

Transformation of India's domestic airlines: A case study of Indian Airlines, Jet Airways, Air Sahara and Air Deccan

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Abstract

India, home to one-sixth of the world's population, is quickly becoming one of the world's economic engines. Its bureaucratic and outdated regulatory policies have been reformed resulting in a three-fold increase in the number of scheduled airlines and a five-fold increase in the number of aircraft operated. This paper reviews how the new regulatory roadmap has transformed the supply of domestic air services. A large passenger survey conducted in Mumbai investigated the sensitivity of passengers to a change in fare and which flight products would encourage them to select either a full service airline or a low cost carrier. The study finds that there is a homogenous set of flight products required by leisure passengers, travelling on both full service and low cost airlines, however there is a considerable dissimilarity overall between the requirements of passengers using a full service airline and a low cost carrier.

Keywords: Deregulation, India, Low Cost Carriers, Passenger Survey.

1.0 Introduction

India is a vast country with a land frontier of 15,200km and a coastline of 7500km that is home to over 1 billion people, one-sixth of the world's population, and has been in the midst of an economic transformation. According to the Financial Times (2004) its real GDP growth rate was less than 1% in 1991, however by 2003 that figure had risen to 8.5%. According to the Airbus Global Market Forecast (2004-2023)¹, both China and India are set to become the world's largest consumer markets within the next 25 years, with a combined purchasing power five times greater than that of the United States today. According to Indian Government census data, there were just 5 cities in the country with populations of over 1 million inhabitants in 1951, but that figure had grown to 35 cities by 2001 and it is forecast that there will be 70 cities of this size by 2026 (Financial Times, 2004).

The high annual growth in India's services sector contrasts strongly with the country's languishing rural economy. Sridharan (2002) argues that India's software industry is revolutionising the economy. Rathinasamy et al (2003) provide evidence that service industry revenues exceeded US\$10 billion in 2002, with software predicted to account for around 25% of India's total exports in 2003. In addition, its outsourcing business base is growing at 30-40% per year. Kripalani and Engardio (2003) estimate that by 2008 India's IT services and back-office work will swell fivefold to a US\$58 billion annual export industry. Corporate earnings are forecast to rise 21% in 2006. India's GDP measured in terms of Purchasing Power Parity is currently the fourth largest in the world². Labour costs for highly skilled people in India are around one-fifth of those in the United States.

¹ http://www.airbus.com/en/myairbus/global_market_forecast.html.

² http://en.wikipedia.org/wiki/Economy_of_India.

Button et al (1999) emphasise that the number of high-tech jobs correlates strongly with the volume of air travel. With 58% of India's population aged 15 and above literate and a rapidly expanding communications infrastructure (3 million mobile phones being added monthly), there is a sharp contrast with India's aviation sector which has not kept pace with the country's rapidly growing economy. O'Connell (2005) showed that the number of commercial aircraft operating in India has remained basically the same since 1948, with only 170 aircraft currently registered. This compares to 7,000 in the United States. The country handles only a total of 600 commercial flights daily. By comparison, Singapore's Changi airport handles 3,200 flights daily. Between 1989 and 2000, China increased its airline seat capacity by almost 500%, while India's grew by a mere 40%. The latter's entire aviation infrastructure shows signs of neglect. Less than one per cent of India's population flies each year, with 14 million people relying daily on the cheaper, but outdated 150-year old railway system. In 2003, Indian carriers carried 14.7 million domestic passengers, roughly equal to five days demand in the United States.

Propensity for air travel in India is currently 0.1 trips per person per year, a fraction of the global average of 2.0. Incoming tourism has remained largely stagnant for years due to the government's inadequate aviation policy and its shortsightedness regarding the country's tourism potential. According to Gopinath (2005), there are 400 airports in India, nearly half of which have no service even including areas such as national parks and world treasures, such as the Taj Mahal. Singh (1997) estimated that there were 100 million domestic tourists in 1995 and most of these would have travelled either by bus or train. By 2003 however, the World Travel and Tourism Council (2005) estimated that the number of domestic tourists had reached 270 million. This shows the enormous potential that exists for India's domestic carriers. Travel and tourism in India generated US\$38.8 billions of economic activity in 2004, which is expected to rise to US\$90.4 billions (in nominal terms) by 2014, representing an increase in real terms of 8.8% per annum. IATA (2004) forecasts for the period 2004 to 2008 indicate that

passenger traffic within the Asia-Pacific region will record the world's highest growth of 8.3% per annum. In 2004 alone, India witnessed air traffic growth of 25%.

Considerable world aviation attention is now focussed on India, as evidenced by the 150 aircraft order by Indian carriers at the 2005 Paris air show, priced at US\$13 billions. According to the Centre for Asia Pacific Aviation (2005), Indian airlines have ordered a total of 490 aircraft over the last 18 months. India is committed to a fleet growth of 164%, compared to a world average of only 2.7%. The sudden surge is the result of three factors: the easing of tight regulatory constraints, a booming economy and the 300 million middle class Indians that can now afford air travel. India has now become the next milestone in global airline development and aviation's most dynamic market.

2.0 India's Airlines

In 1992 the government took the first step to open up the domestic market and allow private carriers to operate domestic flights under the air transport operator (ATO) licence. There was a rush for licences as players like East West Airlines and Jet Airways emerged with high-profile launches. Soon, about 40 companies from all manner of backgrounds applied for ATO licences. Airlines such as Damania Airways and Modiluft started nationwide operations. However, these start-up carriers had to comply with the traffic allocation rules, whereby they were required to allocate some capacity on unprofitable regional routes in Northeast India. As expected, few survived the experience and today only Jet Airways and Air Sahara remain.

Fuelled by discounted fare options and the growing wealth base of India's population, domestic air travel has been growing rapidly. At the beginning of 2005, there were four principle airlines operating domestic services. They include three full service airlines, Indian

Airlines³, Air Sahara and Jet Airways, and one low cost carrier, Air Deccan. Figure 1 shows India's domestic and international passenger growth over the period 1995-2004. The domestic market performed relatively poorly up until 2002, but thereafter it soared with a year-on-year compound growth rate of 10%, while international traffic expanded at a compound annual growth rate of 8.5% between 1995 and 2004.

Figure 1

2.1 Air India

Air India primarily operates international sectors, with its only domestic flights being part of its international services. It serves only 11 domestic cities and holds just over 5% of the domestic market. These flights mostly operate between 10 pm and 6 am and link Mumbai with major cities, such as Delhi, Chennai, Cochin, Bangalore and Hyderabad. Passengers are offered attractive fares to compensate for the unsocial flight timings. In 2004, the airline carried 3.3 million passengers on its international scheduled services and an additional 900,000 on its domestic flights using 35 long-range widebody aircraft (DGCA, 2003-04). Carriers based in the Middle East are competing vigorously with Air India, with for example 53% of the traffic between India and the UK connecting via airports in the Gulf. To protect its market Air India set up a low cost subsidiary, Air India Express, in April 2005 to compete more effectively with Emirates, Qatar Airways, Gulf Air and Etihad Airways on routes to/from the Gulf region with over 2.4 million Indian passengers annually. This geographical link is very important to Air India as it generates over one-third of its revenues. Air India Express' fares are pegged at 30% below existing levels, with the low cost subsidiary paying an annual royalty to its parent company.

³ Indian Airlines also has a subsidiary called Alliance Air that operates a fleet of 12 ageing Boeing 737-200.

2.2 Indian Airlines

The Government of India created Indian Airlines in 1953 by nationalising eight domestic operators. The airline was to be solely responsible for all operations within the country, while its sister Air India was to be the designated carrier for all international services. The monopoly of Indian Airlines was broken only in the late 1980s when the Government initiated the first tentative steps to open up the domestic market to private carriers. Williams (2002) states that six air taxi operators, Archana, Damania⁴, East-West, Jet Airways, ModilLuft and NEPC Airlines had scheduled airline status conferred upon them. By 1995, these private carriers had a 35% share of the overall domestic market, with Indian Airlines accounting for the rest. Today only two private companies remain as providers of mainstream services, namely Air Sahara and Jet Airways.

Indian Airlines currently flies to 32 destinations with its ageing fleet of 47 aircraft. In 2004 it carried a total of 5.9 million passengers and over 97,000 tons of cargo, operating 94,000 flights (DGCA, 2003/04). The airline made a net profit of \$10 million in 2003/04, as against a net loss of half a million dollars in the previous year. The Directorate General of Civil Aviation (DGCA) estimates that Indian Airlines now has only around 43% of the domestic market. The carrier's capacity has been stagnant since 1997/98 due to the government's reluctance to sanction the purchase of new aircraft. It has still to approve the purchase of 43 long-awaited Airbus aircraft valued at \$2 billion. By contrast, its private sector rivals have increased their capacity by two-and-a-half times since 1997/98.

To meet the competition posed by the private sector, Indian Airlines formed a subsidiary, Alliance Air, in 1999 operating a fleet of 12 older generation Boeing 737-200s with an average age of 23 years, in comparison to the 5 years average of the private airlines. Lennane (2004) states that Indian Airlines has plans to transform its regional subsidiary into a low cost

⁴ Damania was renamed Skyline NEPC in 1996 and is now trading as Air Sahara.

operation. If this materialises, it would then replace its ageing fleet with Airbus 319s and ATR turboprops, but continue to feed traffic into Indian Airlines hub airports, thus defying the logic of the low cost airline business model.

In recent years, Indian Airlines has been paying increasing attention to its international operations. The airline was allowed in the early 1990s to be the second designated carrier on many routes to South East Asia and the Middle East. As a result, the international network of the airline now extends to sixteen destinations. The international passenger share of its total traffic has grown from 9% in 1994/95 to 17% in 2002/03 (DGCA 2002-03). Hanlon (2000) argued that a merger between Air India and Indian Airlines would allow a thoroughfare between a readymade international network and a vast domestic one and that this would generate extensive economies of scope.

According to Mayes (1996) only 20 of Indian Airlines' 70 routes were profitable, with the core of its business built on the golden quadrangle linking Bombay, New Delhi, Madras and Calcutta. The loss making routes were linked to government legislation that required the carrier to serve the Northeast region, even though it was greatly uneconomic to do so. Kashyap (2005) indicated that Indian Airlines currently flies to 11 northeastern destinations while private operators serve only five. It operates 129 services per week on unprofitable routes, while the private operators fly only 35. Although the state-owned carrier has a social responsibility to provide air services to peripheral communities, the Indian Government does not provide support to offset losses on these sectors. The carrier employs 19,500 staff, resulting in a ratio of around 414 employees per aircraft (125 or fewer is a typical Western equivalent for a full service carrier). In addition, Iondies (April 2003) points out that Indian law does not allow outsourcing within the domestic arena.

2.3 Jet Airways

Jet Airways has carried over 55 million passengers since the airline's inception in May 1993. It reported a 140% growth in after-tax profit for the financial year ended 31 March 2004 on the back of healthy revenue growth and efficiency gains (ATI, May 2005). It carried 7 million passengers in 2005 with a fleet of 41 aircraft. During that year the airline is estimated to have had a 43 per cent share of the domestic market, operating over 275 flights to 42 destinations.

In its initial years, the carrier was 40% owned by Gulf Airways and Kuwait Airways, but was dissolved several years later following a government decision banning foreign equity participation in private airlines. Until recently, it was fully owned by the Isle of Man-based company, Tailwinds, which in turn is wholly owned by Mr Goyal, CEO of Jet Airways. Jet is the first Indian carrier to raise funds via an IPO. In 2005 it sold a 20% stake raising \$444 million. The stock market has valued the company at \$2.2 billion (ATI, February 2005). The productivity of Jet Airways is more than twice that of Indian Airlines, with 168 employees per aircraft. The airline has had the distinction of being repeatedly judged India's 'Best Domestic Airline' and has won several national and international awards.

Jet Airways was granted bilateral rights to serve its neighbouring countries of Nepal and Sri Lanka in 2003. By 2004, the Indian Government had further liberalized the country's traffic rights allowing the private carriers to operate services from India to member countries of the South Asian Association for Regional Cooperation (SAARC). These countries include Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. The move was initiated as India's state-owned airlines were operating only 30 flights per week to this region while SAARC carriers were operating 88 weekly flights to India (ATI, Dec 2003). Jet currently only operates to Singapore and Kuala Lumpur. By 2005, the Indian Government had further cleared the way for private carriers to operate on high-profile

international routes, such as to London and New York, using bilateral rights that were unused by Air-India and Indian Airlines due to lack of aircraft. Jet immediately capitalized on this opportunity by leasing wide-body aircraft from South African Airlines, which are operating daily to London Heathrow. Sheety (2004) expects Jet's international routes to account for 10-15 per cent of its turnover in 2005. It has interline agreements with 122 international airlines which allows passengers to use interline documents on Jet Airways for their travel. To further its expansion strategy, the carrier placed a substantial order for 30 aircraft at the 2005 Paris Air show. It currently hosts the youngest fleet in Asia where the average age of its aircraft is four years. Hooper (1997) states that new entrant strategies in India have been focused on use of modern aircraft, frequency and customer service.

2.4 Air Sahara

Sahara Airlines is part of the huge Sahara micro-banking empire that encompasses real estate, consumer products, media, small-scale loans and saving accounts. A former president of United Airlines, Rono Dutta, manages it. In 2003/04 it carried over 1.9 million passengers and 19,700 tons of cargo, operating 33,600 flights. It made a net profit of just over \$220,000 (DGCA, 2003/04) after consecutive net losses of \$8.5 million for 2002-03 and \$36 million for 2001-02. The airline operates 20 short haul aircraft that connect 24 destinations with 123 daily flights. Unlike Jet Airways, it does not serve as a domestic feeder. The airline had originally planned to acquire larger Boeing 757s but was refused permission by the Government as state legislation then confined private operators to aircraft with 150 seats or less (Mhatrey, 1999). In early 2003, Air Sahara became the first airline to introduce regional jets into India. It ordered 20 Canadair CRJ-200 aircraft in order to link smaller towns with its hubs at Delhi, Hyderabad, Kolkata and Mumbai. It has 164 employees per aircraft operated.

Air Sahara has pioneered a number of innovative features for the Indian traveller, including standby fares, extra baggage allowance, airport valet services, etc. It also launched a significantly improved business class product and has managed to entice many business travellers from its competitors, Indian Airlines and Jet Airways (Ionides, 2003). Its uniqueness is also reflected by the manner in which it sells tickets, as it auctions its surplus capacity through the Internet and gives its customers the opportunity to pay for tickets over 12 monthly instalments at no interest via a local linkup with ICICI Banks. Kumar (2005) stated that Air Sahara's strengths are "efficiency, outsourcing of maintenance, high fleet utilisation and creating sufficient backups in the utilisation model to maintain schedule integrity, ultimately reducing costs by up to 20%".

2.5 Air Deccan and India's proliferation of emerging low cost airlines

According to the Centre for Asia Pacific Aviation up to 14 Low Cost Carriers are preparing to launch services in India in 2005 and 2006, with another 5-6 in the planning stage. That is more than the total complement of such airlines operating in the whole of the Asia Pacific region and the Middle East in 2004. These start-up carriers have commitments for over 130 aircraft. Kaul (2005), head of the Centre for Asia-Pacific Aviation in India, stated that there would be 5 million new air travellers in India every year, taking the total number of air travellers to around 50 million by 2010. Skilled manpower shortages and infrastructure limitations however, will act as potential constraints on development, even before these new operators take to the skies.

Air Deccan, India's first low cost carrier, began operations in August 2003 with four turbo-prop ATR-42 aircraft. This pioneering budget airline is strategically based at Bangalore, the centre of the booming IT industry that accounts for 35% of India's software exports, which attracts young, relatively affluent workers from all over the subcontinent. The carrier was forecast to fly four million passengers in 2005, up fourfold from the previous year. In

December 2004, the company sold a 26% shareholding to ICICI Venture Funds and US-based Capital International, who have jointly committed \$40 million of which \$30 million will be put towards aircraft acquisition (ATI, April 2005). Five leading international banks, Calyon, Grindlays, Barclays, HSBC and StanChart, are also in the race to fund Air Deccan's fleet expansion plan. The investment interest in Indian aviation and its potential capitalization is highlighted by the fact that European export credit agencies, such as Coface, Hermes and EGDC, are ready to cover up to 85% of the loan with its guarantee.

Similar to Air Asia of Malaysia, the Indian low cost carrier is to expand its brand into neighbouring countries as the regulatory authorities has approved the franchise of Air Deccan to operate from Sri Lanka under the label of 'Deccan Lanka'. This is a clever strategy to gain international market share as Indian carriers are required to operate domestically for a period of five years before being allowed to operate internationally. By mid-2005, Air Deccan had captured 10% of the domestic market, serving 32 destinations and operating close to 100 flights daily (Economic Times of India, June 2005). It currently has a fleet of five Airbus A320, 13 ATR 42 and one ATR 72. It has ordered a further 63 A320 and 27 ATR-72 aircraft, valued at \$3.8 billion. Kuruvila (2004) states that Air Deccan's turnaround time for its ATR fleet is 15-20 minutes and 30 minutes for the A320, compared to the one hour taken by Jet Airways. Air Deccan achieves load factors of 80-85% on the ATRs and 90-95% on the A320s. Rather unusually, pilot salaries are linked to the load factor of the aircraft. Although turbo-props are not typically operated by low cost airlines, the fact that India's Civil Aviation Authority waived landing charges for aircraft having less than 80 seats or being less than 21 tonnes in weight may have been influential in this regard. Navigational charges were also reduced by 40% for aircraft with less than 80 seats (Asian Airlines and Aerospace, 2004).

Almost 40% of Air Deccan's passengers are first-time fliers. Kuruvila (2004) explains that in order to drive awareness and brand image of a low fares airline, the carrier sells 1000 tickets

every month for one Rupee⁵, with the next block of tickets sold at Rs 500 plus taxes. The total number of seats offered in 2005 is estimated to be over 4 million, with around half pegged at 50% of regular airline fares and the rest priced 25-40% lower. Air Deccan even offers a free extra ticket to passengers when it cancels a flight, which is a first among airlines. The carrier is aiming to draw around at least 10% of its revenues from advertising and in-flight sales.

Air Deccan has India's largest e-commerce website. While distribution accounts for between 23% and 28% of the costs of full-service airlines, for Air Deccan the figure is only 6% to 7%. The carrier has taken advantage of India's software expertise for its online booking, using local provider, Interglobe. The application service provider replaces the expensive international alternative, Navitare. The number of people with credit cards and Internet access within India however, remains very low in comparison to western countries. To help overcome this, the carrier has implemented an agreement with HPCL, a large oil company with around 6000 outlets across the country, in which its service stations will sell tickets via dispensing kiosks as they are already wired with Internet connections and customers have the choice of using a credit card or paying cash. The petrol station owners in return earn a five per cent commission. In addition, ATMs at banks will also be wired for airline ticket sales (Economic Times of India, March 2005). Air Deccan's emphasis of technology application is further emphasised as it also sells tickets through a mobile phone SMS texting system. Three million additional mobile phone users are subscribing each month in India. Air Deccan also has a co-branded credit card with the ICICI bank, which enables customers to receive instant credit with up to 45 days to pay.

Table 1 lists performance indicators for India's domestic carriers, as well as for Air India. The privately owned airlines show healthy performance indicators in contrast to the poor results of the two state-owned carriers.

⁵ One Rupee is equal to \$0.0001, Natwest Bank London, December, 2005.

Table 1

Table 2 lists the new airlines that recently entered the Indian domestic market. Their entry will pose particular problems for government-owned Indian Airlines, whose domestic market share has fallen from 67% in 1993 to 43% currently. Singh (2004) states that carriers only need \$6.9 million of capital to start domestic operations. Kingfisher, holders of India's strongest brand name, launched Kingfisher Airways in December 2004 when it ordered four Airbus A320s and took options on a further 26. Within five weeks of launching services in May 2005, the carrier purchased an additional 12 A320s, followed a few weeks later by a \$2.2 billion order for 15 wide-body Airbus aircraft including five A380s, a first for India. The vision of India's real potential is being realised by Kingfisher as it had 97 aircraft on order, all within its first year of operations. The airline is being modelled on US carrier, Jetblue. Kingfisher is providing a roomier economy class than any other available in the market, 100% e-ticketing, a multi-channel in-flight entertainment system installed at every seat, on-board auctions, hot meals and pre-assigned seating.

SpiceJet commenced services in the same month as Kingfisher and is funded by Royal Holding Services, ABN AMRO, Citibank and Goldman Sachs. Another proposed start-up airline, Go, is financially backed by the Indian conglomerate, Wadia Group, with plans to launch services by late 2006. Another fledgling airline, IndiGo, a subdivision of InterGlobe Enterprises, a company that is the sole distributor for India's Galileo global distribution system placed an order at the 2005 Paris air show for 100 A320 aircraft in a \$6 billion deal (ATI, June 2005). InterGlobe is creating 25 economy hotels that are intended to complement its budget airline destinations, enabling it to offer tour packages.

Table 2

3.0 India's progress towards liberalisation

India's control over its aviation affairs is well documented. Gantzer (1983) argued that tourism development was being severely hindered by outdated regulations and rendered India a closed society. Taneja (2004) strongly contends that India's tight regulatory control has held back its national airlines and the economic development of the country. Saraswati (2001) revealed that political and bureaucratic hurdles made management ineffective on critical decisions, particularly on operations, finance and staffing. He strongly argued that competition was restricted in order to protect the state enterprises, even though their service quality was inferior in comparison to that offered by the private carriers. Air India's managing director, J.N. Gogoi, revealed that bureaucracy had had an enormous impact on India's aviation sector and stated that management spent nearly one-third of their time providing information to the government (Ionides, 2003). Hooper (1998) and Ionides (2005) have shown that government guidelines are often changed at short notice and that the aviation industry has to cope with a highly uncertain environment. This was evidenced after an accident when the government grounded Indian Airlines entire A320 fleet for a period of 14 months while every other operator of the aircraft continued to fly them.

Bureaucracy within the Indian government completely halted aircraft procurement for Air India and Indian Airlines, with each having to wait ten years after submitting applications before approval was granted. As a consequence, they were forced to lease aircraft and incur higher tax charges in the process. Mhatre (1999) revealed that aircraft purchase proposals had to pass through seven stages of bureaucracy. The last aircraft that Air India purchased was in 1996 and it has not added any new routes to its network since then. Hooper (1998) argues that the government's stance on foreign ownership and the painfully slow decision-making has made it difficult for India's state airlines to pursue optimal financial structures.

The cost of operating aircraft in India is expensive. Fuel usually accounts for up to 20% of operating costs, but due to excessive duty and sales taxes in India it accounts for over 30% with these taxes making up 44% of the fuel cost (Ionides, 2003). The government bans fuel hedging, thus forcing carriers to pay current market fuel prices (Aviation Strategy, 2001). In addition navigation charges are 60% higher in India than they are in neighbouring countries, while airport charges are 78% higher. Staffing levels at the two state-owned carriers is excessive, with each having over 400 employees per aircraft verses an average of 166 for the private carriers. A further factor that increases cost is that state carriers are prohibited from outsourcing. Ionides (2003) points out that a study by the CII National Committee on Civil Aviation found that domestic fares were 23-30% higher than international fares for a comparable distance.

Another major problem is the inadequate airport infrastructure with new emergent airlines even finding it difficult to park aircraft on the ramp. Pressure on the limited infrastructure has increased further because the government has legislated that no new airport can be built within 150km of another.

The lack of investment, excessive taxation, indecision about the ownership of state-owned carriers and a very restrictive regulatory system have not only taken a toll on India's airlines and airports, but have seriously impacted India's economic reforms. The resultant economic loss has been considerable. Raguraman (1998) and Saraswati (2001) both emphasised that a more liberal and competitive regime in India's aviation regime was urgently required. In July 2003, the Ministry of Civil Aviation commissioned its cabinet secretary, Naresh Chandra, to prepare a road map for the civil aviation sector that would provide the basis for a new national civil aviation policy. The aim was to deliver fast track reforms.

The Key Recommendations of the Naresh Chandra Report⁶ were as follows:

⁶ <http://civilaviation.nic.in/moca/nccommitterreport.pdf>.

- Foreign equity investment in both domestic and international scheduled air transport services should be further liberalized from 40% to 49%.
- Phased liberalization of the international air transport sector should be implemented. The initial phase would allow private airlines the right to provide international air services. A second phase would envision India actively pursuing the objective of complete liberalization of the international air transport sector through (a) seeking more liberal bilateral agreements and (b) enhancing access to wider markets by joining a regional grouping of countries in a plurilateral agreement.
- Charter services should be further liberalised by relaxing the restrictions pertaining to frequency and foreign ownership. A mix of foreign and Indian passengers should be allowed on domestic tourist circuits.
- Requirements on fleet size and equity capital should be removed to enable easier entry into the aviation sector.
- Immediate measures should be introduced to reduce the system costs of the civil aviation sector, including allowing airlines to source fuel from the supplier of their choice.
- Airport charges should be brought down to rates comparable with neighbouring South East Asia states and Gulf countries.
- Aviation related taxes, such as Inland Travel Tax, Foreign Travel Tax and Passenger Service Fee, should be replaced with a single lower ad valorem sector specific rate, at 5% of the airfare.
- The restriction that green field airports should not be constructed within 150 kilometres of an existing airport should be abolished.
- Essential air services on routes that are strategically important but commercially unviable should be provided with subsidy support.

- Privatisation of the national carriers through a consortium of domestic financial institutions and foreign institutional investors should take place. Privatisation of the airports should also occur.
- With increasing privatisation and the potential abuse of monopoly power by airport operators, the responsibility of ensuring appropriate levels of regulation should be vested with the proposed Aviation Economic Regulatory Authority (AERA).
- Safety regulation of the Air Traffic Control Corporation should be under the control of the Directorate General of Civil Aviation. In order to contain any potential abuse of monopoly power, it should also be regulated by AERA.
- Segments of airports and ATC services, which have natural monopoly or common user/carrier characteristics, should be subject to independent economic regulation by the proposed AERA.

The report produced a comprehensive set of revisions to the outdated legislation and provided the foundation for deregulating India's aviation sector. Many of the proposals have now been implemented and change is beginning to take effect, as evident by the fact that just one month after its release Jet Airways and Air Sahara began operating the unused air services agreement entitlements of the national carriers to the South Asian Association for Regional Cooperation (SAARC) region.

4.0 Survey results

Two questionnaires were used to gather information on passengers' perceptions of India's full service airlines and its one low cost carrier. The survey replicated earlier work by O'Connell and Williams (2005) assessing the features that differentiate travellers of full service airlines

from those of low cost carriers and investigating which flight product characteristics encourage passengers to select a particular airline.

The Indian Airports Authority (IAA) granted permission for a passenger survey to be carried out at Mumbai airport, it being one of the country's four major gateways that collectively handle over 50% of passenger traffic. The airport operates on a 24-hour basis and according to the IAA had a throughput of 13 million passengers in 2004-05. It has two separate terminals for domestic operations, with Indian Airlines located at Terminal 1-A, and Jet Airways, Air Sahara and Air Deccan operating from Terminal 1-B. The survey was carried out when particular waves of flights departed from each terminal in an effort to maximise the response rate. A structured questionnaire was used to elicit responses in face-to-face interviews with travellers. The survey was conducted by small teams of personnel in the check-in and adjoining waiting areas prior to passengers boarding their flights. A total number of 754 responses were obtained, representing around 23% of total uplifted passengers during the specific hours that the survey was undertaken. The results given below are the first published work of passengers' perceptions of India's domestic airlines.

4.1 Journey Purpose

Hanlon (1986) stated that the split between business and non-business passengers was around 75:25 for Indian Airlines. Some twenty years later however, Table 3 indicates that the current split is around 57:43, as fares have fallen considerably attracting many more leisure passengers. The survey found that business passengers are still predominantly using full service airlines and work for large companies. Indian Airlines, with over fifty-two years of service has very strong relationships with India's large multinationals as almost 30% of their surveyed business customers worked for organisations that employed over 5000 employees. By comparison, 90% of business passengers travelling on the low cost carrier were either self-employed or worked for companies that employed less than 25 people.

A cross tabulation of business passengers surveyed and their primary reason of carrier choice reveals that the vast majority chose the low cost carrier due to its fare. Table 3 also reveals that business passengers are statistically more likely to take full service airlines for events such as meetings rather than use a low cost carrier with these often classified as important business trips. In fact business travellers overall are more likely to take Indian Airlines or Jet Airways rather than the low cost carrier. However, these passengers are more likely to use the low cost carrier for trips to events such as training.

As expected the low cost carrier attracted proportionally more leisure traffic, including a traveller segment in the form of those attending sporting events that is generally absent from the other airlines passengers' surveyed. The survey revealed that these travellers journeyed in small groups representing significant revenue potential for Air Deccan.⁷ Indian nationals take almost a quarter of a billion trips annually and the survey shows that travelling to meet up with friends and relatives represents an average of around 23% of leisure trips.

Air Deccan has India's largest e-commerce website, followed by Indian railways. The survey indicated that Air Deccan attracted 46% of its passengers via its website, a further 20% booked through travel agents and 16% purchased their flights via its call centre. The remaining customers booked their seats using dispensing kiosks, mobile phones or at airport sales offices. Travel agents add an additional charge of \$2.50 to the fare as a countermeasure for not receiving any commission from Air Deccan. The websites of Jet Airways and Air Sahara netted 29% and 22% respectively of their total sales. By comparison Indian Airlines, which still does not have a fully enabled website where online tickets can be purchased, sold 84% of its tickets via travel agents.

Table 3

⁷ Asia's most successful low cost carrier Air Asia signed a sponsorship deal with Manchester United for \$2.64 million giving the carrier visibility in a global marketplace while at the same time expressing the importance of low cost travel and sport.

4.2 Influence of Fare

Studies by Hsu and Wen (2003), and Dobsen and Lederer (1993) indicate that frequency and fare constitute two of the most important attributes of an airline's flight products. Table 4 gives details of the daily frequencies of each carrier on routes served from Mumbai and the average fares paid by those questioned. The survey reveals that the fares charged by the low cost carrier are around 30% lower than the full service airlines. This fare differential is widely referred to in the Indian media⁸. Perry (1995) concluded that when new entrant low cost carriers compete against full service airlines average fares fall, thereby increasing overall traffic and raising revenues for both types of carrier.

India's incumbent airlines are unable to match the lower fares of Air Deccan and are responding by increasing frequency and offering a multitude of additional marketing incentives, such as holiday packages (both domestic and international), frequent flier programmes, e-auctions, in-flight auctions, and co-branded cards (tie-ups with corporates for special discounts). Competition on the major trunk routes between Mumbai, New Delhi and Kolkata is very intense, with fares falling by 20% in 2005 primarily due to Air Deccan's increasing presence. Many authors, such as Vowles (2000), argue that low fare carriers play a significant role in airfare determination and this is confirmed as being the case in the domestic Indian market. Air Deccan allocates its seat inventory at various price categories, with around 25% of its seats in the Rs 500-3,000 range, these being purchased at least 90 days in advance. A further 50% of seats are offered in the Rs 3,000-5,000 range, with the balance sold in the Rs 5,000-7,000 range. The survey revealed that approximately 22% of Air Deccan's passengers booked three months in advance compared to an average of just 5% of the full service airlines' customers. Special offers and promotions are frequently advertised by the low cost carrier, while the full service airlines concentrate on marketing international destinations which tends

⁸ http://www.domain-b.com/industry/aviation/20040805_airlines.htm.

to suggest that the latter are not optimising their selling efforts in the domestic market and are thus allowing Air Deccan to raise its market share.

Table 4

Passengers ultimately base their choice of airline on a variety of factors. While no-frills carriers have capitalised on the branding of low fares with few additional product features, network carriers have sought to differentiate themselves by offering a range of these. The choice revealed by those surveyed provides a clear insight into the factors affecting the demand for carrier service. Table 5 cites the principle reasons why each passenger surveyed chose to travel on their particular airline. Airline managers clearly need to know which features of their product offering are really influencing passengers' choice. The three product features that most influenced passengers travelling on India's full service airlines were flight schedule, service quality and reliability. Jet Airways and Air Sahara however, were preferred over Indian Airlines because of their superior quality, comfort and reliability.

Table 5

4.3 Cross-price elasticity analysis

The 30% fare differential between the low cost carrier and the incumbents identified from the survey was further analysed to assess the cross price elasticity of demand between the two types of airline business models in an effort to understand the switching sensitivity of passengers due to a change in fare. The results show that if incumbents reduce their fares by 10% then a very small proportion of leisure passengers would switch, while a reduction of 20% would entice almost 5% of Air Deccan's business passengers and 12.5% of its leisure passengers to fly with a full service operator. However if incumbents chose to match the low cost carrier's fares, then the majority of the remaining Air Deccan business travellers (24%) would change over to one of the full service airlines. A further 18% of Air Deccan's leisure

passengers would switch to full service carriers if their fares were reduced by 30%. However, one-third of Air Deccan's leisure passengers would prefer to remain travelling with the low cost carrier, indicating that the carrier's advertising campaigns have triggered brand loyalty.

Figure 2 reveals that only a very small proportion of leisure passengers travelling on the full service airlines would switch to Air Deccan if the fare were raised by 10%. A fare increase of 20% would persuade an average of 12.6% of leisure passengers and 3.2% of business customers to switch. Thus, incumbent airlines would lose very little business traffic by increasing fares by up to 20%. When fare is raised by 30% however, it is again noticed that there is a substantial increase in the number of passengers willing to switch airlines with an average of 30% of leisure passengers willing to substitute the extensive flight products offered by the full service carriers for a lower fare. The survey also revealed that 13% of business passengers would look for alternative travel options with a 30% fare increase. Overall, an average of 61% of business passengers journeying with the full service airlines remained loyal. This high proportion is very heavily influenced by corporate policy programs, with an average of 15.6% of these passengers ranking corporate policy as their number one reason for selecting the full service airlines. The survey reveals that an average of around 17.7% of business passengers travelling on India's full service airlines will not switch to other airlines because of their frequent flyer programs. However, it is noticed that Indian Airlines has potential problems, as a larger proportion of its passengers would prefer to switch to another airline indicating widespread dissatisfaction among its customers.

An earlier study conducted by O'Connell and Williams (2005) revealed similar findings to these survey results, with a large number of passengers (40%) willing to switch from low cost carriers when an incumbent lowered its fare by 30%. The study also revealed that some 34% of passengers would remain loyal to the full service carriers due to the wide range of flight products offered.

Figure 2

The survey aimed to analyse travellers' individual choices between carriers. To date, pricing issues have been discussed intensively in the aviation literature. Prousaloglou and Koppelman (1999) conducted an econometric analysis to quantify the tradeoffs travellers make when they choose among different carriers, flights and fare classes. There has however not been any study published analysing cross price elasticity and the impact of a wide range of flight products in response to a range of fare level changes. The analysis here, which has been carried out on both business and leisure travellers using full service airlines and a low cost carrier, firstly, measures the importance of each flight product by rank-ordering each attribute from most important to least; secondly, determines the relationships between the product features of full service airlines and Air Deccan at each fare increase increment; and thirdly, measures the degree of these relationships.

Each passenger surveyed was asked to rank each flight product (see Table 5) in terms of importance. Business passengers travelling with the full service airlines were given a list of ten product features, with one less feature listed for leisure passengers; while Air Deccan's passengers were asked to rank from only eight⁹. The Hodges-Lehmann¹⁰ estimator, the median value of Walsh pair wise averages, was chosen for the ranking of these product features, as it is a more robust and stable estimator and is not affected by high outlier numbers. Passengers' preferences for the flight products of various airlines are represented by scatter plots. Statistical correlation between the stated preferences of the passengers from different air carriers is measured using a variant of Pearson's correlation coefficient. The application of this analytical technique provides us with a basis to predict traveller choice.

⁹ Incumbents' leisure passengers ranked each flight product from 1 to 9, as corporate policy was not included. Similarly, Air Deccan's passengers ranked each flight product from 1 to 8, as Frequent Flyer Programs and Corporate Policy are not included in the low cost airline's business plan. The data associated with Air Deccan is rescaled to account for this difference.

¹⁰ T. P Hettmansperger, *Statistical Inference Based on Ranks*, John Wiley & Sons (1984). The Hodges-Lehmann estimator is the natural measure of central tendency when using rank-order tests, such as Wilcoxon or Mann-Whitney.

Figure 3 shows the product feature rankings of leisure passengers if fare is raised by 10%. From the histogram it is clear that this particular group of travellers selected fare as the singular most important reason for choosing to travel with their particular airline, regardless of whether it was a full service carrier or the low cost one. The corresponding scatter plot diagram illustrates the strong correlation that exists in the ranking of product features regardless of which airline passengers choose, while the associated table shows the Spearman Rho coefficient. This demonstrates that this specific group of leisure passengers requested almost identical flight products and that the similarities did not occur by chance, as $p < 0.01$ for Indian Airlines, Jet Airways, Air Sahara and Air Deccan.

Figure 4 shows a noticeable change in the ranking of fare and flight schedule by leisure passengers when fares are changed by 20%. While the survey revealed that both full service and low cost airlines passengers' product feature rankings are broadly similar, it is apparent that the rankings are beginning to diverge as a higher proportion of low cost carrier passengers weight fare as the most essential attribute. This represents another segment of travellers who request similar flight attributes, statistically represented by the low p-values and their close correlation on the scatter plot diagram. These passengers can easily switch from a full service airline to a low cost carrier and visa versa.

The situation changes however when fare is raised by 30%, with a clear disparity between the ranking of flight products required by leisure passengers who travel on a full service airline and those taking the low cost carrier. Figure 5 reveals that the former group identify schedule, reliability, fare and service quality as important. The ranking has entirely changed revealing a new set of leisure passengers whose product requirements are not focused primarily on fare. In fact the survey reveals that an average of 51.4% of leisure passengers travelling on full service airlines regard flight products other than fare as being more important. The majority of

passengers who use the low cost carrier still view fare as the deciding factor in their carrier selection. The main determinants of low cost carrier choice are fare, quality and schedule.

Figure 6 shows that a number of leisure passengers prefer to remain loyal customers and would not be tempted to switch to another carrier. The results infer that there is no similarity whatsoever between the requirements of passengers who continue to use a full service airline and those using the low-fare variant. Leisure passengers who remain resolute in using full service airlines seek the following product features in descending order: schedule, frequent flyer program, reliability, connections and quality; while their low cost carrier counterparts rank: fare, quality, schedule and reliability. In concluding the analysis of leisure passengers, it is reasonable to conjecture that network airlines can regain a large market share of leisure passengers if management can offer suitable departure timings coupled with high frequency and consistently offer a dependable high quality service. In addition, if airlines can continue to reduce their legacy operating costs enough, it will enable fares to be aligned close to low cost carrier levels thus stimulating passengers to consider switching airlines.

Figure 3

Figure 4

Figure 5

Figure 6

The analysis is repeated for business class passengers, with it being apparent that the ranking of flight products becomes increasingly uncorrelated. The questionnaire introduced an additional flight attribute as many business passengers are obligated to take a particular airline due to corporate policy arrangements. Interestingly, no business class passenger chose to switch airlines when fare was raised by 10%. Figure 7 shows the ranking of flight products by business passengers when the fare was changed by 20%. Only a small proportion of business passengers who were using the full service airlines were prepared to seek alternative travel

arrangements. They stated that fare, schedule and reliability were the reasons for their choice of carrier. It is apparent that a small proportion of business passengers are fare sensitive, with cross tabulation establishing that these customers are largely self-employed or work for small companies. Business passengers flying with the low cost carrier selected only fare as their principle reason of choice. There is no significant correlation between Air Deccan and the full service carriers, which confirms the contrasting flight product requirements of business passengers when selecting between different types of airline.

A large proportion of business passengers are attracted to full service airlines because of their extended product offerings. An important reason for the survey was to determine which flight products would continue to entice the business traveller when fare was increased by 30%. Figure 8 shows that business passengers travelling on the full service airlines ranked in order of importance: schedule, reliability, Frequent Flyer Program, connections and service quality; while business passengers on Air Deccan indicated fare, quality and schedule. This again clearly indicates that an entirely different type of business passenger is taking the low cost carrier, with fare the key-determining factor in their carrier choice.

It is apparent that a certain proportion of business passengers would remain loyal regardless of fare changes. Interestingly, a very large proportion of these loyal passengers are affiliated to full service carriers while only a very small proportion of business passengers retain allegiance with the low cost carrier. Figure 9 shows the characteristics that ensure the loyalty of business passengers who travel on a network airline (corporate policy, schedule, FFP, reliability and connections) and outlines the differences when compared to the choices made by the low cost carrier's business passengers (fare, quality, schedule and reliability).

Incumbents worldwide are becoming increasingly concerned over losing business class passengers to low cost carriers. In a hypercompetitive business such as the airline industry customer retention and relationship management are becoming increasingly important. This

view is strongly supported by Kalakota and Robinson (2001) who disclose that it costs five to ten times as much to obtain a new customer as to keep an existing one. The survey clearly shows that relationship marketing is becoming an important differentiator between network and no frills carriers. Generous frequent flyer points are retaining the loyalty of both leisure and business passengers as accrued mileage can be redeemed for free flights. Corporate policy contracts specifically target the high yield business passenger who travels frequently and are an effective relationship tool in retaining loyalty.

Figure 7

Figure 8

Figure 9

5.0 Conclusion

Historically, aviation within India remained stagnant over many decades. Deep-rooted bureaucratic policies constrained any development and the state monopolised all aviation decisions. However, a strengthening economy coupled with an increasing number of wealthy inhabitants has triggered change with demand for air transport outstripping capacity. In response the government grasped aviation reform following a ministerial report that provided a road map as the way forward for India's civil aviation policies. The voluminous orders for aircraft in 2004/05 reflects the liberalising effects of political change and the government's intent to further develop economic activity by loosening regulatory barriers.

The survey captured the perceptions of passengers who are now travelling in this rapidly changing environment of freer and more competitive markets. India's first low cost carrier, Air Deccan, has changed the competitive landscape within India. The survey results confirm the hypothesis that there exists two distinct markets, one comprising those passengers who choose a full service airline and the other those that select a low cost carrier. It was revealed that

approximately 30% of the leisure passengers that fly on India's full service airlines regard flight products, such as schedule and reliability, as influencing them more than fare. If however, fare were to increase by 30%, these product features would be traded-off in favour of a lower price.

The survey indicated that if the full service airlines could match the fares of Air Deccan then over 50% of the latter's leisure passengers and almost all its business travellers would switch allegiance. A large proportion of leisure passengers remain loyal to the low cost carrier, as it has strongly influenced public perception through its low fare branding via a strong media presence. In contrast, a large proportion of business passengers flying on the full service carriers remain loyal due primarily to company policy and frequent flyer initiatives.

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