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Economic Impact of COVID-19 on Civil Aviation

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Contents

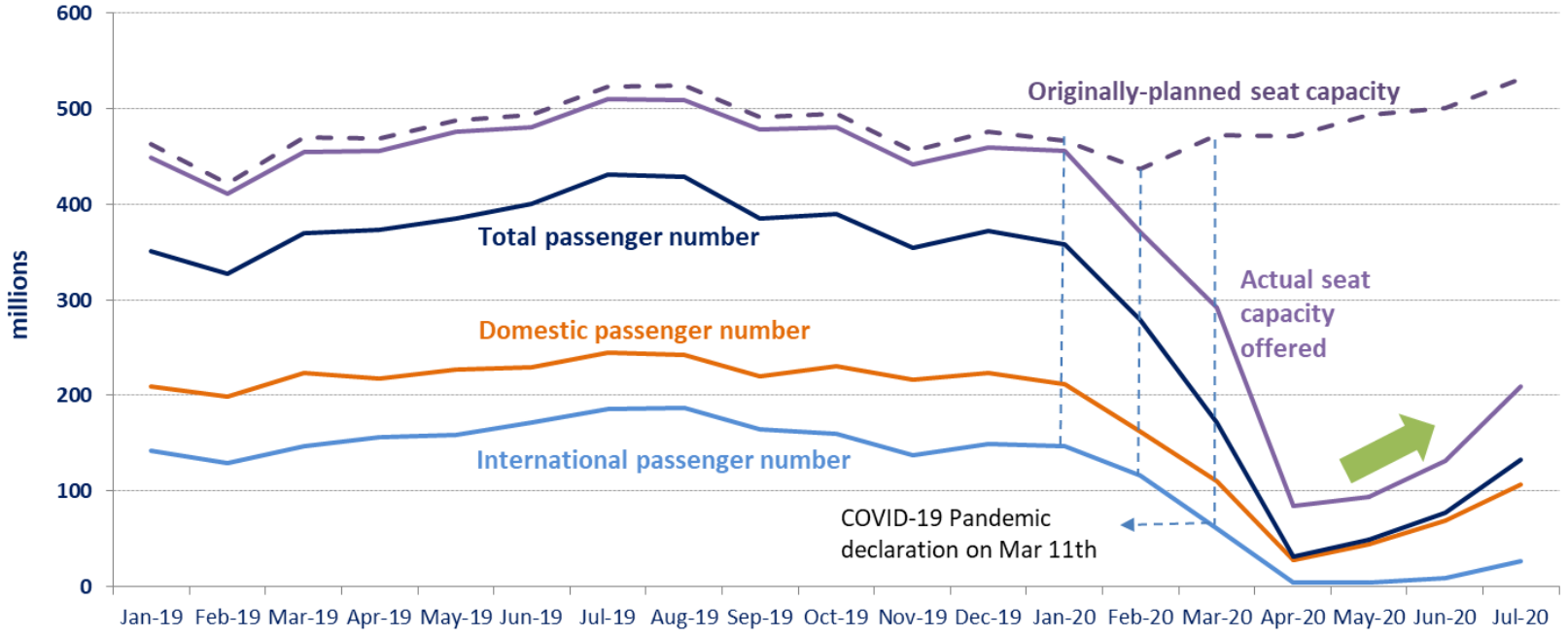
- Economic impact of COVID-19 on civil aviation
- Forward looking scenario analysis
- ICAO COVID-19 interactive dashboards
- Financial relief and mitigation measures
- Value-added of aviation to national economy

Economic Impact of COVID-19 on Civil Aviation
- Global -

Figures and estimates herein are **subject to substantial changes**, and will be updated with the situation evolving and more information available.

Drastic capacity cut along with dramatic drop in demand

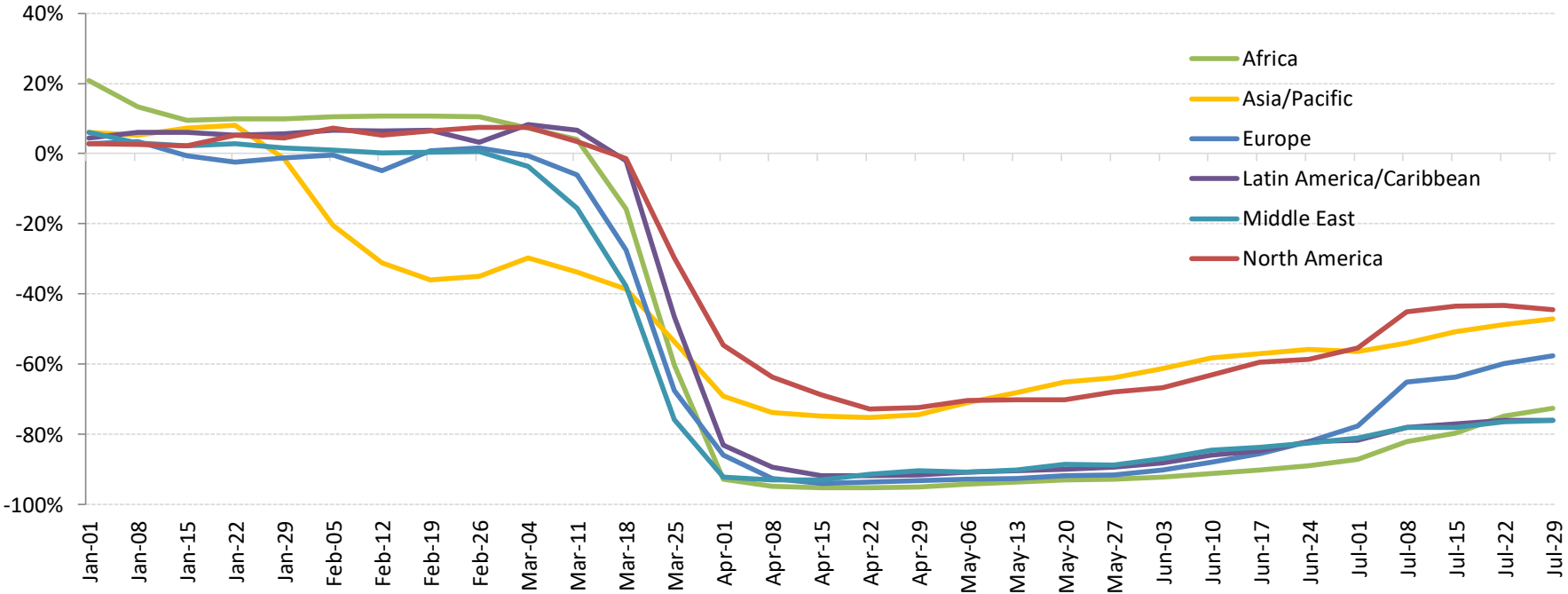
Both capacity and demand reached the bottom low in April; Number of passengers from Jan to Jul dropped by 58% from 2.6 billion in 2019 to 1.1 billion in 2020



Source: ICAO ADS-B and OAG, plus estimates

Regional difference in resilience and speed of recovery

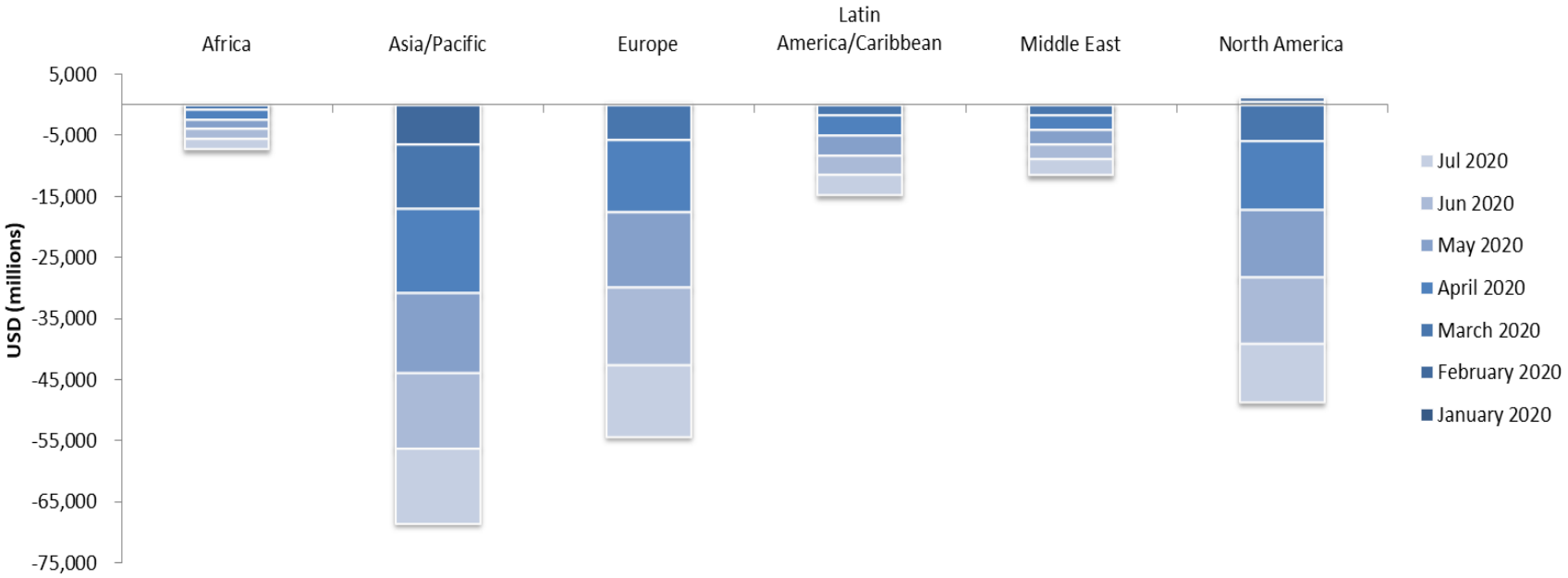
Comparison of total seat capacity by region (7-day average, YoY compared to 2019)



Source: ICAO ADS-B

Airline passenger revenue of all regions plummeted

Airlines are estimated to loss approximately USD 202 billion passenger revenue from Jan to Jul 2020 compared to 2019

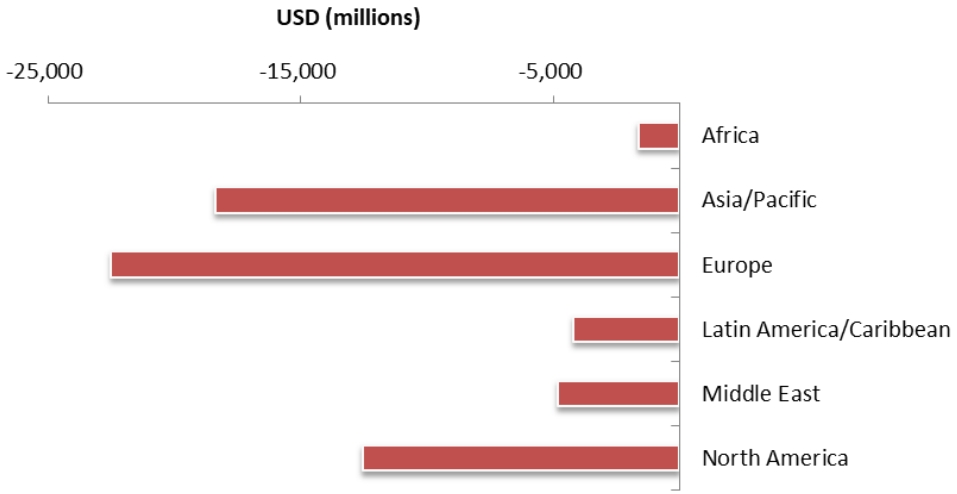


Source: ICAO estimates

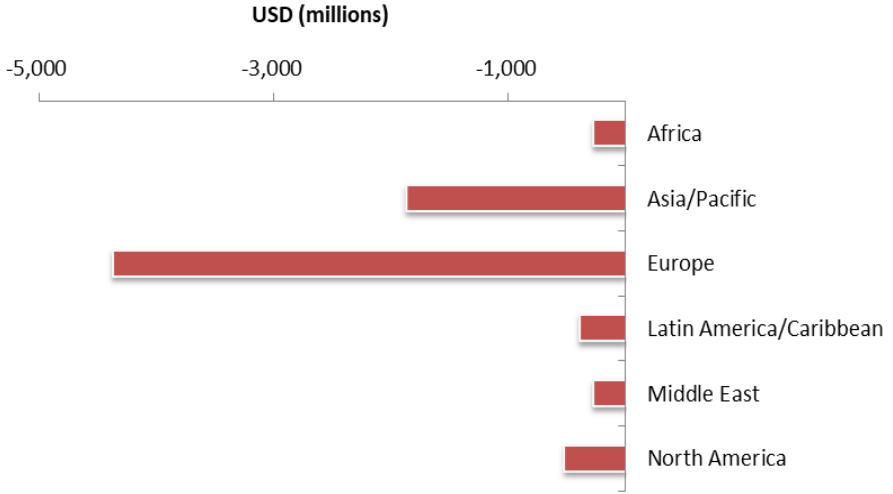
Airport and ANSP revenues were also severely impacted

Airports and ANSPs are estimated to loss approximately USD 64 and USD 8 billion from Jan to Jul 2020 compared to 2019

Airport



ANSP



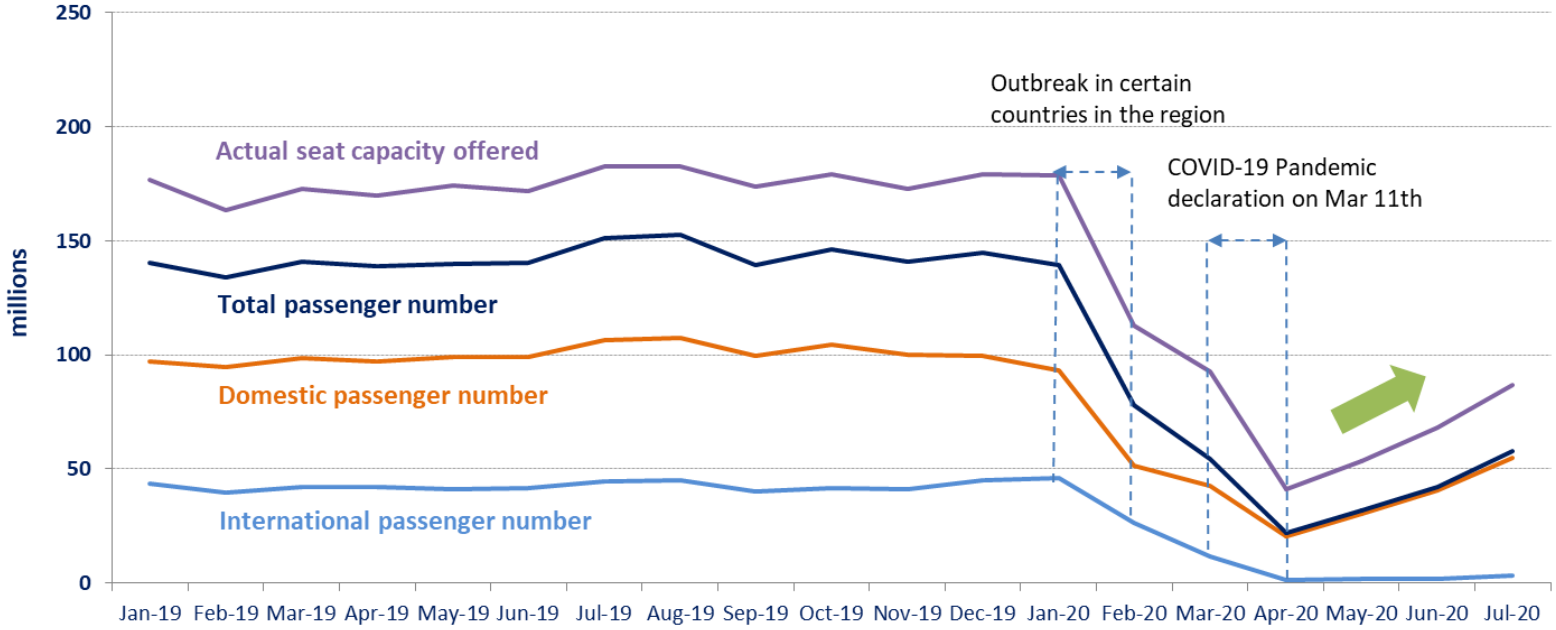
Source: ICAO estimates

Economic Impact of COVID-19 on Civil Aviation
- Asia and Pacific -

Figures and estimates herein are **subject to substantial changes**, and will be updated with the situation evolving and more information available.

Earlier impact of COVID-19 in Asia/Pacific

Number of passengers from Jan to Jul dropped by 57% from 985 million in 2019 to 425 million in 2020; international passengers declined by around 70%

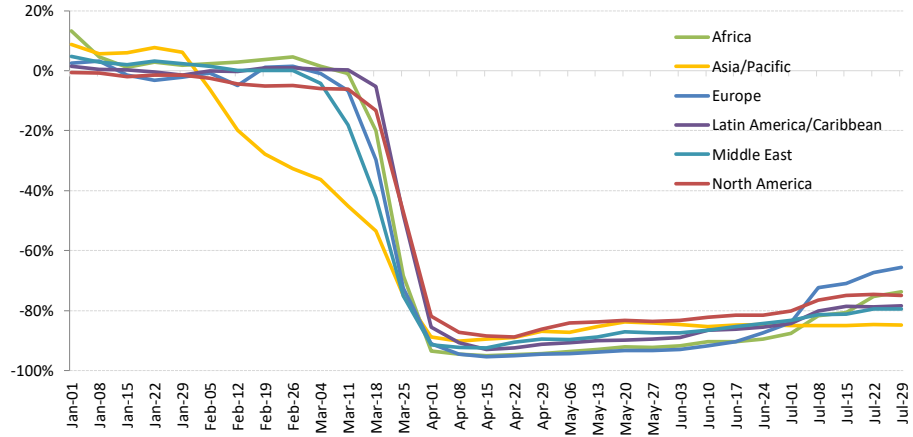


Source: ICAO ADS-B and estimates

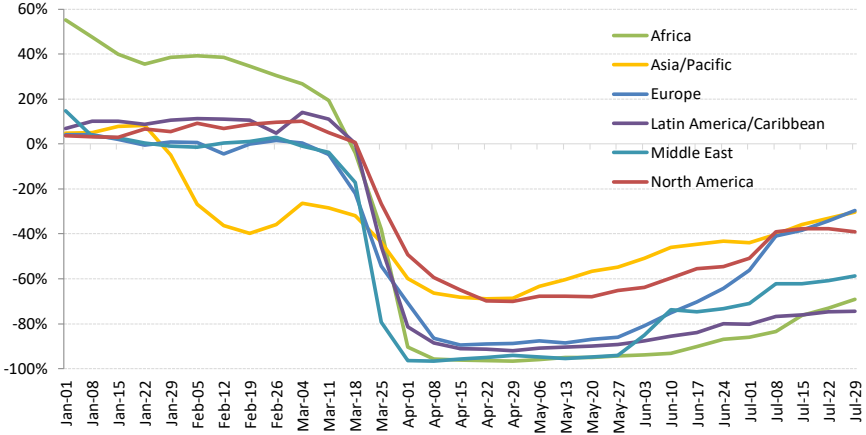
Domestic passenger traffic may be more resilient than international in some markets

Asia/Pacific and North America have experienced 20% to 25% less decline in domestic passenger traffic than international

International seat capacity reduction
(7-day average, YoY compared to 2019)



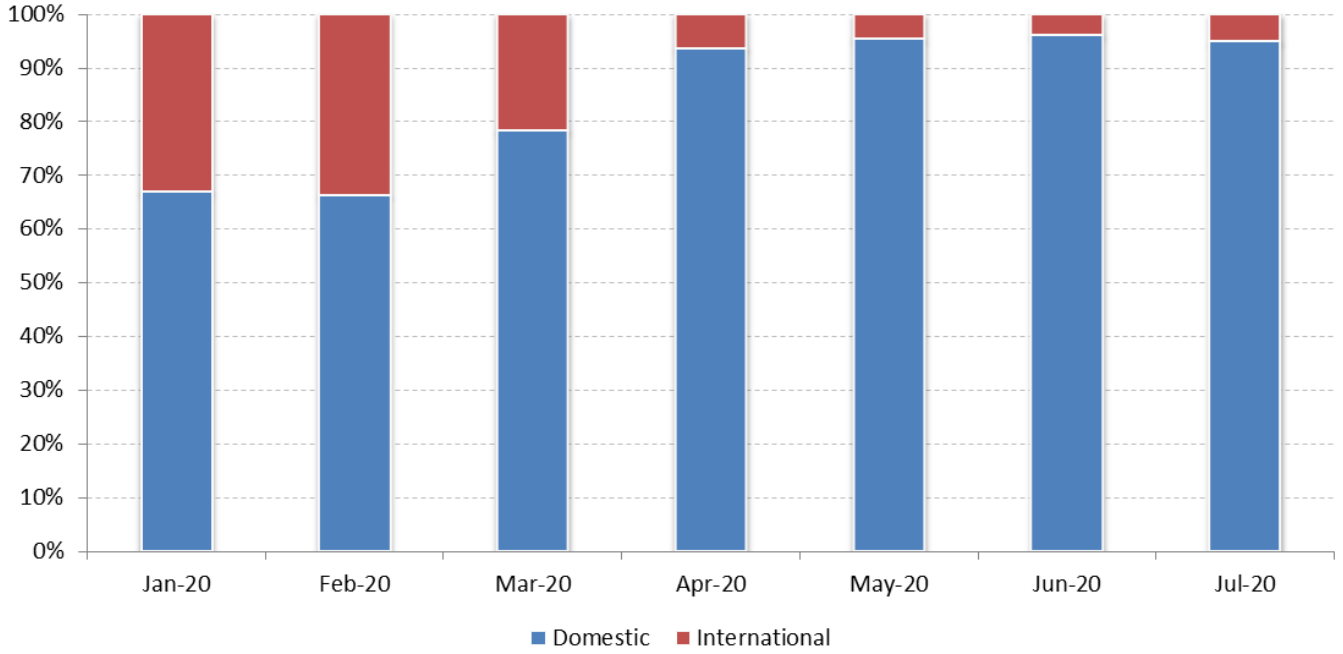
Domestic seat capacity reduction
(7-day average, YoY compared to 2019)



Source: ICAO ADS-B

Share of international and domestic traffic of the region

Since April, the majority of traffic was dominated by domestic passengers while international passengers represented merely 5%

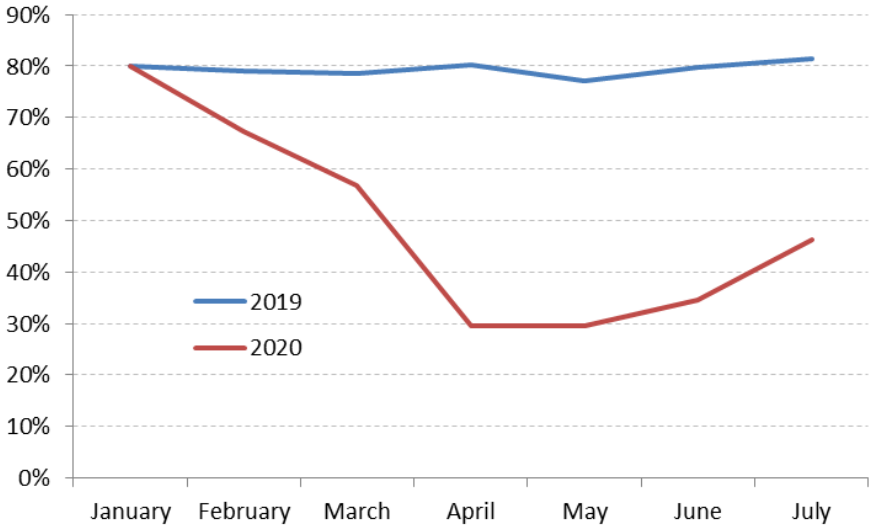


Source: ICAO ADS-B and estimates

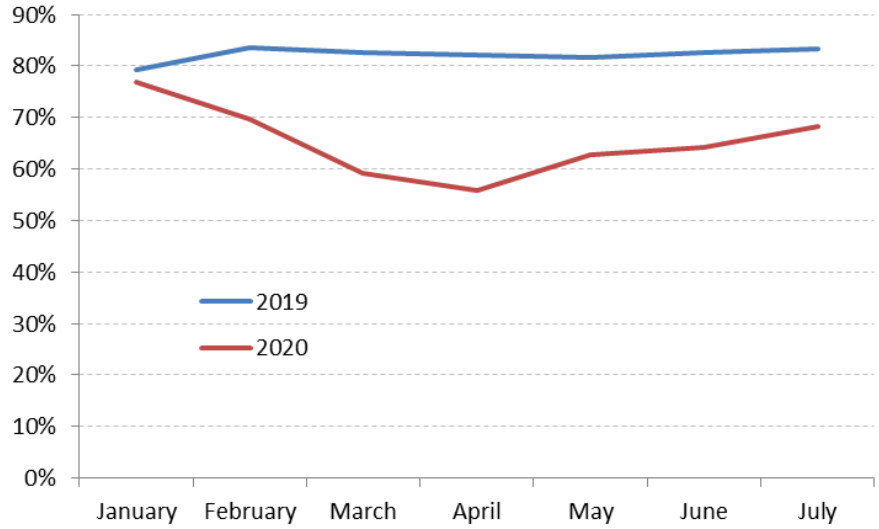
Steep fall in international passenger load factor

Asia/Pacific international load factor dropped to all-time low in April and May at below 30%

International load factor 2020 vs. 2019



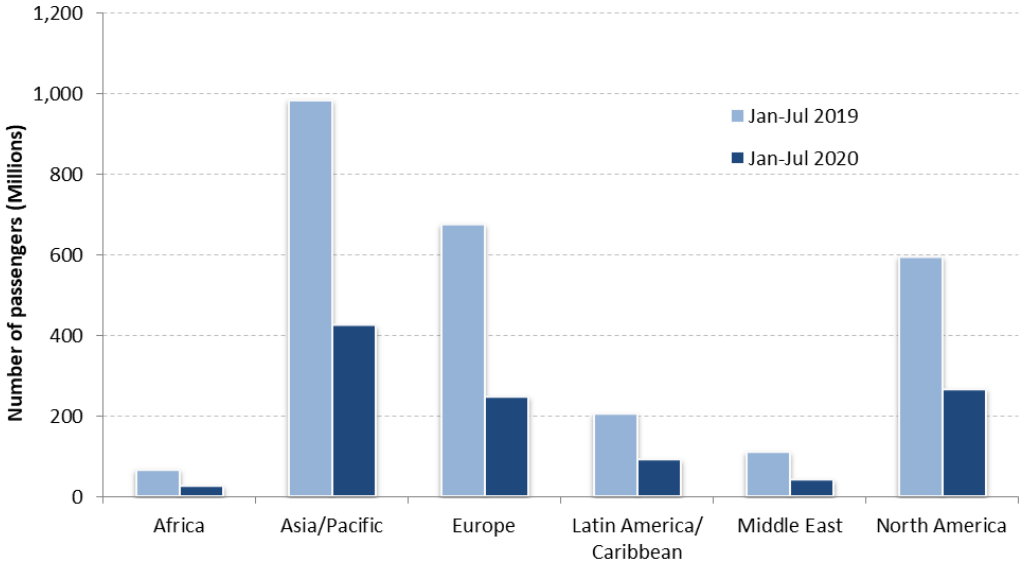
Domestic load factor 2020 vs. 2019



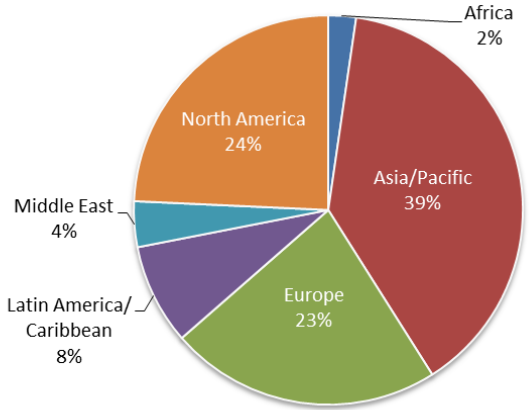
Source: ICAO ADS-B

Share of traffic by region

Number of passengers of Jan-Jul 2020 compared to 2019



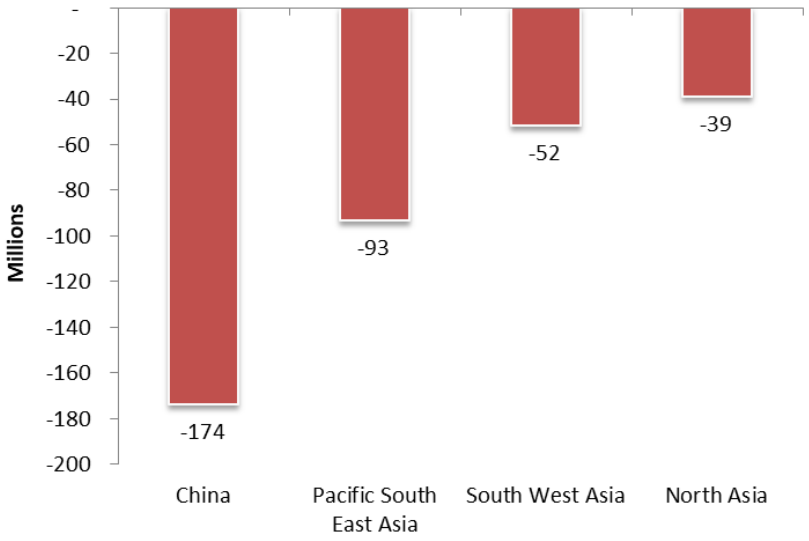
Share of passengers by region of Jan-Jul 2020



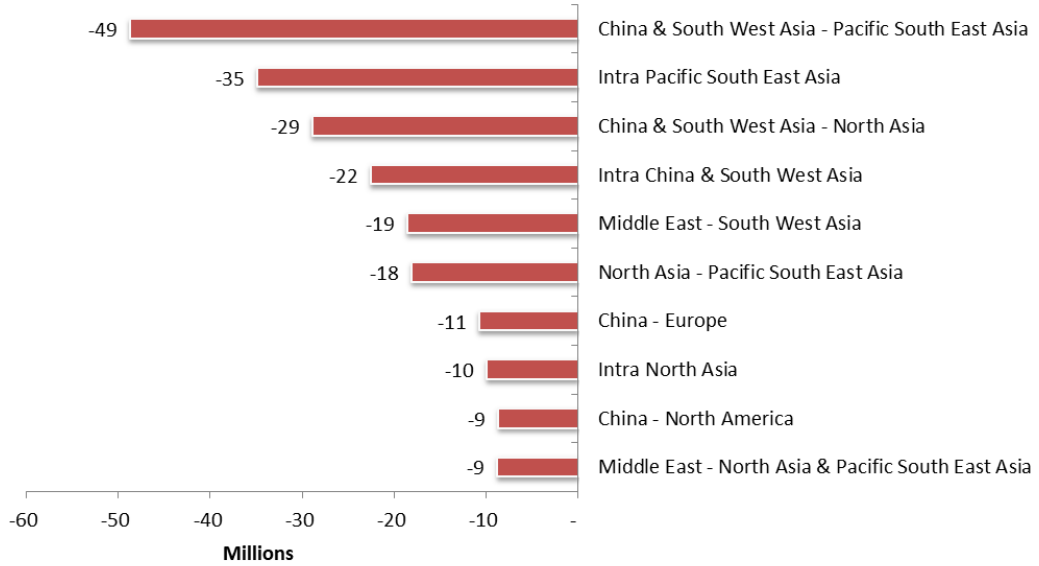
Source: ICAO ADS-B and estimates

Most impacted route groups of Asia/Pacific

Impact on major domestic Asia/Pacific route groups (passenger loss Jan-Jul)



Top 10 impacted international Asia/Pacific route groups (passenger loss Jan-Jul)



Source: ICAO ADS-B and estimates

Asia/Pacific airports dominated the Top 15 ranking in July

In July, majority of Top 15 airports in terms of number of departing seats were airports in Asia/Pacific

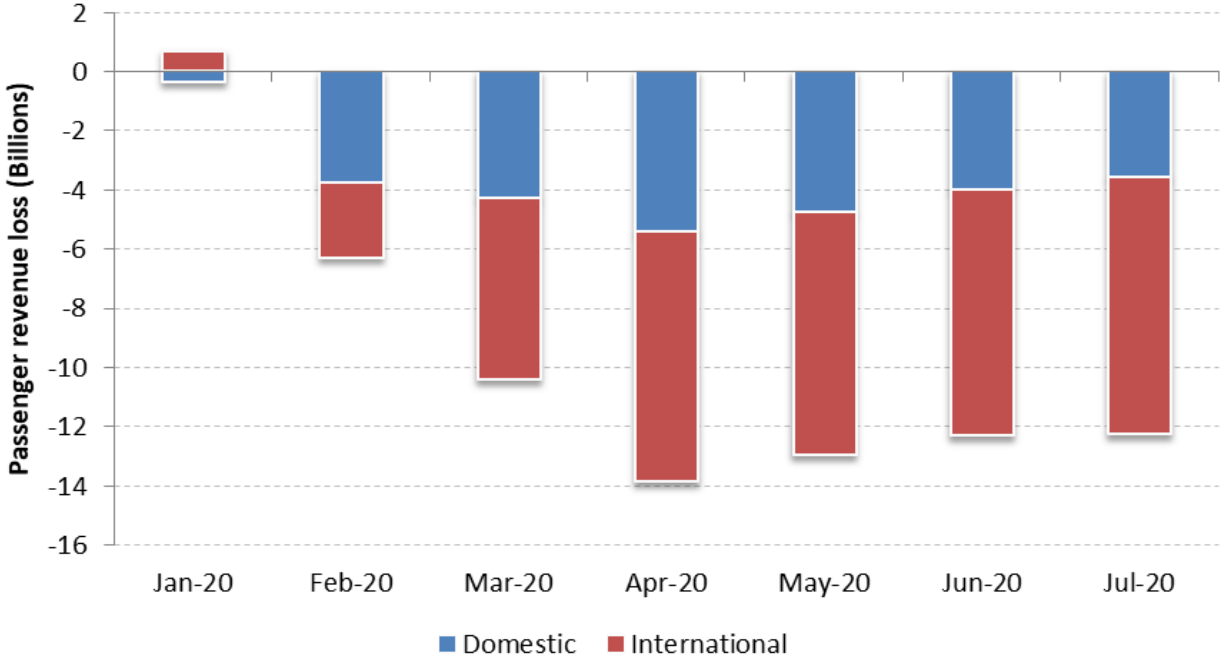
Airports 2020 *(ranking by number of departing seats)*	Country/ Territory	Seats
GUANGZHOU/BAIYUN (CAN)	China	2,895,938
HARTSFIELD - JACKSON ATLANTA INTL (ATL)	United States	2,710,345
SHENZHEN/BAOAN (SZX)	China	2,622,004
CHENGDU/SHUANGLIU (CTU)	China	2,587,142
DALLAS/FORT WORTH INTL (DFW)	United States	2,538,055
TOKYO INTL (HND)	Japan	2,431,899
SHANGHAI/PUDONG (PVG)	China	2,354,233
DENVER INTL (DEN)	United States	2,286,720
SHANGHAI/HONGQIAO (SHA)	China	2,147,926
CHICAGO-O'HARE INTL (ORD)	United States	2,146,956
LOS ANGELES INTL (LAX)	United States	2,099,743
KUNMING/CHANGSHUI (KMG)	China	2,045,397
XI'AN/XIANYANG (XIY)	China	2,039,245
CHONGQING/JIANGBEI (CKG)	China	1,919,253
HANGZHOU/XIAOSHAN (HGH)	China	1,684,066

Airports 2019 *(ranking by number of departing seats)*	Country/ Territory	Seats
HARTSFIELD - JACKSON ATLANTA INTL (ATL)	United States	5,791,704
BEIJING/CAPITAL (PEK)	China	5,295,945
TOKYO INTL (HND)	Japan	5,171,912
LOS ANGELES INTL (LAX)	United States	5,008,750
DUBAI INTERNATIONAL (DXB)	United Arab Emirates	4,792,576
CHICAGO-O'HARE INTL (ORD)	United States	4,722,617
LONDON HEATHROW (LHR)	United Kingdom	4,457,166
PARIS-CHARLES DE GAULLE (CDG)	France	4,380,263
FRANKFURT MAIN (FRA)	Germany	4,232,387
AMSTERDAM/SCHIPHOL (AMS)	Netherlands	4,206,929
HONG KONG/INTERNATIONAL (HKG)	Hong Kong, SAR, China	4,126,013
SHANGHAI/PUDONG (PVG)	China	4,100,507
DALLAS/FORT WORTH INTL (DFW)	United States	4,094,632
ISTANBUL (IST)	Turkey	4,050,975
DENVER INTL (DEN)	United States	3,871,451

Source: ICAO ADS-B

Passenger revenue loss by month

Asia/Pacific region recorded a total airline passenger revenue loss of around USD 68 billion from Jan to Jul; over 60% of loss was attributed to international



Source: ICAO ADS-B and estimates

Forward Looking Scenario Analysis

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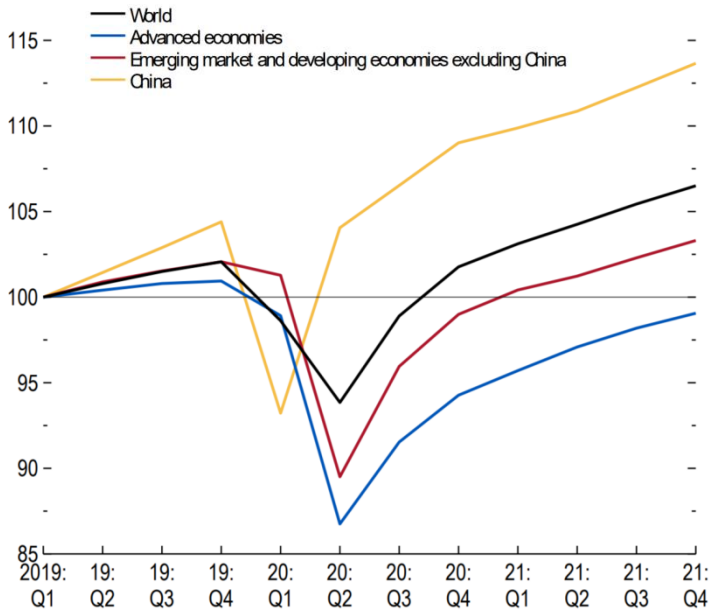
What "recession shape" can be assumed given uncertainties surrounding the outlook?

World's GDP Projections (by IMF)



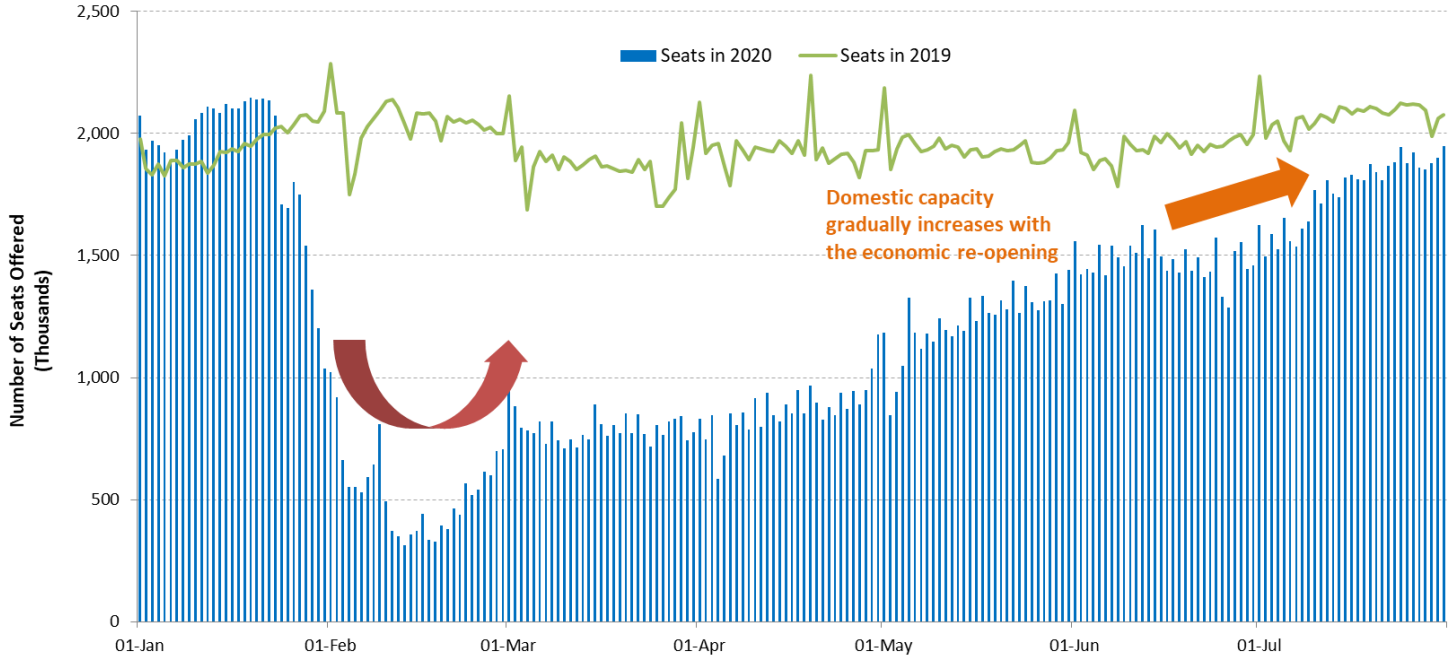
- How long will the pandemic last and what will be the severity levels?
- How deep and how long will the global recession be?
- How long will lockdowns and travel restrictions continue?
- How fast will consumer confidence in air travel be restored?
- Will there be a structural shift in industry and consumers' behaviors?
- How long can the air transport industry withstand the financial adversity?

https://www.imf.org/en/Publications/WEO/Issues/2020/06/24/WEOUpdateJune2020

Source: IMF Word Economic Outlook (April 2020)

Domestic passenger traffic may recover ahead of international

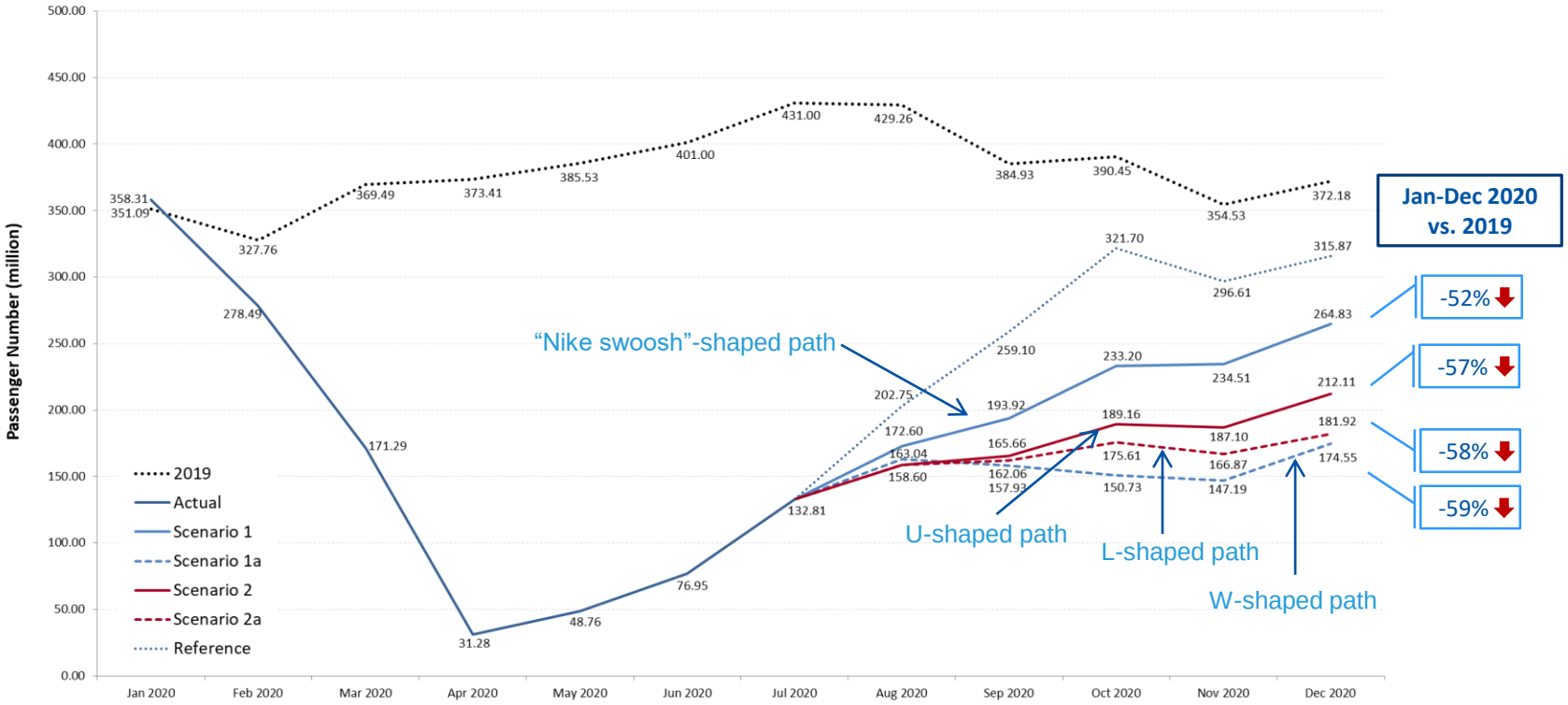
Domestic passenger traffic in China already bottomed out in mid-February, and capacity offered in July was recovered to around 85% of last year



Source: ICAO ADS-B operation data

Estimation of trend of world passengers for 2020

Scenario estimations of world total passengers of 2020



Source: ICAO Air Transport Reporting Form A and A-S plus ICAO estimates.

Scenario estimates of global industry revenue loss for the year of 2020

ICAO Economic Impact Analysis of COVID-19:

https://www.icao.int/sustainability/Pages/Economic-Impacts-of-COVID-19.aspx

-52% to -59%

*decline in world total passengers in **2020 vs. 2019***

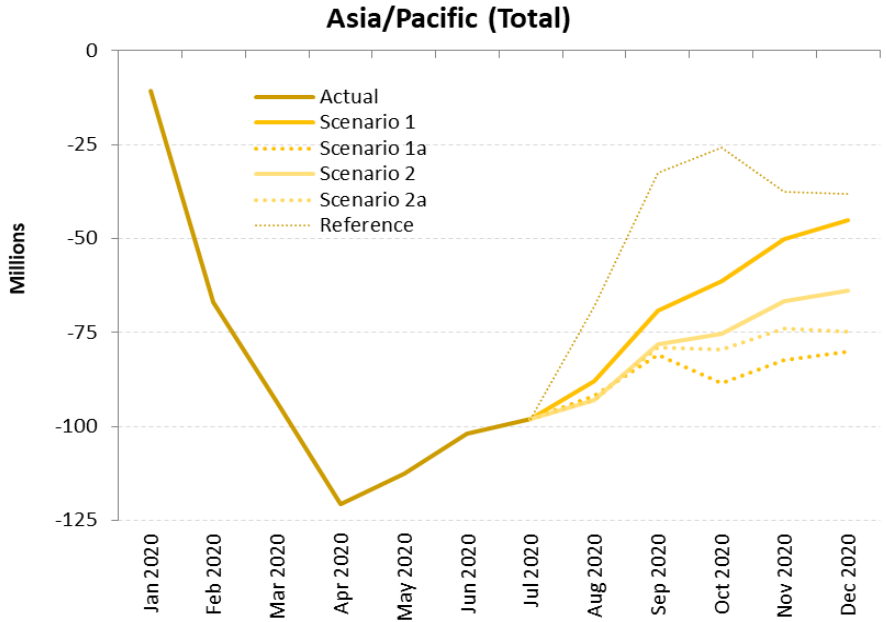
Airline passenger revenue loss	Airport revenue loss	ANSP revenue loss
• ~ USD 322 to 362 billion ↓	• ~ USD 87 to 106 billion ↓	• ~ USD 8 to 12 billion ↓

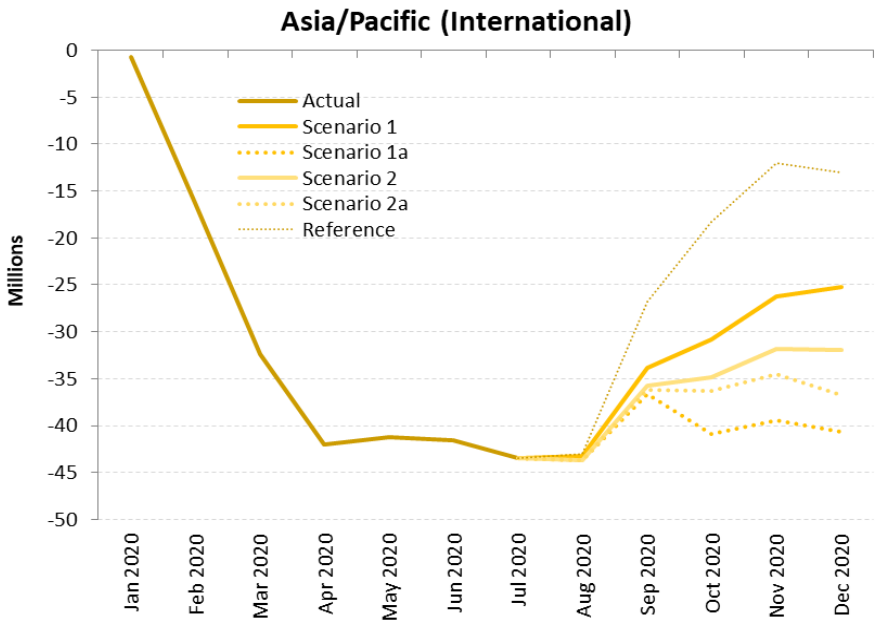
Source: ICAO estimates and subject to change

Estimation of trend of Asia/Pacific passengers for 2020

Scenario estimations of Asia/Pacific passengers of 2020

	Scenairo 1	Scenario 1a	Scenario 2	Scenario 2a
Total (Jan-Dec 2020 vs. 2019)	-49%	-56%	-53%	-54%
International (Jan-Dec 2020 vs. 2019)	-68%	-77%	-72%	-74%





Source: ICAO estimates based on ICAO ADS-B, OAG, ICAO LTF, ICAO Statistical Reporting, IATA Economics, and IMF/World Bank Economic Outlook

Scenario estimates of Asia/Pacific industry revenue loss for the year of 2020

ICAO Economic Impact Analysis of COVID-19:

https://www.icao.int/sustainability/Pages/Economic-Impacts-of-COVID-19.aspx

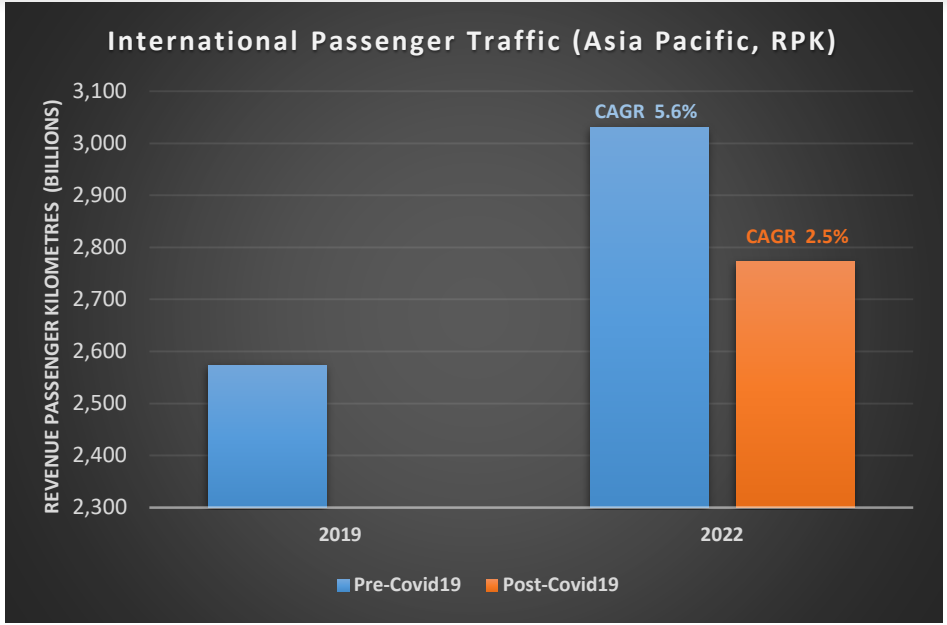
-49% to -56%

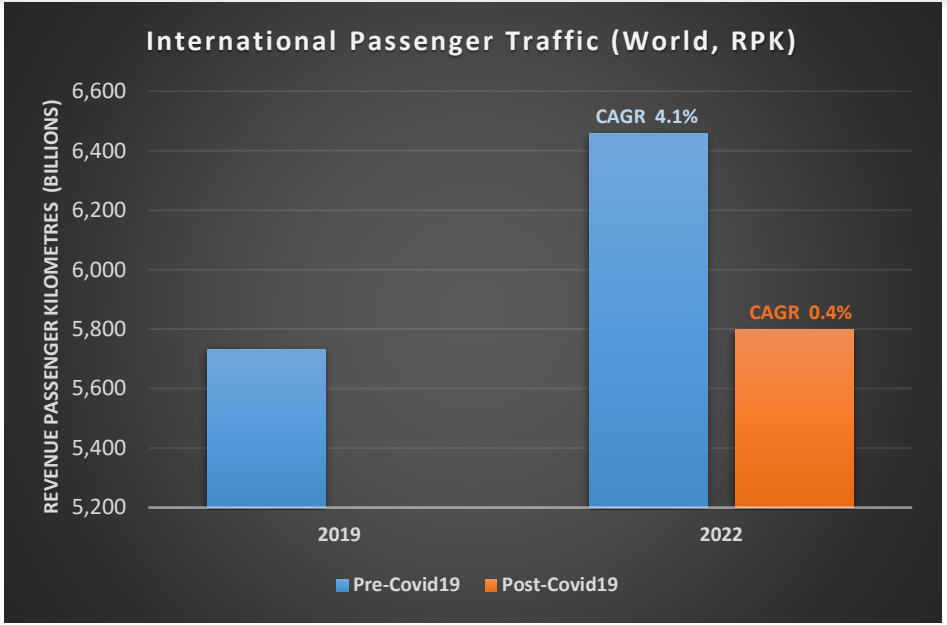
*decline in Asia/Pacific total passengers in **2020 vs. 2019***

Airline passenger revenue loss	Airport revenue loss	ANSP revenue loss
• ~ USD 105 to 121 billion	• ~ USD 27 to 31 billion	• ~ USD 2.8 to 3.3 billion

Source: ICAO estimates and subject to change

Pre- and post-COVID-19 traffic forecasts





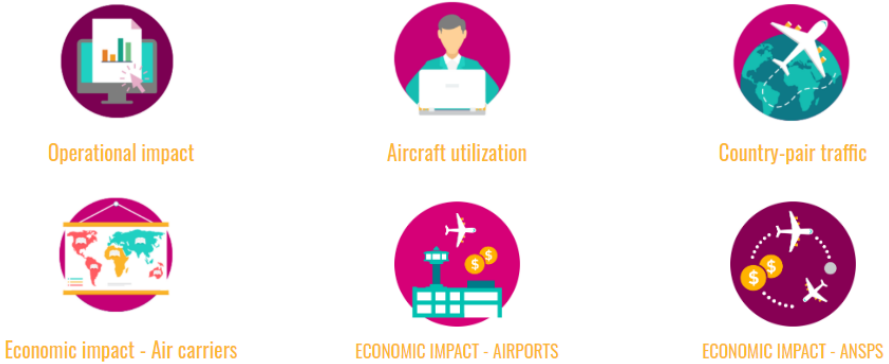
- Global international passenger traffic is expected to rebound to 2019 levels in 2022
- Global international passenger traffic 2022-2019 CAGR is expected to decline to 0.4% from 4.1%
- Asia Pacific international route groups traffic 2022-2019 CAGR is expected to decline to 2.5% from 5.6%
- Global international cargo traffic 2022-2019 CAGR is expected to decline by 2.9 pct, and less decline for Asia Pacific

ICAO COVID-19 Interactive Dashboard

ICAO COVID-19 Air Traffic Dashboard

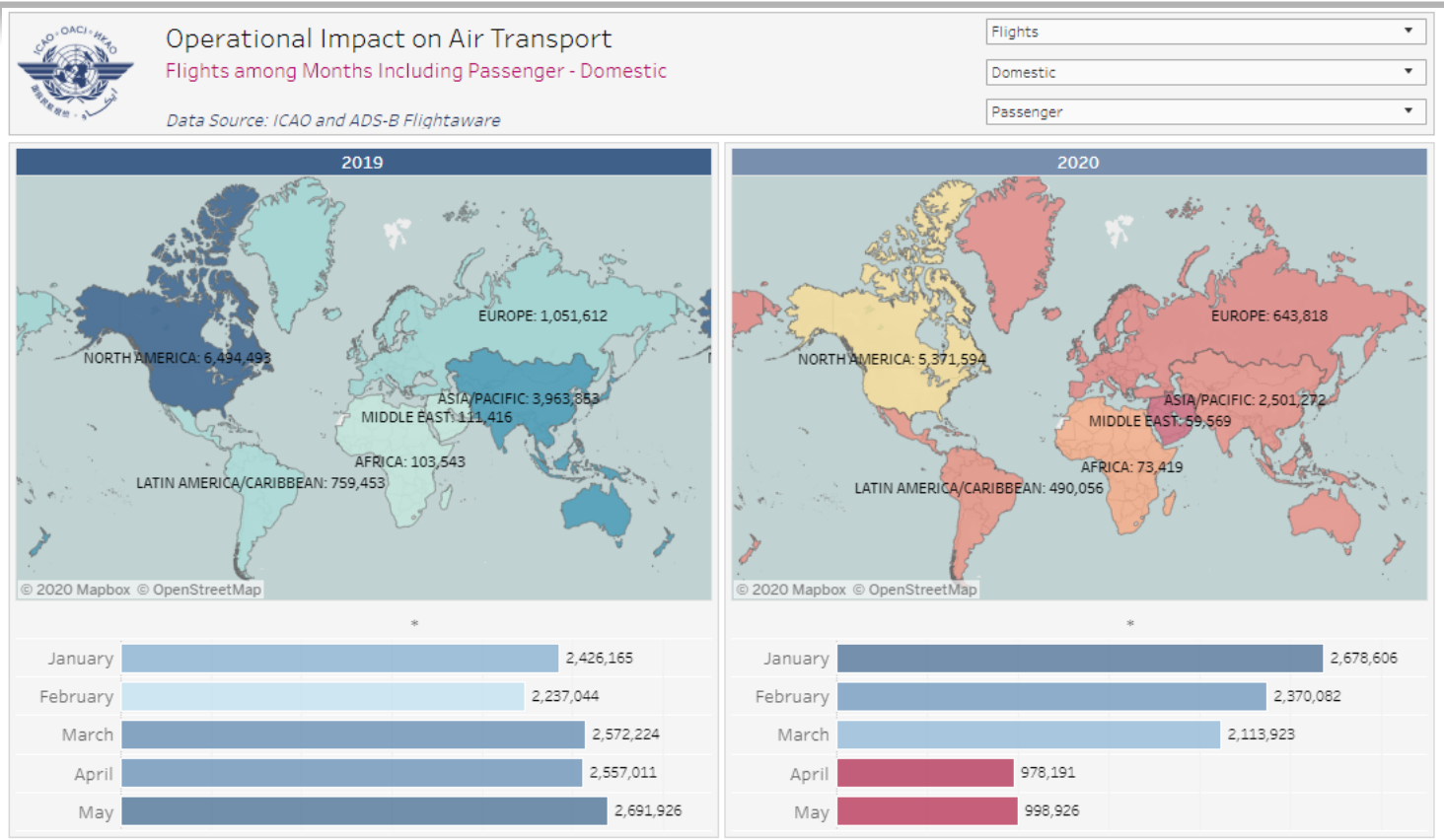
ICAO COVID-19 dashboards provide timely data and trends to monitor and assess the evolving impact of COVID-19 on civil aviation

- **Operational impact:** impact on the number of flights, seats offered, and segmented into international and domestic operations
- **Economic impact:** impact on the revenues of air carriers, airports and ANSPs
- **Aircraft utilization:** aircraft utilization and grounded aircraft by aircraft category
- **Country-pair Traffic:** level of country-pair traffic with COVID-19 cases.



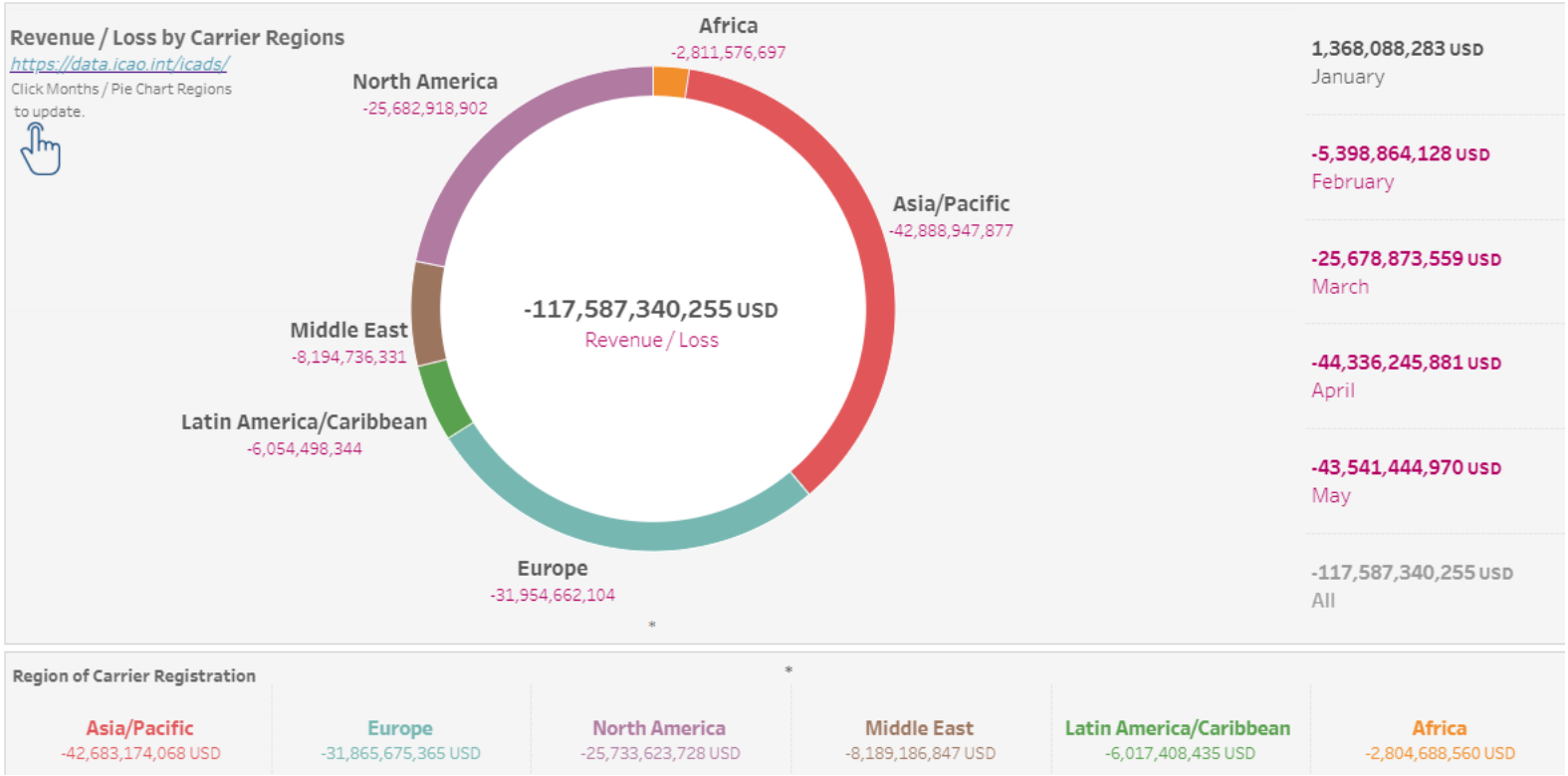
COVID-19 Air Traffic Impact Dashboard:
https://www.icao.int/sustainability/Pages/COVID-19-Air-Traffic-Dashboard.aspx

COVID-19 dashboard: Operational impact on air transport



Source: ICAO ADS-B operation data plus estimates

COVID-19 dashboard: Economic impact – air carriers



Source: ICAO ADS-B operation data plus estimates

Financial relief and mitigation measures

Form of financial relief and mitigation measures

Depending on the nature of the measures, financial relief and mitigation measures can be classified into the following categories

- **Industry operational measures**
- **Industry financial measures**
- **State regulatory support measures**
- **State fiscal and monetary relief measures**

Industry mitigation measures (operational)

Form of measures	Effect/Implication	Limitation/Risk
a) Increase in cost of travel	Enable air carriers to make operations on routes with break even at reduced load factors.	Higher price elasticity of demand might be expected due to pandemic.
b) Diverting excess passenger capacity to non-scheduled passenger and cargo operations	Put unutilized scheduled passenger capacity into use to infuse much needed liquidity.	Competition from other transport modes for carriage of cargo; Conversion of passenger aircraft to cargo entails upfront costs.
c) Fuel hedging	Provide certainty on future fuel costs and reduce the risk of unviable operations due to fuel costs variability.	Variability in real fuel prices could make hedging contracts unprofitable; Prices of hedges usually carry an upfront cost.
d) Mergers and acquisitions	Mergers and acquisitions within the air transport value chain will reduce the costs of operations and optimize use of capacity.	Monopoly and competition laws as well as restrictions on foreign ownership and control.

Industry mitigation measures (financial) -1

Form of measures	Effect/Implication	Limitation/Risk
a) Negotiation of reduced rates or defer payments to input providers or suppliers	Lower costs, reduce short-term payments and free up cash; Make operations on routes break even at reduced load factors.	Existing contracts and business continuity concerns could adversely impact the negotiation on reduction or deferment.
b) Negotiation of reduced interest rates or deferred loan payments to lenders and aircraft lessors	Lower costs, reduce short-term payments and free up cash.	
c) Diluting equity or equity financing	Raise capital by selling shares in the market or by pledging it with financial institutions for a discount over market prices; Alternatively air carriers could issue preferential shares or convertible debentures to financial institutions where the capital has a loan and an equity component convertible at a premium over market at a future date.	a) Domestic and foreign financial institutions could buy shares directly from market instead of negotiating a discount with the owner if they expect valuation to decline further.
		b) States could limit ownership of equity if the investment is from a foreign fund or investor due to ownership and control restrictions.

Industry mitigation measures (financial) - 2

Form of measures	Effect/Implication	Limitation/Risk
d) Securitizing future earnings for present capital from State owned or private banks and financial institutions	Diverse funding and financing sources; Monetize existing and predictable cash flows to sustain business; Availability of capital could make some operations viable under a low demand, capacity constrained environment.	Uncertainty of future revenue streams; Process of securitizing can be complex. Discounting future flows carries a cost.
e) Monetizing the value of frequent flyer programme (FFP) such as mortaging FFP for loans	Diverse funding and financing sources; Monetize existing and predictable cash flows expected to sustain business; Availability of capital could make some operations viable under a low demand, capacity constrained environment.	Potential unfavorable terms leading airlines to give up some control over the programme; could impact customer loyalty.
f) Route rationalization; Cost control and management including reduction in hiring, reduction in salary, voluntary unpaid time-off, temporary furlough, reduction in workforce	Increase availability in short term working capital	Reduction in skilled workforce could impact post pandemic operations.

State regulatory support measures

Form of measures	Effect/Implication	Limitation/Risk
a) Negotiation of more liberal agreements including open skies and cooperative arrangements on identified routes such as pooling agreement and joint venture	Availability of capital could make some operations viable under a low demand, capacity constrained environment	Regulatory changes take time and due process needs to be followed. Consideration of the valuation of its own national operators could impact the decision of the State to relax ownership and control regulations.
b) Relaxation on foreign ownership and control rules		
c) Temporary suspension of slot rules	Provide flexibility to allow air carriers to plan and adjust schedules with appropriate levels to respond to market conditions and changing demand projections; Air carriers can avoid the need to run empty services in order to maintain slots, and can allocate aircraft to other routes.	Limitation on allocating unutilized slots to those required operations. Timing of re-commencing or continuing the suspended slot rules could be a challenge.
d) Bankruptcy code	Can preserve the future valuation of air carrier and give a fresh start for future effort by canceling many of the unsecured debts, while allowing the carrier to pay Creditors a portion of debts depending on its ability to pay as indicated in the court order (called the Discharge); After filing for bankruptcy, the Discharge prevents the creditors of the carrier from taking actions to collect the debts.	Difference in bankruptcy law in States, creating a bankruptcy law is a lengthy regulatory process.

State fiscal and monetary relief measures

Form of measures	Effect/Implication	Limitation/Risk
a) Cash injection as grant, or through loans and loan guarantees with zero or low interest	Availability of capital could make operations viable under a low demand, capacity constrained environment; Valuation of air carrier of the State can be preserved with possibility to recoup through future valuation. Reduced bankruptcies of air carrier will preserve the direct and indirect value added and jobs generated from air transport.	Competing priorities of the State by different sectors in the economy and the low value added to the national economy from air transport relative to other sectors.
b) Wage subsidies or provide wage guarantee by absorbing a portion of wage costs for qualified personnel as deemed appropriate by the State		
c) Government takes equity in its air carriers with the option to sell it back to the carrier at a premium over marker price when valuations improve		
d) Taxation relief, including alleviation of payroll taxes, corporate taxes		
e) Reduction or deferred payment of taxes and charges imposed by State on the industry		
f) Operating grants, i.e. route specific grants		

Council Aviation Recovery Task Force (CART) Recommendation on Economic and Financial Measures

CART Recommendation 10 *- Member States should consider appropriate extraordinary emergency measures to support financial viability and to maintain an adequate level of safe, secure and efficient operations, which should be inclusive, targeted, proportionate, transparent, temporary and consistent with ICAO's policies, while striking an appropriate balance among the respective interests without prejudice to fair competition and compromising safety, security and environmental performance.*

Examples of measures adopted by States and the industry (Asia/Pacific)

*Example – **Australia** announced on 18 March AU$715 million relief package for Australian aviation industry, involving the refunding and ongoing waiving of a range of government charges on the industry including air services charges on domestic airline operations and domestic and regional aviation security charges.*

*Example – **China** implemented policies on 23 January to reduce aerodrome charges and air navigation charges. Landing Charges reduced by 10%; Parking Charges exempted; Air Navigation Facility Charges reduced by 10% (with overfly charges exclusive).*

*Example – **Singapore** government provides aviation support packages to protect jobs and to provide cost relief to airlines, ground handlers and cargo business such as landing and parking charges, rental rebates for airlines lounges and offices within Changi Airport, as well as maintaining a minimum level of air connectivity.*

*Example – **Thailand** Relief package presented including reduction on landing/parking charges, ATC charges and other airport expenses such as office rental.*

Examples of measures adopted by States and the industry (Global)

*Example 1 - The **United States** confirmed on a USD 2 trillion stimulus packages under the Coronavirus Aid, Relief, and Economic Security Act (Cares Act) in March 2020. The approved programmes include USD 61 billion to the aviation section such as USD 25 billion in loans and loan guarantees for passenger airlines, repair stations and ticket agents, USD 4 billion loans and loan guarantees for cargo airlines, USD 10 billion in grants-in-aid for airports, and USD 25 billion in funding to be used exclusively for US passenger airline employee wages, salaries and benefits.*

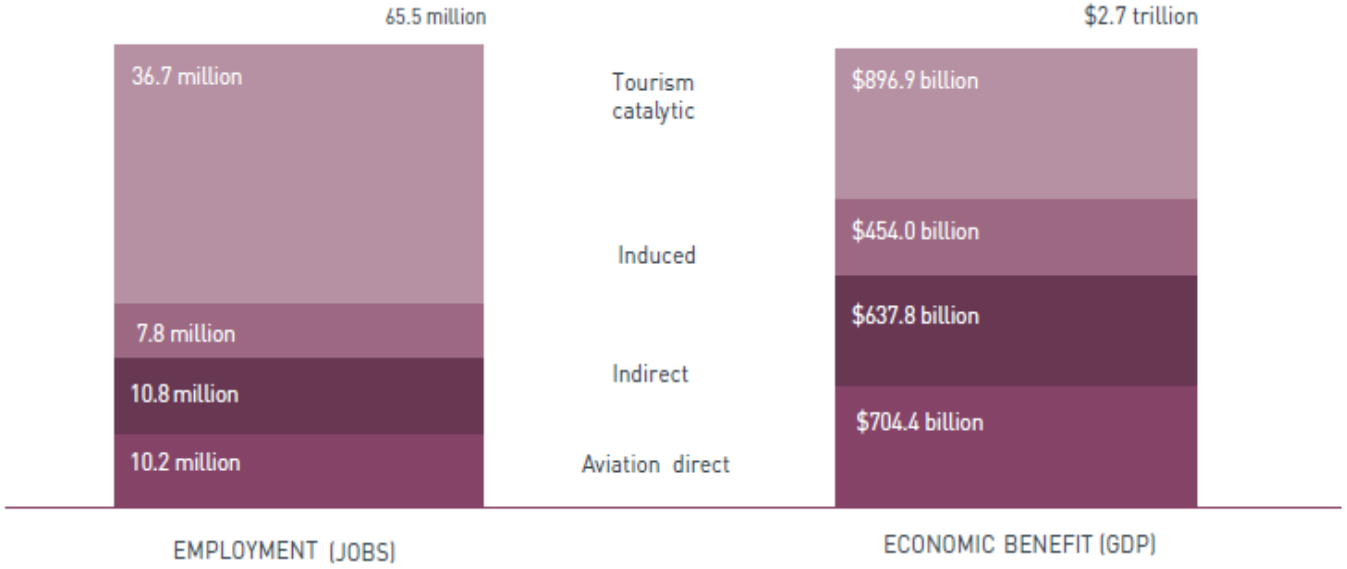
*Example 2 - **Germany** has thrown Lufthansa a €9bn lifeline, agreeing a bailout that gives Berlin a veto in the event of a hostile bid for the airline. The largest German corporate rescue since the coronavirus crisis struck will result in the government taking a 20% stake, which could rise to 25% plus one share in the event of a takeover attempt, as it seeks to protect thousands of jobs.*

*Example 3 - **Air Canada** is hoping to raise more than $1 billion in share and debt offerings to bolster its cash position amid the financial devastation of the COVID-19 pandemic.*

Value-added of aviation to national economy

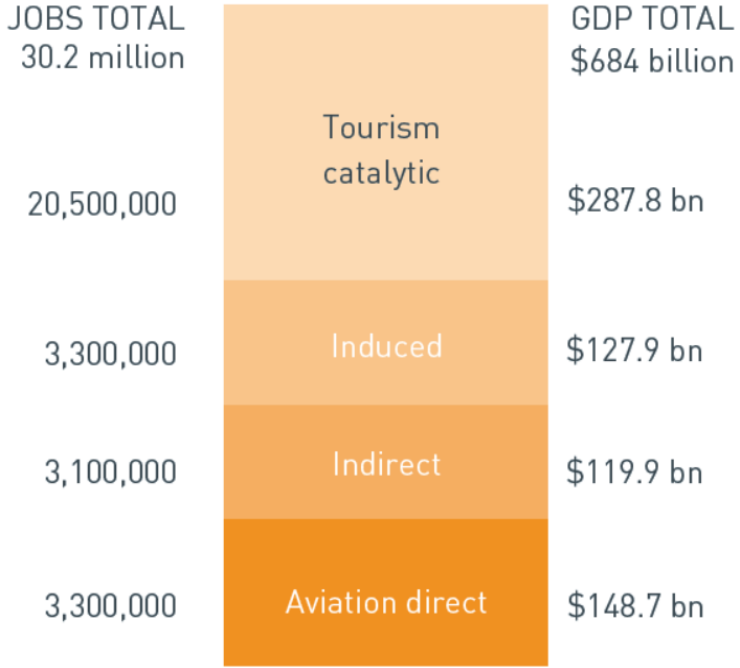
Economic benefits of global aviation pre-COVID-19

Prior to COVID-19, global aviation supported 65.5 million jobs and USD 2.7 trillion GDP



Economic benefits of aviation in Asia/Pacific pre-COVID-19

Prior to COVID-19, aviation in Asia/Pacific supported 30.2 million jobs and USD 684 billion GDP



Source: Aviation Benefits Report 2019

Value-added of aviation to national economy

International harmonized framework and tool to evaluate contribution of aviation to national economy

- **Aviation Satellite Account (ASA) methodological framework** to measure the direct contribution of aviation industry to national economy

- **Value-added Calculator** to support States to assess how much value-added can be generated through the help provided to aviation, as well as to the national economy as a whole such as GDP and jobs.

ICAO Aviation Satellite Account and Value-added Calculator

Summary

- The recovery for 2020 is expected to be slow and full of uncertainties in near term with the evolving situation of the pandemic
- Global traffic is expected to return to 2019 level in 2022
- Asia/Pacific accounted for over one-third of the world total passenger loss; The region's domestic recovery is faster than other regions while international air travel demand is likely to lag behind
- From 2021 onward, providing with more stabilized situation of the pandemic globally and the availability of vaccine, sustained recovery can be expected
- States' implementation of ICAO CART Recommendation 10 on economic and financial measures with a holistic view to evaluate the impacts and benefits on all stakeholders will be critical to help the industry to weather through the crisis so it can continue its instrumental role in driving national economy and supporting jobs

ICAO Economic Impact Analysis of COVID-19:

https://www.icao.int/sustainability/Pages/Economic-Impacts-of-COVID-19.aspx

COVID-19 Air Traffic Impact Dashboards:

https://www.icao.int/sustainability/Pages/COVID-19-Air-Traffic-Dashboard.aspx

ICAO Aviation Satellite Account and Value-added Calculator

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THANK YOU