

India is one of the fastest growing air transport markets in the world. Capacity on all Indian domestic routes trebled between 2000 and 2010. This growth has been followed by the rise of four new major airlines. The prospects for continued fast development are strong.

The rapid rise of the Indian market

The Indian aviation market is one of the fastest growing in the world. Since 2000, domestic operations in India have trebled, while seat capacity and the number of flights increased at an average annual rate of 11-12% from 2000 to 2010. The development of the market is still limited, however, and there is potential for continued high rates of growth, capacity development, and more new routes.

Rates of development are slower in other parts of the Indian sub-continent, although there is still large potential in Pakistan.

Indian demographics

The Indian, Pakistan and Bangladesh markets are served by about 110 major cities, plus Colombo in Sri Lanka, and a handful of airfields serving the Maldivian Islands to the south-west of India, and the Andaman Islands to the east of India.

India has about 70 major airports, evenly spaced across the country. From its northernmost city of Leh to its southernmost city of Trivandrum, India is about 1,450nm in length. It has a similar width between its westernmost city of Bhuj and eastern city of Imphal (compared to a distance of 2,400nm between Seattle and Miami in the US). In addition, although India occupies about a third of the land area of the US, it has a population of more than 1 billion.

The Indian domestic market has about 135 routes of significance, which

have operations with at least five or six weekly flights, and annual one-way capacities of at least 10,000 seats. There are also a large number of smaller routes, but so far these have a low volume of capacity and a small level of established operations.

In addition, 60 major new routes have opened in the past 10 years, with one-way annual seat capacities of at least 10,000, and at least five or six weekly services. There are several other less established new city-pairs, where service levels in 2010 averaged only one to three flights per week. The capacity on many of these would be expected to increase in response to continued traffic growth.

With such a large number of airports now providing scheduled services, there is clearly the potential for hundreds of city-pairs in the future as traffic volumes rise enough to support regular services between a large number of smaller cities.

Market size

The 135 established and 60 new routes have together seen their number of annual operations and seat capacities approximately treble since 2000 (*see first table, page 14*). This, together with the Chinese domestic market, is the highest rate of capacity growth over the past decade. The increase in capacity has followed a similar increase in passenger numbers and traffic volumes, although passenger load factors have also increased over the same period, so capacity will not have had to increase at the same rate.

In 2000, the 135 main established routes and city pairs had about 90,000 flights or services, providing a capacity of 12.6 million seats. This is the number of operations in a single direction, so 180,000 flights were operated on these routes in total, equal to 248 return flights per day across the whole network.



Jet Airways has grown over the past 10 years to become the largest domestic Indian operator, while Kingfisher is the largest of the new Indian airlines to emerge over the past 10 years.

SUMMARY OF CAPACITY ON MAIN INDIAN DOMESTIC ROUTES

	2000 data				2010 data			
	Annual services	Daily services	Annual seats	Average size	Annual services	Daily services	Annual seats	Average size
Delhi-Mumbai	8,764	24	1,525,314	174	20,401	56	3,453,686	169
Operations from Delhi	18,746	51	2,623,584	140	73,985	203	10,667,504	144
Operations from Mumbai	28,79	79	4,129,315	144	72,278	198	10,727,177	148
Operations from Bangalore	6,387	17	821,727	129	28,601	79	3,059,448	107
Operations from Chennai	3,957	11	579,923	147	25,019	69	2,534,270	101
Operations from Kolkata	3,955	11	512,922	130	22,534	62	2,664,722	118
Operations from Hyderabad	2,197	6	288,190	131	11,888	32	1,313,064	110
Operations from other cities	17,660	49	2,106,153	119	29,610	80	2,948,504	100
Total	90,364	248	12,587,128	139	284,316	779	37,368,375	131

SUMMARY OF DOMESTIC INDIAN CAPACITY BY AIRLINE

	2000 data				2010 data			
	Annual services	Daily services	Annual seats	Average size	Annual services	Daily services	Annual seats	Average size
Jet Airways	34,354 38.0%	94	4,360,726 34.6%	127	57,109 20.2%	157	7,117,395 19.1%	125
Air Sahara/JetLite	7,896 8.7%	22	1,000,132 7.9%	127	22,934 8.1%	63	3,115,896 8.4%	136
Total Jet Airways Group	42,250 46.8%	116	5,360,858 42.6%	127	80,043 28.4%	220	10,233,291 27.5%	128
Air India	3,875 4.3%	11	1,020,337 8.1%	263	5,798 2.1%	16	1,121,654 3.0%	193
Air India Express	0 0.0%	0	0 0.0%	0	2,321 0.8%	6	420,101 1.1%	181
Indian Airlines	41,241 45.6%	113	6,089,120 48.4%	148	50,826 18.0%	140	6,538,184 17.6%	129
Total Air India Group	45,116 49.9%	124	7,109,457 56.5%	158	58,945 20.9%	162	8,079,939 21.7%	137
Indigo	0 0.0%	0	0 0.0%	0	30,815 10.9%	85	5,546,700 14.9%	180
Kingfisher	0 0.0%	0	0 0.0%	0	63,767 22.6%	174	6,261,691 16.8%	98
SpiceJet	0 0.0%	0	0 0.0%	0	23,116 8.2%	63	4,368,924 11.8%	189
Go Air	1,026 1.1%	3	19,494 0.2%	19	10,762 3.8%	30	1,855,122 5.0%	172
Other airlines	1,972 2.2%	5	97,319 0.8%	49	14,945 5.3%	41	891,718 2.4%	60
Total all airlines	90,364	248	12,587,128	139	282,103	849	37,181,562	132

Average aircraft size across the entire network was 139 seats.

By 2010 the one-way operations on these 135 established routes had increased to about 255,000, while the number of seats had risen to 37.4 million; an almost trebling of capacity from 2000 to 2010. This was supported by a fleet of 340 narrowbody jet and regional aircraft. Average aircraft size remained little changed at 136 seats.

The 60 new routes have added a further 30,000 annual flights and 2.8 million seats. Many of these are regional routes, and use turboprops and regional jets (RJs) to provide some or all of the capacity. Average aircraft size on these new city-pairs is 99 seats.

Although there are up to 70 main cities in the Indian market, it is dominated by a few trunk routes and operations from six major hubs: Delhi, in northern central India; Mumbai, on the central west coast; Bangalore (Bengaluru), in southern central India; Chennai, on the south-east coast; Kolkata, in the south-eastern corner near the border with Bangladesh; and Hyderabad, in central India. Operations serving these six airports account for about 90% of services and seat capacity.

The busiest route is Delhi-Mumbai. This has grown from about 8,800 flights in 2000 to 20,400 in 2010. The number of seats has grown from 1.52 million to 3.45 million. In 2000, the route was operated by Air India, Indian Airlines, Jet Airways and Jet Lite. By 2010 these had been joined by IndiGo, Go Air, Kingfisher and SpiceJet. While this route has grown, it now accounts for a smaller portion of total capacity than it did in 2000, which indicates that other routes have grown at a faster rate.

Delhi is the largest hub, served by a total of 30 routes. Besides the route to Mumbai, there are another 29 routes serving Delhi, with about 66,800 annual operations, providing about 10.2 million seats. The majority of capacity on these routes is provided by jetliners.

The routes from Delhi that have the highest rates of growth include Simla, Raipur, Ranchi, Kulu, Bhopal, Amritsar, Guwahati, Chandigarh, Patna and Hyderabad (*see first table, page 16*).

The Delhi-Raipur route has seen the number of flights increase by a factor of 18, and the number of seats increase by a factor of more than 22 since 2000. The routes to Amritsar, Ranchi and Simla have also experienced some of the highest levels of capacity growth in the entire domestic Indian network.

Other routes serving Delhi have also seen high rates of capacity growth, including Bangalore, Chennai, Chandigarh, Varanasi, Leh and Kulu.

There are also 14 new routes serving Delhi, supported by 7,200 annual services

FASTEST GROWING INDIAN DOMESTIC ROUTES 2000 TO 2010

Route	2010 annual flights	Annual seats	Aircraft size -seats	10-year difference -flights	10-year difference -seats	10-year difference -size
Delhi-Mumbai	20,401	3,453,686	169	132.8%	126.4%	-5
Delhi-Simla	361	16,606	46	1,288.5%	3,448.3%	28
Delhi-Raipur	1,080	156,584	145	1,730.5%	2,130.2%	26
Delhi-Ranchi	845	139,606	165	1,285.2%	1,467.5%	19
Delhi-Kulu	554	25,668	93	361.7%	1,088.3%	75
Delhi-Bhopal	1,095	140,310	128	895.5%	971.9%	9
Delhi-Amritsar	2,393	212,605	89	1,377.2%	921.3%	-40
Delhi-Guwahati	2,412	391,492	162	559.0%	632.6%	16
Delhi-Chandigarh	2,222	256,700	116	333.1%	595.9%	44
Delhi-Patna	2,364	352,844	149	547.7%	575.8%	6
Delhi-Hyderabad	5,800	971,184	167	428.2%	493.6%	18
Mumbai-Kohlapur	243	11,178	46	523.1%	1,408.5%	27
Mumbai-Kandla	365	16,790	46	362.0%	1,108.6%	27
Mumbai-Hubli	365	16,790	46	296.75	860.5%	27
Mumbai-Jaipur	2,623	455,486	174	236.3%	421.1%	62
Mumbai-Lucknow	1,522	222,272	146	315.8%	386.9%	21
Bengaluru-Hubli	365	16,790	46	812.5%	2,109.2%	27
Bengaluru-Trivandrum	1,599	137,158	86	1,221.5%	676.4%	-60
Bengaluru-Kolkata	2,412	391,492	162	559.0%	632.6%	16
Bengaluru-Pune	2,200	345,845	157	501.1%	525.6%	6
Bengaluru-Kochi	2,833	275,534	97	383.4%	328.9%	-12
Chennai-Tiruchirapalli	1,782	195,035	109	580.2%	409.9%	-37
Chennai-Madurai	3,388	247,180	73	825.7%	362.6%	-73
Chennai-Hyderabad	4,770	484,830	102	392.8%	299.0%	-24
Kolkata-Imphal	573	70,196	123	981.1%	807.2%	-23
Kolkata-Jaipur	730	134,685	185	365.05	620.9%	66
Kolkata-Hyderabad	2,052	348,015	170	460.7%	548.9%	23
Kolkata-Ahmedabad	644	118,431	184	312.8%	538.0%	65
Kolkata-Bagdogra	1,312	176,553	135	368.6%	394.4%	7
Hyderabad-Kochi	1,439	205,094	143	15,888.9%	15,508.4%	-3
Hyderabad-Pune	1,407	103,818	74	3,417.5%	13,560.3%	55
Hyderabad-Tirupati	1,254	109,569	87	349.5%	320.9%	-6

16 LARGEST NEW INDIAN DOMESTIC ROUTES

Route	2010 annual flights	Daily flights	Annual seats	Aircraft size -seats
Ahmedabad-Bengaluru	1,340	3.67	235,758	176
Mumbai-Chandigarh	1,283	3.52	210,288	164
Chennai-Pune	1,213	3.32	200,645	165
Hyderabad-Coimbatore	1,095	3.00	185,932	170
Delhi-Kochi	803	2.20	122,461	153
Hyderabad-Jaipur	452	1.24	82,143	182
Chennai-Ahmedabad	383	1.05	70,321	184
Delhi-Udaipur	1,011	2.77	69,463	69
Delhi-Dehradun	1,284	3.52	65,693	51
Indore-Nagpur	666	1.82	64,966	98
Bengaluru-Bhubaneswar	365	1.00	61,300	168
Delhi-Jodhpur	532	1.46	54,346	102
Mumbai-Ranchi	334	0.92	52,772	158
Mumbai-Bhopal	731	2.00	48,302	66
Mumbai-Raipur	365	1.00	46,917	129
Kolkata-Ranchi	920	2.52	46,160	50

that provide about 500,000 seats. Most of these 14 new routes use regional aircraft for all capacity. The size of services offered is small, and frequencies on some routes have fewer than seven flights per week.

Taking both established and new services into account, operations from Delhi account for about 26% of flights operated in the Indian domestic market and about 29% of all seats provided.

Operations from Mumbai account for similar proportions. The 30 established routes actually account for more flights and provide more seats than the 29 routes serving Delhi.

Routes operated to and from Mumbai that have had the highest rates of growth in capacity include Kohlapur, Kandla, Hubli, Jaipur and Lucknow (*see first table, this page*).

Only seven new routes have been opened from Mumbai since 2000.

Overall, operations on 36 routes from Mumbai account for an almost equal number of flights and seats as the routes operating from Delhi. The total number of flights from Delhi and Mumbai account for the same percentage of total operations in 2010 as they did in 2000.

Operations and services on the 44 routes that serve Bengaluru, Chennai, Kolkata and Hyderabad have grown at the highest rates since 2000. The number of flights and seats on established routes serving these four major cities has grown between four and five times.

Several routes from Bengaluru experienced an increase of 300% or more in seat capacity since 2000. The same applies to some routes serving Chennai and Kolkata. The highest rates of capacity growth, however, are on two routes from Hyderabad that serve Kochi and Pune (*see first table, this page*).

Another 26 new routes serving these four cities have opened since 2000. The largest number of new routes is from Bangalore, the third largest hub in India.

Excluding the six major cities, the number of flights on all other routes account for just 10.4% of operations and 8% of seat capacity in the domestic Indian market, which illustrates the dominance of the six major hubs. Operations from Hyderabad are still relatively small, however.

Indian airlines

The growth of the Indian market has led to the introduction of several new airlines.

In 2000, the Indian market was dominated by two airlines: Indian Airlines and Jet Airways, which accounted for about 84% of flights and 83% of seats in the entire domestic Indian network (*see second table, page 14*).

Indian Airlines is the long established domestic operator, and had a 48% share of network capacity in 2000. It operated a fleet of two 737-200s, 30 A320-200s, and 11 A300B4s in 2000.

Jet Airways, which started operations in 1993 and was based in Mumbai, had grown to take a large part of the domestic market by 2000. By 2000, it was the second largest domestic operator, providing 38% of services and 35% of total seats, and operating 15 737-400s, four 737-700s, six 737-800s, and three ATR-72s.

Air Sahara, which also started operations in 1993, is based at Delhi and Mumbai. By 2000, when it changed its name to Sahara Air, its operations had grown to the extent that it accounted for 8.7% of flights and provided 8% of all seats, with a fleet of nine 737s.

The remaining services and capacity were provided by the national carrier Air India, which mainly operated international services, although it did provide some capacity on domestic routes through its A310s, A300B4s, and 747s.

In total, Jet Airways, Air Sahara, Indian Airlines and Air India accounted for about 97% of operations and 99% of seat capacity in 2000 (see second table, page 14).

By 2010, several new airlines had entered the Indian market. In 2007, Jet

Airways acquired Sahara Air, and was renamed as Jet Lite. Jet Airways also launched a low-cost brand airline called Jet Konnect, with the same designator code as Jet Airways.

In 2007 the Indian government announced that it would merge Air India and Indian Airlines, so the operations for the two airlines plus Air India Express are counted as one carrier and referred to as the Air India group for 2010 data (see second table, page 14).

By 2010, the new airlines in India had reduced the combined share of Jet Airways, Jet Lite, Air India, and Indian Airlines from 97% of operations and 99% of seats to 49% (see second table, page 14).

In 2010, the Air India group accounted for 21% of operations and 22% of seat capacity on the domestic network, down from 50% of flights and 57% of seats in 2000.

Although its market share had declined, the Air India group's domestic fleet had grown. In 2010 Air India was operating 82 A320 family aircraft, 25 737-800s, six A310s, seven ATR-42s and four CRJ-700s. It had no narrowbody and regional aircraft on order at the end of 2010. The size of its operations had grown by 0.9 million seats, equal to an increase of 31% since 2000.

Jet Airways and Jet Lite accounted for

28% of flights and seats in 2010. Despite loss of market share, the size of its overall operations had increased by about 90%. By 2010, it was operating 63 737NGs, 14 ATR-72s, and five CRJ-200s. The group also had 31 narrowbodies and three ATR72s on firm order at the end of 2010.

The new airlines that took market share from the Jet Airways and Air India groups were Paramount Airways, which ceased operations in early 2010, IndiGo, Go Air, Kingfisher and Spice Jet.

Kingfisher was the largest of these five new operators. It only commenced operations in 2005, yet it implemented an aggressive growth and development plan and has benefited more than any other carrier from the high rate of traffic growth since 2000.

As a result, by 2010 Kingfisher was accounting for 23% of flights and 17% of seats in the Indian domestic market, making it bigger than the Air India group - a remarkable achievement in less than six years of operations. Kingfisher's increase in seat capacity from 2000 to 2010 also exceeded that of the Jet Airways group over the same period.

In 2010, Kingfisher was operating 27 ATR-42s/-72s and 33 A320 family aircraft. It has ambitious growth plans, and had 38 ATR72s, 65 A320 family variants, and 27 widebodies on order at the end of 2010.



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IndiGo is the second largest of the new airlines in India. It commenced operations in 2006, and like Kingfisher it implemented an ambitious growth and development plan. By 2010 it accounted for 11% of operations and 15% of seats in the Indian domestic market, realising the second largest gain from the growth of the Indian market from 2000 to 2010. Moreover, its growth in seat capacity during this period exceeded that achieved by the Jet Airways and Air India groups.

In 2010, IndiGo was operating 24 A320 family aircraft, but it now has a large number of aircraft on order. IndiGo has also tentatively signed an order for 150 A320neo aircraft.

SpiceJet is the third largest new Indian carrier. It started operations in 2005, and by 2010 accounted for 8% of domestic Indian operations and 12% of seats (see second table, page 14). Despite its small size, the airline had still achieved a higher rate of growth in the Indian domestic market from 2000 to 2010 than the Air India group. SpiceJet's share of seat capacity had therefore increased by 4.4 million seats, while the Air India group's share had grown by just 0.9 million.

The airline was operating 25 737-800s/-900s by the end of 2010, and has more than 30 on firm order. It also has 15 Bombardier Q400s on order.

Go Air is a smaller operator, and has

not achieved the same level of growth and development as Kingfisher, IndiGo and SpiceJet, although it still managed to increase its seat capacity by twice as much as Air India from 2000 to 2010.

Paramount Airways operated A320s and Embraer E-Jets, and accounted for about 1.5% of services before it ceased operations in early 2010. It has plans to re-start operations in 2011.

The Indian domestic market is therefore dominated by five airlines. While Jet Airways has expanded at three times the rate of the Air India group since 2000, Kingfisher, IndiGo and SpiceJet have followed the most aggressive expansion and development plans. These look set to continue judging by the outstanding orders they have for aircraft.

Aircraft types

The choice of aircraft types for the five main carriers has been standard narrowbodies. ATR turboprops and RJs have been deployed by several airlines on the smaller and younger routes.

The overall pattern of capacity development has been for average aircraft size on most routes to change little. Narrowbodies account for a similar portion of the total Indian airline fleet as they did in 2000. The fleet has trebled in size since 2000, in line with the overall

growth in number of operations and seat capacity.

The most mature and developed markets in 2000 were the trunk Delhi-Mumbai route, and routes serving Delhi and Mumbai. In all, the rate at which service frequencies have been increased is similar, and close to the rate at which seat numbers have increased. Airlines have therefore absorbed traffic growth by adding to their existing A320 family and 737 family fleets, rather than opting for even faster rates of frequency growth by deploying smaller types. This strategy makes sense in that it allows seat-mile costs to be maintained by not decreasing aircraft size, while also indicating that each airline on each route needs to reach higher service frequencies before it begins to consider using larger types.

Narrowbody jets accounted for about 72% of operations and 88% of seats in 2000. The second largest portion of capacity was provided by turboprops. These accounted for 23% of services and 8.9% of seats in 2010. RJs accounted for almost all the remainder of operations and capacity, since widebody aircraft accounted for less than 1%.

Regional aircraft have mainly been used on the new routes that have been opened to serve the six major hubs, as well as other routes, but they have also been used on the established routes



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servicing the smaller hubs of Bangalore, Chennai, Kolkata and Hyderabad.

At the end of 2010 airlines in India had outstanding orders for 41 ATR72s and 15 Q400s. There were no outstanding firm orders for large RJs by Indian airlines themselves, but the airlines can still acquire them from lessors.

Regional aircraft

The potential for regional aircraft in India is high. Of the 165 established and new routes with a significant size of operation, 89 had an average aircraft size of fewer than 110 seats in 2010. Of these 89, 47 are established routes, and 42 are new city-pairs.

All of these 89 routes were operated by a mix of aircraft, but the majority were ATR72s, CRJ-200s and Embraer E-Jets. Several more routes with average aircraft size larger than 110 seats had regional aircraft accounting for some of the services.

The general pattern of development on most domestic routes over the past 10 years, has been for airlines to increase their service levels to accommodate increasing numbers of passengers.

Average aircraft size has either been maintained or reduced in parallel. One noticeable feature of the 47 established routes is that virtually all of them have seen a drop in average aircraft size since 2000, with some jetliner services being replaced by regional aircraft by 2010. This indicates a strategy by airlines to provide more optimised capacity and service frequencies. The average aircraft size in 2010 for most of these 47 routes remained high at 75 seats or more.

Many of the 42 new routes clearly have smaller amounts of capacity

compared to the established city-pairs, but about a quarter use larger regional aircraft types. This, together with the fact that most established routes use larger regional types, indicates there is a strong market for 75- to 115-seat aircraft. Moreover, many Indian domestic routes are a few hundred miles in length, and operate smaller jetliners such as the A319 and 737-700. This indicates a possible strong potential for larger RJs such as the SSJ100, E-Jets, MRJ and C Series as more optimum aircraft types in the future.

The smaller average aircraft size of the majority of new routes, as well as those on the other new city-pairs that currently have lower volumes of capacity, indicates there is also a strong market for turboprops.

The markets for larger RJs and turboprops should begin to develop further over the next 10 years as these smaller new routes, and others yet to be opened, are developed by operators in response to continued traffic growth.

Future development

Traffic growth on the Indian sub-continent and South Asia is forecast to grow by an average of 7.6% per year for the next 20 years. This is equal to a doubling of traffic over the next 10 years, and a quadrupling over 20 years. The region is also forecast to require 1,400 new aircraft over a similar period.

The large number of highly populated cities in India, and continued economic growth will no doubt result in the air transport network continuing to develop as it has done over the previous 10 years. This will be seen in three ways.

The first is continued development on established routes. Now that frequencies

IndiGo is the largest of the new Indian airlines to emerge since 2000, and accounts for 15% of domestic seat capacity. Go Air, while smaller than other new Indian carriers, has grown fast since 2000. It now accounts for 5% of domestic seat capacity.

are approaching optimum levels for some airlines, larger types may be introduced. Other established routes are less developed, and these are likely to have further services added. Large RJs may be used extensively on these city-pairs.

The second is on new routes that have been opened in the past 10 years. Large RJs and other regional types are likely to account for a large portion of capacity over the next decade.

The third level of development is the opening of new routes, which will be made easier by the availability of large RJs and various other regional types.

Pakistan & Bangladesh

While India has experienced high rates of growth in traffic and capacity over the past 10 years, Pakistan has failed to grow. Pakistan has 36 cities, with Karachi as the leading hub, served by 14 major routes, followed by Lahore, Islamabad and Peshawar.

In addition to these, the country's domestic network is served by another 26 routes. Some of these are substantial operations, but many are routes operated with turboprops at service frequencies of just one to three flights per week.

The size of operations and seat capacity in 2010 was similar to that of 2000, with no overall growth in the number of operations or capacity over the decade.

The market is dominated by Pakistan International Airlines (PIA), which accounted for 88% of capacity in 2010. PIA operates domestic routes with A310s, 737s and ATR-42s.

A second carrier, Shaheen Air, accounts for 12% of domestic capacity. It operates with a fleet of used 737-200s.

The overall size of the Pakistan domestic operation is small compared to the Indian domestic market. Annual one-way seat capacity in 2010 was about 2 million seats, compared to 37.4 million seats in the Indian domestic market.

The size of all domestic operations in Bangladesh is small compared to Pakistan, and therefore barely significant. The Indian market is therefore the one with the large potential for growth. **AC**

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