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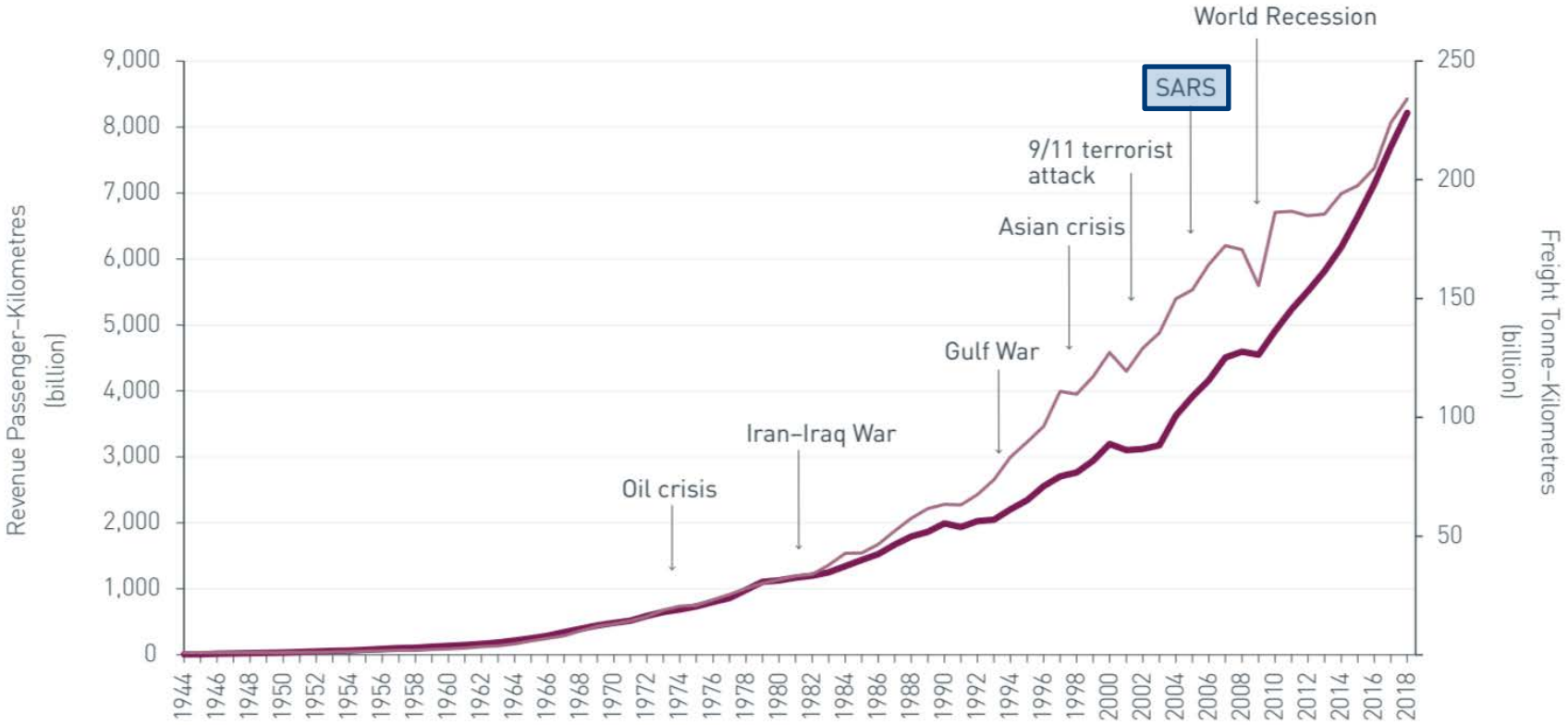
Effects of Novel Coronavirus (COVID-19) on Civil Aviation: Economic Impact Analysis

Montréal, Canada
5 March 2020

Air traffic has been vulnerable to external factors including disease outbreaks

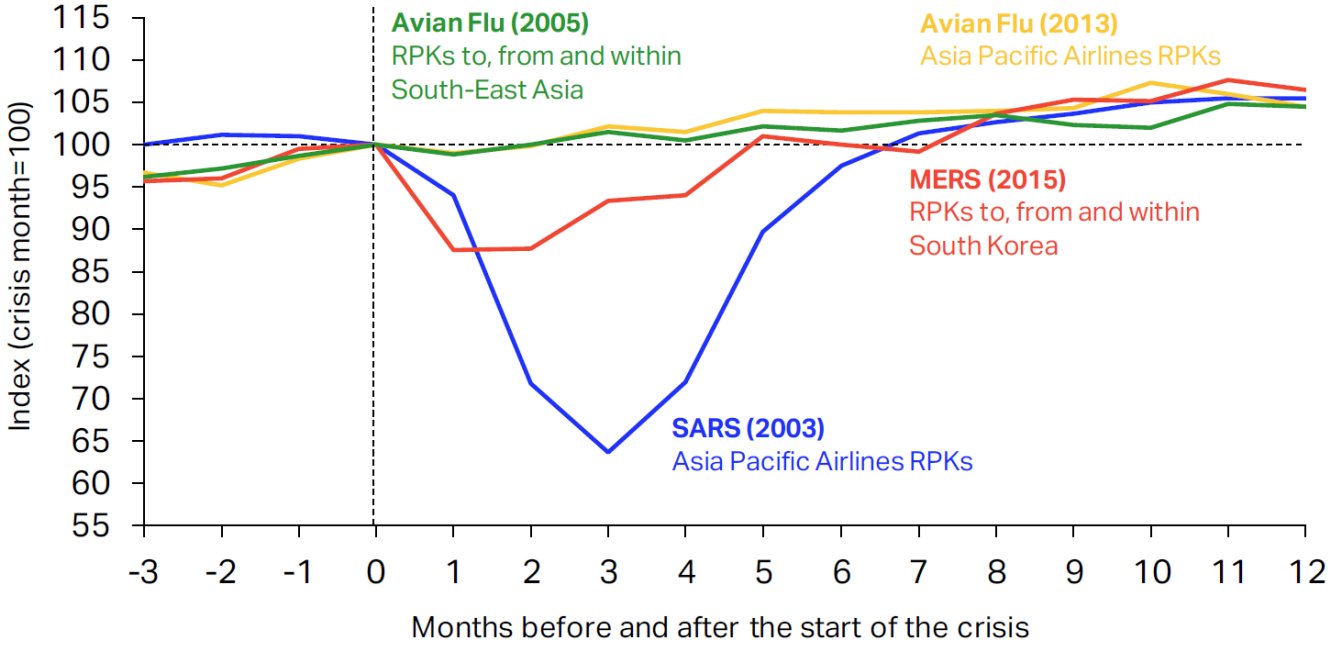


Source: ICAO Annual Report of the Council

Scheduled commercial traffic
Total (international and domestic) services

What can we learn from past experience? SARS, Aviation flu and MERS

Impact of past outbreaks on aviation



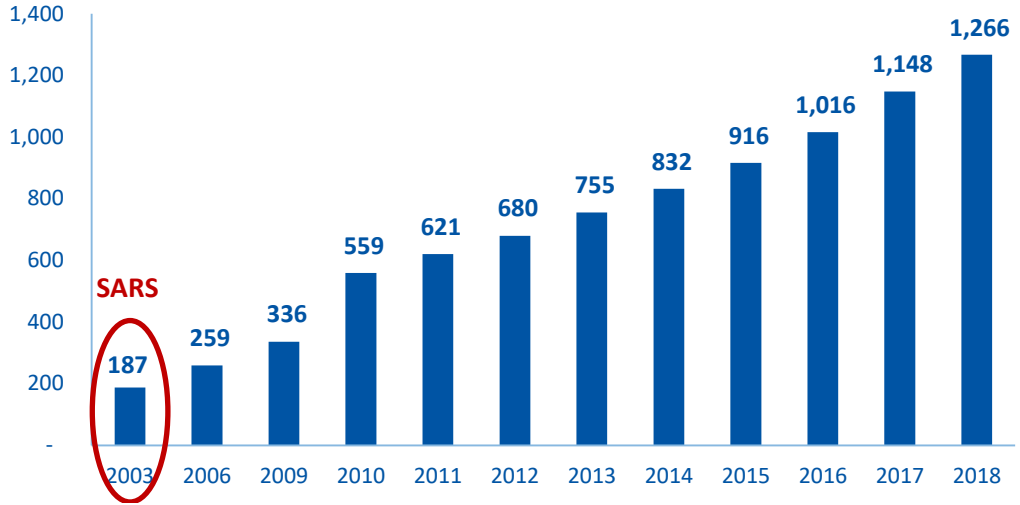
Source: IATA Economics

History shows that SARS has the most serious impact on traffic. At the height of the outbreak (May 2003), monthly RPKs of Asia-Pacific airlines were 35% lower than their pre-crisis levels. Overall in 2003, Asia-Pacific airlines lost **8% of annual RPKs and $6 billion of revenues**.

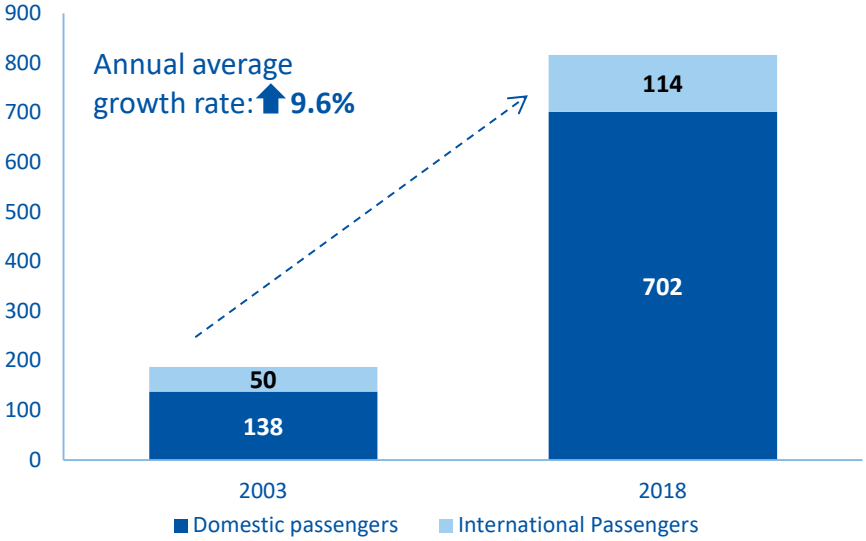
Source: IATA Economics' Chart of the Week (24 January 2020)

Chinese international traffic more than doubled since 2003 SARS spread

Total number of passenger moved through Chinese airports 2003-2018 (million of passengers)



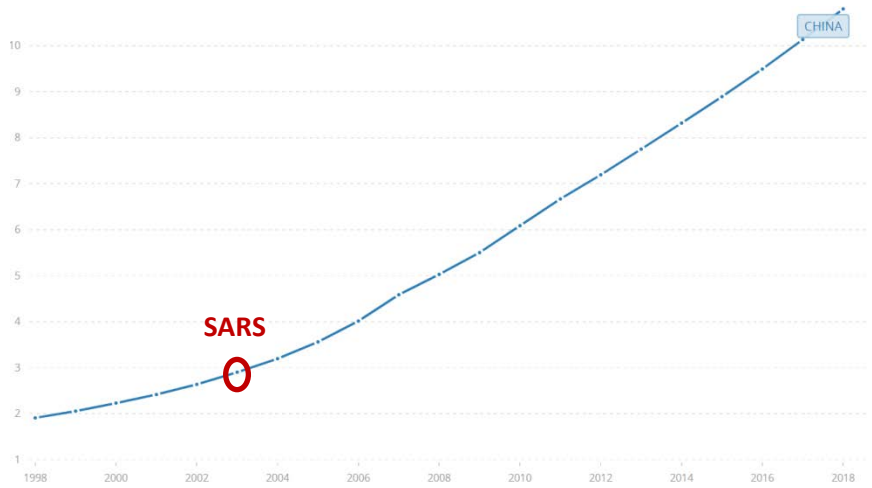
Passengers move to/from Chinese airports 2003 vs 2018



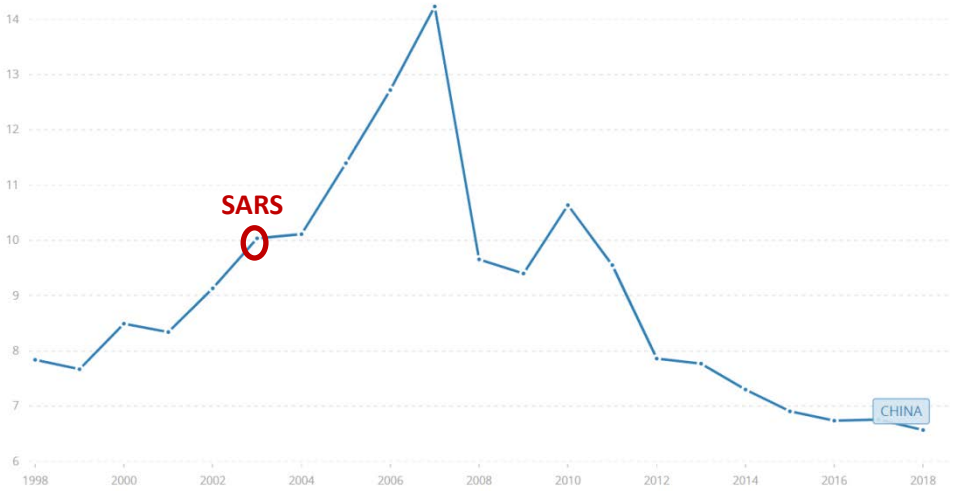
Source: ICAO-ACI Airport traffic data

Chinese economic size quadrupled since 2003 but growth rate slowed down

GDP of China
(constant 2010 USD, trillion)

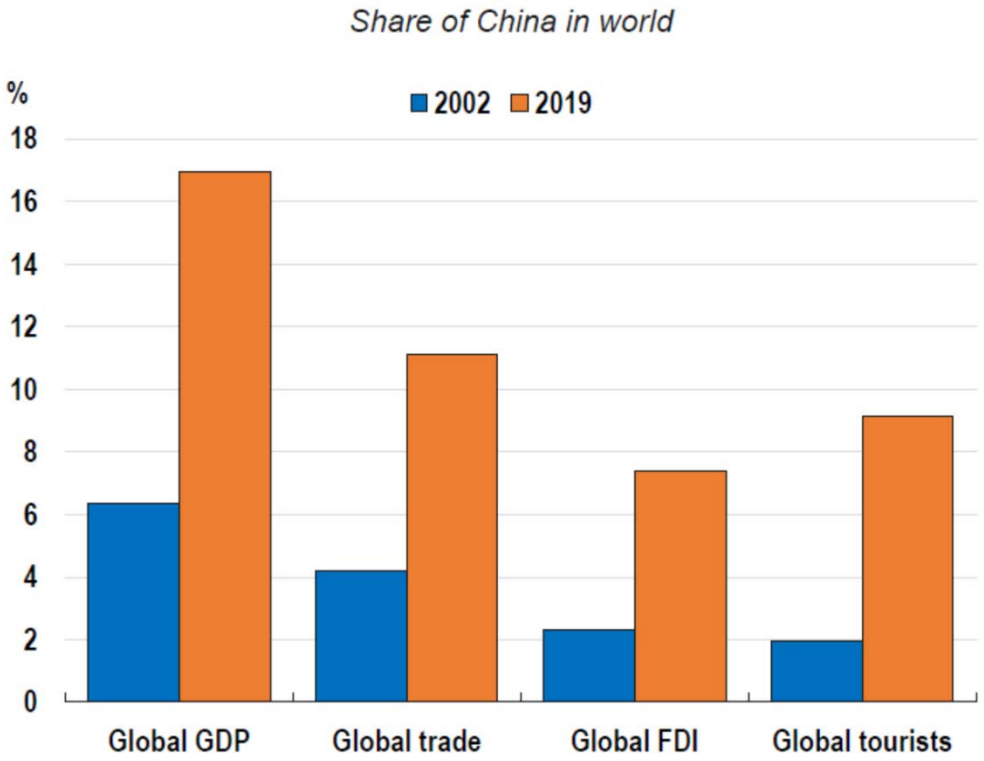


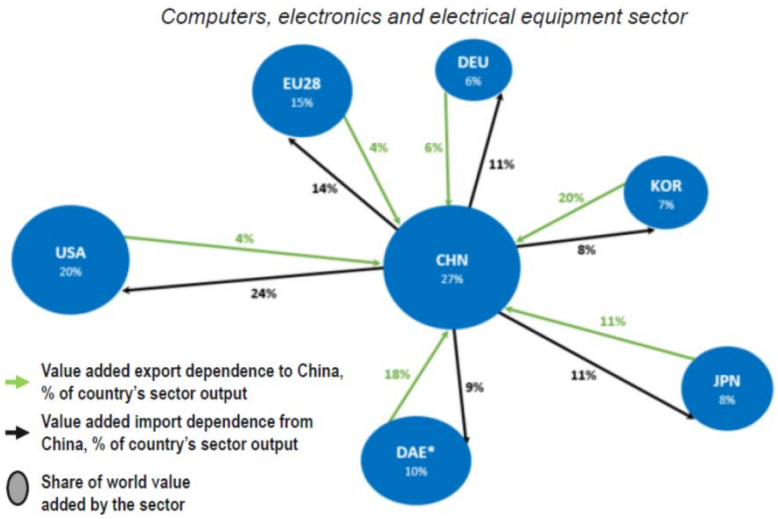
GDP Annual Growth of China
(%)



Source: World Bank Group

China is more integrated in the global economy

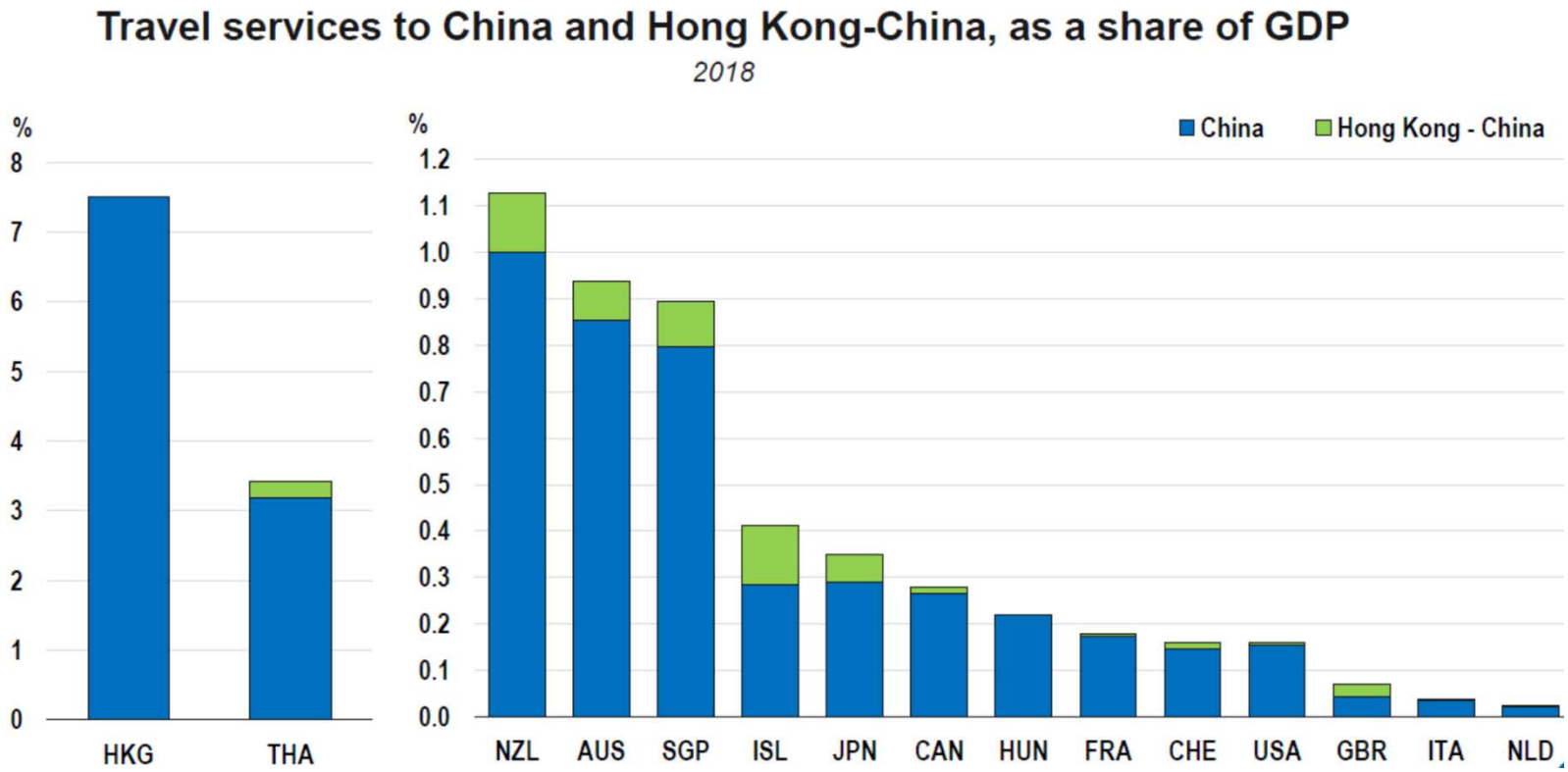




Value added trade flows between China and key partners

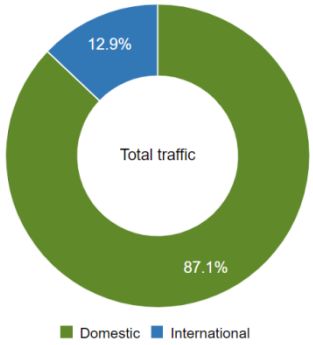
Source: OECD Interim Economic Outlook dated 2 March 2020

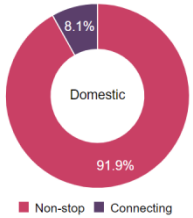
The drop in Chinese travellers will hit hard

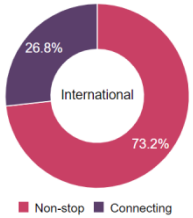


Source: OECD Interim Economic Outlook dated 2 March 2020

Air connectivity of China in terms of O-D passenger movement







Source: ICAO-ICM MIDT data

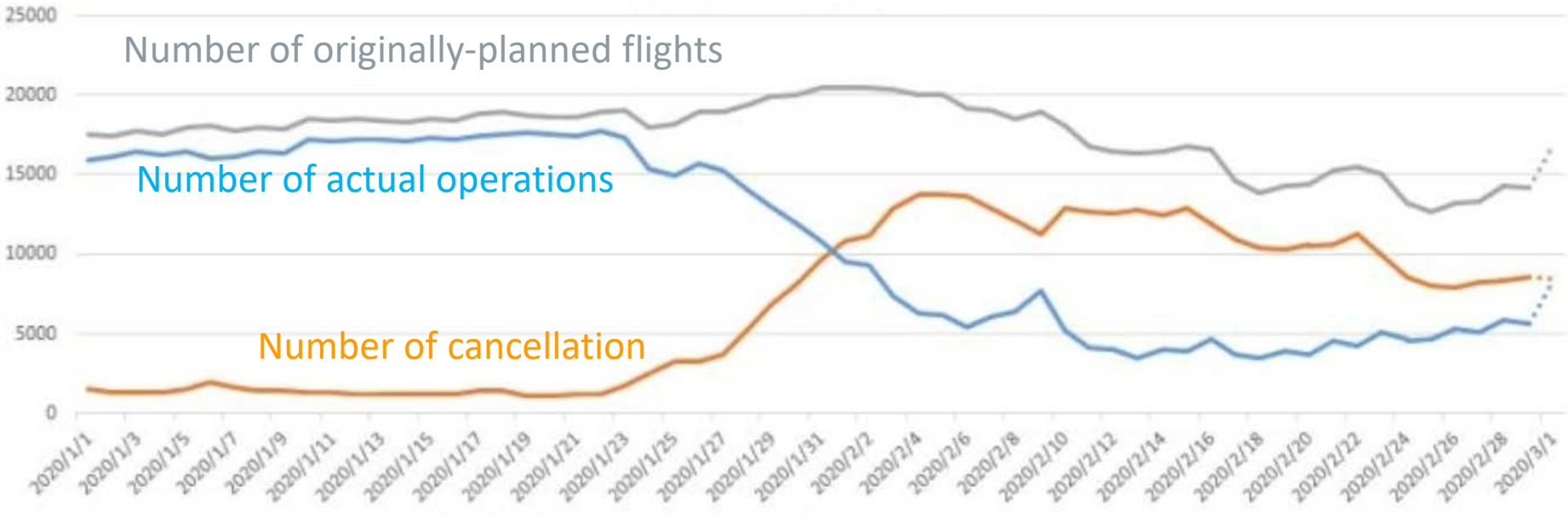
Air connectivity of Wuhan airport in terms of O-D passenger movement

24,073,870
Total traffic

Source: ICAO-ICM MIDT data

COVID-19 outbreak caused a substantial setback in flight bookings for Chinese New Year

Flight cancellation has exceeded actual operations since 31 January 2020



Note: The above includes a) international from mainland China, Hong Kong SAR of China, Macao SAR of China, Taiwan, Province of China; b) domestic within mainland China, and c) regional between mainland China and Hong Kong SAR, Macao SAR and Taiwan Province

Source: CARNOC.com (retrieved on 1 March 2020)

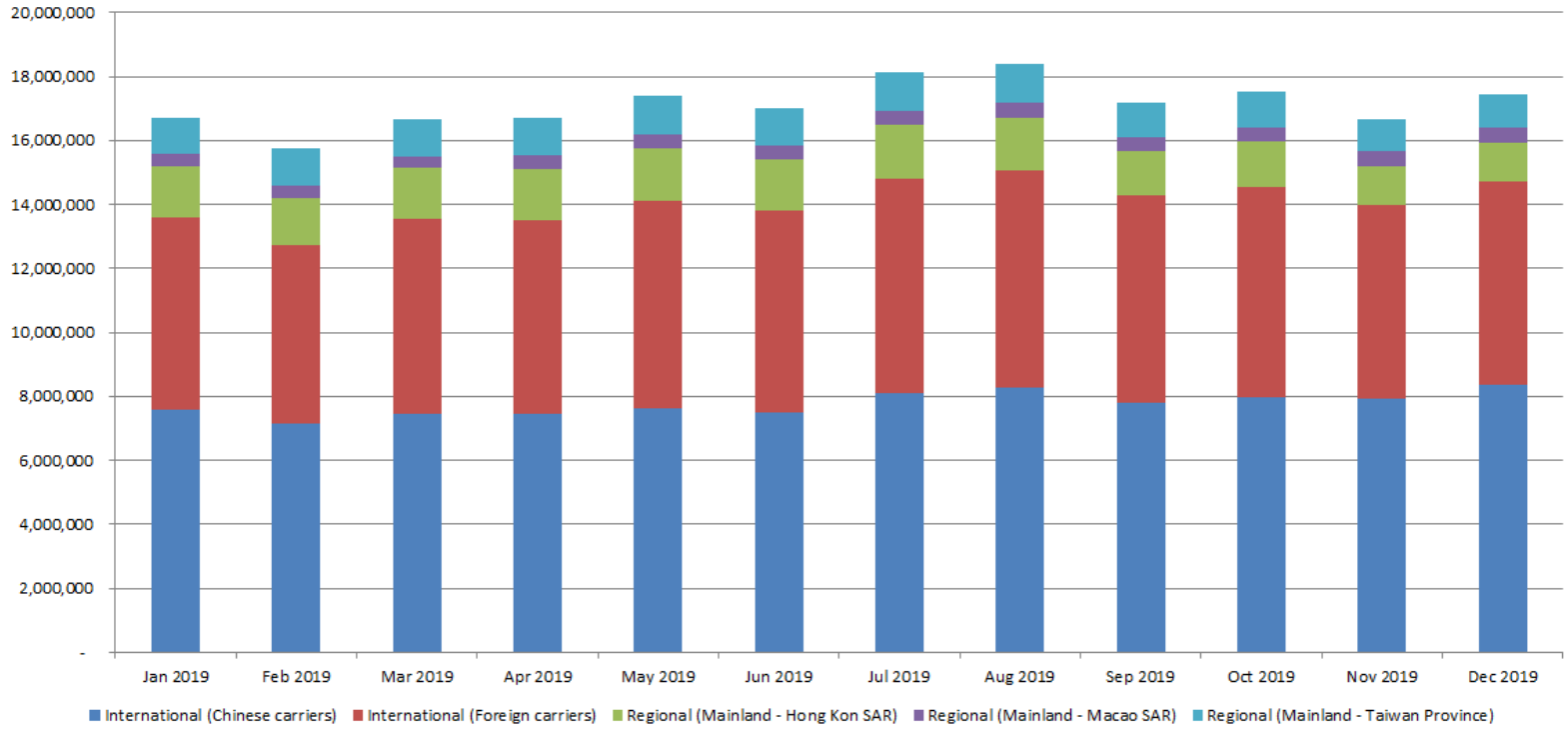
Scenario Analysis:
International Services from/to Mainland China

This is a preliminary analysis. Figures and estimates herein will be updated with the situation evolving and more information available.

Scope of analysis: Mainland China

- **"International"** refers to scheduled international passenger services from/to mainland China excluding:
  - scheduled passenger services between mainland China and Hong Kong Special Administrative Region (SAR) of China, Macao SAR of China and Taiwan, Province of China; and
  - scheduled international passenger services from/to Hong Kong SAR, Macao SAR of China and Taiwan, Province of China
- **"Regional"** refers to scheduled passenger services:
  - between mainland China and Hong Kong SAR of China
  - between mainland China and Macao SAR of China; and
  - between mainland China and Taiwan, Province of China

Number of seats offered by airlines (monthly, 2019)

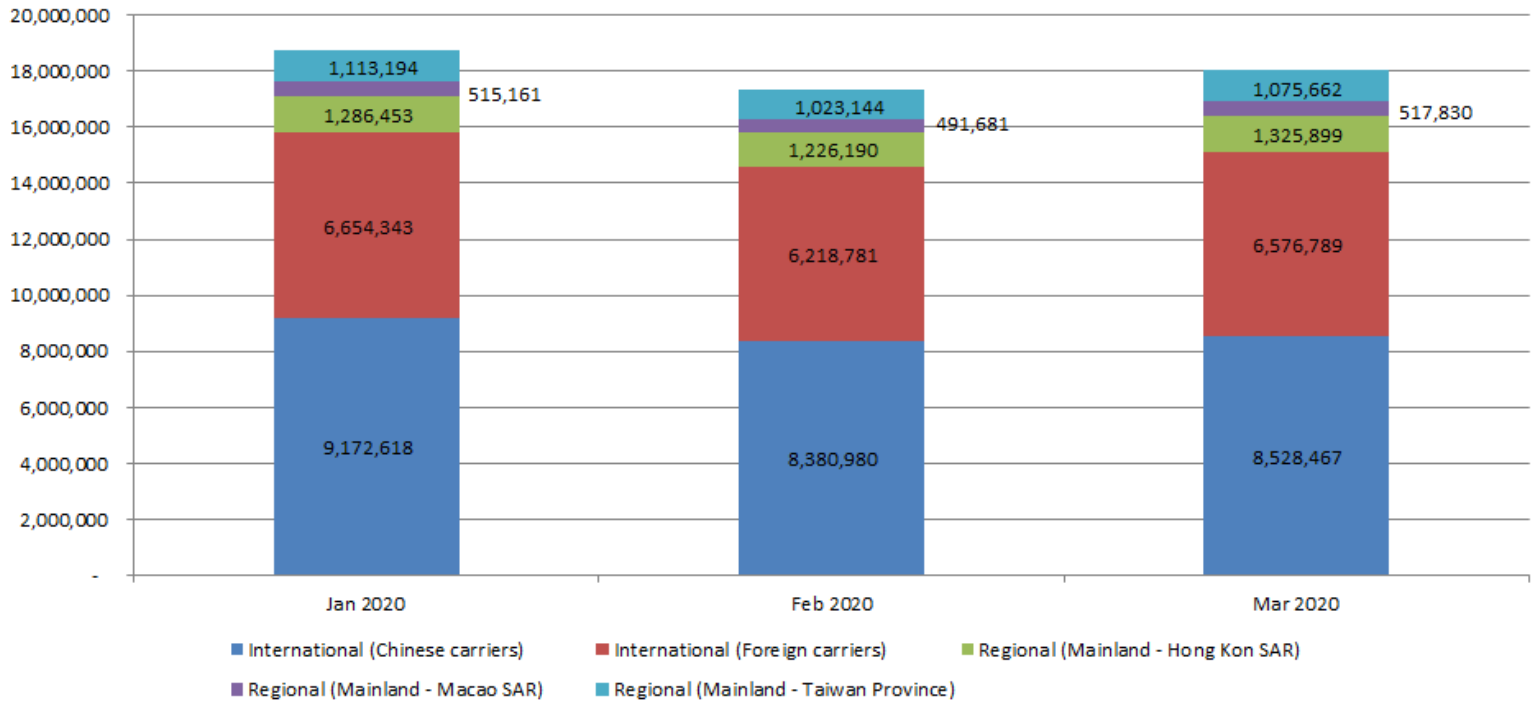


Capacity share 2019

- 45%: International by Chinese carriers
- 37%: International by foreign carriers
- 9% Regional (mainland China - Hong Kong SAR)
- 3% Regional (mainland China - Macao SAR)
- 7% Regional (mainland China - Taiwan Province)

Source: OAG Scheduled data

Number of seats offered by airlines (1Q 2020 originally-planned)



Capacity share 1Q 2020

- 48%: International by Chinese carriers
- 36%: International by foreign carriers
- 7% Mainland China - Hong Kong SAR
- 3% Mainland China - Macao SAR
- 6% Mainland China - Taiwan Province

Source: OAG Scheduled data

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Over 130 airlines reduced international services or cancelled all operations from/to mainland China

International (136)	Beijing Capital Airlines	Hebei Airlines*	Malaysia Airlines	SAS Scandinavian Airlines*	T'way Air*	Hebei Airlines*
Aero Mongolia*	British Airways*	Himalaya Airlines*	Malindo Airways	Saudi Arabian Airlines*	Ukraine Interl Airlines*	HK Express
Air Algerie*^	Cambodia Airways Co. Ltd	Iberia*	MIAT - Mongolian Airlines*	Scoot*	United Airlines*	Hong Kong Airlines
Air Astana*	Cambodia Angkor Air*	IndiGo*	Myanmar Airways Intl*	Shandong Airlines	Ural Airlines	Juneyao Airlines
Air Busan	Cebu Pacific Air*	IrAero*	Myanmar National Airlines*	Shanghai Airlines	Urumqi Airlines*	Mandarin Airlines
Air Canada*	Chengdu Airlines	Iraqi Airways*	Neos Air*	Shenzhen Airlines	US-Bangla Airlines	Shandong Airlines
Air China	China Eastern Airlines	Japan Airlines	Nok Air	Siberia Airlines*	Uzbekistan Airways*	Shanghai Airlines
Air Company SCAT*	China Express Airlines	JC Cambodia Intl Airlines	NokScoot Airlines Co Ltd*	Sichuan Airlines	Vietnam Airlines*	Shenzhen Airlines
Air France*	China Southern Airlines	Jeju Airlines	NordStar*	SilkAir	Virgin Atlantic Airways*	Sichuan Airlines
Air India*	China United Airlines	Jetstar Asia*	Okay Airways	Singapore Airlines	Xiamen Airlines Company	Tigerair Taiwan Co. Ltd
Air Koryo*	China West Air*	Jetstar Japan*	Oman Air*	Sky Angkor Airlines	Yakutia*	Uni Airways
Air Madagascar*	Chongqing Airlines*	Jetstar Pacific Airlines*	Pakistan Intl Airlines*	Somon Air*	Zhejiang Loong Airlines	Xiamen Airlines Company
Air Mauritius*	Citilink Indonesia	Jin Air*	PAL Express*	Spring Airlines	**Regional (25)**	Zhejiang Loong Airlines*
Air New Zealand*	Delta Air Lines*	Juneyao Airlines	Peach Aviation Limited*	Spring Airlines Japan	Air China	
Air Seoul, Inc*	Donghai Airlines*	Kenya Airways*	Pegas Fly*	Srilankan Airlines	Air Macau	
AirAsia	Eastar Jet	KLM-Royal Dutch Airlines*	Philippine Airlines*	SWISS*	Cathay Dragon	
Airasia X	Egyptair*^	Korean Air	Philippines AirAsia Inc.*	Thai Air Asia X	Cathay Pacific Airways	
All Nippon Airways	El Al Israel Airlines*	Kunming Airlines	Qantas Airways*	Thai AirAsia	China Airlines	
American Airlines*	Emirates	Lanmei Airlines	Qatar Airways*	Thai Airways International	China Eastern Airlines	
Asiana Airlines	Ethiopian Airlines	Lao Airlines	Qingdao Airline Co, Ltd	Thai Lion Air	China Southern Airlines	
Austrian Airlines*	Etihad Airways	Lion Air	Royal Air Maroc*	Thai Smile Airways*	Chongqing Airlines	
Azerbaijan Airlines*	Finnair*	LOT - Polish Airlines*	Royal Brunei Airlines*	TianJin Airlines	Donghai Airlines	
AZUR air*	Garuda Indonesia*	Lucky Air Co. Ltd.	Royal Flight Airlines*	Tibet Airlines*	EVA Airways	
Bangkok Airways*	Guangxi Beibu Gulf Airlines	Lufthansa German Airlines*	Ruili Airlines	Turkish Airlines*^	Far Eastern Air Transport*	
Batik Air	Hainan Airlines	Mahan Air*	RwandAir*	Turkmenistan Airlines*	Hainan Airlines	

Announced since late January 2020; Duration varies

***: Airlines with all service Cancelled**
***^: Airlines with all service cancelled but gradual resumption**

Source: Routes Online, OAG and airline websites (as of 5 March 2020)

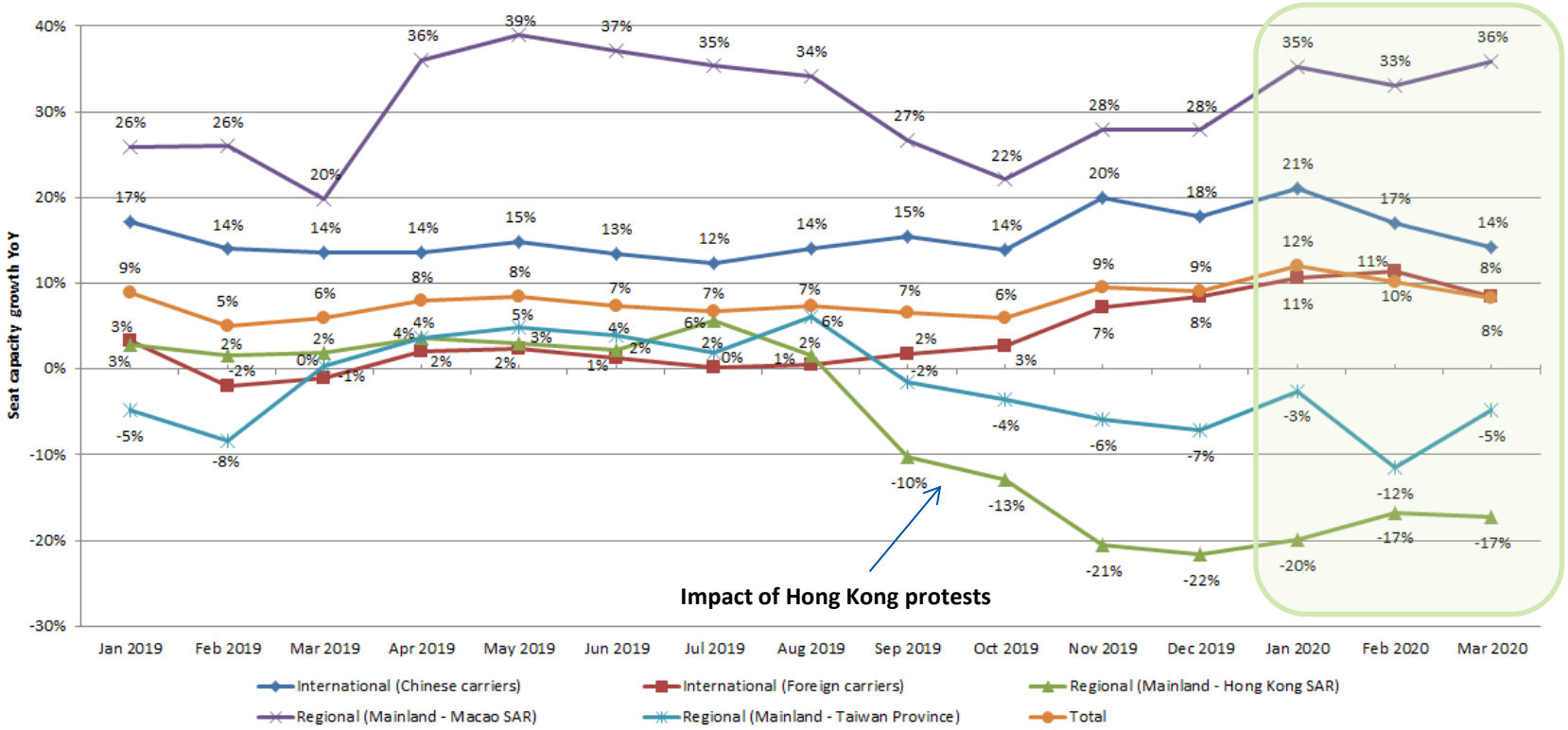
Scenario analysis of COVID-19 outbreak impact for 1Q 2020

- Baseline (hypothetical situation without COVID-19 outbreak)
  - Seat capacity: used "originally-planned" winter schedule
  - Load factor: used 2018 actual results of airlines
- Scenario 1
  - Seat capacity in January and February: estimated by airlines' schedule changes
  - Seat capacity in March: estimated by preliminary airlines' schedules
  - Load factor: used 2018 actual results of airlines except Hong Kong SAR of China
- Scenario 2
  - Seat capacity in January and February: estimated by airlines' schedule changes
  - Seat capacity in March: assumed summer schedules not starting from 29 March
  - Load factor: decreased by 12 - 22% in February and by 7 - 17% in March

Scenario analysis: Assumptions

Assumptions		Baseline		Scenario 1		Scenario 2	
		Seat capacity reduction from originally-planned	Passenger load factor	Seat capacity reduction from originally-planned	Passenger load factor	Seat capacity reduction from originally-planned	Passenger load factor
January 2020	International from/to mainland China (Chinese carriers)	0%	78%	-1%	78%	-1%	78%
	International from/to mainland China (Foreign carriers)	0%	80%	0%	80%	0%	80%
	Regional between mainland China and Hong Kong SAR of China	0%	80%	0%	70%	0%	70%
	Regional between mainland China and Macao SAR of China	0%	80%	-1%	80%	-1%	80%
	Regional between mainland China and Taiwan, Province of China	0%	80%	-1%	80%	-1%	80%
February 2020	International from/to mainland China (Chinese carriers)	0%	78%	-57%	78%	-57%	58%
	International from/to mainland China (Foreign carriers)	0%	80%	-64%	80%	-64%	65%
	Regional between mainland China and Hong Kong SAR of China	0%	80%	-65%	70%	-65%	58%
	Regional between mainland China and Macao SAR of China	0%	80%	-67%	80%	-67%	58%
	Regional between mainland China and Taiwan, Province of China	0%	80%	-60%	80%	-60%	58%
March 2020	International from/to mainland China (Chinese carriers)	0%	78%	-73%	78%	-76%	63%
	International from/to mainland China (Foreign carriers)	0%	80%	-76%	80%	-78%	70%
	Regional between mainland China and Hong Kong SAR of China	0%	80%	-80%	70%	-82%	63%
	Regional between mainland China and Macao SAR of China	0%	80%	-64%	80%	-67%	63%
	Regional between mainland China and Taiwan, Province of China	0%	80%	-80%	80%	-82%	63%

Baseline: 10% seat capacity increase compared to 1Q 2019

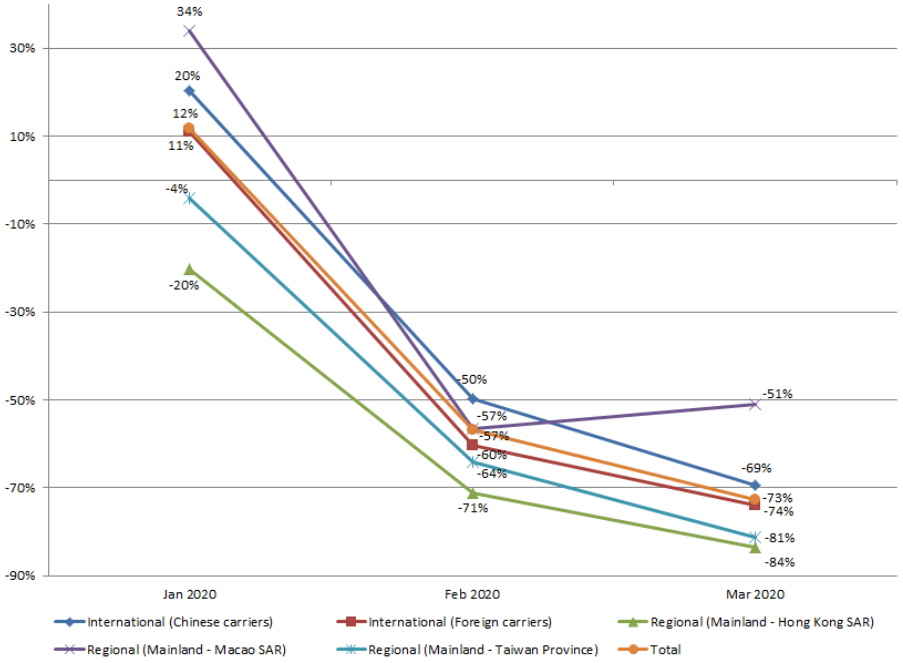


A total of YoY 10% seat capacity increase originally - planned for 1Q 2020 despite the reduction of capacity between mainland China and Hong Kong SAR and Taiwan Province

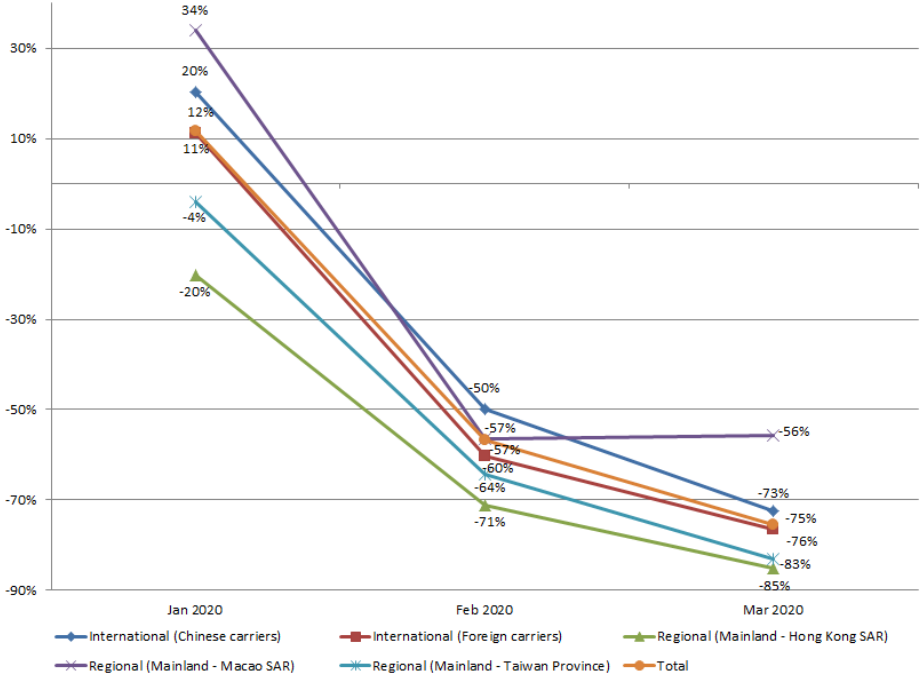
Source: OAG scheduled data

Scenarios 1 & 2: 45% seat capacity reduction from Baseline

Scenario 1: for 1Q 2020 a total of 39% reduction compared to 1Q 2019 and 45% reduction from Baseline

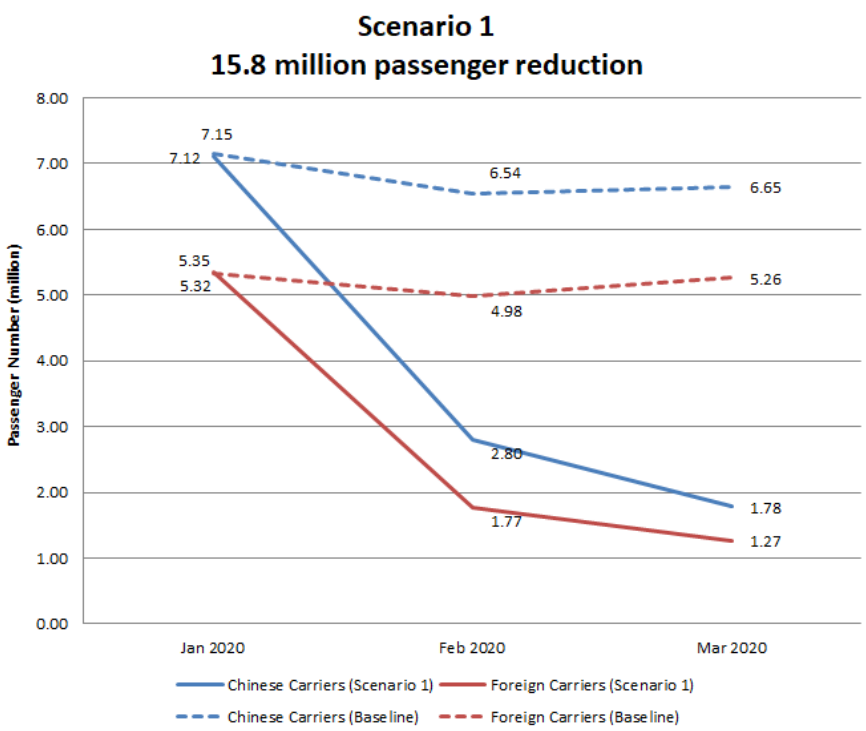


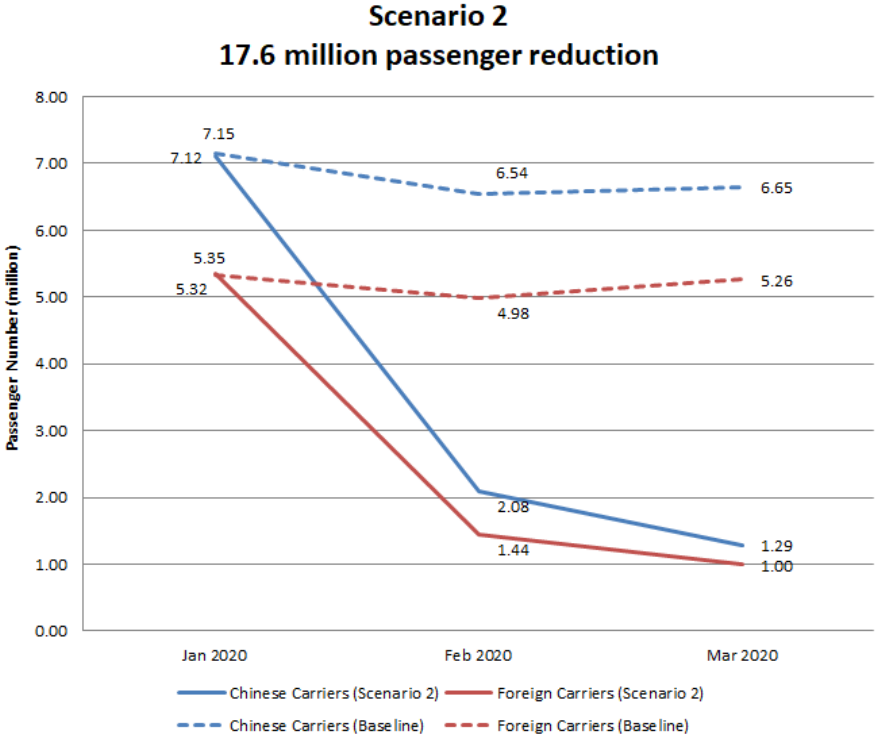
Scenario 2: for 1Q 2020 a total of 40% reduction compared to 1Q 2019 and 45% reduction from Baseline



Source: ICAO estimates

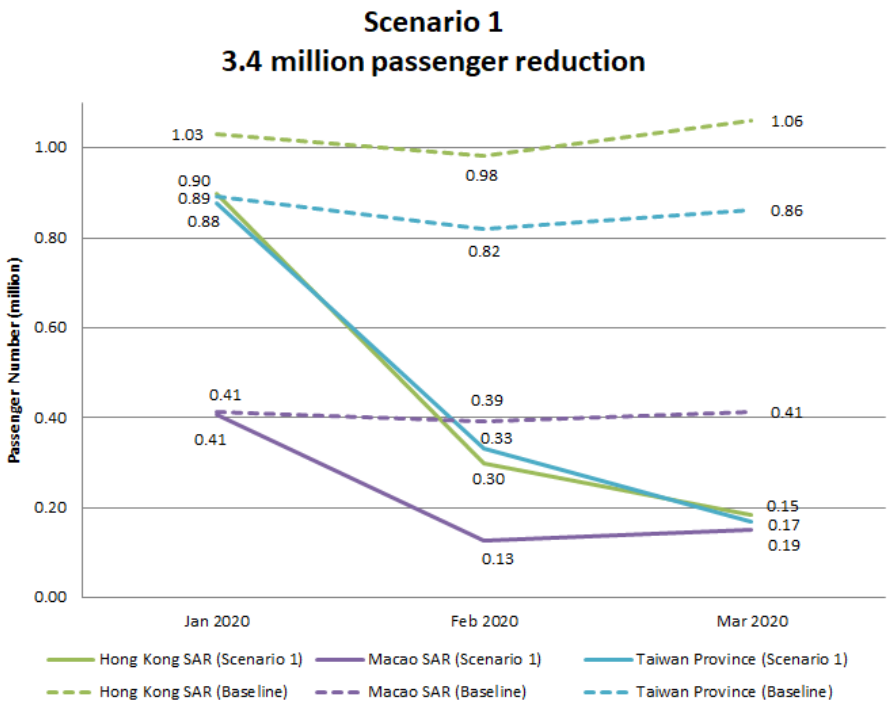
15.8 to 17.6 million "international" passenger reduction in 1Q 2020 compared to Baseline

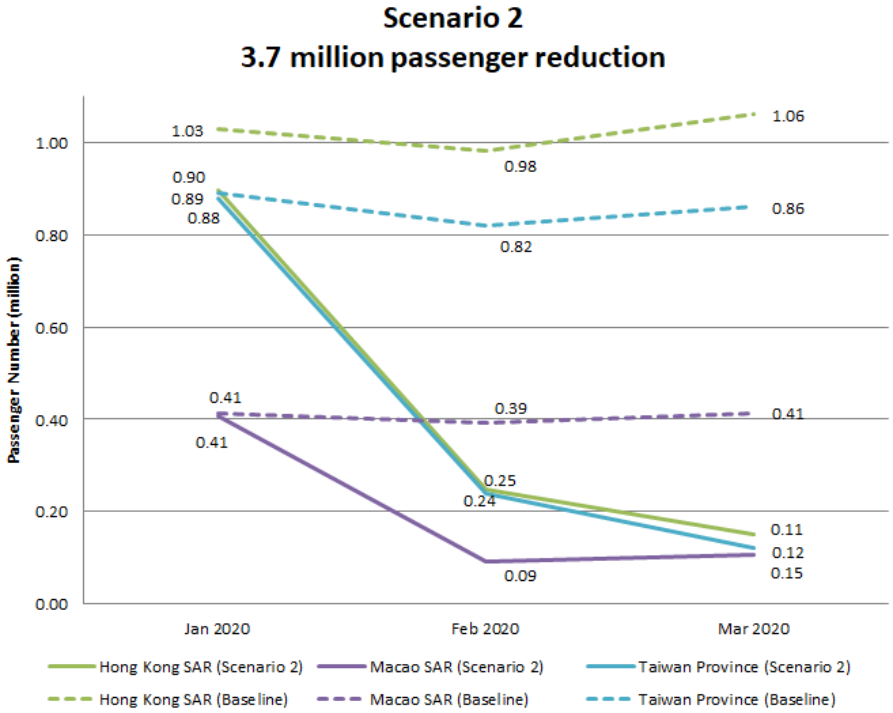




Source: ICAO estimates

3.4 to 3.7 million "regional" passenger reduction in 1Q 2020 compared to Baseline

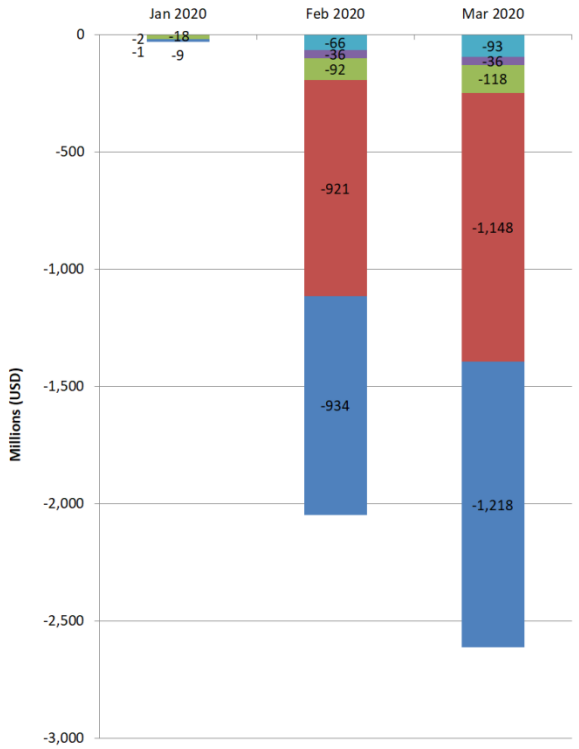




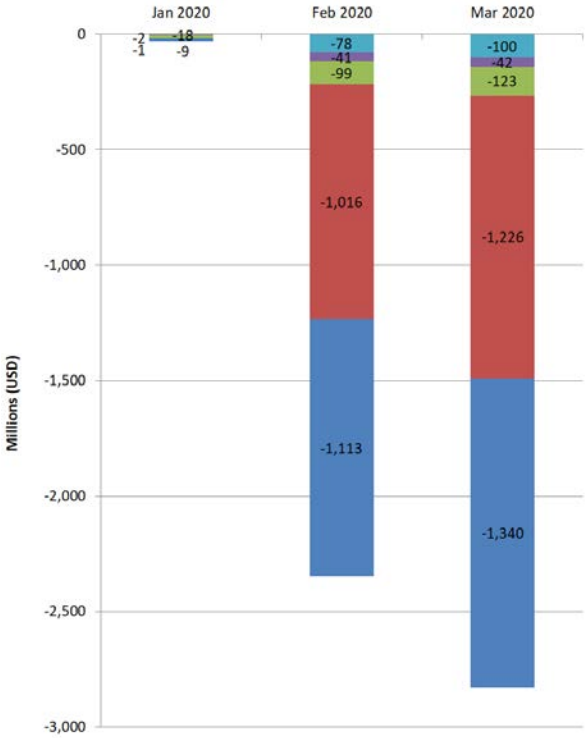
Source: ICAO estimates

Approx. USD 4.7 to 5.2 billion potential loss of airline revenues for 1Q 2020 compared to Baseline

Scenario 1: USD 4.7 billion reduction



Scenario 2: USD 5.2 billion reduction



- International (Chinese carriers)
- International (Foreign carriers)
- Regional (Mainland - Hong Kong SAR)
- Regional (Mainland - Macao SAR)
- Regional (Mainland - Taiwan Province)

- International (Chinese carriers): calculated with an average fare of USD 250 per passenger based on traffic/financial reports of CA, CZ and MU;
- International (Foreign carriers): assumed 15% higher average fare than Chinese carriers;
- Regional: calculated with an average fare of USD 135 per passenger based on traffic/financial reports of CA, CZ and MU

Source: ICAO estimates

Summary of estimated impact in 1Q 2020

The preliminary estimates indicate the impact in terms of scheduled international passenger traffic from/to mainland China (including between mainland China and Hong Kong SAR of China, Macao SAR of China and Taiwan, Province of China) during 1Q 2020 compared to originally-planned:

- Overall reduction of **45% of seats offered by airlines**
- Overall reduction of **19.3 to 21.4 million passengers**
- Approx. **USD 4.7 to 5.2 billion potential loss** of gross operating revenues of airlines

	Estimated Impact on									
	Number of seats offered by airlines (000)				Number of passengers (000)				Gross operating revenues of airlines (USD, million)	
Scope of analysis	Scenario 1		Scenario 2		Scenario 1		Scenario 2		Scenario 1	Scenario 2
International from/to mainland China (Chinese carriers)	-11,100	*-42%*	-11,300	*-43%*	-8,600	*-42%*	-9,900	*-48%*	-$2,160	-$2,460
International from/to mainland China (Foreign carriers)	-9,000	*-46%*	-9,200	*-47%*	-7,200	*-46%*	-7,800	*-50%*	-$2,070	-$2,240
Regional between mainland China and Hong Kong SAR of China	-1,900	*-49%*	-1,900	*-49%*	-1,700	*-55%*	-1,800	*-58%*	-$230	-$240
Regional between mainland China and Macao SAR of China	-700	*-44%*	-700	*-45%*	-500	*-44%*	-600	*-50%*	-$70	-$80
Regional between mainland China and Taiwan, Province of China	-1,500	*-46%*	-1,500	*-47%*	-1,200	*-46%*	-1,300	*-52%*	-$160	-$180
Total	**-24,100**	***-45%***	**-24,600**	***-45%***	**-19,300**	***-45%***	**-21,400**	***-50%***	**-$4,690**	**-$5,210**

Source: ICAO estimates

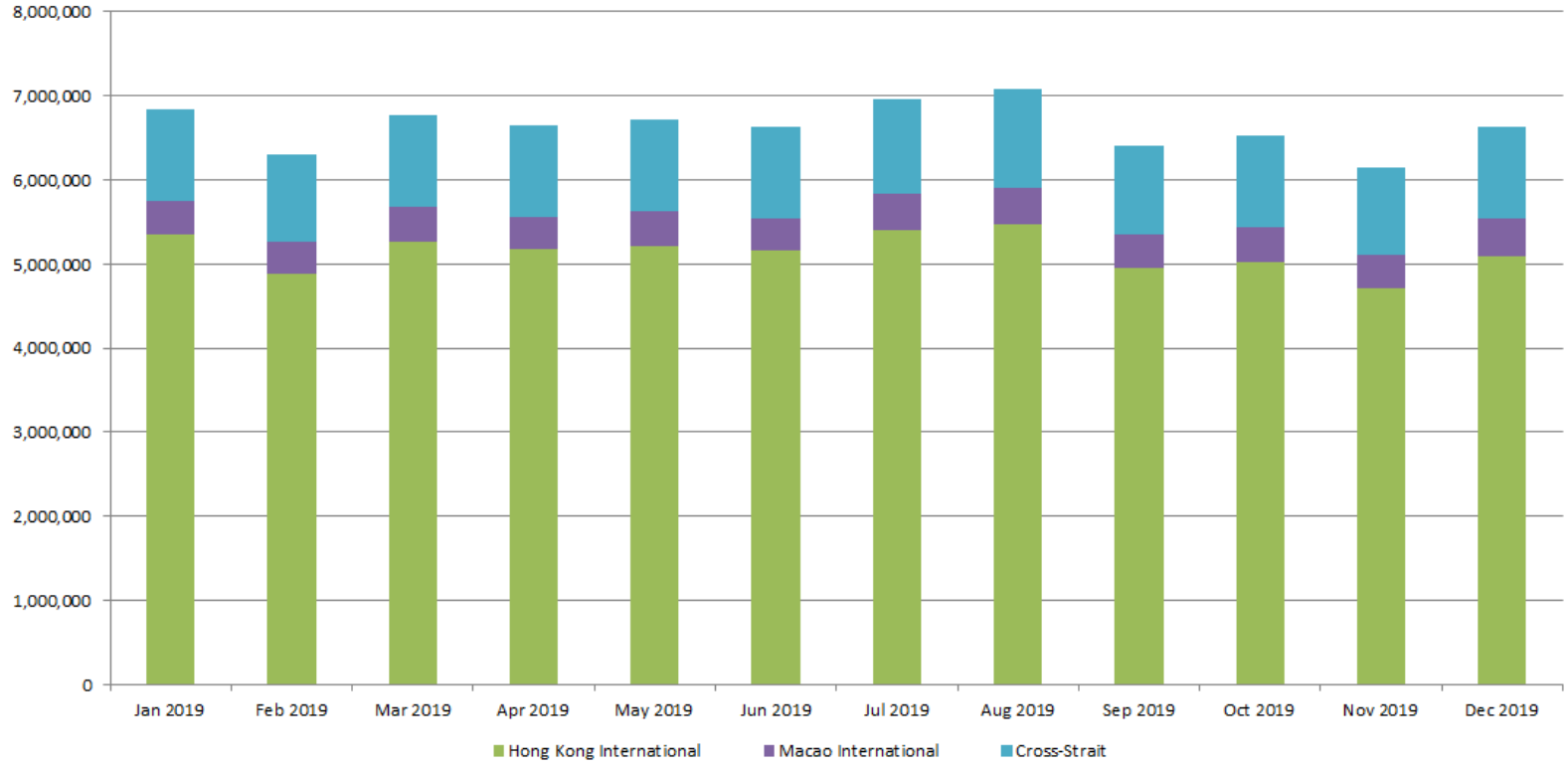
Scenario Analysis:
Hong Kong SAR of China and Macao SAR of China

This is a preliminary analysis. Figures and estimates herein will be updated with the situation evolving and more information available.

Scope of analysis: Hong Kong SAR and Macao SAR

- **“Hong Kong International”** refers to scheduled international passenger services from/to Hong Kong Special Administrative Region (SAR) of China excluding:
  - scheduled passenger services between Hong Kong SAR of China and mainland China, Macao SAR of China and Taiwan, Province of China
- **“Macao International”** refers to scheduled international passenger services from/to Macao SAR of China excluding:
  - scheduled passenger services between Macao SAR of China and mainland China, Hong Kong SAR of China and Taiwan, Province of China
- **“Cross-Strait”** refers to scheduled passenger services among Hong Kong SAR of China, Macao SAR of China and Taiwan, Province of China excluding:
  - “**Regional”** already included in the mainland China analysis

Number of seats offered by airlines (monthly, 2019)

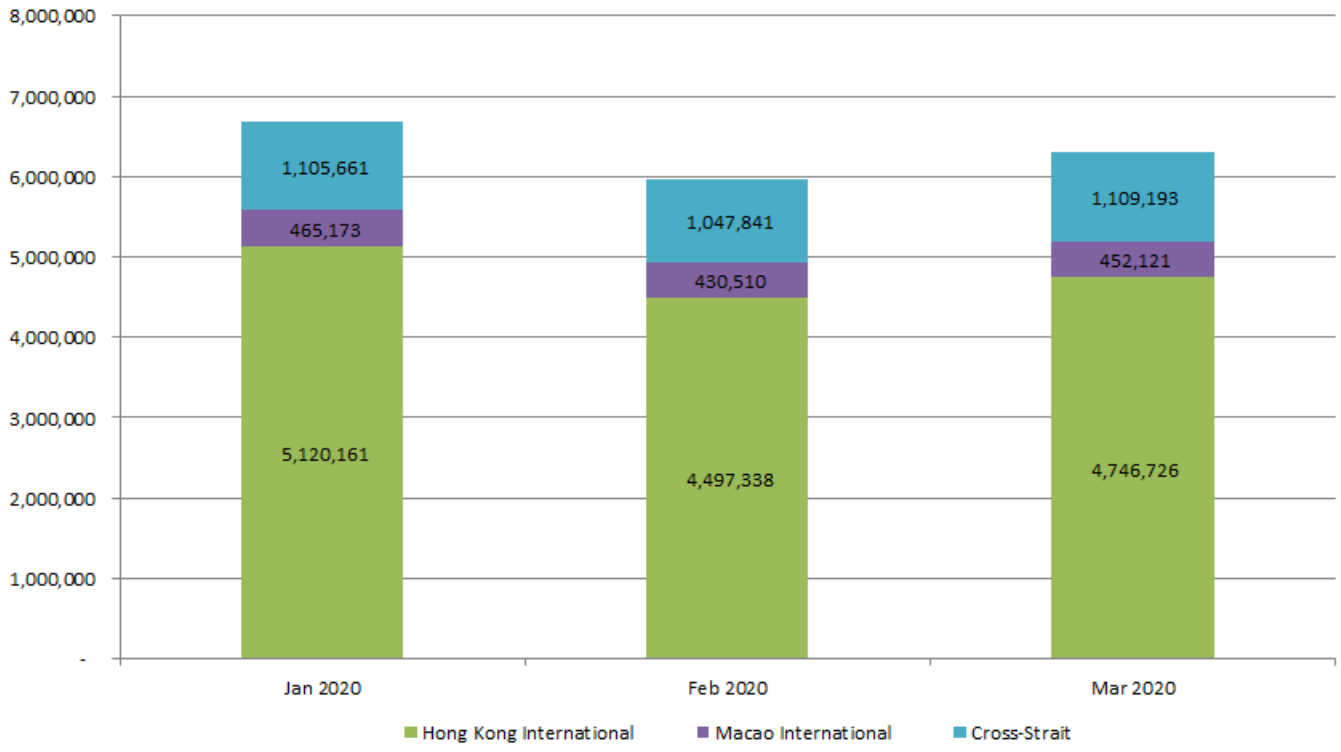


Capacity share 2019

- 78%: Hong Kong International
- 6%: Macao International
- 16%: Cross-Strait

Source: OAG Scheduled data

Number of seats offered by airlines (1Q 2020 originally-planned)



Capacity share 1Q 2020

- 76%: Hong Kong International
- 7%: Macao International
- 17%: Cross-Strait

Airlines originally planned to reduce seat capacity slightly due to the impact of Hong Kong protests and the continued trade tension.

Source: OAG Scheduled data

Some 70 airlines cancelled all services or reduced services from/to Hong Kong SAR and Macao SAR

Hong Kong International (64)
Aeroflot Russian Airlines
Air Astana
Air Busan*
Air Canada
Air France
Air India*
Air Mauritius*
Air Niugini
Air Seoul, Inc
AirAsia
All Nippon Airways
American Airlines*
Asiana Airlines
Bangkok Airways
British Airways
Cathay Dragon
Cathay Pacific Airways
Cebu Pacific Air*^
Eastar Jet
Egyptair
El Al Israel Airlines*
Emirates
Ethiopian Airlines
Etihad Airways*
EZNIS AIRWAYS LLC*
Fiji Airways
Finnair
Garuda Indonesia
HK Express
Hong Kong Airlines
IndiGo*
Japan Airlines
Jeju Airlines
Jetstar Asia*
Jetstar Japan*
Jetstar Pacific Airlines*
KLM-Royal Dutch Airlines
Korean Air*
Lanmei Airlines*
Lufthansa German Airlines
Malaysia Airlines
MIAT - Mongolian Airlines*
Myanmar National Airlines
Peach Aviation Limited
Philippine Airlines*
Philippines AirAsia Inc.*
Qantas Airways
Qatar Airways
Royal Brunei Airlines
Royal Jordanian
SAS Scandinavian Airlines*
Scoot
Siberia Airlines*
Singapore Airlines
South African Airways*
SWISS
Thai AirAsia
Thai Airways International
Turkish Airlines
T'way Air
United Airlines*
Vietjet
Vietnam Airlines
Virgin Atlantic Airways
Virgin Australia Intl*

Macao International (17)
Air Busan*
Air Macau
AirAsia
Bamboo Airways*
Cambodia Airways Co. Ltd*
Cambodia Angkor Air*
Cebu Pacific Air*
Eastar Jet*
Jeju Airlines
Jin Air*
Lanmei Airlines*
Philippine Airlines*
Philippines AirAsia Inc.*
Scoot
Thai AirAsia
T'way Air*
Vietnam Airlines*

Cross-Strait (9)
Air Macau
Cathay Dragon
Cathay Pacific Airways
China Airlines
EVA Airways
HK Express
Hong Kong Airlines
Mandarin Airlines*
Tigerair Taiwan Co. Ltd*

Announced since late January 2020; Duration varies

***: Airlines with all service cancelled**
***^: Airlines with all service cancelled but gradual resumption**

Source: Routes Online, OAG and airline websites (as of 5 March 2020)

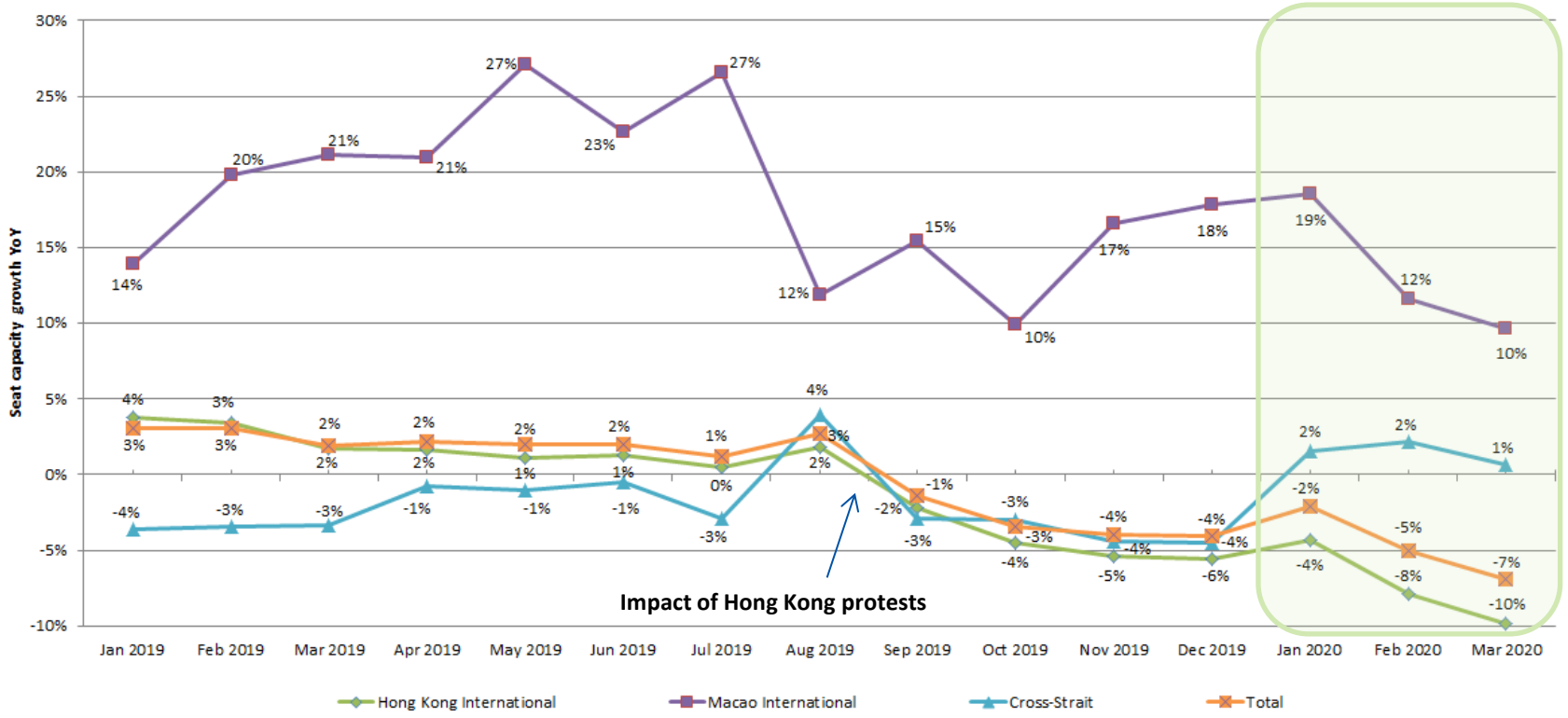
Scenario analysis of COVID-19 outbreak impact for 1Q 2020

- Baseline (hypothetical situation without COVID-19 outbreak)
  - Seat capacity: used "originally-planned" winter schedule
  - Load factor: used the same percentage as "International from/to mainland China (Foreign carriers)" and "Regional"
- Scenario 1
  - Seat capacity in January and February: estimated by airlines' schedule changes
  - Seat capacity in March: estimated by preliminary airlines' schedules
  - Load factor: used the same percentage as Baseline
- Scenario 2
  - Seat capacity in January and February: estimated by airlines' schedule changes
  - Seat capacity in March: assumed summer schedules not starting from 29 March
  - Load factor: decreased by 22% in February and by 17% in March

Scenario analysis: Assumptions

Assumptions		Baseline		Scenario 1		Scenario 2	
		Seat capacity reduction from originally-planned	Passenger load factor	Seat capacity reduction from originally-planned	Passenger load factor	Seat capacity reduction from originally-planned	Passenger load factor
January 2020	Hong Kong International	0%	80%	0%	80%	0%	80%
	Macao International	0%	80%	0%	80%	0%	80%
	Cross-Strait	0%	80%	1%	80%	1%	80%
February 2020	Hong Kong International	0%	80%	-25%	80%	-25%	58%
	Macao International	0%	80%	-67%	80%	-67%	58%
	Cross-Strait	0%	80%	-52%	80%	-52%	58%
March 2020	Hong Kong International	0%	80%	-55%	80%	-60%	63%
	Macao International	0%	80%	-75%	80%	-77%	63%
	Cross-Strait	0%	80%	-83%	80%	-85%	63%

Baseline: 5% seat capacity reduction compared to 1Q 2019

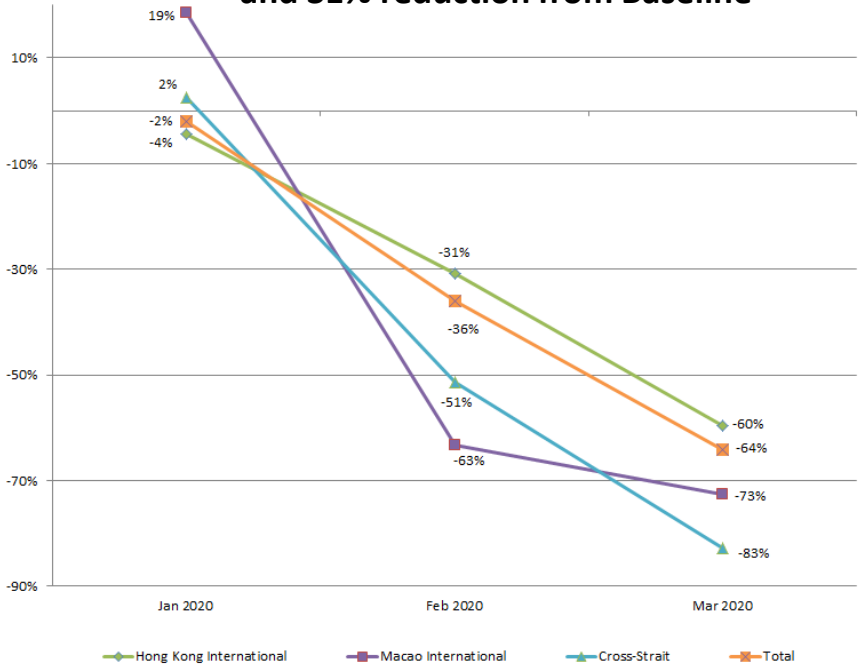


A total of YoY 5% seat capacity reduction originally - planned for 1Q 2020 due to the expectation of continued weak demand for Hong Kong SAR and Taiwan Province

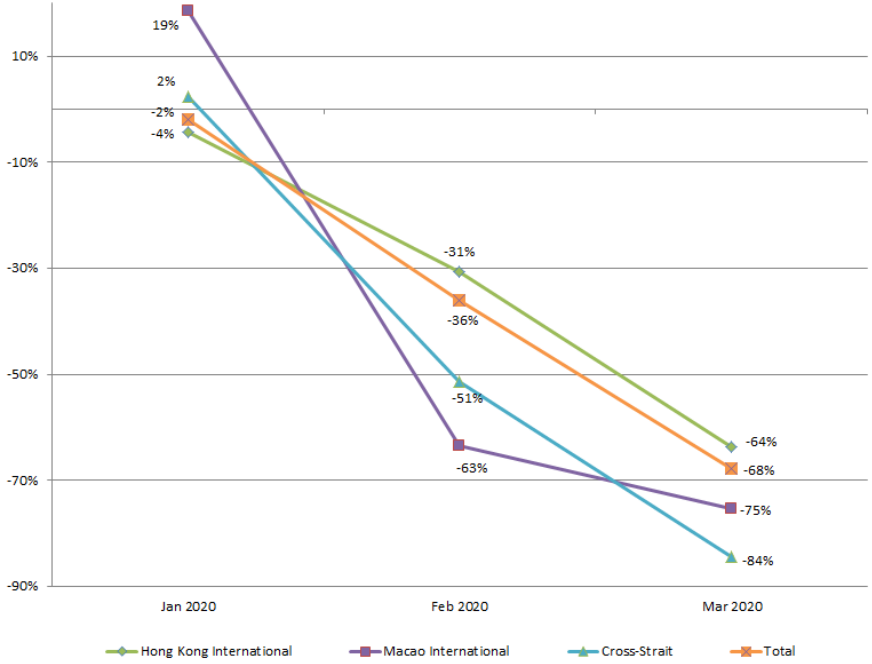
Source: OAG scheduled data

Scenarios 1 & 2: 31 to 32% seat capacity reduction from Baseline

Scenario 1: for 1Q 2020 a total of 34% reduction compared to 1Q 2019 and 31% reduction from Baseline

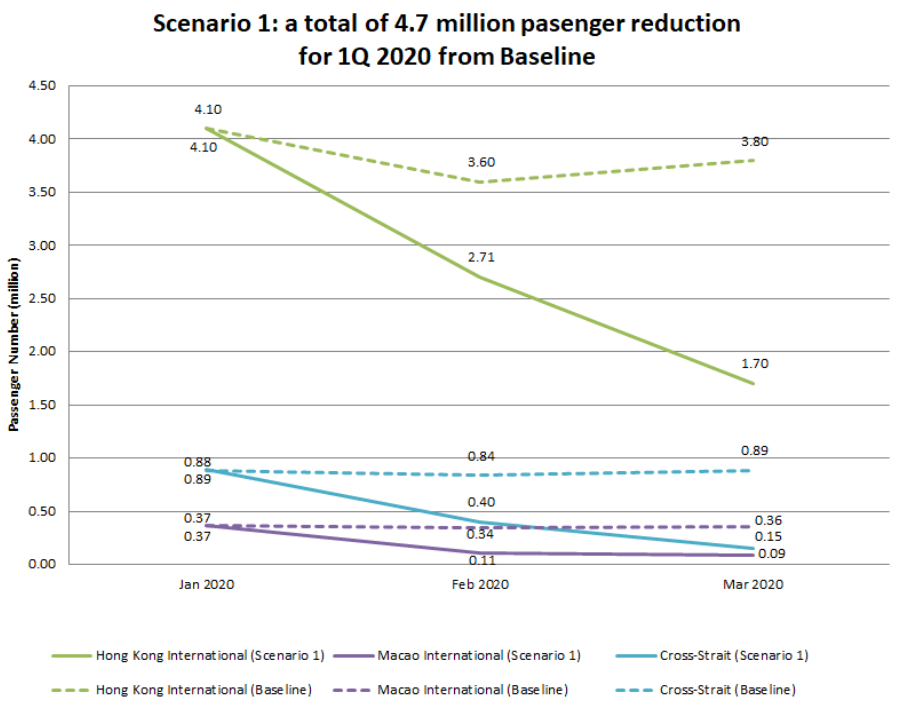


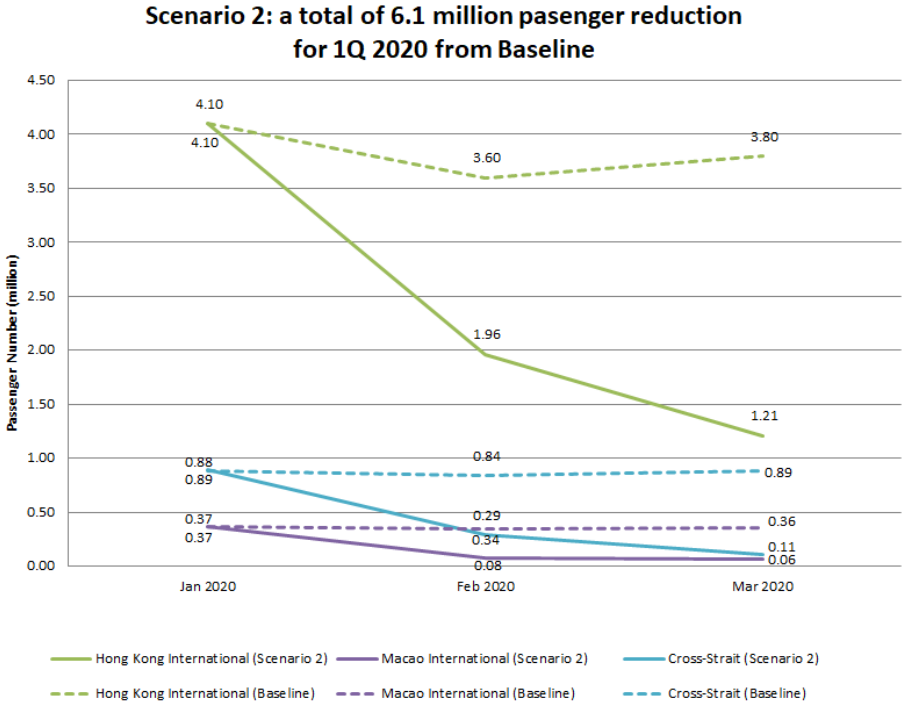
Scenario 2: for 1Q 2020 a total of 35% reduction compared to 1Q 2019 and 32% reduction from Baseline



Source: ICAO estimates

4.7 to 6.1 million passenger reduction in 1Q 2020 compared to Baseline

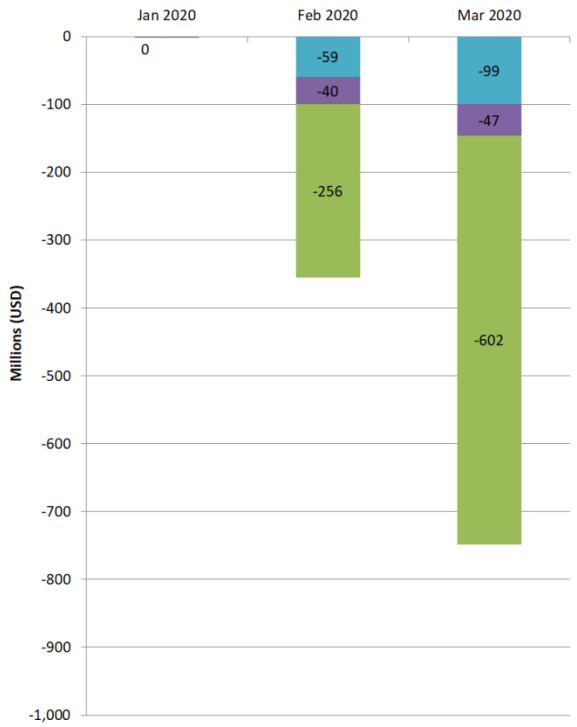




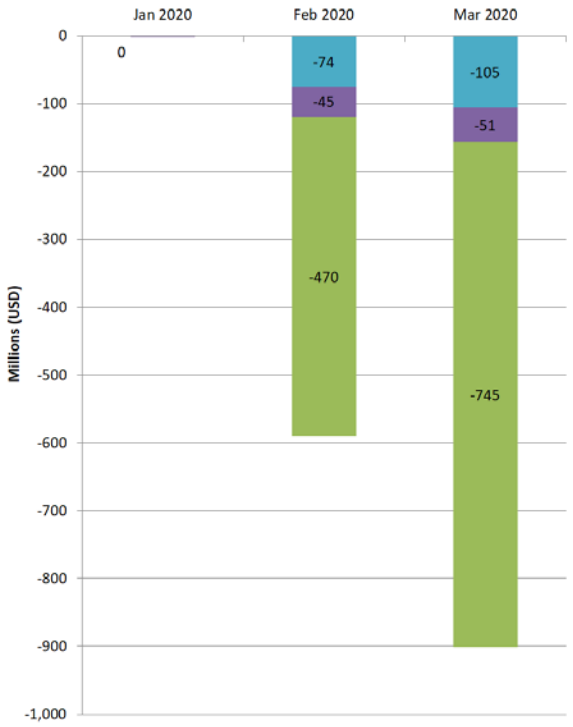
Source: ICAO estimates

Approx. USD 1.1 to 1.5 billion potential loss of airline revenues for 1Q 2020 compared to Baseline

Scenario 1: USD 1.1 billion reduction



Scenario 2: USD 1.5 billion reduction



- Hong Kong International
- Macao International
- Cross-Strait

- Hong Kong International: calculated with an average fare of USD 287.6 per passenger (i.e. almost the same as "International (Foreign carriers)";
- Macao International: calculated with an average fare of USD 172 per passenger;
- Cross-Strait: calculated with an average fare of USD 135 per passenger (i.e. the same as "Regional")

Source: ICAO estimates

Summary of estimated impact in 1Q 2020

The preliminary estimates indicate the impact in terms of scheduled international passenger traffic from/to Hong Kong SAR of China and Macao SAR of China, as well as scheduled passenger traffic among Hong Kong SAR of China, Macao SAR of China and Taiwan, Province of China, during 1Q 2020 compared to originally-planned:

- Overall reduction ranging from **31% to 32% of seats offered by airlines**
- Overall reduction of **4.7 to 6.1 million passengers**
- Approx. **USD 1.1 to 1.5 billion potential loss** of gross operating revenues of airlines

	Estimated Impact on									
	Number of seats offered by airlines (000)				Number of passengers (000)				Gross operating revenues of airlines (USD, million)	
Scope of analysis	Scenario 1		Scenario 2		Scenario 1		Scenario 2		Scenario 1	Scenario 2
Hong Kong International	-3,700	*-26%*	-3,900	*-27%*	-3,000	*-26%*	-4,200	*-37%*	-$860	-$1,220
Macao International	-600	*-47%*	-600	*-47%*	-500	*-47%*	-600	*-52%*	-$90	-$100
Cross-Strait	-1,500	*-45%*	-1,500	*-45%*	-1,200	*-45%*	-1,300	*-51%*	-$160	-$180
Total	**-5,800**	***-31%***	**-6,100**	***-32%***	**-4,700**	***-31%***	**-6,100**	***-40%***	**-$1,100**	**-$1,490**

Source: ICAO estimates

Summary of Scenario Analysis

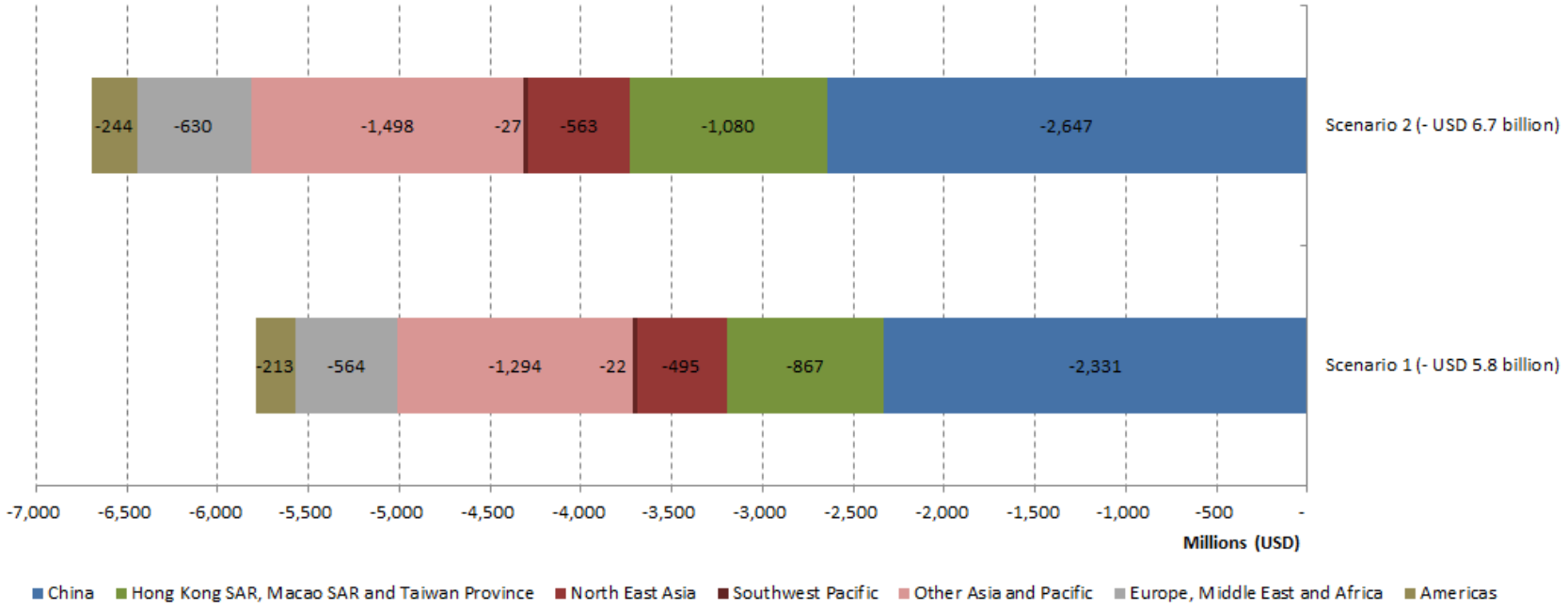
This is a preliminary analysis. Figures and estimates herein will be updated with the situation evolving and more information available.

Summary of observations

- The direct impact of COVID-19 outbreak is expected to be greater than that caused by SARS in 2003 due to higher scale of flight cancellations and bigger economic size/air travel market of China
- The preliminary estimates indicate the impact in terms of scheduled international passenger traffic from/to China (including Hong Kong SAR of China, Macao SAR of China and cross-strait services from/to Taiwan, Province of China) during 1Q 2020 compared to originally-planned:
  - Overall reduction ranging from **41% to 42% of seats offered by airlines**
  - Overall reduction of **23.9 to 27.5 million passengers**
  - Approx. **USD 5.8 to 6.7 billion potential loss** of gross operating revenues of airlines
- The above estimates exclude, inter alia, the impact of traffic reduction related to air cargo, Chinese domestic, as well as other international services

Source: ICAO estimates

Break-down of revenue reduction by region of air carrier registration in 1Q 2020



55% and 85% of revenue reduction is estimated to be attributed to the loss from Chinese carriers and Asia/Pacific carriers (including Chinese carriers), respectively

Source: ICAO estimates

Break-down of estimated impact in 1Q 2020

	Estimated Impact on									
	Number of seats offered by airlines (000)				Number of passengers (000)				Gross operating revenues of airlines (USD, million)	
Scope of analysis	Scenario 1		Scenario 2		Scenario 1		Scenario 2		Scenario 1	Scenario 2
International from/to mainland China (Chinese carriers)	-11,100	*-42%*	-11,300	*-43%*	-8,600	*-42%*	-9,900	*-48%*	-$2,160	-$2,460
International from/to mainland China (Foreign carriers)	-9,000	*-46%*	-9,200	*-47%*	-7,200	*-46%*	-7,800	*-50%*	-$2,070	-$2,240
Regional between mainland China and Hong Kong SAR of China	-1,900	*-49%*	-1,900	*-49%*	-1,700	*-55%*	-1,800	*-58%*	-$230	-$240
Regional between mainland China and Macao SAR of China	-700	*-44%*	-700	*-45%*	-500	*-44%*	-600	*-50%*	-$70	-$80
Regional between mainland China and Taiwan, Province of China	-1,500	*-46%*	-1,500	*-47%*	-1,200	*-46%*	-1,300	*-52%*	-$160	-$180
Sub-total	**-24,100**	***-45%***	**-24,600**	***-45%***	**-19,300**	***-45%***	**-21,400**	***-50%***	**-$4,690**	**-$5,210**
Hong Kong International	-3,700	*-26%*	-3,900	*-27%*	-3,000	*-26%*	-4,200	*-37%*	-$860	-$1,220
Macao International	-600	*-47%*	-600	*-47%*	-500	*-47%*	-600	*-52%*	-$90	-$100
Cross-Strait	-1,500	*-45%*	-1,500	*-45%*	-1,200	*-45%*	-1,300	*-51%*	-$160	-$180
Sub-total	**-5,800**	***-31%***	**-6,100**	***-32%***	**-4,700**	***-31%***	**-6,100**	***-40%***	**-$1,100**	**-$1,490**
Grand total	**-29,900**	***-41%***	**-30,600**	***-42%***	**-23,900**	***-41%***	**-27,500**	***-47%***	**-$5,800**	**-$6,700**

Source: ICAO estimates

Appendix

China Domestic

Tourism by Chinese Passengers

Republic of Korea

Italy

Iran (Islamic Republic of)

Mongolia

This section contains a very preliminary analysis. Figures and estimates herein will be updated with the situation evolving and more information available.

Domestic passenger services in mainland China in 1Q 2020

The preliminary estimates indicate the impact in terms of scheduled domestic passenger traffic within mainland China during 1Q 2020 compared to originally-planned:

- Overall reduction of **40% of seats offered by airlines**
- Overall reduction of **66.6 to 76.3 million passengers**
- Approx. **USD 6.8 to 7.8 billion potential loss** of gross operating revenues of airlines

	Estimated Impact on									
	Number of seats offered by airlines (000)				Number of Passengers (000)				Gross operating revenues of airlines (USD, million)	
Scope of analysis	Scenario 1		Scenario 2		Scenario 1		Scenario 2		Scenario 1	Scenario 2
Domestic within mainland China	-76,100	*-40%*	-76,100	*-40%*	-66,600	*-42%*	-76,300	*-48%*	-$6,830	-$7,825
Assumption	Seat capacity is reduced by 3% in January 2020 and 60% in February and March 2020 from the originally-planned schedules (baseline)				Load factor is down from 83% (baseline) to 80% for 1Q 2020		Load factor is down from 83% (baseline) to 80% in January 2020, 58% in February 2020 and 63% in March 2020		Calculated with an average fare of USD 102.5 per passenger based on traffic/financial reports of CA, CZ and MU	

PRELIMINARY

Source: ICAO estimates

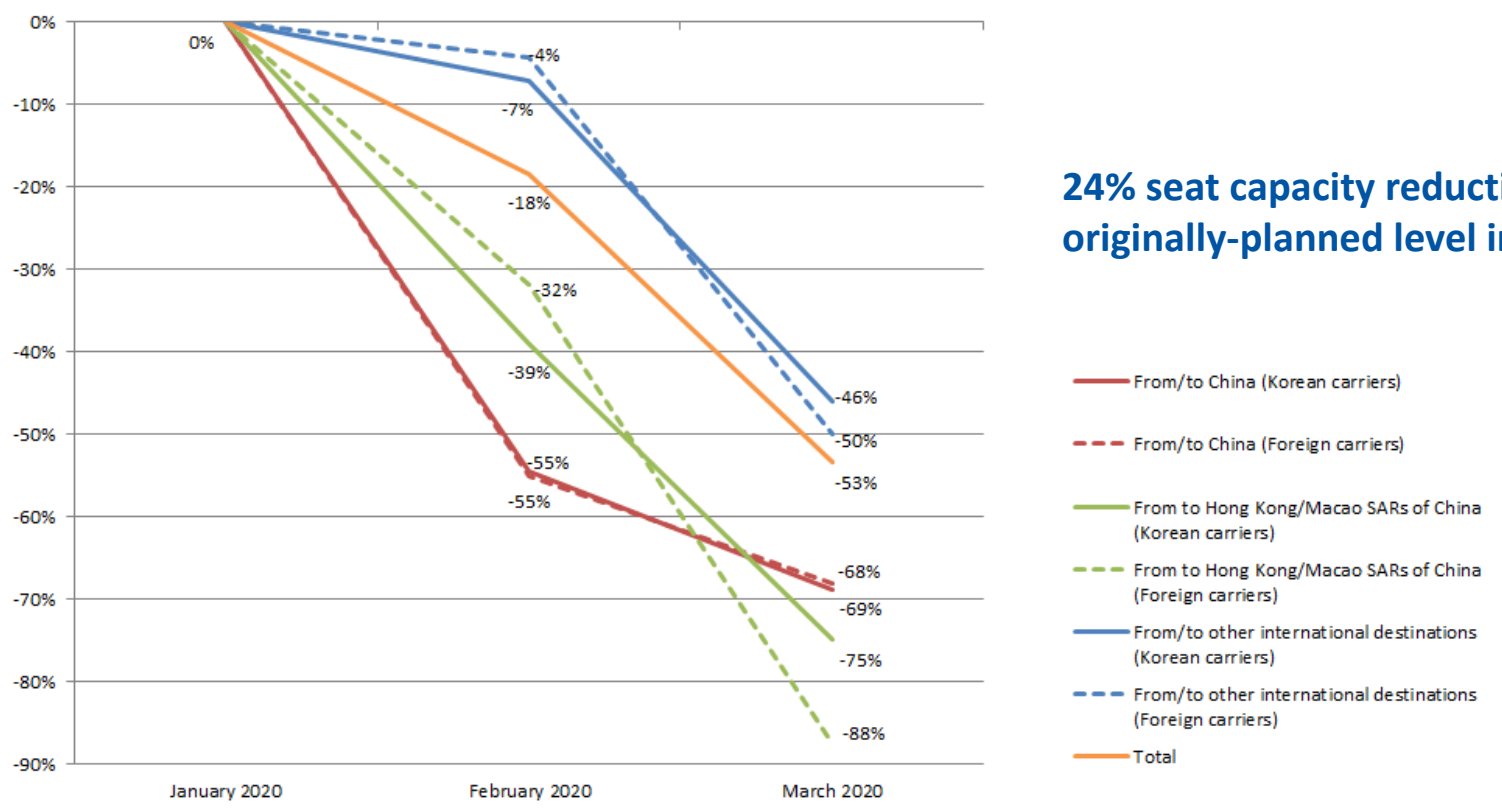
Potential loss of revenues from Chinese tourists to top 5 States in 1Q 2020

Top 5 States that Chinese traveller had the largest share		Baseline		Scenario 1		Scenario 2	
		Passenger number	Tourism revenue (in million USD)*	Passenger number	Tourism revenue (in million USD)*	Passenger number	Tourism revenue (in million USD)*
Australia		460,161	446.36	340,318	330.11	296,616	287.72
	Loss	-	-	-119,843	-116.25	-163,545	-158.64
France		240,523	233.31	137,867	133.73	120,670	117.05
	Loss	-	-	-102,656	-99.58	-119,853	-116.26
Japan		3,181,840	3,086.38	2,167,273	2102.25	1,855,034	1,799.38
	Loss	-	-	-1,014,567	-984.13	-1,326,806	-1287.00
Thailand		2,772,352	2,689.18	1,826,629	1771.83	1,589,458	1,541.77
	Loss	-	-	-945,723	-917.35	-1,182,894	-1147.41
United States		888,102	861.46	505,096	489.94	446,707	433.31
	Loss	-	-	-383,006	-371.52	-441,395	-428.15

- Data excludes Special Administrative Regions (SAR) of China (Hong Kong SAR and Macao SAR) and Taiwan, Province of China
- Calculated with average international tourism spending of China (USD 970) per tourist reported by UNWTO

Source: ICAO estimates

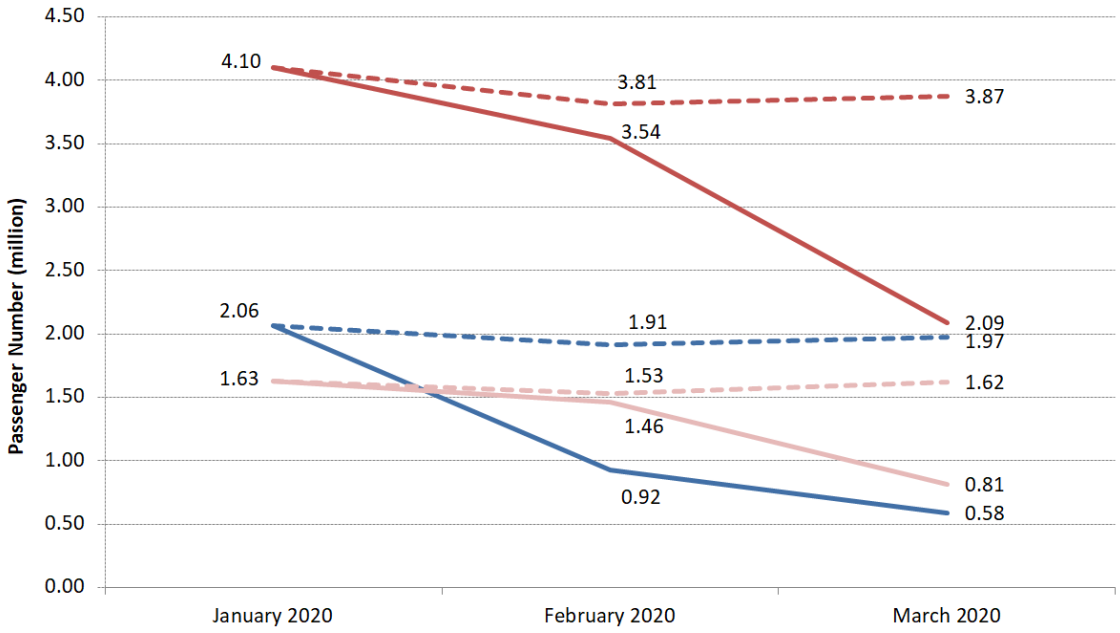
International passenger services from/to Republic of Korea in 1Q 2020



24% seat capacity reduction from originally-planned level in 1Q 2020

Source: ICAO estimates

International passenger services from/to Republic of Korea in 1Q 2020



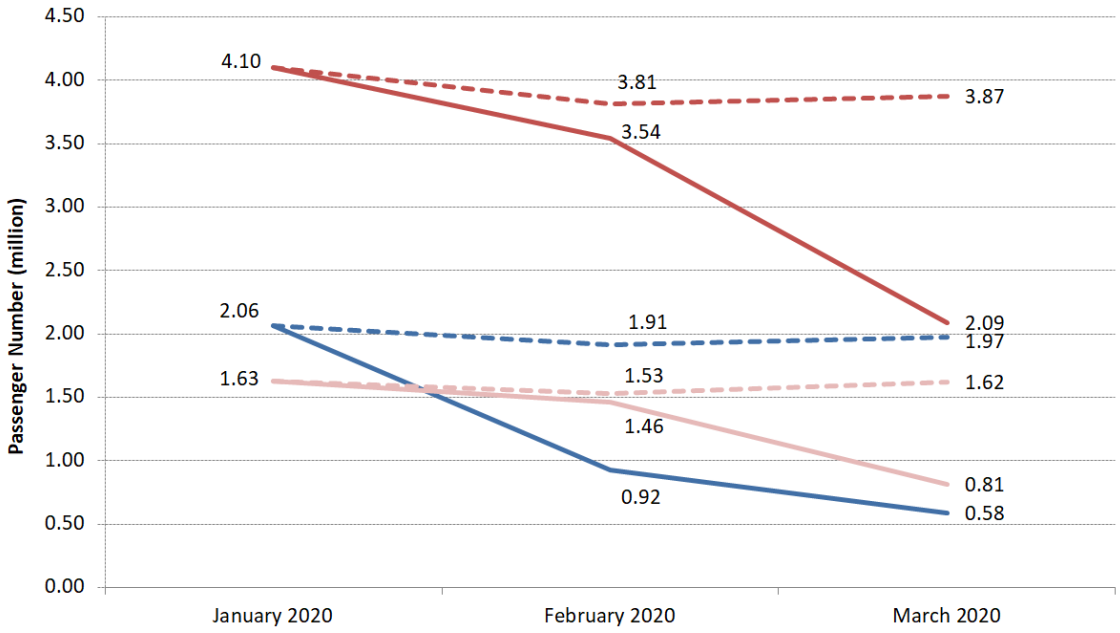
Scenario 1:
5.3 million passenger reduction in 1Q 2020 compared to originally-planned

- From/to China including Hong Kong/Macao SARs: extracted the impact involving Republic of Korea from scenario 1 of China;
- Other internal destinations: assumed 80% load factor

From/to China including Hon Kong/Macao SARs (Baseline)
(Scenario 1)
From/to other international destinations (Korean carriers, Baseline)
(Scenario 1)
From/to other international destinations (Foreign carriers, Baseline)
(Scenario 1)

Source: ICAO estimates

International passenger services from/to Republic of Korea in 1Q 2020



Scenario 2:
6.0 million passenger reduction in 1Q 2020 compared to originally-planned

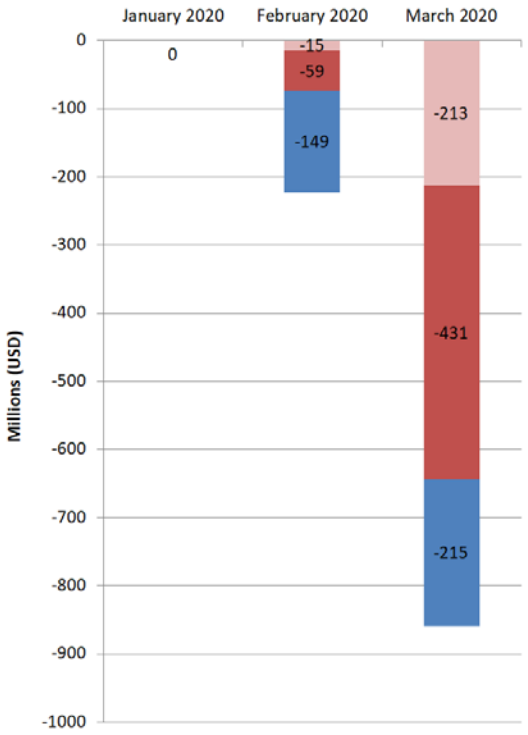
- From/to China including Hong Kong/Macao SARs: extracted the impact involving Republic of Korea from scenario 2 of China;
- Other internal destinations: assumed 80% load factor in January and February and 70% load factor in March 2020

From/to China including Hon Kong/Macao SARs (Baseline)
(Scenario 2)
From/to other international destinations (Korean carriers, Baseline)
(Scenario 2)
From/to other international destinations (Foreign carriers, Baseline)
(Scenario 2)

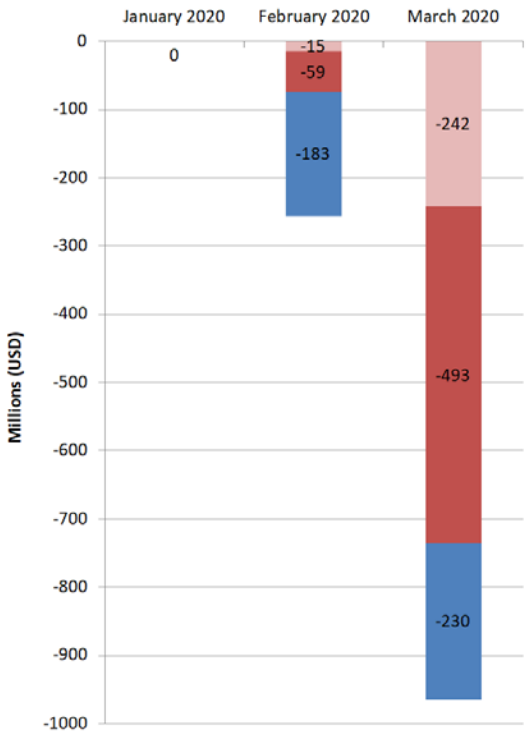
Source: ICAO estimates

International passenger services from/to Republic of Korea in 1Q 2020

Scenario 1: USD 1.1 billion reduction



Scenario 2: USD 1.2 billion reduction



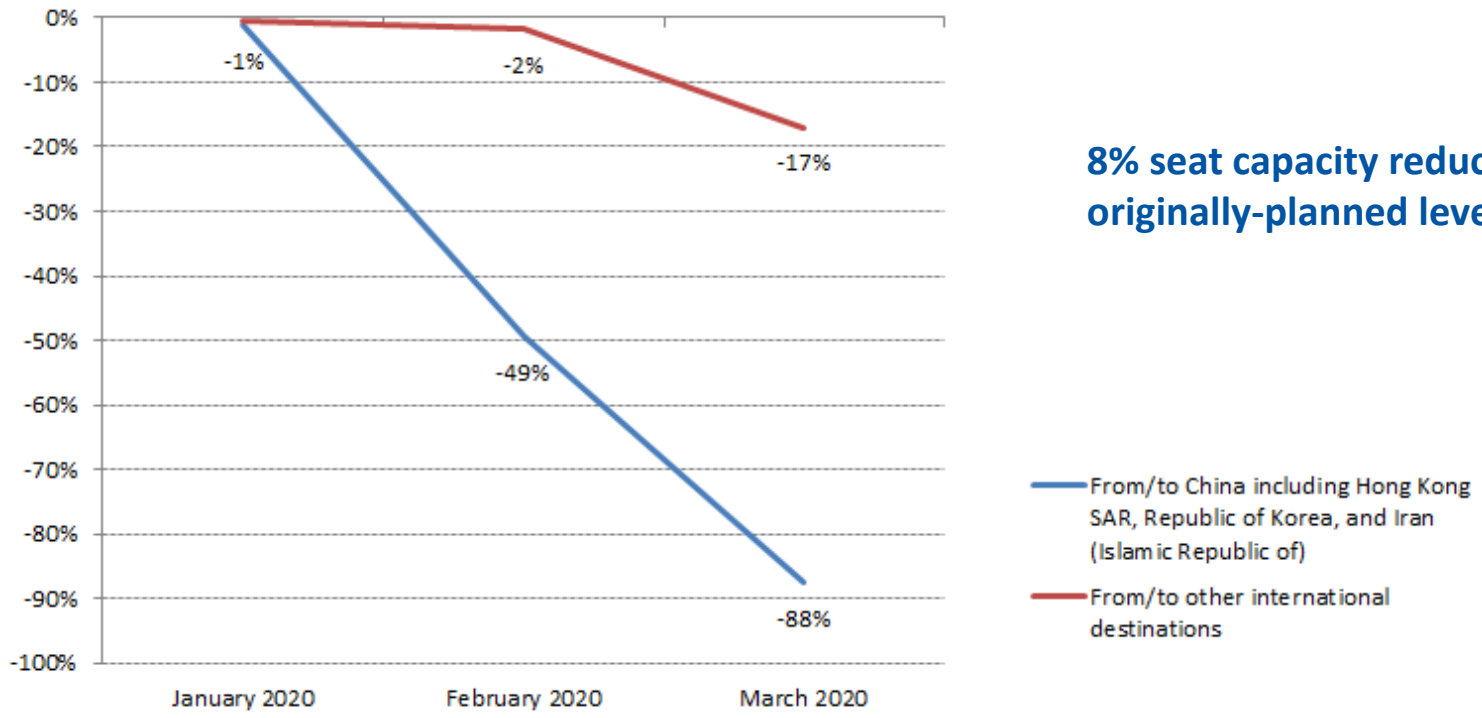
USD 1.1 to 1.2 billion potential loss of airline revenues in 1Q 2020 compared to originally-planned

- From/to China including Hong Kong/Macao SARs: extracted the impact involving Republic of Korea from scenarios 1 and 2;
- Other internal destinations: calculated with an average fare of USD 287.6 per passenger (ranging from USD 155 to 485 by destination)

- From/to China including Hon Kong/Macao SARs
- From/to other international destinations (Korean carriers)
- From/to other international destinations (Foreign carriers)

Source: ICAO estimates

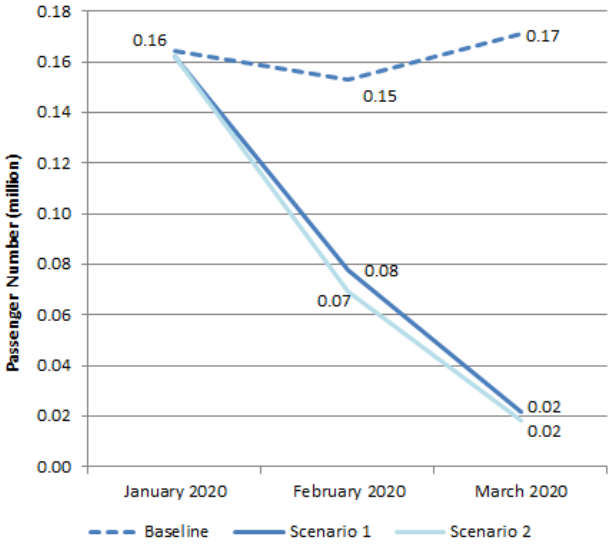
International passenger services from/to Italy in 1Q 2020



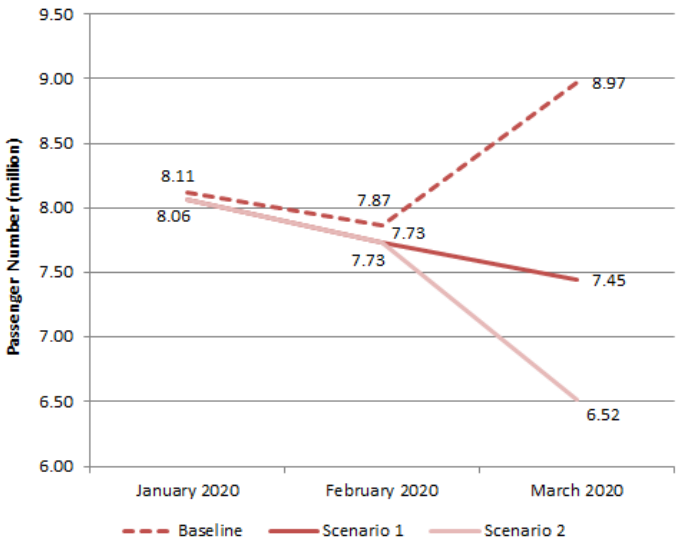
8% seat capacity reduction from originally-planned level in 1Q 2020

Source: ICAO estimates

International passenger services from/to Italy in 1Q 2020



Between Italy and China including Hong Kong SAR, Republic of Korea, and Iran (Islamic Republic of)



Between Italy and other international destinations

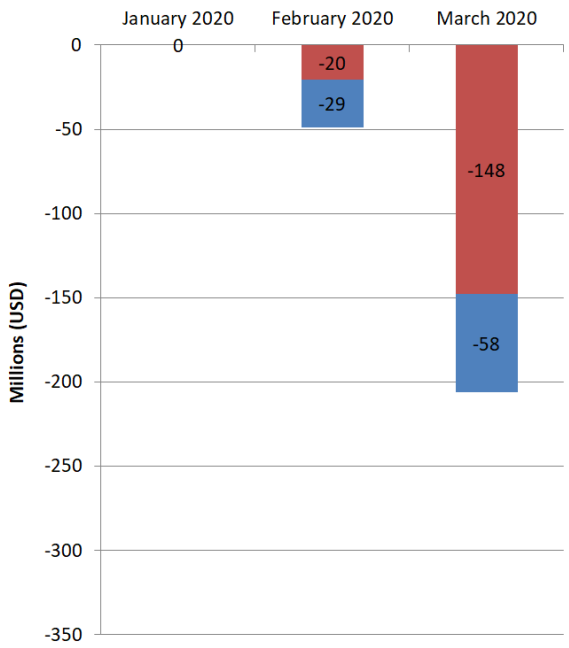
1.9 to 2.9 million passenger reduction in 1Q 2020 compared to originally-planned

- Scenario 1: assumed 80% load factor
- Scenario 2: assumed 80% load factor in January and February and 70% in March 2020
- From/to China including Hong Kong SAR: extracted the impact involving Italy from scenarios 1 and 2 of China

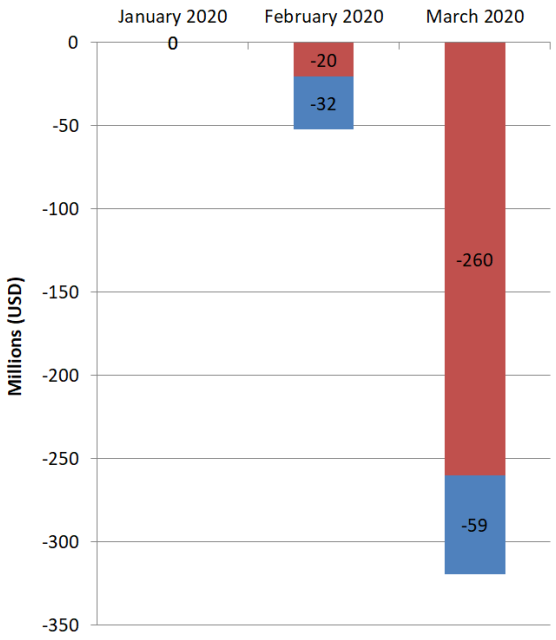
Source: ICAO estimates

International passenger services from/to Italy in 1Q 2020

Scenario 1: USD 260 million reduction



Scenario 2: USD 370 million reduction



USD 260 to 370 million potential loss of airline revenues in 1Q 2020 compared to originally-planned

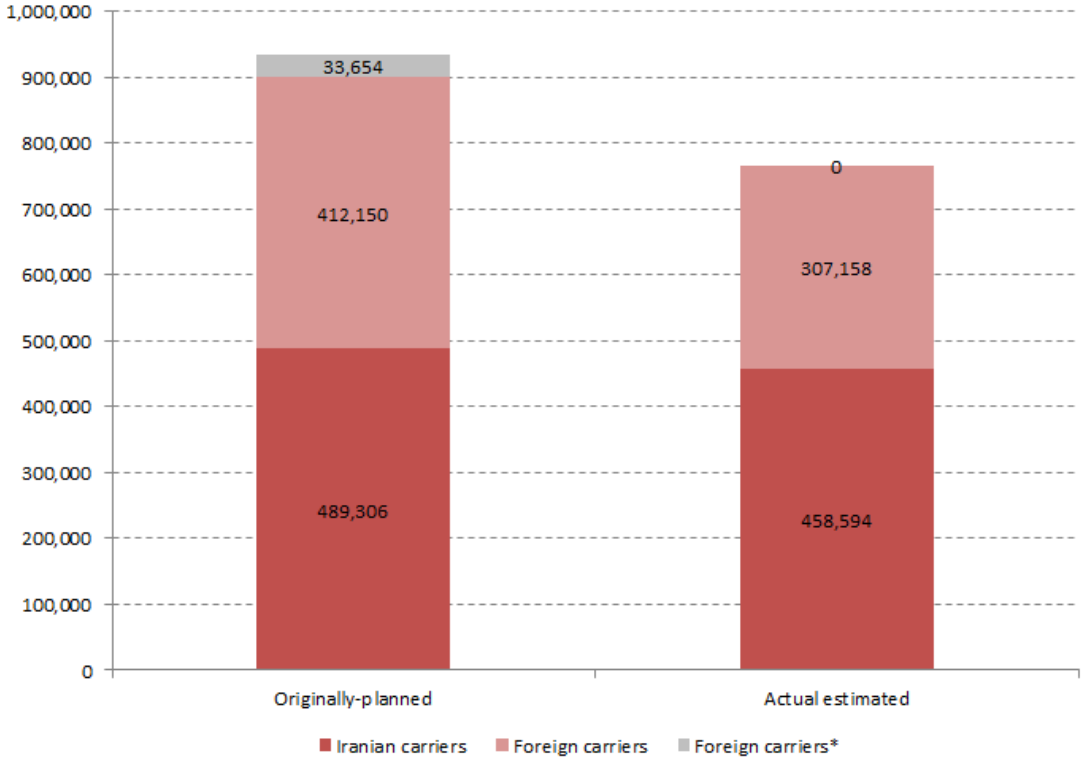
- From/to China including Hong Kong SAR: extracted the impact involving Italy from scenarios 1 and 2 of China;
- Other internal destinations: calculated with an average fare of USD 287.6 per passenger (ranging from USD 60 to 485 by destination)

From/to China including Hong Kong SAR, Republic of Korea, and Iran (Islamic Republic of)

From/to other international destinations

Source: ICAO estimates

International passenger services from/to Iran (Islamic Republic of) in Feb 2020



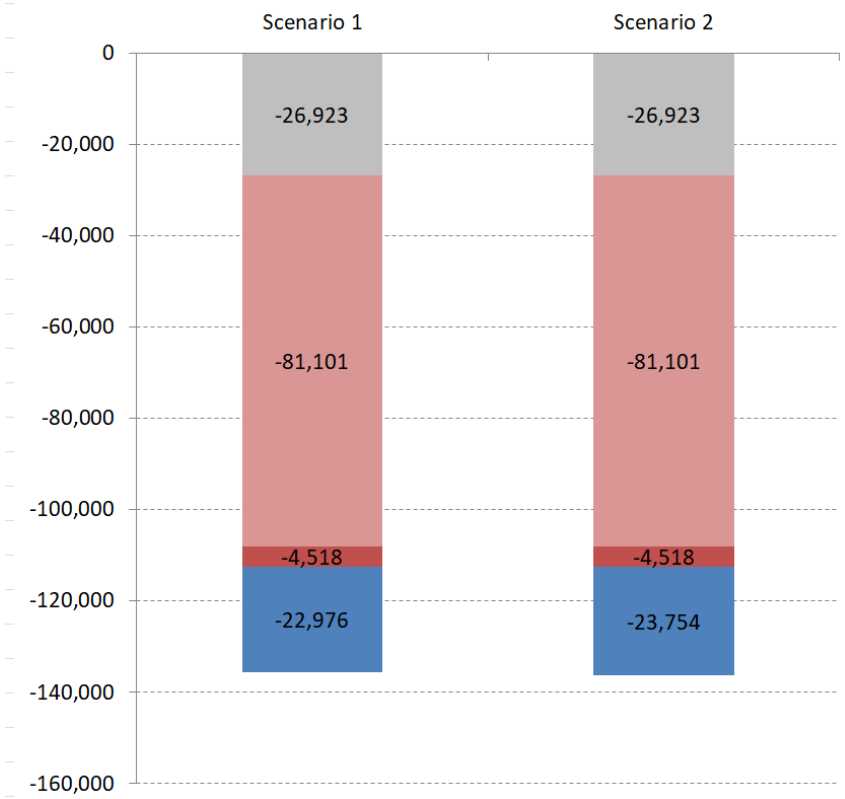
12% seat capacity reduction from originally-planned level in February 2020 due to COVID-19

- -6%: Iranian carriers
- -25%: Foreign carriers

*: Capacity change was announced and implemented before COVID-19 outbreak

Source: OAG Scheduled data and ICAO estimates

International passenger services from/to Iran (Islamic Republic of) in Feb 2020



0.11 million passenger reduction in February 2020 compared to originally-planned due to COVID-19

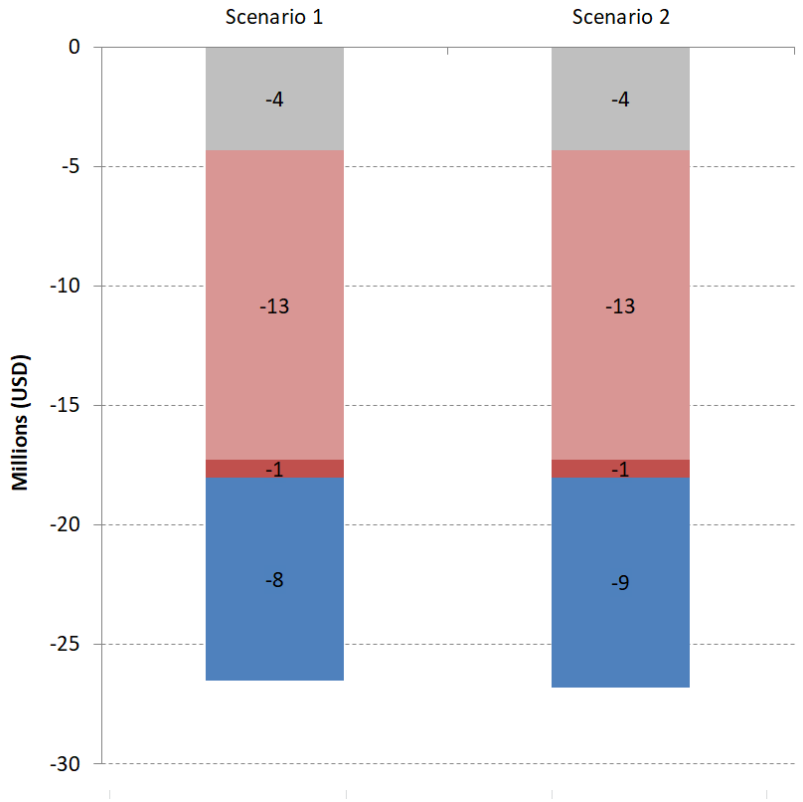
- From/to mainland China: extracted the impact involving Republic of Korea from scenarios 1 and 2;
- Other internal destinations: assumed 80% load factor

- From/to mainland China
- Other international destinations (Iranian carriers)
- Other international destinations (Foreign carriers)
- Other international destinations (Foreign carriers*)

*: Capacity change was announced and implemented before COVID-19 outbreak

Source: ICAO estimates

International passenger services from/to Iran (Islamic Republic of) in Feb 2020



USD 22 million potential loss of airline revenues in February 2020 compared to originally-planned due to COVID-19

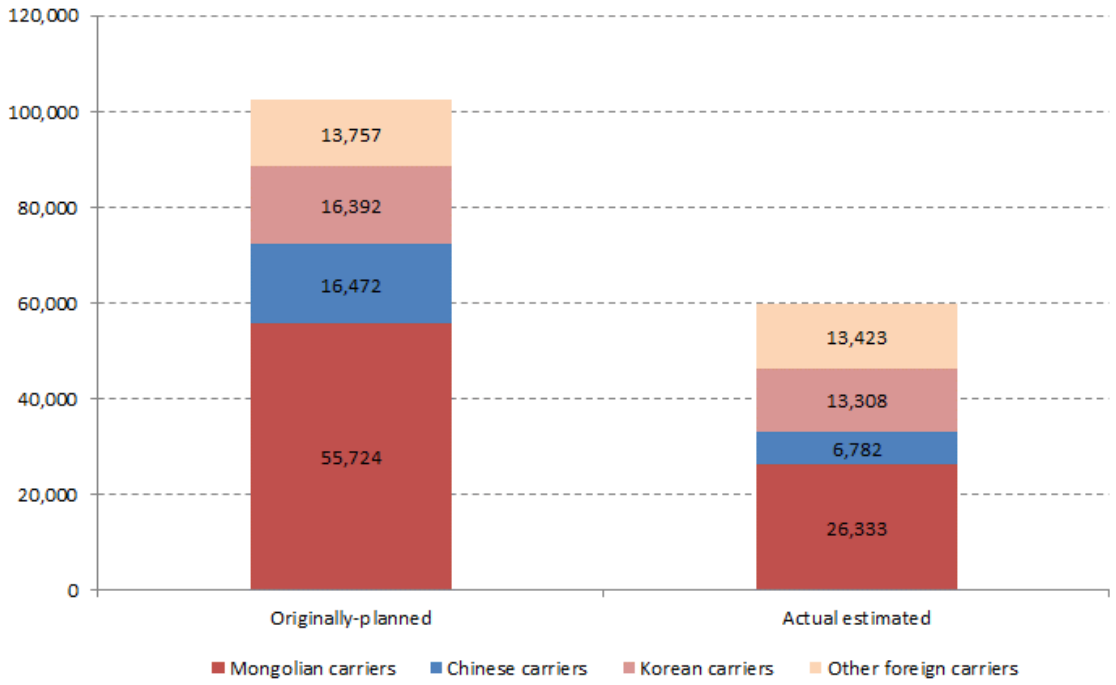
- From/to mainland China: extracted the impact involving Republic of Korea from scenarios 1 and 2;
- Other internal destinations: calculated with an average fare of USD 160 per passenger

- From/to mainland China
- Other international destinations (Iranian carriers)
- Other international destinations (Foreign carriers)
- Other international destinations (Foreign carriers*)

*: Capacity change was announced and implemented before COVID-19 outbreak

Source: ICAO estimates

International passenger services from/to Mongolia in Feb 2020

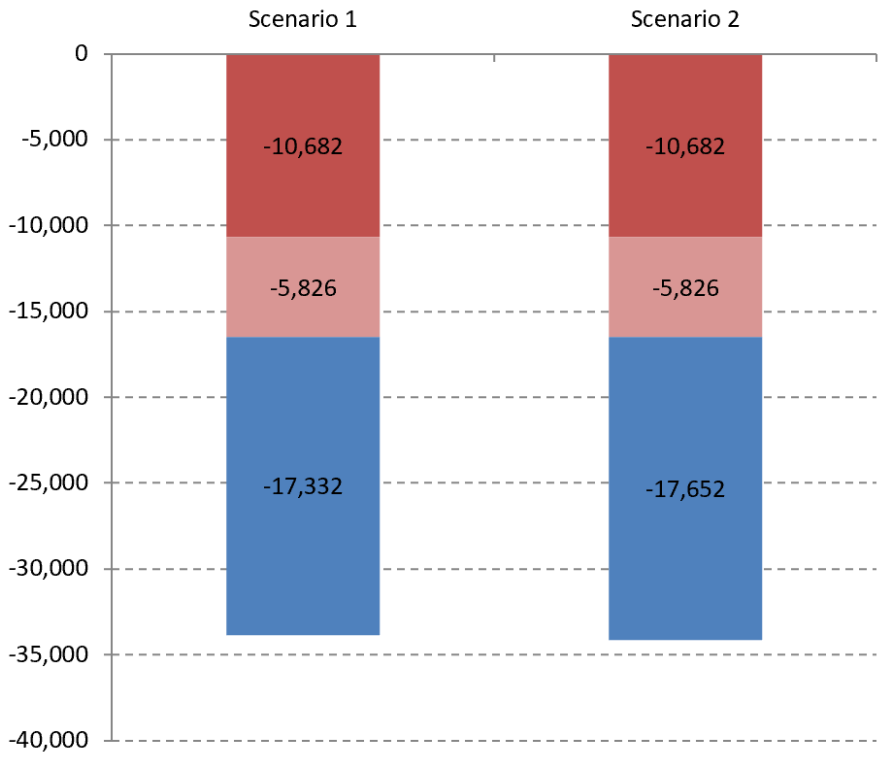


42% seat capacity reduction from originally-planned level in February 2020

- -53%: Mongolian carriers
- -59%: Chinese carriers
- -19%: Korean carriers
- -2%: Other foreign carriers

Source: OAG Scheduled data and ICAO estimates

International passenger services from/to Mongolia in Feb 2020



34,000 passenger reduction in February 2020 compared to originally-planned

- From/to mainland China: extracted the impact involving Mongolia from scenarios 1 and 2;
- From/to Republic of Korea and other internal destinations: assumed 80% load factor

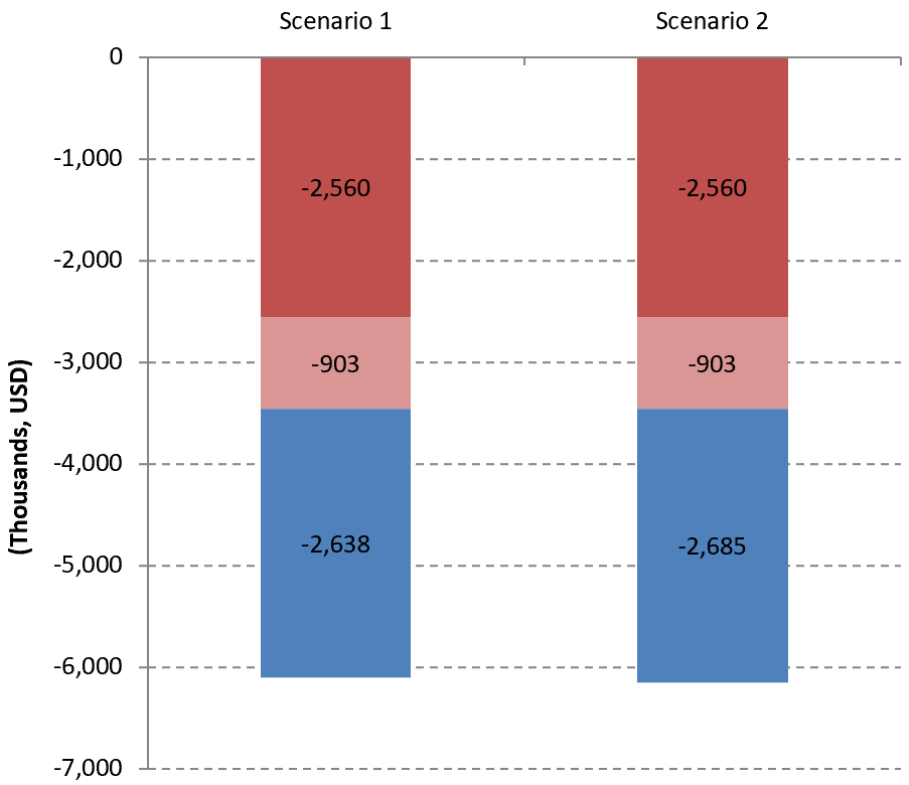
From/to mainland China and Hong Kong SAR

From/to Republic of Korea

Other international destinations

Source: ICAO estimates

International passenger services from/to Mongolia in Feb 2020



USD 6.1 million potential loss of airline revenues in February 2020 compared to originally-planned

- From/to mainland China and Hong Kong SAR: extracted the impact involving Mongolia from scenarios 1 and 2;
- From/to Republic of Korea and other internal destinations: calculated with an average fare of USD 135 to 155 per passenger

- From/to mainland China and Hong Kong SAR
- From/to Republic of Korea
- Other international destinations

Source: ICAO estimates

Further information

- Arrangement for the prevention and Management of Public Health Events in Civil Aviation (CAPSCA)
  - https://www.capsca.org/CoronaVirusRefs.html

- Aviation and COVID-19
  - https://www.icao.int/Security/COVID-19/Pages/default.aspx

- Updated analysis of the effects of the Novel Coronavirus (COVID-19) on air transport
  - https://www.icao.int/sustainability/Documents/COVID-19/ICAO_Coronavirus_Econ_Impact.pdf

Contact: ECD@icao.int

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THANK YOU

https://www.icao.int/Newsroom/Pages/Economic-impact-estimates-due-to-COVID-19-travel-bans.aspx