of Private Airport Operators Office, New Delhi, 21 November 2011

<sup>73</sup> Dasgupta, Paramita, Ponnaluri, Raj, and Allamraju, Ashvita —Competition Issues in the Air Transport Sector in India | Competition Commission of India <[http://www.cci.gov.in/images/media/completed/transport\\_20090421133744.pdf](http://www.cci.gov.in/images/media/completed/transport_20090421133744.pdf)>

<sup>74</sup> Kacker, Mukesh —Competition and Regulatory Deficit in Civil Aviation Sector in India | CIRC CUTS Institute <<http://www.oecd.org/dataoecd/8/56/44934012.pdf>>

<sup>75</sup> Boyfield, Keith (editor), Bass, Tom, Humphreys, Barry, and Starkie —A Market in Airport Slots | Institute for Economic Affairs 2003 <<http://www.slottrade.aero/library/IEA%20A%20Market%20In%20Airport%20Slots.pdf>>

<sup>76</sup> Council Regulation (EEC) No 95/93 of 18 January 1993 on common rules for the allocation of slots at Community airports

<sup>77</sup> Federal Aviation Regulations, Title 14: Aeronautics and Space, Part 93, Section 221

<sup>78</sup> Ibid.

<sup>79</sup> —Airport Slot Allocation: The Commission clarifies the existing rules | European Commission, Brussels 30 April 2008 <<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/672&format=HTML&aged=0&language=EN&guiLanguage=en>>

<sup>80</sup> Czerny Achim I., —Price-cap regulation of airports: single-till versus dual-till | Berlin, 15 March 2005 <[http://www.fep.up.pt/conferences/earie2005/cd\\_rom/Session%20I/I.G/czerny.pdf](http://www.fep.up.pt/conferences/earie2005/cd_rom/Session%20I/I.G/czerny.pdf)>

*i. European Union and United Kingdom*

UK regulation guiding allocation of slots differs from the EU, because the UK created an independent slot coordinator which runs auctions of a share of underutilized slots.<sup>81</sup> UK slot allocation works in the following way: according to IATA slot allocation a guideline, the UK applies both the ‘grandfather’ and ‘use it or lose it’ rules. The underutilized slots go back to a general pool where 50% of these slots are distributed among new market entrants, while the remaining 50% are auctioned off among incumbent airlines. Auctions create an additional market mechanism for maximizing slot capacity among carriers. While both slot trading and auctions benefit and encourage competition between incumbent carriers, new market entrants are barred from participating in the auction and trading of slots. Ultimately, slot auctions create a more dynamic slot utilization mechanism, with competition for available slots among incumbent air carriers, resulting in slot allocation efficiency gains.

*ii. United States*

Within the United States’ Department of Transportation, the Federal Aviation Authority oversees slot allocations. Federal Aviation Regulations, Title 14: Aeronautics and Space governs how slots are allocated to air carriers. The following criteria are evaluated: the type of service the carrier provides - national, commuter, or international services - if the carrier existed prior to December 16, 1985, if the airport in question has been designated as a ‘high density airport’ or part of the ‘Essential Air Service Program’ and according to bilateral agreements with other countries. Although the United States does not apply IATA slot allocation guidelines, FAA regulation does apply ‘grandfather’ type rule with respect to legacy carriers at the time of the initial slot allocation.<sup>82</sup> FAA regulation allows slot trading which may or may not include financial incentives, but unlike the UK, slot auctions in the US are not legal.<sup>83</sup>

*iii. Brazil*

Initially, Brazil used Ruling 569/GM5 of 5 September 2000 to institute two criteria with respect to allocation of slots: whether the distribution of slots increases passenger choice and encourages

---

<sup>81</sup> Airport Coordination Limited: is responsible for slot allocation, schedules facilitation and schedule data collection at a large number of varied airports and, in addition, provides a wide range of services to the aviation industry. <<http://www.acl-uk.org/>>

<sup>82</sup> Federal Aviation Regulations, Title 14: Aeronautics and Space, Part 93, Section 215

<sup>83</sup> Kepplinger, Gary L. —Federal Aviation Administration—Authority to Auction Airport: Arrival and Departure Slots and to Retain and Use Auction Proceeds | United States’ Government Accountability Office 30 September 2008 <<http://www.crowell.com/PDF/Federal-Aviation-Administration-Authority-to-Auction-Airport-Arrival-Departure-Slots.pdf>>

competition between air carriers. This ruling also instituted control over how many slots and air carriers can hold individually or collectively; carriers holding more than 37% of slots used at a particular airport lost possession over slots beyond the abovementioned limit.<sup>84</sup>

Later, ANAC Resolution 002 of 3 July 2006 provided the implementation of two distinct cycle grids: incumbent airlines already operating at an airport would be granted 80% of available slots, while new entrants access the remaining 20%.<sup>85</sup> Brazil's approach also creates entry barriers for new competitors in congested airports, grants grandfather rights to incumbent air carriers, and by assigning a small share of slots to new entrant carriers, limits the number or scope of carrier service suppliers.<sup>86</sup>

In 2008, Brazil presented a new draft resolution with regards to slot allocation based on airlines' operational efficiency based on the carriers' delay, flight cancellations, and operational safety records.<sup>87</sup> However, in a speech on 15 March 2011 in Sao Paulo, Giovanni Bisignani, Director General and CEO of IATA at the British Chamber of Commerce, highlighted that 13 of Brazil's 20 top airports continue to experience bottlenecks, slots are not available when required, and overall airport infrastructure remains in poor shape;<sup>88</sup> indicating that slot allocation mechanisms in Brazil are still in need of improvement.

#### D. Recommendation

The regulator may want to consider seeking wide stakeholder inputs on more efficient slot allocation procedures tailor made for India's civil aviation sector. Revising the current system of slot allocation will help put airlines on more equal footing when competing for slots, and create a framework of predictable and efficient slot allocation outcomes. While no perfect government or market-based solution for an efficient slot allocation system exists, introducing a variety of market mechanisms into the process has yielded more efficient results in the United States, United Kingdom and the European Union.

---

<sup>84</sup> Salgado, Lucia H. , —The Regulation of the Airline Industry in Brazil American Law & Economics Association Annual Meetings, Berkley Electronic Press 2005

<sup>85</sup> —Regulatory Performance Report 2008! ANAC: AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL (Brazil's Civil Aviation Authority) <[http://www2.anac.gov.br/portal/templates/htm/Portal/arq/relatorio\\_anac\\_ing.pdf](http://www2.anac.gov.br/portal/templates/htm/Portal/arq/relatorio_anac_ing.pdf)>

<sup>86</sup> Ibid.

<sup>87</sup> Ibid.

<sup>88</sup> —Remarks of Giovanni Bisignani at the British Chamber of Commerce, Sao Paulo! IATA 15 March 2011 <<http://www.iata.org/pressroom/speeches/pages/2011-03-15-01.aspx>>



India's civil aviation regulator may consider looking to the UK framework for slot allocation as a model. Using the UK model would create more efficient outcomes for slot allocation, while keeping the 'grandfather' and 'use it or lose it' rules in accordance with the IATA slot allotment framework. Furthermore, the regulator may consider allowing the trading and auctions of underutilized slots through an independent coordinating agency. Slot trading, while not a perfect market allocation mechanism has helped relieve some of the congestion experienced in busy airports of the EU, UK, and United States. However, the United States —first come first served system, resulted in high congestion rates, longer waiting times, and taxi times.<sup>89</sup> Studies have shown that as demand for air carrier services increases, congestion costs and resulting overall welfare is not optimized.<sup>90</sup>

While auctions in the UK are still closed to new entrants, auctioning will spur competition between incumbent carriers, resulting in efficiency gains. The UK Civil Aviation Authority's position is that slot auction proceeds should be made available to fund expansion of additional capacity in airports - spending on physical infrastructure or mitigating the environmental impact of operating an airport.<sup>91</sup> India may also consider opening up funds from slot auctions to provide airport developers with partial recoup on investment in airport infrastructure, thus incentivizing operators to invest in further expanding airport infrastructure. This would lead to increased carrier service, decreased airport congestion, and growth of the civil aviation industry.

## **5.4 Airports**

### 5.4.1 Economic Regulation of Airports and Airport Fee Assessment

#### A. Current Situation

The Indian press recently reported on a developing conflict regarding the regulation of airports. India's Ministry of Civil Aviation stated that it will soon create new guidelines that will spell out a specific framework for economic regulation of future airports. The new guidelines, once implemented, may create a two pronged economic regulatory framework - one applied to existing airports and one applied to airports built in the future.<sup>92</sup> New guidelines coming from India's civil aviation ministry will not just create regulatory conflict between the Ministry of Civil Aviation and

---

<sup>89</sup> Cohen, Jeffrey P. and Coughlin, Cletus C —Congestion at Airports: The Economics of Airport Expansion| Federal Reserve Bank of St. Louis May/June 2002

<sup>90</sup> Czerny, Achim I. and Tegner, Hennig —Secondary Markets for Runway Capacity| Berlin University for Technology 15 May 2002

<sup>91</sup> —Introducing Commercial Allocation Mechanisms: The UK Civil Aviation Authority's Response to the European Commission's Staff Working Paper on Slot Reform| UK Civil Aviation Authority November 2004: Section 18, p 5.

<sup>92</sup>Shukla, Tarun —Aera-govt conflict may get worse| LiveMint 6 October 2011

<[http://epaper.livemint.com/ArticleImage.aspx?article=06\\_10\\_2011\\_001\\_013&mode=1](http://epaper.livemint.com/ArticleImage.aspx?article=06_10_2011_001_013&mode=1)>

the institution created in 2009 to regulate airports - AERA - but will also undermine AERA's authority and create a climate of uncertain outcomes for airport operators and investors.

#### B. Impact on Competition

While India's Ministry of Civil Aviation did not release any details of these proposed guidelines, the announcement created uncertainty within the business community. Some airport development investors argue that regulations on building Greenfield airports<sup>93</sup> - *i.e.*, new airports which are built from scratch in a new location and are operated entirely by a private entity or through a public private joint venture - are clearly defined; and AERA is responsible for interpreting how tariffs are levied on different airport services. In the view of investors, in the past the Agency has lacked predictability in its interpretations.<sup>94</sup> This lack of clarity on economic returns as well as conflict between regulatory and collection authorities creates varied outcomes, reducing the number of potential investors attracted to Indian airport projects.

Furthermore, in October 2011, the Indian ministry of civil aviation sent a note to the Prime Minister's office stating that—the present regulatory approach of AERA is not conducive for the healthy growth of PPP mode airports.<sup>95</sup> Additionally, India's ministry of civil aviation also proposed creation of a new regulatory framework for future airports.<sup>96</sup> Both of these events create uncertainty within the civil aviation sector. Conflict between regulatory agencies and other branches of the Indian government, regulatory agency overlap,<sup>97</sup> as well as between business interests and the government, create a market climate where businesses are hesitant to increase investment.

#### C. Airport Fees

The Airports Economic Regulatory Authority of India Order No. 13 of 2010-11 is missing from the matrix highlighting anti-competitive provisions and practices within India's civil aviation regulatory framework in Section 4 of this report. According to the two airports' concession agreements, Delhi and Mumbai airport fees are assessed according to a hybrid airport fee system, while all other

---

<sup>93</sup>Suresh, Padmalatha —Greenfield airport projects - time for private-public partnerships to take off! The Business Standard 29 July 2005 <<http://www.thehindubusinessline.in/2005/07/29/stories/2005072900130800.htm>>

<sup>94</sup> Shukla, Tarun —Aera-govt conflict may get worsel [LiveMint](http://www.livemint.com) 6 October 2011  
<[http://epaper.livemint.com/ArticleImage.aspx?article=06\\_10\\_2011\\_001\\_013&mode=1](http://epaper.livemint.com/ArticleImage.aspx?article=06_10_2011_001_013&mode=1)>

<sup>95</sup> Shukla, Tarun —Aera tells government it's not against private airports' interests! [LiveMint](http://www.livemint.com) 2 October 2011  
<<http://www.livemint.com/2011/10/02230542/Aera-tells-government-it8217.html?h=B>>

<sup>96</sup> Shukla, Tarun —Aera-govt conflict may get worsel [LiveMint](http://www.livemint.com) 6 October 2011  
<[http://epaper.livemint.com/ArticleImage.aspx?article=06\\_10\\_2011\\_001\\_013&mode=1](http://epaper.livemint.com/ArticleImage.aspx?article=06_10_2011_001_013&mode=1)>

<sup>97</sup> Kacker M., ICompetition and Regulatory Deficit in Civil Aviation Sector in India! [CUTS Institute of Regulation and Competition](http://www.circ.gov.in) (CIRC).

airports fall under the AERA single till assessment system in compliance with the abovementioned Order No. 13.

Furthermore, this act takes agreements with Delhi and Mumbai International Airports into consideration with respect to a different fee assessment method. While this approach is not uniform, world experience shows that other countries have taken this type of non-uniform approach. For example in Germany Frankfurt and Dusseldorf have different regulatory fee assessment methods. Furthermore, within the European Union, Heathrow, Brussels, Frankfurt, Munich, Amsterdam and Zurich all calculate airport fees differently.<sup>98</sup> Therefore, fee assessment schemes fit different considerations of airports and may not significantly impact competition between airports, as in the case of the European Union.

#### 5.4.2 Privatization of Airports

##### A. Current Situation

Presently, there are just five private airports in India. Furthermore, Indian airports fare poorly in terms of non-aeronautical earnings. According to the report, —Airport Privatization in India - A Study of Different Modes of Infrastructure ProvisionI, a major reason for low non-aeronautical earnings is that most Indian airports come under the Airports Authority of India (AAI) and the Authority cannot afford to invest much from its scarce fund in these services.<sup>99</sup> Therefore, to make Indian airports internationally competitive, the government must attract private investment into India's civil aviation infrastructure.

##### B. Impact on Competition

Poor airport facilities stand in the way of sector and overall economic growth. Airports with poor infrastructure will fail to attract both passenger and cargo carriers. If passenger and cargo carriers cannot find additional satisfactory airport infrastructure where they want to expand, carriers will not grow. Both cargo and passenger carriers contribute to positive economic growth of the civil aviation sector, local and international trade, as well as bringing more business and leisure to the regions served by particular airports. Therefore, the lack of improvement in airport infrastructure will stunt not just growth in the civil aviation sector but overall economic growth of regions served by poor airports.

---

<sup>98</sup> Feedback from AERA Secretary Shri Sandeep Prakash, AERA, New Delhi

<sup>99</sup> Ohri, Manuj —Airport Privatization in India - A Study of Different Modes of Infrastructure ProvisionI, Faculty of Management Studies, University of Delhi, 2006

### C. Recommendation

Allowing more private investment into existing airports (*i.e.*, authorizing Brownfield projects) will inject much needed equity into India's civil aviation infrastructure. Injecting private capital into existing airports will assist those airports in improving airport infrastructure as well as expansion projects needed to meet growing passenger demand. Private capital injected into different Indian airports will also create more inter-airport competition within India and the region, since different airport investors would base business decisions on attracting more air carriers and passengers to their airport, thus maximizing their investment.

#### 5.4.3 Concession Agreements between the AAI and Airport Developers

##### A. Regulation

The 'right of first refusal' granted in the Operation, Management and Development Agreement (OMDA) gives priority to the incumbent private airport developer to engage, design, construct, finance, operate, manage, develop or maintain a second airport within a distance of 150 km<sup>100</sup> from an existing airport,<sup>101</sup> if that developer's bid falls within 10% of the highest competitive bid for an undefined period of time in the future.<sup>102</sup> This rule gives first priority to an airport developer already vested in one airport to develop and run another airport within 150km.<sup>103</sup>

##### B. Impact on Competition

Market behavior dictates that, an airport developer will seek to maximize his investment into already existing infrastructure and will attempt to expand his investment into new infrastructure. A vested airport developer will not want another competitor developing a neighboring airport which will directly compete with its airport. Therefore, a vested developer will utilize the 'right to first refusal' to develop a neighboring airport if the firm possesses or can access requisite funds. This may lead to one developer's dominance the city or region served by one existing and future airports.<sup>104</sup>

---

<sup>100</sup> Meeting with Satyan Nayar, Association of Private Airport Operators 21 November 2011

<sup>89</sup>Ibid.

<sup>102</sup> Panday, Ajay, Morris, Sebastian, G. Raghuram –Structuring PPPs in Aviation Sector: Case of Delhi and Mumbai Airport Privatization| Indian Institute of Management Ahmedabad <<http://infrastructure.gov.in/pdf/case-study-final-251010.pdf>>

<sup>103</sup> Meeting with Satyan Nayar, Association of Private Airport Operators, New Delhi 21 November 2011

<sup>104</sup> Ibid.

Additionally, studies have shown that airport competition is possible in one region and benefits air carrier service providers and passengers.<sup>105</sup>

The ‘right of first refusal’ limits the range and number of suppliers after the first generation of concession agreements has been signed.<sup>106</sup> While the ‘right to first refusal’ was included in concession agreements to attract a larger number of bidders for the privatization of New Delhi and Mumbai airports, once the firms that won the respective bids signed this first generation of concession agreements, enforcement of those agreements narrowed the range and number of new suppliers willing to bid on other Brownfield projects.

### C. International Comparison

Studies have shown that airports are not necessarily natural monopolies and are able to successfully compete with each other, as in the case of airports in the United Kingdom and the European Union.<sup>107</sup> Competition exists between regional airports, where the airports can be physically close - for example in the same city or within a few hours’ driving distance.<sup>108</sup> In Asia, Kuala Lumpur, Hong Kong, Bangkok, and Macao compete for hub traffic.<sup>109</sup> Private capital injected into different Indian airports will create more inter-airport competition within India and the region, since different airport investors would base business decisions on attracting more air carriers and passengers to their airport, thus maximizing return on their investment.

### D. Recommendation

Keeping the ‘right of first refusal’ clause is important in order for the AAI to attract a greater number of investors to new Brownfield as well as Greenfield airport projects in the future. However, to even out the playing field between airport developers bidding to partner with the AAI to improve existing airport infrastructure or develop new airports, consider creating a sunset provision within the ‘right to first refusal’ clause. For example, the ‘right to first refusal’ in the concession agreement would last a number of years in order for the developer which signed the agreement to collect adequate return

---

<sup>105</sup> Starkie, David —The Airport Industry in a Competitive Environment: A United Kingdom Perspective| Discussion Paper No. 2008-15 July 2008 OECD and International Transport Forum  
<<http://www.internationaltransportforum.org/jtrc/discussionpapers/DP200815.pdf>>

<sup>106</sup> Operation, Management and Development Agreement between the Airports Authority of India and Delhi International Airport Private Limited <[http://www.aai.aero/righttoinformation/OMDA\\_DIAL.pdf](http://www.aai.aero/righttoinformation/OMDA_DIAL.pdf)>

<sup>107</sup> Starkie, David —The Airport Industry in a Competitive Environment: A United Kingdom Perspective| Discussion Paper No. 2008-15 July 2008 OECD and International Transport Forum  
<<http://www.internationaltransportforum.org/jtrc/discussionpapers/DP200815.pdf>>

<sup>108</sup> Ibid.

<sup>109</sup> —Competition and Collaboration: The New Challenge Facing Hong Kong International Airport| Airport Authority of Hong Kong  
<[http://cicc.ust.hk/past/2826\\_1531482g.pdf](http://cicc.ust.hk/past/2826_1531482g.pdf)>

on his infrastructure investment. A sunset provision, once it expires will help attract new investments into other airport projects, but while in force will also recognize and allow existing airport developers to obtain return on their investment.

### **5.5 Anticompetitive Behavior and Pricing**

#### **A. Current Situation**

Within the past year, pricing in the airline industry has ranged from excessively high prices to low prices potentially affecting the financial viability of the carriers as well as impacting consumer spending on air travel services. While the excessively high prices charged by the airlines seem to indicate possible coordination or cartel like behavior among the operators, the abnormally low prices are indicative of another type of anticompetitive behavior, i.e., predatory pricing.

Cartel behavior in the airline industry is not uncommon. There are natural barriers to entry owing to the high level of investments and liquidity required to cover startup and high operational costs that limit entry and protect the functioning of a cartel. Furthermore, regulations relating to fleet and financial requirements, and slot allocations further prevent entry and could increase the likelihood of cartel behavior.

One problem that the airline industry in India is currently facing is the abnormally low prices that are affecting the financial viability of the airlines. For such pricing by an airline to be construed as predatory however, the following conditions have to be met: the prices must be below average cost; there should be exit of competitors from the market; and the airline should have a mechanism by which it can recoup the losses suffered in the short-run.

While a cartel would erect barriers to entry into the market place, predatory pricing itself makes it unprofitable for new entrants and thus limits competition. In either case competition will be harmed, and the long term viability of the industry itself will be at stake to the detriment of consumers.

#### **B. Recommendation**

In order to limit the temptation for cartel behavior, the regulator needs to reduce barriers to entry, thus promoting a larger number of market participants. Lower entry barriers and a greater number of

market participants will increase the incentive to compete and decrease the incentive to engage in cartel behavior.<sup>110</sup>

In order to monitor and track anti-competitive behavior within the passenger carrier sector of civil aviation, the regulator may want to take concrete steps to put together a framework for detection of anticompetitive behavior and institute a deterrence mechanism. Specifically, the framework should,

(a) Clearly define pricing that the regulator construes to be anticompetitive, be it excessive pricing or predatory pricing. The definition should be based on practical issues and realities facing the industry, not conventional 'text-book' definitions.

(b) Identify empirical (model driven) benchmarks to compare the market prices with. The model/models that are developed for this purpose should be based on economic theory, market realities, international pricing practices of airline markets that are similar to India, and historical data. A key step in determining the benchmarks is the identification of the data and also the reporting requirements. In other words, the regulator will need to identify the data that market participants will be obligated to submit such as capacity utilization, number of filled seats, prices of tickets; periodicity<sup>111</sup> at which data should be collected; as well as sampling criteria.

(c) Specify deterrence mechanisms that are practical to implement. This includes developing a system by which the activities of the airlines are monitored, enabling transparency of ticketing and pricing practices of airlines, defining investigative powers and powers to impose punitive measures in the case of anticompetitive behavior.<sup>112</sup> India's civil aviation regulators may want to consider adopting a system of oversight similar to the one developed in the United States, where information of every tenth ticket sold by a US carrier must be submitted to the regulator, giving the regulator a view of developments and trends in the sector. The Research and Innovative Technology Administration (RITA) at the US Department of Transportation collects and analyzes this data.<sup>113</sup> Research into the functions of this organization and legislation that governs its activities can serve as a model for creation of a monitoring mechanism in India.

---

<sup>110</sup> We would like to emphasize that analysis of whether or not India's air carriers have or are engaging in cartel behavior remains outside of the scope of this paper

<sup>111</sup> Periodicity - how frequently one needs to collect data.

<sup>112</sup> The role of the regulator should be defined in such a manner that regulatory powers of the Competition Commission of India (CCI) are taken into account, and the role played by the Aviation regulator complements the role of the CCI.

<sup>113</sup> Research and Innovative Technology Administration (RITA), US Department of Transportation  
<[http://www.bts.gov/programs/airline\\_information/sources/](http://www.bts.gov/programs/airline_information/sources/)>

## **5.6 Taxation and Pricing of Air Turbine Fuel (ATF)**

### **A. Current Situation**

India's multilayer fuel taxation system which includes the central excise duty , and sales tax levied by the state governments (varying from 4% to 30%), limits the number and range of air carrier service providers and the ability of Indian carriers to compete with foreign carriers providing international carrier services.

Furthermore, within India's civil aviation sector, pricing of ATF is determined by a small number of suppliers. Indian ATF consumers' choice is restricted to four suppliers. Three suppliers are state owned oil companies that enjoy access to essential facilities within India's airports and maintain refinery capacity, resulting in market dominance. Similar, to the passenger service providers' market, the current structure of the Indian ATF market is conducive to cartelization.

### **B. Impact On Competition**

#### *i. Entry Barrier*

The total cost of fuel does not just make it difficult for incumbent Indian airlines to grow; high fuel costs also make it hard for new air carrier service providers to enter India's civil aviation market. Before entering India's civil aviation market, a potential market entrant must consider the price of fuel, how the price of India's ATF moves, and the effect state and central government taxes will have on the firm's overall operational expenses. Additionally, the potential entrant firm needs to determine whether or not it can absorb such fuel expenses both in the short- and long-term.

#### *ii. Adverse Impact on Financial Health of Airlines*

High fuel expenses prevent Indian airlines from buying more aircraft and servicing more routes, which in turn contributes to overall market growth. Currently, fuel expenses make up approximately 40% of India's operational expenses.<sup>114</sup> For example, seeking to reduce operating costs, Kingfisher Airlines, an air carrier which has been canceling flights due to financial difficulties, has applied to the Director General of Foreign Trade (DGFT) for an import exemption on ATF. If Kingfisher Airlines is successful in obtaining this exemption, the firm is likely to save 25-30% on state level ATF taxes, which may reduce the carrier's operating expenses and improve the firm's financial outlook.

---

<sup>114</sup>—Cost of ATF in India Federation of Indian Airlines <[http://www.fiaindia.in/Cost\\_of\\_ATF.htm](http://www.fiaindia.in/Cost_of_ATF.htm)>



However, India's Petroleum Ministry has indicated that it plans to reject the DGFT's proposal for the import exemption, leaving the number of ATF suppliers to Kingfisher Airlines the same.<sup>115</sup> According to one of the interviewed experts, Indian airlines pay the highest taxes in the world on Aviation Turbine Fuel (ATF).

*iii. Competition among Airports*

Furthermore, highly taxed fuel impedes the ability of India's international airports to compete and develop into international hubs for plane services such as maintenance, fuel and re-hauling. Due to the high cost of aviation turbine fuel, Indian airports lose this type of business to regional hubs such as Singapore, Kuala Lumpur and Bangkok,<sup>116</sup> which in turn reduces the airports' ability to grow, improve existing infrastructure, and positively contribute to the overall growth of India's civil aviation sector.

*iv. Adverse Impact on Consumers*

Furthermore, high cost of fuel also hurt the consumers, because they lead to less choice of flights and higher airfares as airlines will attempt to pass on high fuel costs to passengers. Since all Indian airlines are subject to the taxes, economic theory suggests a pass-on rate of  $N/(N+1)$ ,<sup>117</sup> where N is the number of sellers. Therefore, high cost of fuel do not just hurt airlines they hurt passengers who pay the pass-on cost of ATF.

C. International Comparison

Brazil's air carrier service providers faced similar issues with respect to paying for relatively expensive and highly taxed ATF. Brazil's cargo and passenger carriers spent between 37 % and 50% of their operational budgets on the cost of jet fuel,<sup>118</sup> hurting their ability to compete with foreign airlines. Brazil like India, a crude oil producing country, had the prevailing ATF price about 14% higher than the rest of the region. A recent study concluded that Petrobras, the state run oil company, was over-pricing ATF at approximately \$400 million dollars each year.<sup>119</sup>

<sup>115</sup> —Oil min may reject ATF import move | [The Financial Express](http://www.financialexpress.com/news/oil-min-may-reject-atf-import-move/886736/1) 12 December 2011 <<http://www.financialexpress.com/news/oil-min-may-reject-atf-import-move/886736/1>>

<sup>116</sup> —Fiscal Issues | [Federation of Indian Airlines](http://www.fiaindia.in/fiscal_issues.htm) <[http://www.fiaindia.in/fiscal\\_issues.htm](http://www.fiaindia.in/fiscal_issues.htm)>

<sup>117</sup> The formulae have been derived using a cournot oligopoly model, —Passing the buck: the passing-on defence in cartel damages cases, | Agenda, Oxera, August 2007.

<sup>118</sup> Ibid.

<sup>119</sup> —Remarks of Giovanni Bisignani at the British Chamber of Commerce, Sao Paulo | [IATA](http://www.iata.org/pressroom/speeches/pages/2011-03-15-01.aspx) 15 March 2011 <<http://www.iata.org/pressroom/speeches/pages/2011-03-15-01.aspx>>

However, Brazil eliminated the PIS/COFINS tax on jet fuel for international flights in January 2009. The annual savings to Brazilian air carriers providing international services amounted to \$100 million dollars each year. Ultimately, the Brazilian government started taking action to help alleviate those challenges, thus supporting the competitiveness and financial health of the country's air carrier service providers.

#### D. Recommendation

In order to monitor ATF prices and track anti competitive behavior, the regulator may wish to take concrete steps to put together a framework of oversight. The framework should include provisions for monitoring, enforcement and appellate activities.

The regulator may wish to further investigate India's ATF price structure by comparing price components such as fuel taxes and add-on charges to neighboring countries, as well as over a period of time. It would be useful for the regulator to have benchmarks that can be used to detect deviations in ATF prices from what would be reasonable given the global movement of crude prices, and demand and supply factors that affect the price of ATF. In this regard a formal empirical model of ATF pricing could be used to forecast prices based on reasonable assumptions. In order to operationalize such a model based approach, the regulator should ascertain the data that would be required, the source of the data, the periodicity, and methodology of collecting it including sampling criteria (where appropriate).<sup>120</sup>

With regards to taxation of ATF, the regulator may consider analyzing the taxation regime in relation to how taxation impacts the financial health of India's civil aviation industry as well as the industry's competitiveness regionally and globally. The regulator may wish to look at ATF taxation in India and compare this regime with competing hub countries isolating best practices which can be applied to India. Lastly, to ensure greater success in negotiations between national and state governments with regards to taxation of ATF, it is important to also investigate and report on how reductions in state level ATF taxes can lead to state governments reaping economic benefits of local job creation within the sector, growth of businesses associated with the sector, as well as economic development resulting in more business and leisure traffic to the State.

---

<sup>120</sup> Periodicity - how frequently one needs to collect data.

## **5.7 Preferential Treatment to Air India**

### 5.7.1 Preference in Traffic Rights

#### A. Regulation

According to the Aeronautical Information Circulars No. 08 of 2009 - Section 3.6, operational plans submitted by the national carrier would be considered before allocation of traffic rights to other eligible applicants. Thus, other carriers which satisfy fleet and equity requirements will not get to compete for traffic rights equally with Air India.

#### B. Impact on Competition

This rule lacks competitive neutrality in assigning traffic rights.<sup>121</sup> In order to increase its customer base Air India will take the best available routes, thus maintaining an unfair competitive advantage over other eligible Indian international carriers. For example, Jet Airways' inability to secure traffic rights to operate a flight to Paris, because Air India was exclusively awarded traffic rights to that destination,<sup>122</sup> illustrates how consumer choice is adversely affected by this regulation. Currently, Air India and Air France are the only two service providers on the route. Thus Air India's privileged position *vis-à-vis* other Indian international airlines puts limits on the other carriers' ability to compete.

#### C. Recommendation

The regulator may consider abandoning preferential international route assignments to the national carrier, which would allow private carriers to compete with Air India. Taking away Air India's right to priority route assignments will also help other Indian international carriers expand service to additional international destinations, leading to expansion in the range of choices for consumers.

---

<sup>121</sup> Pradeep Mehta (Secretary General, CIRC), Design Workshop for Sector Studies, Ministry of Corporate Affairs, September 2011

<sup>122</sup> Shukra, Tarun—New international flying rights to boost local airlines' market share! [LiveMint](http://www.livemint.com/2011/01/23224938/New-international-flying-right.html?d=1) 23 January 2011  
<<http://www.livemint.com/2011/01/23224938/New-international-flying-right.html?d=1>>

### 5.7.2 Access to Government Finance

#### A. Regulation

Air Corporation Act 1953 - Section 10 provides a legislative framework within which, the Government of India may provide funds for capital expenditures as well as potential bailout funds for the national carrier - Air India.

#### B. Impact on Competition

This regulation gives Air India an unfair competitive advantage, by creating a framework through which it may apply for government financial assistance. The Act lacks competitive neutrality with regards to airlines in terms of access to government funds for capital expenditures and potential bailout.<sup>123</sup> Since this rule gives preferential treatment to Air India before other private airlines, competitive neutrality in access to government funding does not exist, resulting in a lack of a level playing field.<sup>124</sup>

Therefore, poor business decisions of Air India are not punished by the market in the same way as poor decisions of other private air carriers. Bad business decisions of all private air carriers are punished by holders of the firm's debt; Air India is only accountable to the Indian government. This social safety net reduces Air India's incentive to compete in the same way as other private Indian carriers. Maintaining the viability of the national carrier is very important, however preferential treatment reduces the national carrier's incentive to compete and make sound business decisions.

#### C. Recommendation

Bringing in private players and capital to operate India's national carrier will help address some of the airline's operational issues, while freeing government funds for other purposes. Partially privatizing Air India would create incentives for the carrier to compete with other airlines, since Air India's private investors would seek to maximize return on their investment.

---

<sup>123</sup> Pradeep Mehta(Secretary General, CIRC), Design Workshop for Sector Studies, Ministry of Corporate Affairs , September 2011

<sup>124</sup> Ibid

## **5.8 Foreign Direct Investment in Airlines**

### **A. Regulation**

The Civil Aviation Requirements (CAR), Air Transport, Series C, Part II, Section 4.1.5 states that foreign equity in air transportation services is permitted up to 49%; while Non Resident Indians (NRIs) / Persons of Indian Origin (PIO) are permitted to invest up to 100% in domestic air transport services. Investment by foreign airlines is not allowed.

### **B. Impact**

Access to a greater amount of foreign direct investment will help smaller firms satisfy fleet and equity requirements and thereby enter India's civil aviation market. Thus, access to foreign capital will help more new firms - which are not in the air carrier provision of service business - pass the market entry barriers. Furthermore, foreign firms that may want to start or partner with an existing Indian domestic carrier and have access to ample capital which could satisfy government requirements may not operate an Indian carrier with 51% of the potential carrier owned by Indian citizens. The most knowledgeable investors are those firms with experience running carrier services, however currently foreign airlines are not allowed to invest in India's airlines. By setting out limits on foreign direct investment in Indian airlines, this regulation ultimately limits the number and range of suppliers.

### **C. International Comparison**

India is not unique in requiring significant ownership stakes by citizens or overseas Indians in its air carriers. The European Union, Australia and United States also have domestic ownership requirements. Some of the reasons stated for these upper limits on foreign ownership include public or security interests.<sup>125</sup>

### **D. Recommendation**

Recently, India's ex-Civil Aviation Minister, Mr. Vyalar Ravi, stated that the Indian government is considering recommendations of the Department of Industrial Policy and Promotion (DIPP) which suggested allowing foreign carriers to obtain stakes in India's domestic airlines.<sup>126</sup> A proposed cap on

---

<sup>125</sup>Carlson Dylan, Farouq Nadine, Shepherd Justin, —Global FDI Trends an International Trade and Investment Policy Capstone Project, [The U.S. Department of Commerce International Trade Administration](http://elliott.gwu.edu/assets/docs/acad/itip/globalFDI_commerce_ita.pdf), 17 April 2009  
<[http://elliott.gwu.edu/assets/docs/acad/itip/globalFDI\\_commerce\\_ita.pdf](http://elliott.gwu.edu/assets/docs/acad/itip/globalFDI_commerce_ita.pdf)>

<sup>126</sup> —Airlines shares rally as minister says FDI is under consideration! [NDTV Profit](http://profit.ndtv.com/news/show/airlines-shares-rally-as-minister-says-fdi-is-under-consideration-183702) 19 October 2011  
<<http://profit.ndtv.com/news/show/airlines-shares-rally-as-minister-says-fdi-is-under-consideration-183702>>

foreign airlines' FDI up to 24%,<sup>127</sup> which prevents a foreign airline's control of the Indian airline, will likely benefit the Indian airlines in the following ways: create the possibility of code-shares, optimal utilization of the carrier's fleet, and increase in customer choice.

## **5.9 Procurement**

### **A. Current Situation**

The tender process of the AAI lacks fair and adequate competition for goods and services required by the agency. For example, according to the Central Vigilance Commission (CVC), the limited tender enquiry (LTE) types of tenders need to have wider, fair and adequate competition between contractors. The Commission feels that it is important for the AAI to provide sufficient time of around 3-4 weeks for tenders to be open to contractors (4-6 weeks in case of Advertised/Global tenders), except, in cases of recorded emergencies. During emergencies, the Commission maintains that reasonable time should be permitted for bidding and tenders should be sent by faster means like speed post/fax.<sup>128</sup> The AAI Materials Management Manual - 2010 further supports this requirement by stating that the validity of the tenders normally should be 90 days and the ordinary period of sale of tender should not be less than three weeks.<sup>129</sup>

An analysis of the AAI website<sup>130</sup> indicates that there are cases of open, global and LTE tenders wherein the time provided for bids is shorter than timeframes stipulated by the CVC and the Materials Management Manual. It is also observed that there are certain experience and operational requirements which have to be met by the potential government contractors.

### **B. Impact on Competition**

According to AAI's website, some tenders for goods or services give approximately a month or more for contractors to submit bids, while some tenders last only one day. Bids that last only a few days ensure that an extremely small number of contractors will bid for the particular tender. Furthermore, the majority of bids that lasted a few days resulted in a single bid - resulting in an un-competitive

---

<sup>127</sup> —Tough operating conditions to put off overseas players: Jet! CNBC 20 October 2011

<[http://www.moneycontrol.com/news/business/toughoperatingconditiontoputoffove\\_602315.html](http://www.moneycontrol.com/news/business/toughoperatingconditiontoputoffove_602315.html)>

<sup>128</sup> —Central Vigilance Commission's (CVC's) Observations| Indian Institute of Materials and Management

<[http://www.iimm.org/knowledge\\_bank/10\\_central-vigilance-commission-observation-july.htm](http://www.iimm.org/knowledge_bank/10_central-vigilance-commission-observation-july.htm)>

<sup>129</sup> AAI Materials Management Manual - 2005

<[http://www.aai.aero/righttoinformation/MATERIALS\\_MANAGEMENT\\_MANUAL.pdf](http://www.aai.aero/righttoinformation/MATERIALS_MANAGEMENT_MANUAL.pdf)>

<sup>130</sup> AAI Tenders:

<[http://203.145.141.162/cms/ContractAwardSearchReportP.aspx?loc=ALL&dep=ALL&nam=&cf=&ct=&crt=Rs\(INR\)&crm=Unit&af=&at=>](http://203.145.141.162/cms/ContractAwardSearchReportP.aspx?loc=ALL&dep=ALL&nam=&cf=&ct=&crt=Rs(INR)&crm=Unit&af=&at=>)>

bidding process. Thus, AAI's procurement timeline in practice limits the number and range of equipment and service providers supplying the Agency.

Other procurement issues include operational requirements for service providers. For example, a firm that wants to provide and operate vending machines for AAI must provide proof of at least three years' operating experience in airports, bus stations and ferry terminals. This requirement limits qualifying vendors to only those that worked with government transportation hubs, indirectly creating a group of preferred vendors. Another example includes requirements for the provision of maxi-taxi services to AAI controlled entities, where the Indian government sets a minimum five vehicle requirement for operators, limiting the number of service providers based on fleet size.

### C. International Experience

The United States government places all goods and services procurement contracts on an online, publicly available, and searchable database. Potential vendors register as contractors and search for goods and services announcements on this centralized database. Vendors may also access closed contracts in order to see the types of services the government needs and learn how to bid successfully in the future.

Furthermore, the Russian government is also moving in the same direction by developing a centralized online registry which gives users real-time access and tracking of every open tender and ten year historical database of closed tenders. The decision of the Russian government to move to this system stems from economic waste. Last year, Russia's President Medvedev noted that annually the Russian government loses about \$30 billion US dollars to through of economic waste stemming from procurement of goods and services from the private sector.<sup>131</sup>

### D. Recommendation

Centralizing the procurement procedure and putting tender announcements on an online searchable database (as done in the United States) will create an efficient and transparent procurement process. Centralizing India's procurement for the civil aviation industry will create a transparent and predictable procurement framework, as well as help give more vendors access to all contracts related to the sector, thus increasing competition for government goods and services contracts.

---

<sup>131</sup> —Medvedev seeks teeth for anti-corruption drive | [BusinessNewEurope](http://www.businessneweurope.com) (reprinted in Johnson's Russia List) 30 March 2011 < <http://www.cdi.org/russia/johnson/russia-corruption-medvedev-631.cfm> >

### **5.10 Exemption Rule**

#### **A. Current Situation**

Rule 160 of the Aircraft Rules, 1937 is missing from the matrix highlighting anti-competitive provisions and practices within India's civil aviation regulatory framework in Section 4 of this report. This rule grants the Indian government the power to exempt any aircraft, either wholly or partially, or a person or an organization from the operation of the Aircraft rules. In addition, the Director General and other officers of DGCA have inherent or delegated powers under S.O. 726 and S.O. 727 for granting exemption from specific provisos of the Aircraft Rules. Since 2007, these discretionary powers have been exercised in eight instances, granting exemptions on issues related to authorization of Aircraft and Systems Testing Establishment (ASTE) pilots to fly aircraft that was not entered in the aircraft rating; allowing low flying of aircraft at 60 meters to carry out airborne geophysical surveys; and in other similar situations.

#### **B. Possible Impact on Competition**

Exercising the powers granted by this law thus far has had no apparent impact on the competition of the sector per se. The language of the law is non-discriminatory, but no significant —fire-wall between safety and economic regulatory oversight was observed where the Director General can both issue instructions to aircraft operators concerning safety and economic practices. Thus there exists potential conflict where regulatory oversight of economic and safety activities may influence each other.



## 6. Conclusion

In accordance with the requirements set forth by the Ministry of Corporate Affairs of the Government of India, this report analyzed competition inhibiting provisions of statutes, rules, policies and practices found within the regulatory framework of India's civil aviation sector. This report broadly analyzes India's civil aviation sector, while recognizing the necessity that deeper assessments of each sub-sector of India's civil aviation must be undertaken individually.

While assessing India's civil aviation sector's regulatory framework, certain provisions that limit competition within the industry came to light. All regulations were analyzed and categorized by looking at whether or not they limit the number and range of suppliers, limit the suppliers' ability to compete, reduce the incentive of the suppliers to compete, and affect investment.

Based on the analysis of the preceding sections of this report we recommend creation of one single civil aviation policy. This civil aviation policy should aim to reduce artificial barriers to entry such as fleet and equity requirements. It should have clear delineation between regulatory authorities that oversee activities in this sector, which would result in clear and predictable regulatory outcomes. Furthermore, it should include a framework for monitoring anticompetitive pricing behavior within the sector. Additionally, this policy should aim to create a more level competitive field between India's private, national and foreign carriers. It should also aim to introduce market mechanisms and incentives into the distribution of slots and dispersion of routes. Lastly, this policy should aim to attract greater private investment into India's airports and improve the competitiveness of the government procurement process within this sector.

## 7. Annexure

### 7.1 Annexure A: General US, Australia, and EU regulations

Safety regulations make up the bulk of the US, Australian, EU and Indian civil aviation regulatory framework. Safety regulations include safety requirements for aircraft, all pieces of equipment that need to go into the plane, all equipment maintenance, as well as training requirements and licenses required for flight staff such as pilots, ground crew and flight attendants. Environmental regulations include regulations that minimize the airline's physical and noise pollution. Lastly, the financial viability of the potential market entrant is reviewed by the appropriate regulatory agencies. Prior to 1978, the Civil Aeronautics Board (CAB) controlled civil aviation in the US. The CAB awarded routes

to individual airlines, determined which new carriers enter into the civil aviation market, and regulated passenger fares. The Airline Deregulation Act of 1978 dismantled artificial barriers of entry into the United States' commercial airline market, which resulted in increased competition between airlines, ultimately benefitting consumers.<sup>132</sup>

While the US Federal Aviation Administration (FAA) requires certain financial information from applicants for the Air Carrier Certificate, which legally permits a company or individual to operate an aircraft in the US, no specific fleet or equity requirements exist. The required financial information showing assets and liabilities, ongoing litigation, insurance policy information, as well as a six month plan of operation establishes the financial viability of the business, the air carrier service provider.<sup>133</sup> If a United States air carrier service provider wants to operate internationally, in addition to US regulations, the US government requires for the operator to comply with air traffic rules of the foreign country, and local airport rules.<sup>134</sup>

Australia's Civil Aviation Act of 1988 Section 28 paragraph 1A also requires an applicant to present financial background information as a criterion for granting an Air Operator Certificate. The financial position of the applicant is evaluated alongside other certificate criteria. To apply for an international license Australia requires foreign shareholders to not hold more than 49% of the total value of issued share capital of the national airline, at least two-thirds of the Board members must possess Australian or New Zealand citizenship and the airline operation base must remain national.

Furthermore, with regards to a foreign operator that wants to fly into Australia, the carrier must submit a copy of any air operator's certificate or a different document establishing the same criteria issued by a civil regulation authority in the country out of which the air carrier operates, and satisfy additional conditions put forth by the Australian Civil Aviation Safety Authority (CASA). The application must include the air carrier's proposed route and all points to be served, aircraft type and seating configuration, frequency of service per week, code-share arrangements details, date of commencement of service, and passenger fares. With regard to financial requirements, the carrier must provide a business plan and resources available to implement this plan.

The European Union also takes the carrier's financial health as one of the evaluation criteria for carriers applying for permission to fly between member countries. In the European Union in order

---

<sup>132</sup>Siddiqi, Asif —Deregulation and Its Consequences| US Centennial of Flight Commission  
<[http://www.centennialofflight.gov/essay/Commercial\\_Aviation/Dereg/Tran8.htm](http://www.centennialofflight.gov/essay/Commercial_Aviation/Dereg/Tran8.htm)>

<sup>133</sup>Doc. No. 28154, 62 FR 13254, Mar. 19, 1997; 62 FR 15570, Apr. 1, 1997

<sup>134</sup>Doc. No. 28154, 62 FR 13254, Mar. 19, 1997; 62 FR 15570, Apr. 1, 1997

for an air carrier to provide services within the Community, the principal place of business must be located within a Member State, the carrier must own or lease one or more aircraft, and the service provider's main occupation must be operating air carrier services. With regards to financial information, according to the 24 September 2008 Regulation (EC) 1008/2008 of the European Parliament and of the Council on common rules for the operation of air services in the Community; an applicant must provide information regarding the financial health of the firm, especially information of the first two years of operation, as these first two years provide a good picture of the carrier's viability within the civil aviation sector. Furthermore, Member States and/or nationals of Member States must own more than 50% of the air carrier service provider and effectively control the enterprise directly or indirectly - except as provided in an agreement with a third country to which the Community is a party.

Looking at civil aviation regulations of the European Union, Australia and the United States of America, the post market deregulated US has regulation which establishes the lowest barriers to market entry, while maintaining the most concrete and clearest set of financial viability requirements that an air carrier service provider needs to submit to the FAA. In terms of comparison of regulatory frameworks and models of potential growth for India, using the US as a model makes the most sense. The US is not only the most free civil aviation sector, but also attracts 40% of all commercial traffic and remains the largest civil airline market in the world.<sup>135</sup>

## **7.2 Annexure B: Comparison of Indian Civil Aviation Regulations with the United States**

The following sections explain the aforementioned issues in detail. Additionally, the regulatory issues identified as potentially impeding competition within the aviation industry are also compared with regulations in other countries - United States of America (USA), Australia, UK and the European Union (EU). To find more information on the abovementioned countries' regulatory frameworks, please refer to the information outlined above.<sup>136</sup>

Category	United States of America	India	Comments
----------	--------------------------	-------	----------

<sup>135</sup> Volkova, Nadezhda, –L.I.C Impact on US Airport Businessl, [German Airport Performance GAP Project 9 February 2011 <http://www.garsonline.de/Downloads/110209/Volkova\\_Low\\_Cost\\_USA.pdf>](http://www.garsonline.de/Downloads/110209/Volkova_Low_Cost_USA.pdf)

<sup>136</sup>See annexure.

Number of Airports (open to public)	5710 <sup>137</sup>	128 <sup>138</sup>	US is the largest commercial civil aviation market in the world, <sup>139</sup> while India is the ninth largest <sup>140</sup>
Passenger traffic 2010	786,700,000 <sup>141</sup>	142,000,000 <sup>142</sup>	Potential for growth
Cargo Traffic 2010 (in tons)	23,022,102 <sup>143</sup>	1,600,000 <sup>144</sup> tons	Potential for growth
Government regulation/market participants	Post- 1978 deregulation - government involvement outside of safety, environment, and dispute resolution is fairly light	Regulatory overlap between overseeing agencies, equipment and equity minimums, route assignment, preference given to national airline (financial and traffic rights)	Significant growth and number of market participants exhibited post deregulation
Minimum Fleet Requirements (domestic)	Regulations governing the types of equipment that have to go inside the plane, no minimum requirements	Minimum fleet of 5 aircraft	Since dismantlement of Civil Aviation Board in 1978 - market determines market participants
Minimum Fleet requirements (international)	Regulations governing the types of equipment that have to go inside the plane, no minimum requirements	Minimum fleet of 20 aircraft	Since dismantlement of Civil Aviation Board in 1978 - market determines market participants
Equity requirements	Need to submit a variety of financial	Scheduled: Rs 50 crore for first 5 and for every	No equity requirements per se, but new market

<sup>137</sup>Air Transport Association website <<http://www.airlines.org/ATAResources/AirportsQA/pages/airportsqa.aspx>>

<sup>138</sup>—Transportation in India, [World Bank](http://www.worldbank.org)

<<http://www.worldbank.org.in/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/INDIAEXTN/0,,contentMDK:22354859~pagePK:141137~piPK:141127~theSitePK:295584,00.html>>

<sup>139</sup>Aircraft Aerodynamics and Design Group, Stanford University website

<<http://adg.stanford.edu/aa241/intro/airlineindustry.html>>

<sup>140</sup>—Transportation in India, [World Bank](http://www.worldbank.org)

<<http://www.worldbank.org.in/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/INDIAEXTN/0,,contentMDK:22354859~pagePK:141137~piPK:141127~theSitePK:295584,00.html>>

<sup>141</sup>—2010 Traffic Data for U.S Airlines and Foreign Airlines U.S. Flights: Total Passengers Up from 2009, Still Below 2008, [U.S. Department of Transportation's Bureau of Transportation Statistics](http://www.bts.gov), March 22, 2011,

<[http://www.bts.gov/press\\_releases/2011/bts017\\_11/pdf/bts017\\_11.pdf](http://www.bts.gov/press_releases/2011/bts017_11/pdf/bts017_11.pdf)>

<sup>142</sup>—Transportation in India, [World Bank](http://www.worldbank.org)

<<http://www.worldbank.org.in/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/INDIAEXTN/0,,contentMDK:22354859~pagePK:141137~piPK:141127~theSitePK:295584,00.html>>

<sup>143</sup>Barr Group Aerospace Online website <<http://www.bga-aeroweb.com/FrontPage.html>>

<sup>144</sup>—Transportation in India, [World Bank](http://www.worldbank.org)

<<http://www.worldbank.org.in/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/INDIAEXTN/0,,contentMDK:22354859~pagePK:141137~piPK:141127~theSitePK:295584,00.html>>

	statements, equity to operate for 6 months <sup>145</sup>	additional 5 crafts Rs.20crore(for take-off mass exceeding 40,000kg) Non-scheduled: Up to 2-Rs 2crore, 3 to 5-Rs 5 crore, 6 to 10-Rs 10crore, and more than 10-Rs 15crore.	entrant must show financial viability through disclosure of assets, liabilities, litigation, and submission of a six month business plan and how the company will pay for operations
National Airline preferences	None	Air India is given preference in funding and some routes are reserved for it.	No preference given to any airlines
Route Assignment	None	Route Dispersal Guideline exists	Post- deregulation routes are determined by individual market participants in accordance with customer demand and financial feasibility, while underserved routes are subsidized through the —Essential Air Services Program <sup>146</sup>
Tender announcement/bidding	All agency procurement contracts posted on one government operated database	AAI, AERA and DGCA have their own tender system.	Centralizing the process will bring more transparency to the overall process and attract more potential government contractors
Foreign airlines flying within country	No	No	Same
FDI in foreign airlines	Limited foreigners to 25% voting interest in airline <sup>147</sup>	49% FDI in domestic airlines; currently investment by foreign airlines is not allowed, <sup>148</sup> but changes	Similar requirements

<sup>145</sup>14 C.F.R. § 119.36

<sup>146</sup> —Essential Air Services Program<sup>1</sup> Office of Aviation Analysis, United States Department of Transportation  
<[http://ostpxweb.dot.gov/aviation/x-50%20role\\_files/essentialairservice.htm](http://ostpxweb.dot.gov/aviation/x-50%20role_files/essentialairservice.htm)>

<sup>147</sup>49 U.S.C. § 40102(a)(15)

<sup>148</sup>Civil Aviation Requirements (CAR), Section 3, Air Transport, Series C, Part II

		to the policy are currently under consideration. <sup>149</sup>	
Citizenship requirements for airline ownership	Airlines operating within the United States have at least 2/3 of the board of directors and other managing officers US citizens, 75% voting interest US Citizens <sup>150</sup>	For an airline to operate within India, permit is provided only to an Indian citizen or a company with at least 2/3 of the board of directors Indians, it should be registered and its principal place of business should be India. <sup>151</sup>	Same

<sup>149</sup> Upadhyay, Anindya and Choudry, Shruti —Aviation Ministry turns soft on foreign airlines' entry| *The Economic Times* 14 November 2011 <<http://economictimes.indiatimes.com/news/news-by-industry/transportation/airlines/-aviation/aviation-ministry-turns-soft-on-foreign-airlines-entry/articleshow/10720977.cms>>

<sup>150</sup>49 U.S.C. Section 40102(a)(15)

<sup>151</sup>Civil Aviation Requirements (CAR), Section 3, Air Transport, Series C, Part II

## 8. Stakeholder Interviews

- i. Shri Sandeep Prakash, Secretary Airports Economic Regulatory Authority, AERA Offices, New Delhi (Meeting on 4 November 2011 and written correspondence on 7 December 2011)
- ii. Dr. Nasim Zaidi, Minister of Civil Aviation, New Delhi (Meeting on 9 December 2011)
- iii. Mr. Kannan, Economic Advisor, Ministry of Civil Aviation, New Delhi (Meeting on 21 November 2011 and 9 December 2011)
- iv. Shri Dhanendra Kumar, Chairman Committee for Framing of the National Competition Policy, Ministry of Corporate Affairs (Meeting on 4 November 2011)
- v. Mr. Satyan Nayar, Secretary General, Association of Private Airport Operator (APAO), New Delhi (Meeting on 21 November 2011 and written correspondence on November 25, 2011)
- vi. Dr. K.V. Damodharan, Advisor Regulatory Affairs Association of Private Airport Operator (APAO), New Delhi (Meeting on 21 November 2011)
- vii. Shri Navneet Sharma, Director CIRC, Ministry of Corporate Affairs, New Delhi (Meeting on 4 November 2011)
- viii. Anonymous, Expert with 25 years experience in the airline business, New Delhi
- ix. Anonymous, Financial Expert, New Delhi

## 9. References

### Papers and Newspaper Articles:

AAI Materials Management Manual - 2005

<[http://www.aai.aero/righttoinformation/MATERIALS\\_MANAGEMENT\\_MANUAL.pdf](http://www.aai.aero/righttoinformation/MATERIALS_MANAGEMENT_MANUAL.pdf)>

AAI Tenders:

<[http://203.145.141.162/cms/ContractAwardSearchReportP.aspx?loc=ALL&dep=ALL&nam=&cf=&ct=&crt=Rs\(INR\)&crm=Unit&af=&at=>](http://203.145.141.162/cms/ContractAwardSearchReportP.aspx?loc=ALL&dep=ALL&nam=&cf=&ct=&crt=Rs(INR)&crm=Unit&af=&at=>)

—Airlines hit turbulence| Deccan Herald 14 November 2011

<[http://www.google.co.in/search?q=1&oq=ATF+prices+in+India&gclid=chrome&ie=UTF-8&q=atf+prices+in+india+2011#q=atf+prices+in+india+2011&hl=en&prmd=imvns&source=lnms&tbm=nws&ei=VvXATqyxOYHrrQeotoS9AQ&sa=X&oi=mode\\_link&ct=mode&cd=5&ved=0CBkQ\\_AUoBA&bav=on.2,or.r\\_gc.r\\_pw.r\\_cp.,cf.osb&fp=db245ac83c23a06a&biw=1366&bih=624 >](http://www.google.co.in/search?q=1&oq=ATF+prices+in+India&gclid=chrome&ie=UTF-8&q=atf+prices+in+india+2011#q=atf+prices+in+india+2011&hl=en&prmd=imvns&source=lnms&tbm=nws&ei=VvXATqyxOYHrrQeotoS9AQ&sa=X&oi=mode_link&ct=mode&cd=5&ved=0CBkQ_AUoBA&bav=on.2,or.r_gc.r_pw.r_cp.,cf.osb&fp=db245ac83c23a06a&biw=1366&bih=624 >)

—Airlines shares rally as minister says FDI is under consideration| NDTV Profit 19 October 2011

<<http://profit.ndtv.com/news/show/airlines-shares-rally-as-minister-says-fdi-is-under-consideration-183702>>

—Airports|, Indian Business Equity Foundation, November 2010

—Airports Economic Regulatory Authority of India Act, 2008

< <http://www.aera.gov.in/documents/pdf/AERA-Act2008.pdf> >

—Airports Economic Regulatory Authority Order No.13 of 2010-11|

< <http://www.aera.gov.in/writereaddata/order/172.pdf> >

—Airport Slot Allocation: The Commission clarifies the existing rules| European Commission, Brussels 30 April 2008

<<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/672&format=HTML&aged=0&language=EN&guiLanguage=en >>



—Airports to light up for 100 years of aviation|, Times of India, 15 February 2011

<[http://articles.timesofindia.indiatimes.com/2011-02-15/mangalore/28544590\\_1\\_mangalore-airport-m-r-vasudeva-flight](http://articles.timesofindia.indiatimes.com/2011-02-15/mangalore/28544590_1_mangalore-airport-m-r-vasudeva-flight)>

Boyfield, Keith (editor), Bass, Tom, Humphreys, Barry, and Starkie —A Market in Airport Slots| Institute for Economic Affairs 2003

<<http://www.slottrade.aero/library/IEA%20A%20Market%20In%20Airport%20Slots.pdf>>

Brough, Wayne, Clarke, Edward and Tideman, Nicolaus —Airport Congestion and Noise: Interplay of Allocation and Distribution| Transportation Research Record, National Academy Sciences (1450), 1995, pp 3-7)

<[http://clarke.pair.com/ANCW.html#N\\_2\\_](http://clarke.pair.com/ANCW.html#N_2_)>

Carlson Dylan, Farouq Nadine, Shepherd Justin, —Global FDI Trends an International Trade and Investment Policy Capstone Project|, The U.S. Department of Commerce International Trade Administration , 17 April 2009

<[http://elliott.gwu.edu/assets/docs/acad/itip/globalFDI\\_commerce\\_ita.pdf](http://elliott.gwu.edu/assets/docs/acad/itip/globalFDI_commerce_ita.pdf)>

—Central Vigilance Commission’s (CVC’s) Observations| Indian Institute of Materials and Management

<[http://www.iimm.org/knowledge\\_bank/10\\_central-vigilance-commission-observation-july.htm](http://www.iimm.org/knowledge_bank/10_central-vigilance-commission-observation-july.htm)>

—CAP 754: UK Regional Air Services: A Study by the Civil Aviation Authority| Civil Aviation Authority 24 February 2005

<<http://www.caa.co.uk/docs/33/CAP754.PDF>>

—Competition Issues in the Air Transport Sector in India|, Competition Commission of India

—Cost of ATF in India| Federation of Indian Airlines

<[http://www.fiaindia.in/Cost\\_of\\_ATF.htm](http://www.fiaindia.in/Cost_of_ATF.htm)>

—Competition and Collaboration: The New Challenge Facing Hong Kong International Airport| Airport Authority of Hong Kong

<[http://cicc.ust.hk/past/2826\\_1531482g.pdf](http://cicc.ust.hk/past/2826_1531482g.pdf)>

Cohen, Jeffrey P. and Coughlin, Cletus C —Congestion at Airports: The Economics of Airport Expansion| Federal Reserve Bank of St. Louis May/June 2002

Czerny Achim I., —Price-cap regulation of airports: single-till versus dual-till, Berlin, 15 March 2005  
<[http://www.fep.up.pt/conferences/earie2005/cd\\_rom/Session%20I/I.G/czerny.pdf](http://www.fep.up.pt/conferences/earie2005/cd_rom/Session%20I/I.G/czerny.pdf)>

Czerny, Achim, Tegner, Henning —Secondary Markets for Runway Capacity| Berlin University of Technology  
<[http://www.imprint-eu.org/public/Papers/IMPRINT\\_Czerny&Tegner.pdf](http://www.imprint-eu.org/public/Papers/IMPRINT_Czerny&Tegner.pdf)>

Das, Dabrata —Regional Routes: the next big thing?!|The Hindu 18 September 2011  
<<http://www.thehindubusinessline.com/industry-and-economy/logistics/article2465324.ece>>

Dasgupta, Paramita, Ponnaluri, Raj, and Allamraju, Ashvita —Competition Issues in the Air Transport Sector in India| Competition Commission of India  
<[http://www.cci.gov.in/images/media/completed/transport\\_20090421133744.pdf](http://www.cci.gov.in/images/media/completed/transport_20090421133744.pdf)>

—Economic Foundations of Competition Law: Chapter 1|Asian Development Bank  
<<http://www.adb.org/Documents/Others/OGC-Toolkits/Competition-Law/documents/chap1.pdf>>

—Essential Air Service Program| US Department of Transportation: Office of Aviation Analysis 19 July 2010 <[http://ostpxweb.dot.gov/aviation/x-50%20role\\_files/essentialairservice.htm](http://ostpxweb.dot.gov/aviation/x-50%20role_files/essentialairservice.htm)>

—Essential Air Service: Changes in Subsidy Levels, Air Carrier Costs, and Passenger Traffic| United States General Accounting Office (GAO) April 2000: p5.  
< [http://ostpxweb.dot.gov/aviation/x-50%20role\\_files/GAO%20EAS.pdf](http://ostpxweb.dot.gov/aviation/x-50%20role_files/GAO%20EAS.pdf)>

—Fiscal Issues| Federation of Indian Airlines  
<[http://www.fiaindia.in/fiscal\\_issues.htm](http://www.fiaindia.in/fiscal_issues.htm)>

Forsyth, Peter, The Economic Regulation of Airports, German Aviation Research Society: p 129.

—Government to set up Aviation University, says Vayalar Ravi| The Economic Times 17 October 2011  
<<http://economictimes.indiatimes.com/news/news-by-industry/transportation/airlines/-aviation/government-to-set-up-aviation-university-says-vayalar-ravi/articleshow/10392218.cms>>

—Guidelines on the application of Articles 92 and 93 of the EC Treaty and Article 61 of the EEA Agreement to State aids in the aviation sector| European Regions Airline Association  
<<http://www.eraa.org/issues/government-affairs/629-state-aid-for-airport-financing-and-route-start-up-aid-to-airlines>>

Haldea, Gajendra —The Infrastructure Challenge| Business Standard India 2008, February 2008  
<<http://www.gajendralhaldea.in/pdf/Business-Standard-India-202008.pdf>>

—Indian Aerospace Industry Analysis|, RNCOS, January 2011

—IndiGo - Details and Fleet History| PlaneSpotters 12 September 2011  
<<http://www.planespotters.net/Airline/IndiGo>>

International Air Transport Association Worldwide Slot Guidelines| IATA August 2011  
< <http://80.168.119.219/UserFiles/File/w-slot-g.pdf> >

—Introducing Commercial Allocation Mechanisms: The UK Civil Aviation Authority's Response to the European Commission's Staff Working Paper on Slot Reform| UK Civil Aviation Authority November 2004: Section 18, p 5.

Kacker M., —Competition and Regulatory Deficit in Civil Aviation Sector in India|, CUTS Institute of Regulation and Competition (CIRC).

Kepplinger, Gary L. —Federal Aviation Administration—Authority to Auction Airport: Arrival and Departure Slots and to Retain and Use Auction Proceeds| United States' Government Accountability Office 30 September 2008  
<<http://www.crowell.com/PDF/Federal-Aviation-Administration-Authority-to-Auction-Airport-Arrival-Departure-Slots.pdf>>

—Medvedev seeks teeth for anti-corruption drive | BusinessNewEurope (reprinted in Johnson's Russia List), 30 March 2011

< <http://www.cdi.org/russia/johnson/russia-corruption-medvedev-631.cfm> >

—Now Boarding - Indian Airports 2006 | KPMG 2006

Odoni, Amedeo R., —Economic Regulation and Capital Financing | MIT, 2007,

<[http://ardent.mit.edu/airports/ASP\\_current\\_lectures/ASP%2007/Regulation%20and%20Financing%2007.pdf](http://ardent.mit.edu/airports/ASP_current_lectures/ASP%2007/Regulation%20and%20Financing%2007.pdf)>

Ohri, Manuj, —Airport Privatization in India - A Study of Different Modes of Infrastructure Provision | Faculty of Management Studies, University of Delhi, 2006

—Oil min may reject ATF import move | The Financial Express 12 December 2011

<<http://www.financialexpress.com/news/oil-min-may-reject-atf-import-move/886736/1>>

Operation, Management and Development Agreement between the Airports Authority of India and Delhi International Airport Private Limited

<[http://www.aai.aero/righttoinformation/OMDA\\_DIAL.pdf](http://www.aai.aero/righttoinformation/OMDA_DIAL.pdf)>

Panday, Ajay, Morris, Sebastian, G. Raghuram —Structuring PPPs in Aviation Sector: Case of Delhi and Mumbai Airport Privatization | Indian Institute of Management Ahmedabad

<<http://infrastructure.gov.in/pdf/case-study-final-251010.pdf>>

—Passing the buck: the passing-on defence in cartel damages cases, | Agenda, Oxera, August 2007

Pradeep Mehta (Secretary General, CIRC), Design Workshop for Sector Studies, Ministry of Corporate Affairs, September 2011

Procedure Manual Directorate of Regulations & Information, Government of India Office of the Director General of Civil Aviation, p 10

—Regulatory Objectives and Philosophy in Economic Regulation of Airports and Air Navigation Services| Airports Economic Regulatory Authority of India 22 December 2009  
<<http://aera.gov.in/writereaddata/consultation/28.pdf>>

—Regulatory Performance Report 2008| ANAC: AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL (Brazil's Civil Aviation Authority)  
<[http://www2.anac.gov.br/portal/templates/hm/Portal/arq/relatorio\\_anac\\_ing.pdf](http://www2.anac.gov.br/portal/templates/hm/Portal/arq/relatorio_anac_ing.pdf)>

—Remarks of Giovanni Bisignani at the British Chamber of Commerce, Sao Paulo| IATA 15 March 2011  
<<http://www.iata.org/pressroom/speeches/pages/2011-03-15-01.aspx>>

—Report of the Committee on A Road Map for the Civil Aviation Sector|, Ministry of Civil Aviation, Government of India, 30 November 2003

Report of the Sub-Group on Infrastructure Development for Civil Aviation [for formulation of 11<sup>th</sup> Five Year Plan], p 71

Rodrigue, J-P *et al.* —The Geography of Transport Systems|, Hofstra University, Department of Global Studies & Geography, 2009  
<<http://people.hofstra.edu/geotrans/eng/ch3en/conc3en/ch3c1en.html>>

Ryanair Celebrates Record Year in 2010| Ryan Air News Release 4 January 2011  
<<http://www.ryanair.com/en/news/ryanair-celebrates-record-year-in-2010>>

Salgado, Lucia H., —The Regulation of the Airline Industry in Brazil| American Law & Economics Association Annual Meetings, Berkley Electronic Press 2005

Sanjai, P.R. —India to talk to 40 countries on bilateral air service pacts| LiveMint 7 October 2011  
<<http://www.livemint.com/2011/10/07000747/India-to-talk-to-40-countries.html>>

Shah N., —Competition issues in Civil Aviation Sector|, Study Paper, Competition Commission of India, 2007

Shepherd, William G. The Economics of Industrial Organization: Fourth Edition, Prentice Hall 1996

Shukla, Tarun —Aera-govt conflict may get worsel LiveMint 6 October 2011

<[http://epaper.livemint.com/ArticleImage.aspx?article=06\\_10\\_2011\\_001\\_013&mode=1](http://epaper.livemint.com/ArticleImage.aspx?article=06_10_2011_001_013&mode=1)>

Shukla, Tarun —Aera tells government it's not against private airports' interests! LiveMint 2 October 2011

<<http://www.livemint.com/2011/10/02230542/Aera-tells-government-it8217.html?h=B>>

Siddiqi, Asif, —Deregulation and Its Consequences!, US Centennial of Flight Commission,

<[http://www.centennialofflight.gov/essay/Commercial\\_Aviation/Dereg/Tran8.htm](http://www.centennialofflight.gov/essay/Commercial_Aviation/Dereg/Tran8.htm)>

Singhal, Manisha —40 senior pilots quit Kingfisher!, The Economic Times 10 February 2010

<[http://articles.economictimes.indiatimes.com/2010-02-10/news/28384235\\_1\\_kingfisher-spokesperson-trainee-senior-pilots](http://articles.economictimes.indiatimes.com/2010-02-10/news/28384235_1_kingfisher-spokesperson-trainee-senior-pilots)>

—Skewed priorities failing airlines' mergers: Experts!, Business Standard, 3 October 2011

Starkie, David —The Airport Industry in a Competitive Environment: A United Kingdom Perspective! Discussion Paper No. 2008-15 July 2008 OECD and International Transport Forum

<<http://www.internationaltransportforum.org/jtrc/discussionpapers/DP200815.pdf>>

Sundaram, Karthikeyan —Indian May Expand Flight Access for US, the UK, 33 Other Nations! Bloomberg News 17 October 2011

<<http://www.bloomberg.com/news/2011-10-17/india-may-expand-flight-access-for-u-s-u-k-33-other-nations.html>>

Suresh, Padmalatha —Greenfield airport projects - time for private-public partnerships to take off! The Business Standard 29 July 2005

<<http://www.thehindubusinessline.in/2005/07/29/stories/2005072900130800.htm>>

—Tough operating conditions to put off overseas players: Jetl CNBC 20 October 2011

<[http://www.moneycontrol.com/news/business/toughoperatingconditiontoputoffove\\_602315.html](http://www.moneycontrol.com/news/business/toughoperatingconditiontoputoffove_602315.html)>

—Transportation in India, World Bank,

<<http://www.worldbank.org.in/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/INDIAEXTN/0,,contentMDK:22354859~pagePK:141137~piPK:141127~theSitePK:295584,00.html>>

Upadhyay, Anindya and Choudry, Shruti —Aviation Ministry turns soft on foreign airlines' entryl The Economic Times 14 November 2011

< <http://economictimes.indiatimes.com/news/news-by-industry/transportation/airlines/-aviation/aviation-ministry-turns-soft-on-foreign-airlines-entry/articleshow/10720977.cms>>

Volkova, Nadezhda, —LLC Impact on US Airport Businessl, German Airport Performance GAP Project 9 February 2011

<[http://www.garsonline.de/Downloads/110209/Volkova\\_Low\\_Cost\\_USA.pdf](http://www.garsonline.de/Downloads/110209/Volkova_Low_Cost_USA.pdf)>

—World Air Cargo Forecast 2010-11l, Boeing,

<<http://www.boeing.com/commercial/cargo/wacf.pdf>>

—2010 Traffic Data for U.S Airlines and Foreign Airlines U.S. Flights: Total Passengers Up from 2009, Still Below 2008l, U.S. Department of Transportation's Bureau of Transportation Statistics, 22 March 2011,

< [http://www.bts.gov/press\\_releases/2011/bts017\\_11/pdf/bts017\\_11.pdf](http://www.bts.gov/press_releases/2011/bts017_11/pdf/bts017_11.pdf)>

### **Websites:**

Aircraft Act of 1934,  
<http://dgca.nic.in/rules/1937-ind.htm>

Air India website,  
[http://www.airindia.ch/joomla/index.php?option=com\\_content&task=view&id=19&Itemid=45](http://www.airindia.ch/joomla/index.php?option=com_content&task=view&id=19&Itemid=45)  
<http://home.airindia.in/SBCMS/Webpages/Destinations.aspx?MID=26>

Air Transport Association website,  
<http://www.airlines.org/ATAResources/AirportsQA/pages/airportsqa.aspx>

Aircraft Aerodynamics and Design Group, Stanford University website,  
<http://adg.stanford.edu/aa241/intro/airlineindustry.html>

Airport Coordination Limited,  
<http://www.acl-uk.org/>

Airports Authority of India website  
[http://www.aai.aero/public\\_notices/aaisite\\_test/orign.jsp](http://www.aai.aero/public_notices/aaisite_test/orign.jsp)

Barr Group Aerospace Online website,  
<http://www.bga-aeroweb.com/FrontPage.html>

Directorate General of Civil Aviation website,  
<http://dgca.nic.in/>

Federal Aviation Administration website,  
[www.faa.gov](http://www.faa.gov)

Indian Institute of Material Management  
[http://www.iimm.org/knowledge\\_bank/10\\_central-vigilance-commission-observation-july.htm](http://www.iimm.org/knowledge_bank/10_central-vigilance-commission-observation-july.htm)

Ministry of Environment and Forest website,  
<http://envfor.nic.in/divisions/ic/wssd/doc2/ch5.htm>

Research and Innovative Technology Administration (RITA), US Department of Transportation  
[http://www.bts.gov/programs/airline\\_information/sources/](http://www.bts.gov/programs/airline_information/sources/)

Transport Corporation of India Limited website,  
<http://www.tcil.com/ca.asp#air>