



Battle for the Bay

Competitive Pressures for
Airports around the Pearl River





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As the Greater Bay Area (GBA), formerly referred to as the Pearl River Delta, is on its way to becoming the single largest bay area economy in the world, competition is heating up between the airports as they battle to dominate the market. At stake is one of the most valuable, fastest growing and concentrated markets in the world. The winner will be the local airport for 68 million people, and one of the key hub airports for the 1.4 billion Chinese wanting to see the world. The region's success can partly be attributed to driving ambition and coordinated effort by governments to build an economic powerhouse to rival any other booming region on the planet. The GBA already dwarfs cities such as New York, London and Tokyo and may still only be warming up.

While coordination and cooperation between the cities of the GBA has been key, the airports still compete. At least some of the six airports of the GBA are looking to gain a bigger slice of the business travel arising from the booming trade and industry taking place on the Chinese side of the border with Hong Kong, as well as more of the leisure travel of the burgeoning Chinese middle classes of the region.

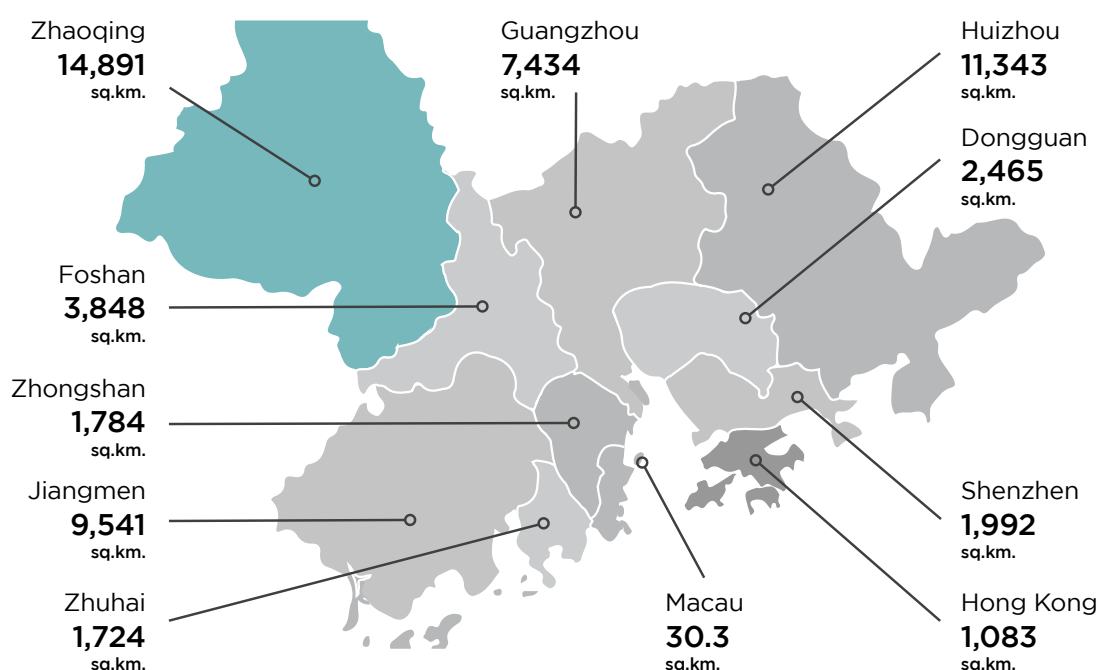
Hong Kong has long been the best known and loved airport in this part of the world, but with both Guangzhou and Shenzhen rivalling in sheer economic clout, how soon will it be before their airports are also handling more passengers and airlines, and offering more destinations than Hong Kong?

With demand for air travel growing fast, congestion at airports and in the skies is becoming more of a problem. The next five years will see Hong Kong add a third runway while Guangzhou may add another two and there are two new greenfield airports planned which may add another three runways into the mix. While central planning has got the GBA to where it is, can it also ease congestion in the skies and ensure that a combination of market forces and coordination will enable the soon-to-be eight airports of the GBA to meet the needs of travellers to and from the Bay area?

Sizing up the Greater Bay Area

The Greater Bay Area is a cluster of 11 cities, 9 of them located in Guangdong Province, and the other two – Hong Kong and Macau – are Special Administrative Regions (SARs) of China. This area has a combined population of 68 million and an economy of USD1,400 billion.

Greater Bay Area (sq. km.)



GDP (USDbn)

Guangzhou	284.6
Huizhou	49.7
Dongguan	99.4
Shenzhen	283.8
Hong Kong	320.9
Macau	50.4
Zhuhai	32.4
Jiangmen	35.2
Zhongshan	46.6
Foshan	125.6
Zhaoqing	30.3

Population (m)

Guangzhou		14.04
Huizhou		4.78
Dongguan		8.26
Shenzhen		11.91
Hong Kong		7.41
Macau		0.65
Zhuhai		1.68
Jiangmen		4.54
Zhongshan		3.23
Foshan		7.46
Zhaoqing		4.08

Sources: Guangdong Statistics Information www.gdstats.gov.cn 2016 data
Exchange rate used for CNY/USD 0.145594 (4-10-18)
<https://www.censtatd.gov.hk/hkstat/sub/so20.jsp>
World Bank

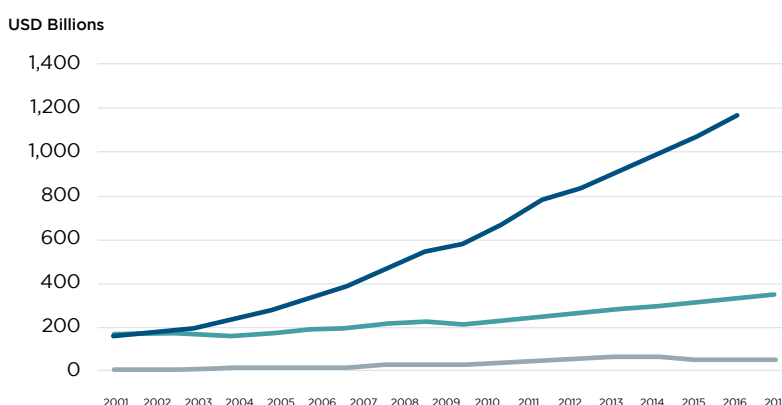
Guangzhou is the largest of the 11 cities, at least in terms of population, with 14 million residents. However, Shenzhen, located a stone's throw away from Hong Kong, is catching up fast. The population of this border city has reached 12 million and has been growing at an average annual rate of 3.4% per annum since 2000, 50% faster than the growth of the Guangzhou population.

Hong Kong, undoubtedly the most high rise and high profile of the cities, now ranks fifth in population size, behind Guangzhou and Shenzhen, but also behind Dongguan and Foshan, cities that few people outside China will have ever heard of. The former is squeezed between Guangzhou and Shenzhen, while the latter neighbours Guangzhou to the west.

Hong Kong still has the largest economy but the difference has reduced as Guangzhou and Shenzhen are hot on its heels. By European standards, Hong Kong continues to enjoy the benefits of its South East Asian location with GDP growth averaging 5.9% since 2010 but Guangdong Province as a whole is growing faster with average economic growth at 9.5% per annum between 2010 and 2016.

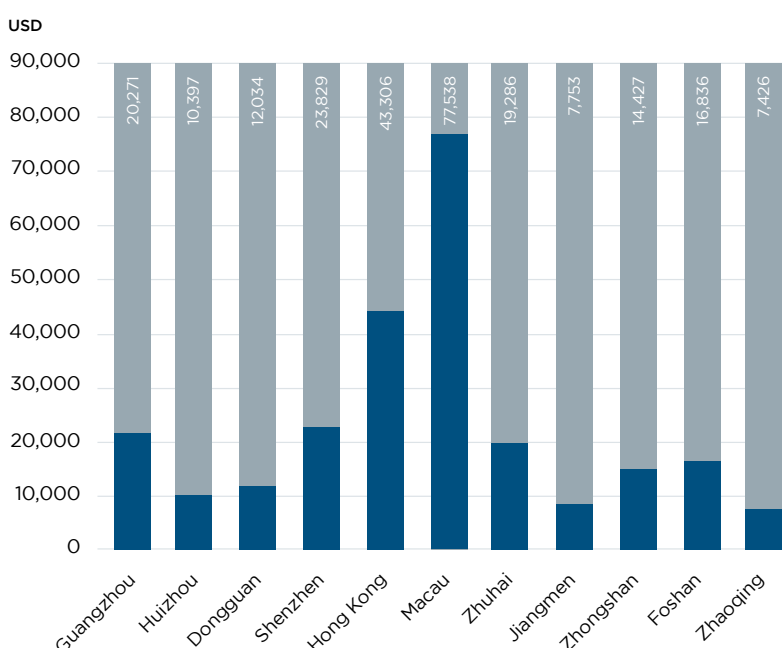
In comparison, Macau might have a fraction of the population of the other GBA cities, but it has by far the highest per capita GDP at close to USD77,000, a result of the high profit, low-labour resource economy based on tourism and gambling. Hong Kong's per capita income is around USD46,000 while Shenzhen has the wealthiest residents in Guangdong Province with per capita incomes just under USD24,000, around half of the Hong Kong level. Elsewhere in Guangdong Province, only Guangzhou has per capita incomes in excess of USD 20,000.

Hong Kong, Macau and Guangdong Province GDP



World Bank: World Development Indicators, Guangdong Statistical Yearbook 2017

GDP per capita



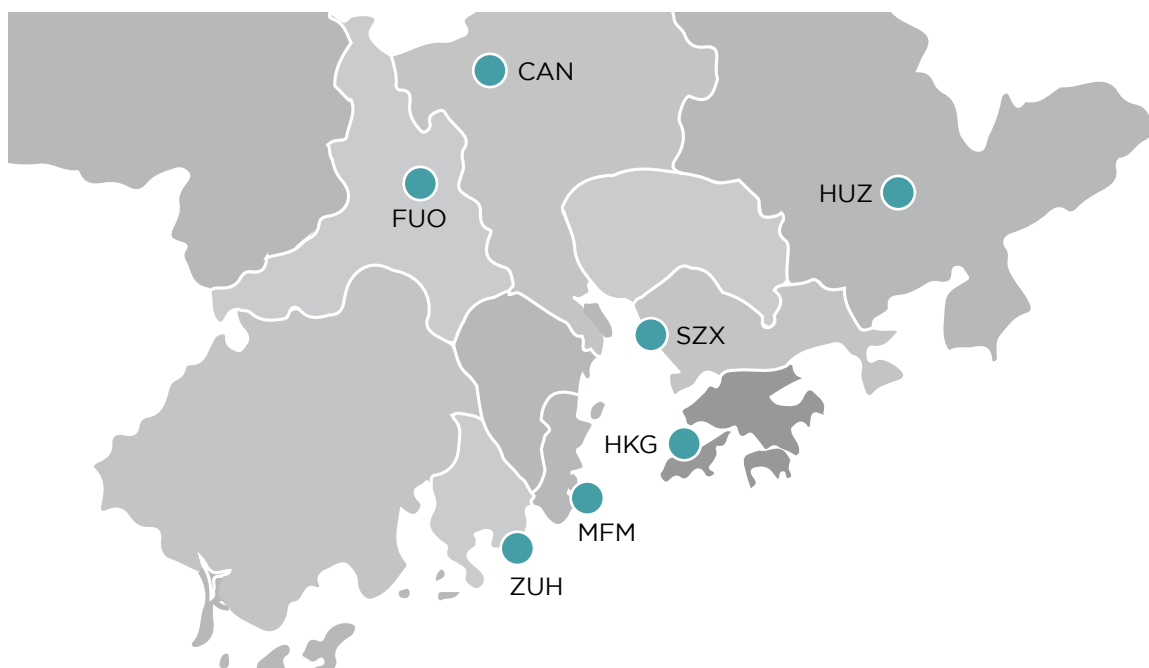
Airport Contenders

There are currently seven airports with scheduled air services in the GBA. The primary airport for the region used to be Hong Kong International Airport (HKG), which provided a gateway for people living around the Pearl River to the outside world, as well as for residents of Hong Kong itself. It still is but that role is increasingly under threat as the Guangzhou Baiyun International Airport (CAN) has grown and established itself as an airport to compete with HKG.

More recently, Shenzhen Bao'an International Airport (SZX) has been growing to become a third rival, supported by the rise of Shenzhen as a city larger than Hong Kong itself and located on Hong Kong's doorstep. The distance from SZX to HKG is less than 40km – similar to the distance between New York's Newark Airport and JFK Airport, or London Heathrow and London Gatwick or Paris Charles de Gaulle Airport and Orly Airport. While any national border is an impediment

to easy travel, there is considerable overlap in the catchment area of these airports.

There are a further four serving the region. These are Zhuhai (ZUH), Macau (MFM), Huizhou (HUZ) and Foshan (FUO). Macau is probably the most well-known and has seen strong growth in the past 5 years and Zhuhai, a domestic Chinese airport to the west of the Pearl River Estuary and to the west of Macau, has also seen capacity ramp up sharply in the past few years, reaching over 5 million seats in the last 12 months. Huizhou is a much smaller airport, located to the east of the GBA region. Foshan is the smallest commercial airport in the GBA and has seen capacity diminish in the past year to almost nothing but the airport is due to be replaced soon by the New Foshan Airport.



Symbols of Togetherness

Two of the major and recent developments which are a clear sign of the level of cooperation taking place across the region are the Hong Kong-Zhuhai-Macau Bridge (HZMB) and the new high-speed rail line which opened in September 2018 between Hong Kong and Guangzhou.

The bridge, opened in 2018, is in fact a bridge and tunnel combination spanning the Pearl River Estuary and providing 39km of six-lane highway connecting Hong Kong with the south western areas for the GBA. Promoted by the Hong Kong government as bringing benefits from deeper economic integration with Guangdong province, the bridge brings the three cities within an hour's drive time of one another. A 200km and 4-hour trip from Zhuhai to HKG is reduced to 40km and 45 minutes.

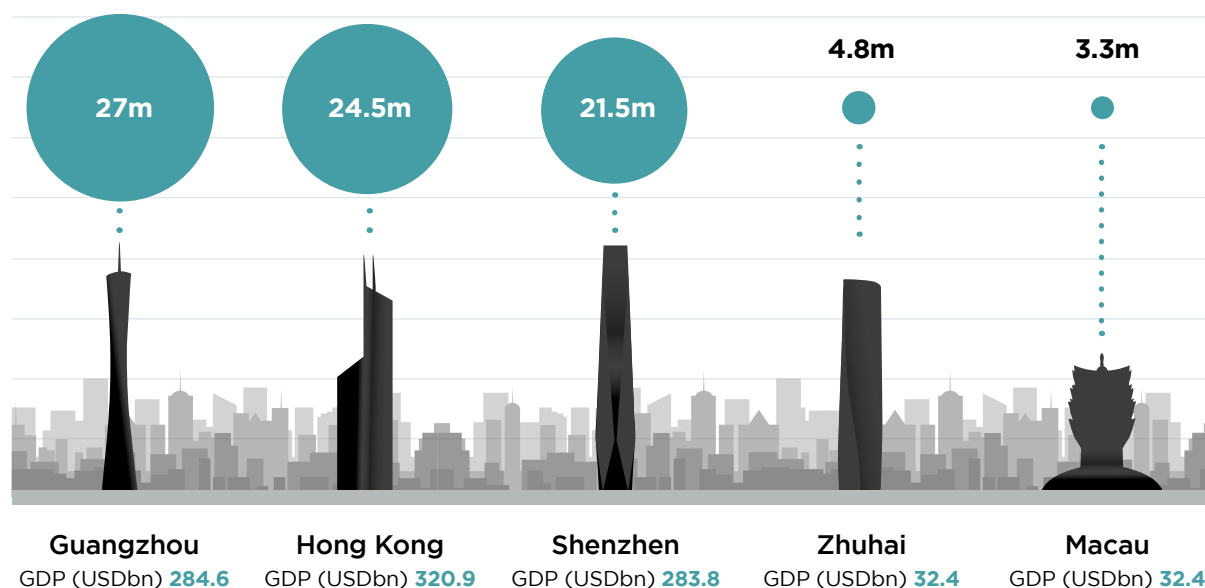
Already the world's longest high-speed rail network, the new line connects Hong Kong to numerous mainland China destinations, strengthening the economic ties between

Hong Kong and China and binding the two more closely. The new rail station is located in West Kowloon, in the heart of downtown Hong Kong so an extra connection is still required to travel to or from HKG but the same is true to Shenzhen and Guangzhou. Analysis by Skift¹ shows that downtown-to-downtown travel from Hong Kong to cities such as Changsha and Wuhan in China is now comparable by rail or air and, crucially, the rail fares are a fraction of the air fare costs. Add to this, the well-known problems of congested airspace and flight delays in the GBA area, and the HSR services are a genuine threat to flights up to 1,000km from Hong Kong.

Both infrastructure projects have the potential to increase leakage from the catchment areas of Guangdong airports to Hong Kong but, equally, could increase the number of Hongkongers choosing to fly from a Mainland Chinese airport to destinations in China.

¹"China's bullet trains pose a threat to Hong Kong airlines", Skift, 18 September 2018

Departing passengers (m)



The Hub Airport

Hong Kong still leads the way

Hong Kong International Airport, the airport with the 8th largest seat capacity in the world, has a record of being both pioneering and protectionist. As a hub, it ranked 13th globally in this years' OAG Megahubs Index, 4th in Asia Pacific, and the airport currently sees about 28%* of all passengers connecting to or from another flight.

Already congested and facing competition from CAN in particular, HKG is in the process of expanding. The airport will have three-runway operations from 2024 and will also be opening a new passenger concourse and expanded Terminal 2. When complete, the airport will have increased capacity to handle 100mppa.

Index	HKG
World Rank (seats, 2018)	8
Departing Seats (2018)	45.7m
International share of seats (2018)	100%
ASKs (2018)	154.7bn
Departing Passengers (Jul17-Jun18)	24.5m
Connecting Share of Passengers	28%

The airport has benefitted from a lack of low-cost airline competition, partly due to the lack of available slots. Even today low-cost carriers only offer less than 12% of capacity, compared to 44% across South East Asia as a whole. This may change once the new runway is in place.

Always competitive, and one of the world's few airlines which has had a record of long-term profitability, Cathay Pacific maintains its position as the dominant airline at Hong Kong, currently operating over 30% of scheduled capacity. Capacity operated by

Cathay Pacific and Cathay Dragon, both part of the Cathay Pacific Group, makes up 46% of all capacity at the airport. Nevertheless, the last two years have seen pressure on yields from the intense competitive landscape and the need to grapple with its cost base.

As a consequence, the last year to eighteen months has seen changes to its network, aided by the arrival of the A350-900XWB to the fleet. As the second airline to take delivery of the new aircraft, with 22 in the fleet now, as well as the first of up to 20 A350-1000 XWB aircraft, Cathay Pacific has increased capacity to long-haul destinations, particularly in Europe. Manchester gains a 40% increase in capacity, Paris 10%, Madrid 24%, Gatwick 26% and Tel Aviv 88%. It has added services to Brussels, Dublin and Barcelona with Cape Town and Seattle due to be added to the Cathay Pacific map in the next six months.

Meanwhile capacity to regional destinations has been tweaked and some capacity reductions have been partially picked up by Cathay Dragon. Overall, Cathay Dragon capacity in 2018 is about 4% up on a year earlier. While a number of routes have been dropped, the airline introduced four passenger flights per week to Nanning in January 2018 and to Jinan in March 2018 with further expansion to Davao City in the Philippines and to Medan in Indonesia in October 2018. In addition, scheduled seasonal service will commence from Hong Kong to Tokushima in Japan with two-times-weekly service between 19 December 2018 and 30 March 2019 using Airbus A320 aircraft. Cathay Dragon has 32 Airbus A321-200neo on order for delivery starting from 2020 which could increase fleet capacity by almost 50%.

*OAG Traffic Analyser, June 2018

The next few years will likely see HKG see its share of GBA traffic decline further as competitors become more sophisticated and extend their route networks. Not until the airport development projects are complete in 2024 and the airport has more room to grow will HKG be able to expand significantly. Even then, the reality is that the demographics of the GBA mean that most demand for air travel will rise on the Chinese side of the border placing HKG at a disadvantage relative to CAN and SZX. Of all the GBA airports, HKG has the most to lose and may have the hardest time finding the gains. In the meantime, HKG and Cathay Pacific will be working hard to reap the benefits of a more integrated GBA economy, easier access from the new bridge and high-speed rail service and maintenance of the high level of connectivity at the airport.



Leadership Contender

Guangzhou aims to dominate

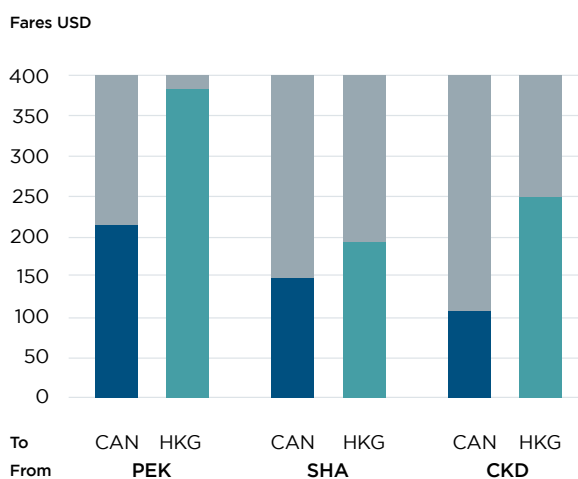
The city government for Guangzhou wants CAN to be the major airport for the GBA and it is well on its way. It is already the third busiest airport in China and is ranked 13th for global airline capacity. Capacity at CAN has doubled in the last 10 years and there's plenty of room to grow some more – at least for the moment. The airport opened Terminal 2 in April 2018, bringing overall capacity to 70 million passengers per annum, although the airport remains well down the SkyTrax rankings, placed outside the Top 100. Further plans for 4th and 5th runways and a third terminal mean CAN should be able to handle 100 million passengers by 2022, a couple of years ahead of HKG's capacity increase.

With the new high-speed rail service reducing the time to travel between downtown Hong Kong and Guangzhou South to 48 minutes, both CAN and HKG see their potential catchment areas extended. In all likelihood, the winner may well be CAN. For travellers from Hong Kong wishing to travel to destinations in China, CAN offers more than twice as many destinations and four times as many flights. With airfares to destinations in China typically lower than from Hong Kong,

this is another incentive for leakage from Hong Kong's catchment area.

In the long term, however, the city of Guangzhou plans to cap population numbers at 20m by 2035. While this means the city will grow substantially between now and then, long-term traffic growth from an ever-increasing population will come from rising levels of affluence and propensity to fly, rather than an ever-growing population.

Air fares Jan-June 2018



Source: Traffic Analyser



Index	CAN
World Rank (seats, 2018)	13
Departing Seats (2018)	42.1m
International share of seats (2018)	25%
ASKs (2018)	82.6bn
Departing Passengers (Jul17-Jun18)	27m
Connecting Share of Passengers	15%

Shenzhen Airport

Challenging Hong Kong?

Located less than 40km from Hong Kong's airport, and sandwiched between Guangzhou and Hong Kong, Shenzhen (SZX) is a potential challenger for Hong Kong, but less so for CAN. While border processes create an extra hurdle for passengers from Hong Kong wishing to fly from Shenzhen, or vice versa, greater integration across the region is likely to make this more of an option. The new high-speed rail service means that passengers can reach Shenzhen North in just 19 minutes from West Kowloon station in Hong Kong, and while that doesn't take them to the airport, it gives a taste of how the Hong Kong and Shenzhen catchment areas could merge.

The airport at Shenzhen is only five years old but is rapidly edging closer to its design capacity of 45 mppa.

It is already considering a third runway and is planning for a new terminal. Most of the air services are domestic with 10% operated internationally, the majority of which are to destinations in South East Asia. LCCs make up just 7.5% of all airline capacity at SZX.

Index	SZX
World Rank (seats, 2018)	30
Departing Seats (2018)	29.6m
International share of seats (2018)	10%
ASKs (2018)	43.1bn
Departing Passengers (Jul17-Jun18)	21.5m
Connecting Share of Passengers	4%

Zhuhai

Complementing HKG?

Zhuhai Airport (ZUH) is ranked 200th in the world for airline scheduled capacity. While the airport has seen capacity grow fast in the last few years, when it was opened in 1995 it was billed as China's biggest airport but has never come close to reaching its 35 mppa capacity.

Hong Kong International Airport holds a majority (55%) stake in the airport and has a long-term management contract to run it. With the new bridge, there is potential for more cooperation between HKG and ZUH, or at least for HKA to move business aviation and freighter traffic to the smaller airport, easing congestion at the hub.

Index	ZUH
World Rank (seats, 2018)	200
Departing Seats (2018)	6.9m
International share of seats (2018)	0%
ASKs (2018)	8.2bn
Departing Passengers (Jul17-Jun18)	4.8m
Connecting Share of Passengers	0%



Macau

A unique destination

Macau (MFM) is poised to become the richest place on the planet by 2020, according to the IMF, with the highest per capita income anywhere. While that makes it unique, the population is only fewer than 100,000. The city is essentially a tourist destination, especially attractive because of its casinos and gambling culture.

The airport handles around 3.3m departing passengers each year, and has been growing steadily, adding routes and airlines over time. In 2018 there have been 32 airlines with scheduled air services, compared to 24 five years earlier, and the number of routes operated has grown from 52 to 64. Current design capacity is for around 7 million passengers, rising to 11 million in 2025-2027 and 15m in 2033-2040. While airlines have offered 40% more seats in 2018 compared to

2013, plans for airport growth appear capable of handling increasing volumes of visitors. While MFM has carved out a distinct role within the GBA, its role is unlikely to change for the foreseeable future and it is not a threat to the other larger airports fighting to become the region's dominant hub.

Index	MFM
World Rank (seats, 2018)	247
Departing Seats (2018)	5.2m
International share of seats (2018)	100%
ASKs (2018)	7.2bn
Departing Passengers (Jul17-Jun18)	3.3m
Connecting Share of Passengers	5%

More to Come

The new GBA Airports

While there is a small airport at Foshan (FUO) now, which serves as a commercial airport and air force base, it is to be closed and replaced by the New Foshan Airport. Located in Gaoming District, southwest of Guangzhou, the site selection took place in May 2018 and work should have started by the end of the year. When it is complete, targeted for the end of 2022, the new Foshan Airport will have three runways and will be capable of handling 30 mppa, both domestic and international traffic as well as cargo operations.

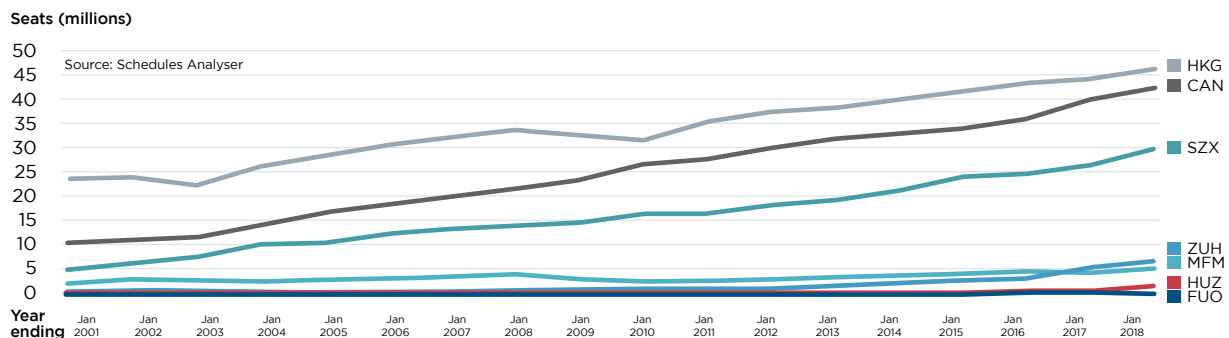
A second airport is also being planned for Guangzhou, to be built at Zhengguo, about 65km east of the current airport. Named the Guangzhou Zhengguo International Airport, the plan was published on the Guangzhou

Land Resources and Urban Planning Commission website early in 2018 and is aimed at further strengthening Guangzhou's status as a major aviation hub, especially as CAN is expected to inch closer to its operating capacity.

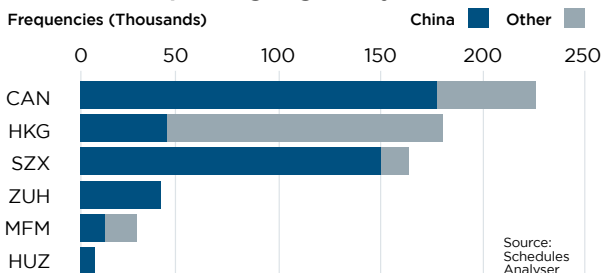
Eyeing Each Other up

The growth trajectories for the GBA airports show that Hong Kong, Guangzhou and Shenzhen lead the way, with Guangzhou likely to operate with more scheduled airline capacity than Hong Kong before long.

Capacity growth at GBA airports

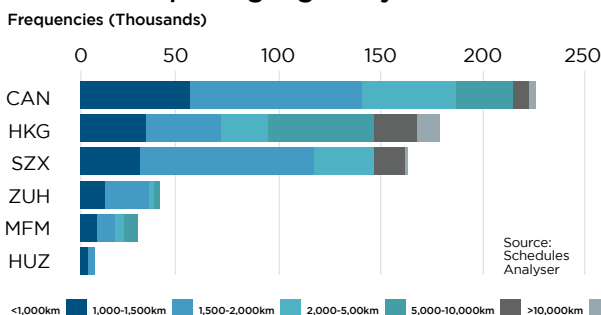


Profile of departing flights by destination



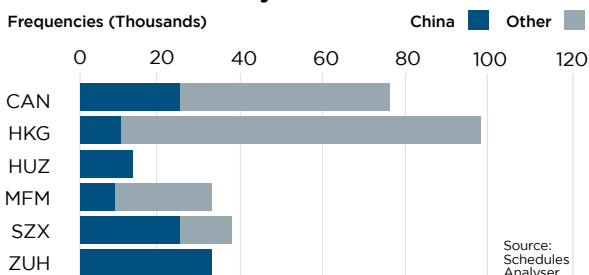
Overall size is only one means for comparison, however. The airports have very different route networks, for instance. While ZUH and HUZ are purely domestic airports, HKG and MFM only have international flights and CAN and SZX have a primary focus on China with 75% and 90%, respectively, of all flights destined for elsewhere in China.

Profile of departing flights by distance



Airline capacity may be greatest at HKG, but the number of departing flights is largest at CAN. Almost half of flights from HKG are for flights over 2,500km long (48%) but at CAN only 17% exceed 2,500km. The HKG route network is distinctive for the proportion of long-haul flights with 6% being on routes over 10,000km.

Profile of carriers by airline domicile



HKG has by far the largest number of non-Chinese airlines operating to the airport, at 87, and another 10 Chinese airlines. While CAN has 51 foreign airlines operating scheduled flights, there are 24 Chinese airlines active at CAN. There are four airlines which fly to all of the airports, Air China, China Eastern, Juneyao Airlines and Shenzhen Airlines.

A wide-angle photograph of the Guangzhou skyline at dusk. The Canton Tower stands prominently in the center-left, illuminated with vibrant purple lights. The Pearl River flows in the foreground, with several boats visible, including a large cruise ship on the right and smaller ferries. The city skyline is visible in the background under a deep blue twilight sky.

Competing interests

While China has a tradition of top-down planning, creating coordinated outcomes, it is hard to imagine that the airports of the GBA are anything other than competitors. While Guangdong may have plans for a powerful city cluster, Hong Kong and Macao have their own traditions based around commerce and competition. Will the future for airports be determined more by the central planners or the entrepreneurial traders? Inevitably, the sheer scale of the population on the Chinese side of the border gives an advantage to Guangzhou and Shenzhen airports, but the power of Hong Kong as a hub airport means it will always have a role.

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