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

Montréal, Canada
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Air Transport Bureau

Contents

Estimated results in brief

The latest estimates indicate that the possible COVID-19 impact on scheduled international passenger traffic for the first 9 months of 2020, compared to Baseline (business as usual, originally-planned), would be:

V-shaped path (a first sign of recovery in late May)

- Overall reduction ranging from **41% to 56% of seats offered by airlines**
- Overall reduction of **705 to 963 million passengers**
- Approx. **USD 160 to 218 billion potential loss** of gross operating revenues of airlines

U-shaped path (restart in third quarter or later)

- Overall reduction ranging from **57% to 67% of seats offered by airlines**
- Overall reduction of **961 to 1,117 million passengers**
- Approx. **USD 218 to 253 billion potential loss** of gross operating revenues of airlines

The impacts depend on duration and magnitude of the outbreak and containment measures, the degree of consumer confidence for air travel, and economic conditions, etc.

Scenario Building

As overall severity and duration of the pandemic are still uncertain, six different recovery paths under two indicative scenarios are developed to explore the potential "short-term" economic implication of the COVID-19 pandemic.

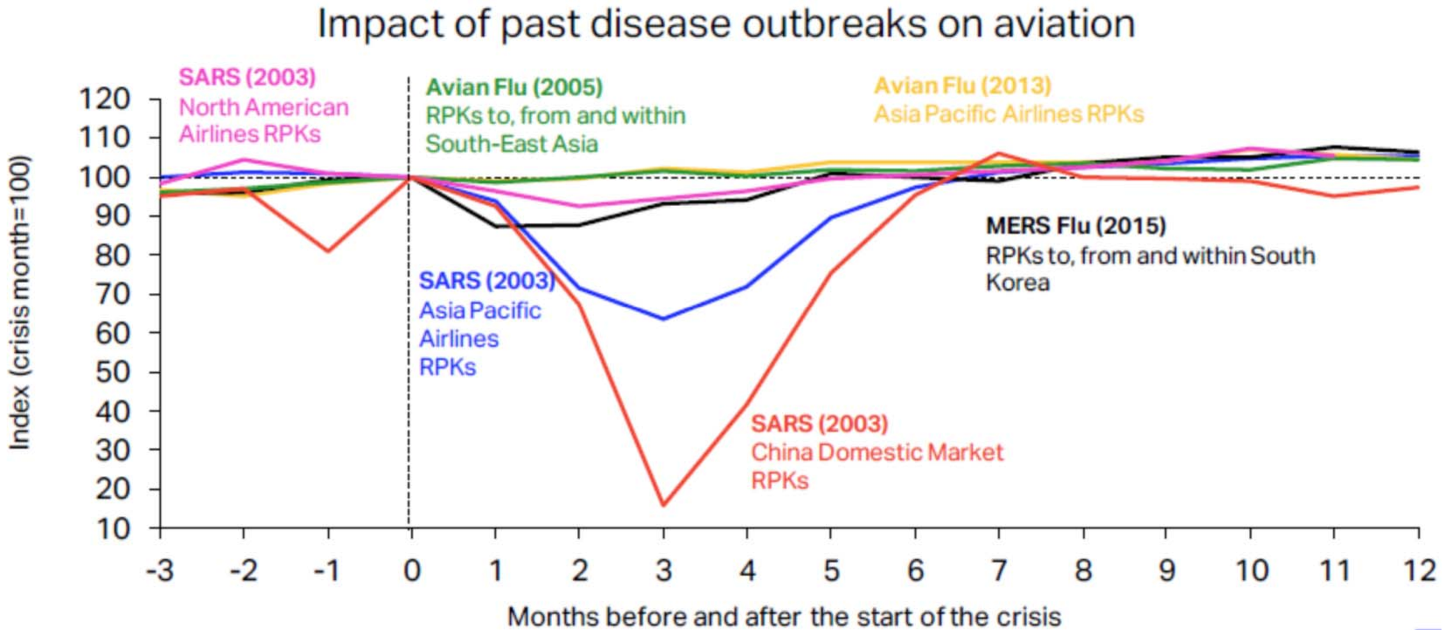
Illustrative scenarios: Baseline, V-shaped and U-shaped

- 3 scenarios to assess the possible economic impact of COVID-19:
  - **Baseline**: counterfactual scenario, in which the COVID-19 pandemic does not occur, that is, **originally-planned** or **business as usual**
  - **Scenario 1**: **V-shaped** path, normal shape for recession, a brief period of contraction followed by quick/smooth recovery
  - **Scenario 2**: **U-shaped** path, prolonged contraction and muted recovery, possibility of not to return to trend line growth (L-shaped)
- Analytical focus, for the time being, on:
  - Near-term, i.e. monthly profile from **January to September 2020**
  - Scheduled **international passenger** traffic

What does Scenario mean?

- Scenarios 1 and 2 are **not forecasts** of what is most likely to happen. Given a rapidly changing environment, these scenarios are merely indicative of **possible paths or consequential outcomes out of many**.
- The exact path (depth, length and shape) will depend upon various factors, inter alia, duration and magnitude of the outbreak and containment measures, availability of government assistance, consumer confidence, and economic conditions.
- Scenarios 1 and 2 are differentiated in terms of **supply (output)** and **demand (spending)** conditions, mainly, a) the timing and scale of airline capacity decline and recovery, and b) the degree of consumer confidence in air travel that can be translated into demand or load factor.

Previous outbreaks/pandemics had a V-shaped impact on aviation



Source: IATA Economics using data from IATA Statistics

The impact of COVID-19 has already surpassed the 2003 SARS outbreak which had resulted in reduction of annual RPKs by 8% and USD 6 billion revenues for Asia/Pacific airlines. **The 6-month recovery path of SARS might not apply to today's situation.**

Uncertainties surrounding the outlook

- 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?
- How long can the air transport industry withstand the current finical adversity?

Due to extreme uncertainty, 6 different paths up till 3Q 2020 are considered

- **Baseline (counterfactual, no COVID-19 pandemic)**
  - **Originally-planned or business as usual**: trend line growth from 2019 level
- **Scenario 1 (V-shaped path, a first sign of recovery in late May)**
  - **Path 1**: Smooth capacity recovery to 75% of Baseline level by September but weak demand return
  - **Path 1a**: Strong capacity rebound to 90% in tandem with quick demand return
  - **Path 1b**: Slow progression to recover 50% capacity by September with downside risk in demand
- **Scenario 2 (U-shaped path, restart in 3Q or later)**
  - **Path 2**: Slow progression of capacity recovery to 40% of Baseline with sluggish demand growth
  - **Path 2a**: Strong capacity rebound to 70% by September, outpacing demand recovery
  - **Path 2b**: Prolonged downturn towards September or later with marginal summer adjustments

Scenario assumptions

<table>
<tr><th rowspan="2">Assumptions (Global)</th><th colspan="2">Baseline (Originally-planned)</th><th colspan="2">Scenario 1 (V-shaped)</th><th colspan="2">Scenario 2 (U-shaped)</th></tr>
<tr><th>Seat capacity</th><th>Passenger load factor</th><th>Seat capacity</th><th>Passenger load factor</th><th>Seat capacity</th><th>Passenger load factor</th></tr>
<tr><td>January 2020</td><td rowspan="3">Airlines' schedules filed with OAG as of 6 January 2020</td><td rowspan="9">Forecasted 2020 load factor by region/route group, based on ICAO long-term traffic forecasts (LTF), which was adjusted monthly by difference between 2019 actual monthly results (ICAO, IATA) and 2019 LTF forecasted load factor</td><td rowspan="3">Actual capacity based on ICAO ADS-B data</td><td>January 2020 results by region/route group</td><td rowspan="3">Actual capacity based on ICAO ADS-B data</td><td>January 2020 results by region/route group</td></tr>
<tr><td>February 2020</td><td>February 2020 results by region/route group</td><td>February 2020 results by region/route group</td></tr>
<tr><td>March 2020</td><td>15 to 25 percentage points lower than Baseline</td><td>25 percentage points lower than Baseline</td></tr>
<tr><td>April 2020</td><td rowspan="6">Maximum number of seats departing from each State/route group, which were taken from airlines' schedule data (OAG) during the period from 6 January 2020 to 20 April 2020</td><td>Most recent airlines' schedules filed with OAG or world average of -91% from Baseline whichever is smaller</td><td>25 percentage points lower than Baseline with adjustment of GDP impact by region/route group</td><td rowspan="3">Most recent airlines' schedules filed with OAG or world average of -91% from Baseline whichever is smaller</td><td rowspan="2">25 percentage points lower than Baseline with adjustment of GDP impact by region/route group</td></tr>
<tr><td>May 2020</td><td>Most recent airlines' schedules filed with OAG or world average of -86% (1 & 1b) and -81% (1a) from Baseline whichever is smaller</td><td>20 (1), 15 (1a) and 25 (1b) percentage points lower than Baseline with adjustment of GDP impact by region/route group</td></tr>
<tr><td>June 2020</td><td>Most recent airlines' schedules filed with OAG or world average of -71% (1), -61% (1a) and -76% (1b) from Baseline whichever is smaller</td><td>15 (1), 10 (1a) and 20 (1b) percentage points lower than Baseline with adjustment of GDP impact by region/route group</td><td>20 (1 & 1a) and 25 (1b) percentage points lower than Baseline with adjustment of GDP impact by region/route group</td></tr>
<tr><td>July 2020</td><td>Most recent airlines' schedules filed with OAG or world average of -51% (1), -36% (1a) and -66% (1b) from Baseline whichever is smaller</td><td rowspan="2">10 (1), 5 (1a) and 15 (1b) percentage points lower than Baseline with adjustment of GDP impact by region/route group</td><td>Most recent airlines' schedules filed with OAG or world average of -81% (1), -76% (1a) and -86% (1b) from Baseline whichever is smaller</td><td>20 (1 & 1b) and 15 (1a) percentage points lower than Baseline with adjustment of GDP impact by region/route group</td></tr>
<tr><td>August 2020</td><td>Most recent airlines' schedules filed with OAG or world average of -36% (1), -21% (1a) and -56% (1b) from Baseline whichever is smaller</td><td>Most recent airlines' schedules filed with OAG or world average of -66% (1), -51% (1a) and -81% (1b) from Baseline whichever is smaller</td><td rowspan="2">15 (1), 10 (1a) and 20 (1b) percentage points lower than Baseline with adjustment of GDP impact by region/route group</td></tr>
<tr><td>September 2020</td><td>Most recent airlines' schedules filed with OAG or world average of -26% (1), -12% (1a) and -51% (1b) from Baseline whichever is smaller</td><td>10 (1), 5 (1a) and 20 (1b) percentage points lower than Baseline with adjustment of GDP impact by region/route group</td><td>Most recent airlines' schedules filed with OAG or world average of -61% (1), -31% (1a) and -81% (1b) from Baseline whichever is smaller</td></tr>
</table>

Data used for scenario analysis

- **Seat capacity (Baseline):** OAG airlines schedule data; Route Online; and airline websites
- **Seat capacity (actual):** ICAO ADS-B operational data
- **Load factor:** ICAO long-term traffic forecasts (LTF); ICAO statistical reporting forms; IATA economics data; and airline news release
- **Average fare (yield):** ICAO-ICM MIDT passenger origin-destination data; and ICAO cost studies
- **Macroeconomic factors:** Income elasticity of demand estimated for ICAO LTF; and IMF economic outlook data

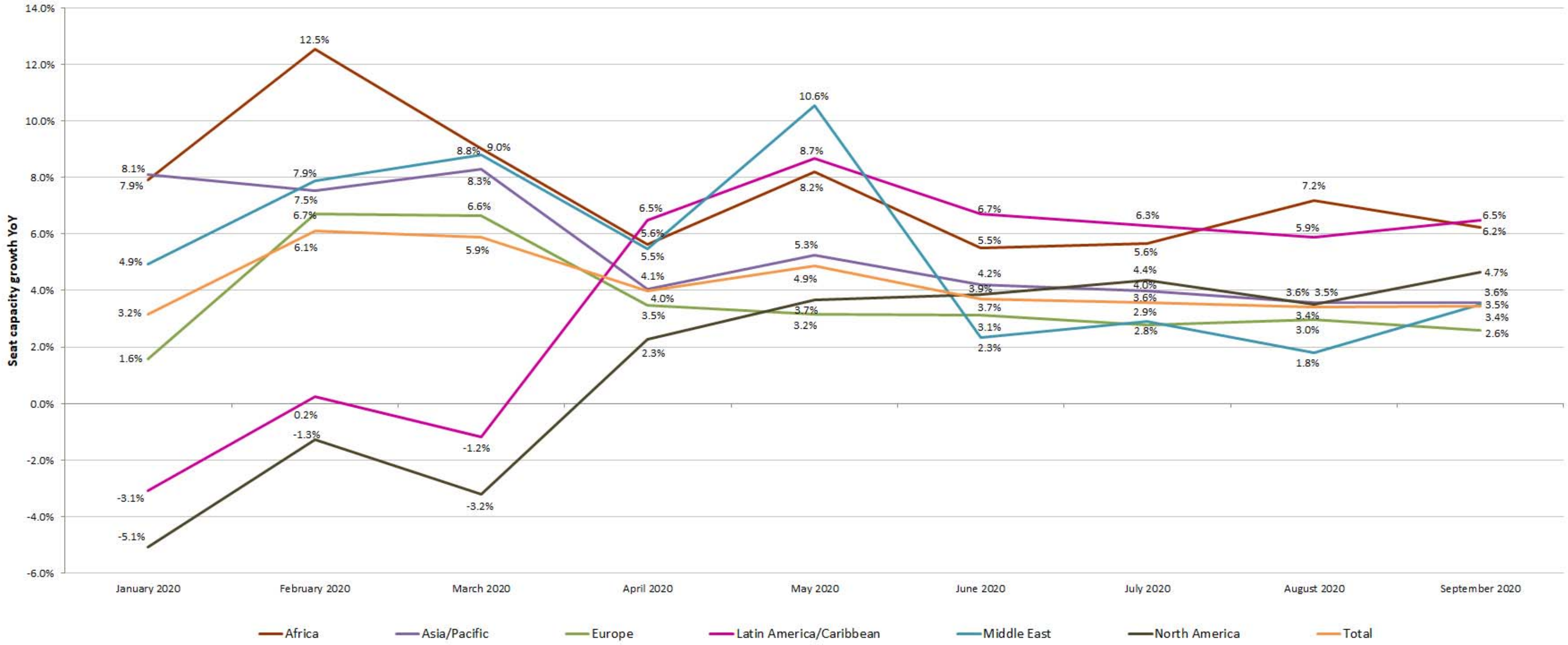
Scenario Analysis

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

Impact on International Passenger Seat Capacity (Supply)

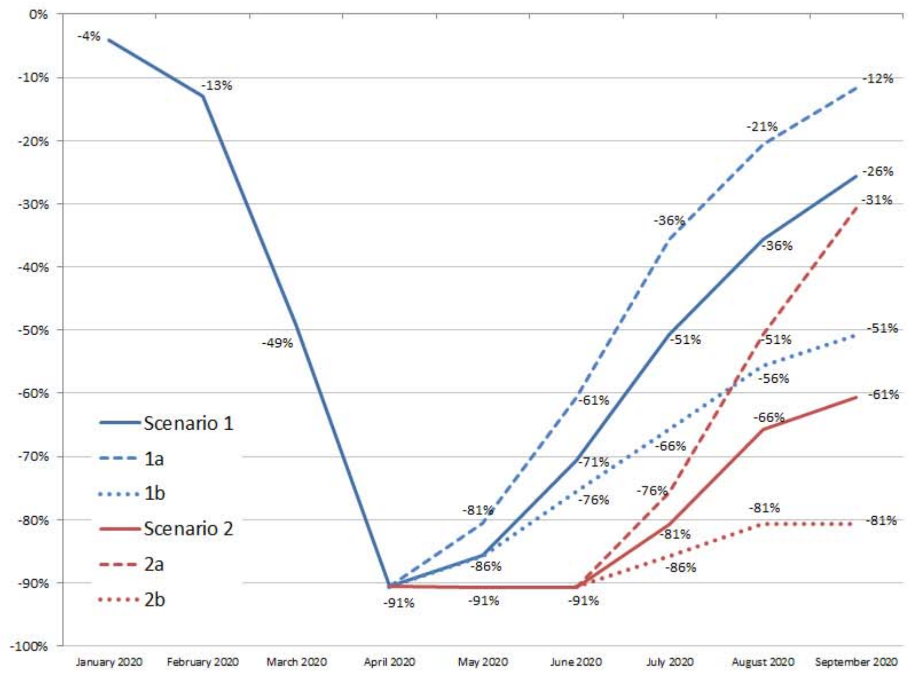
- Prior to the outbreak, airlines had planned to increase seat capacity by 4.2% for the first 9 months of 2020, compared to the same period of 2019.
- According to the latest estimates, passenger seat capacity could instead drop from the above Baseline by 41 to 56% (Scenario 1) and 57 to 67% (Scenario 2).
- This capacity level would be 39% to 54% (Scenario 1) and 55% to 66% (Scenario 2) below the 2019 level.
- Biggest capacity reduction is expected to be in Europe and Asia/Pacific, followed by North America.

Baseline:
4.2% seat capacity increase from 2019

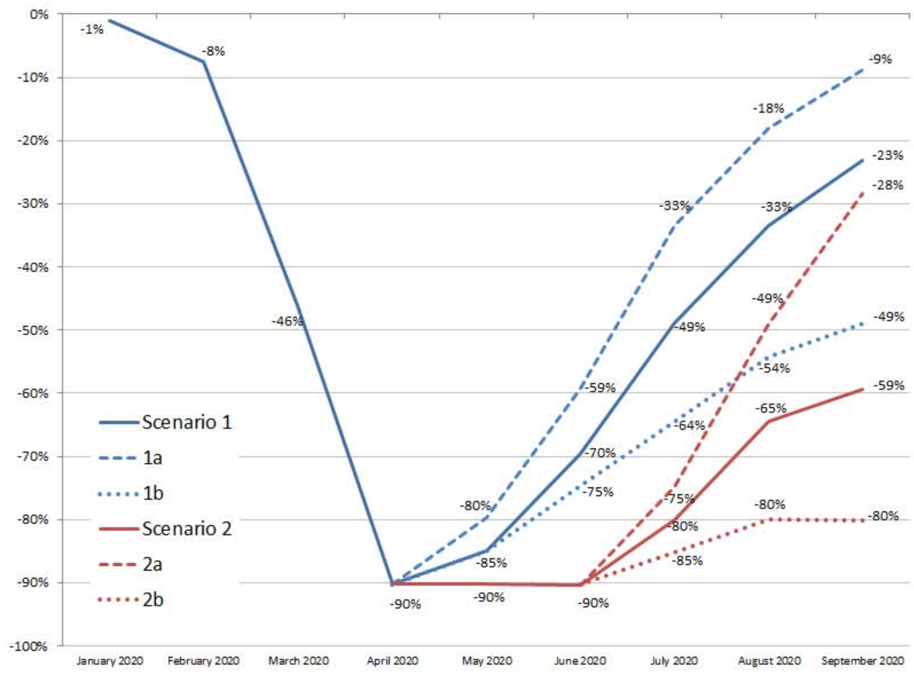


Scenarios 1 & 2: seat capacity reduction by 41 - 67% from Baseline and 39 - 66% from 2019

Comparison to Baseline



Comparison to 2019 (YoY)



Source: ICAO estimates based on OAG, Routes Online and airline websites

Break-down of seat capacity reduction from Baseline by region (1)

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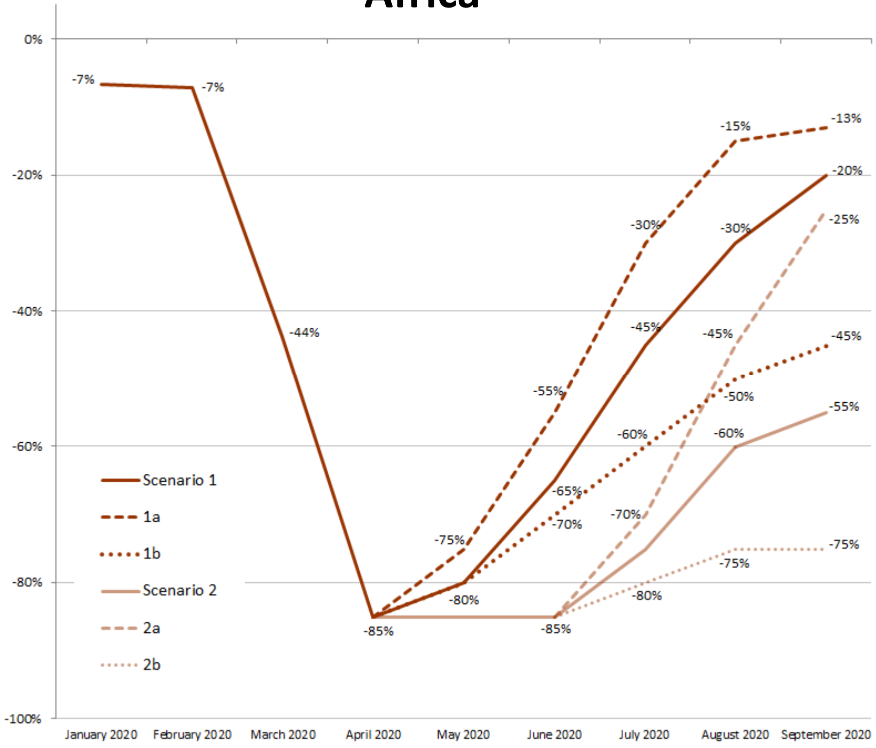
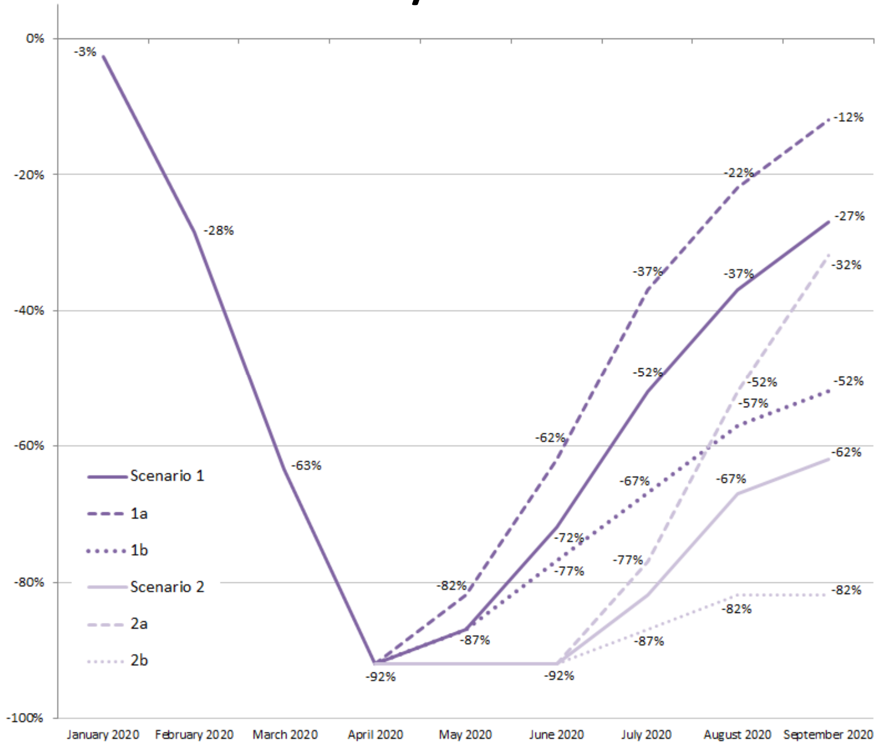
Africa



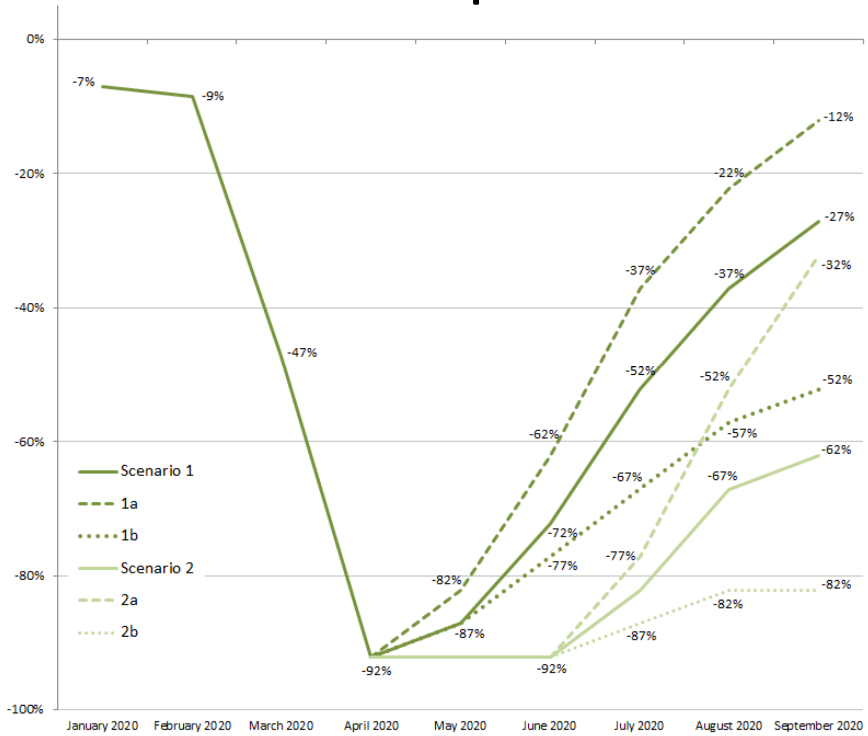
Asia/Pacific



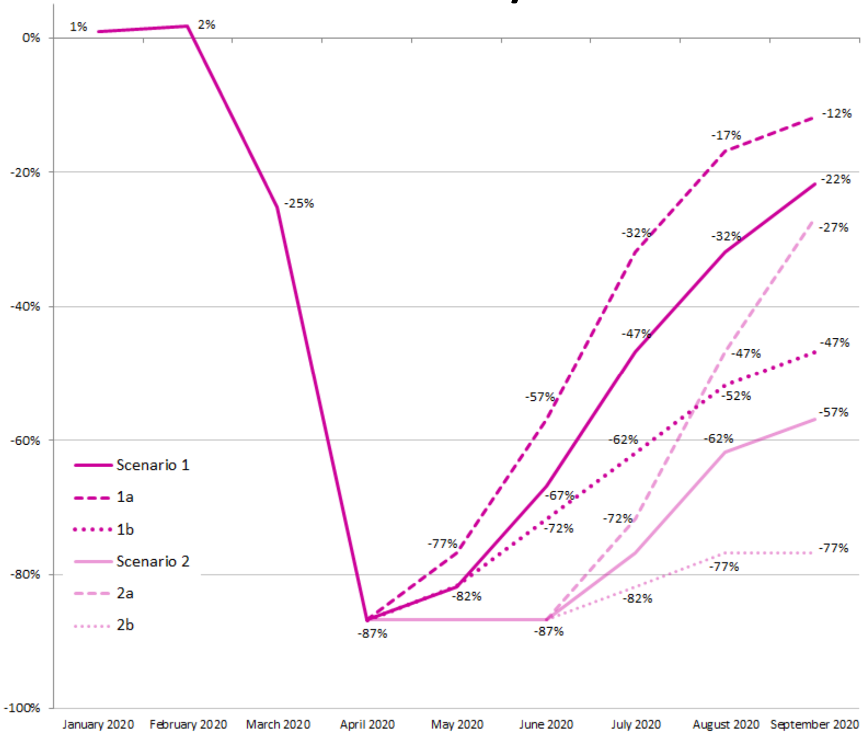
Source: ICAO estimates based on OAG, Routes Online and airline websites

Break-down of seat capacity reduction from Baseline by region (2)

Europe

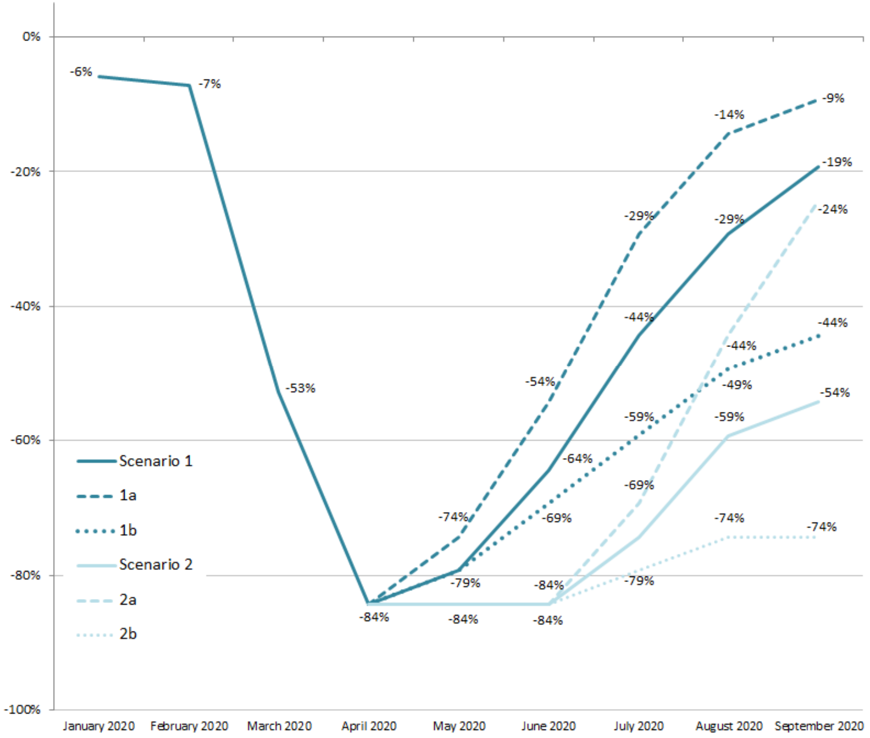


Latin America/Caribbean

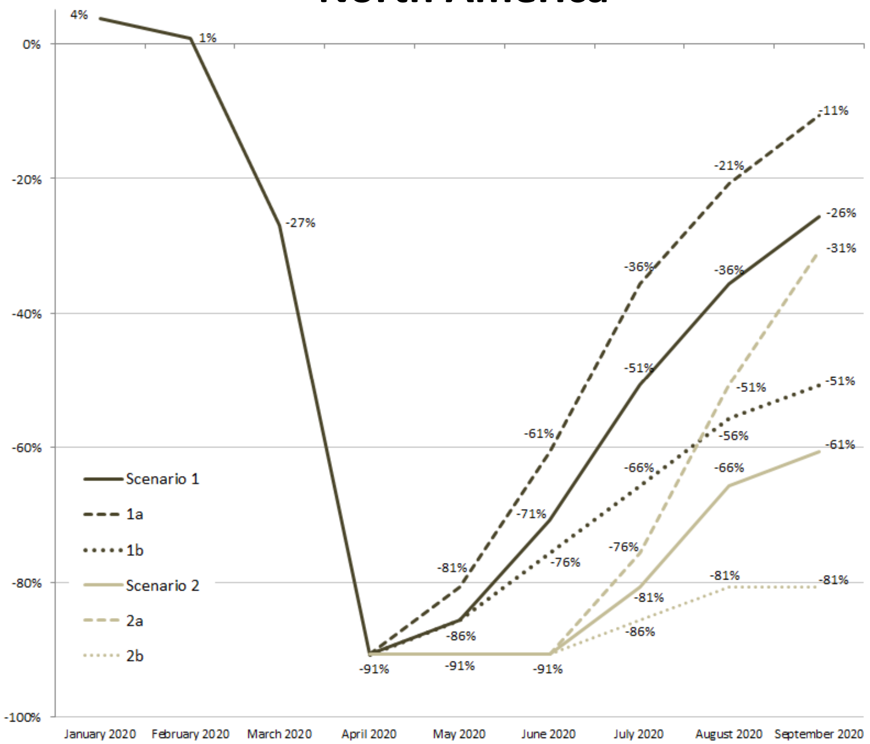


Break-down of seat capacity reduction from Baseline by region (3)

Middle East



North America

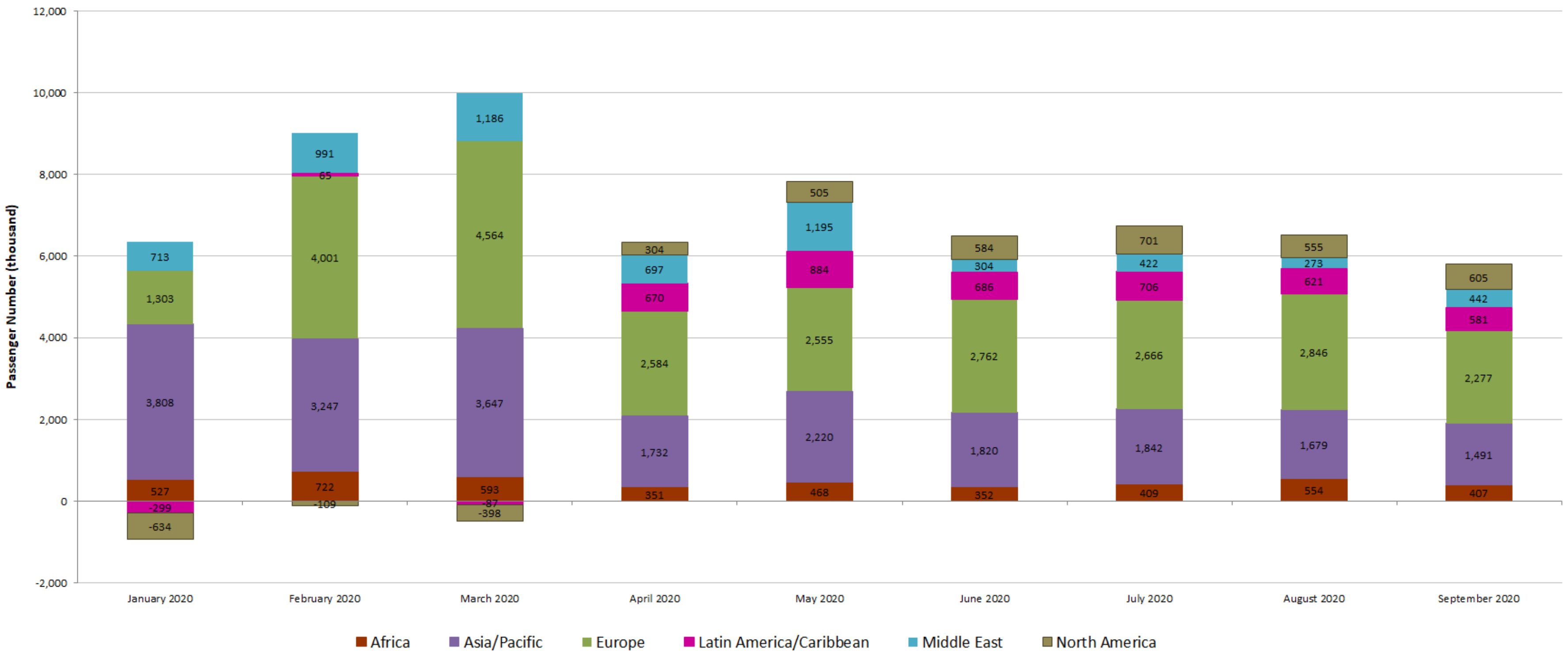


Source: ICAO estimates based on OAG, Routes Online and airline websites

Impact on International Passenger Numbers (Demand)

- Given the originally-planned seat capacity, passenger demand could have increased 64 million for the first 9 months of 2020, compared to the same period of 2019.
- According to the latest estimates, passenger demand could instead drop from the above Baseline by 705 to 963 million (Scenario 1) and 961 to 1,177 million (Scenario 2).
- This demand level would be 642 to 900 million (Scenario 1) and 897 to 1,054 million (Scenario 2) below the 2019 level.
- The most substantial demand reduction is expected to be in Europe, hitting summer travel peak season, followed by Asia/Pacific.

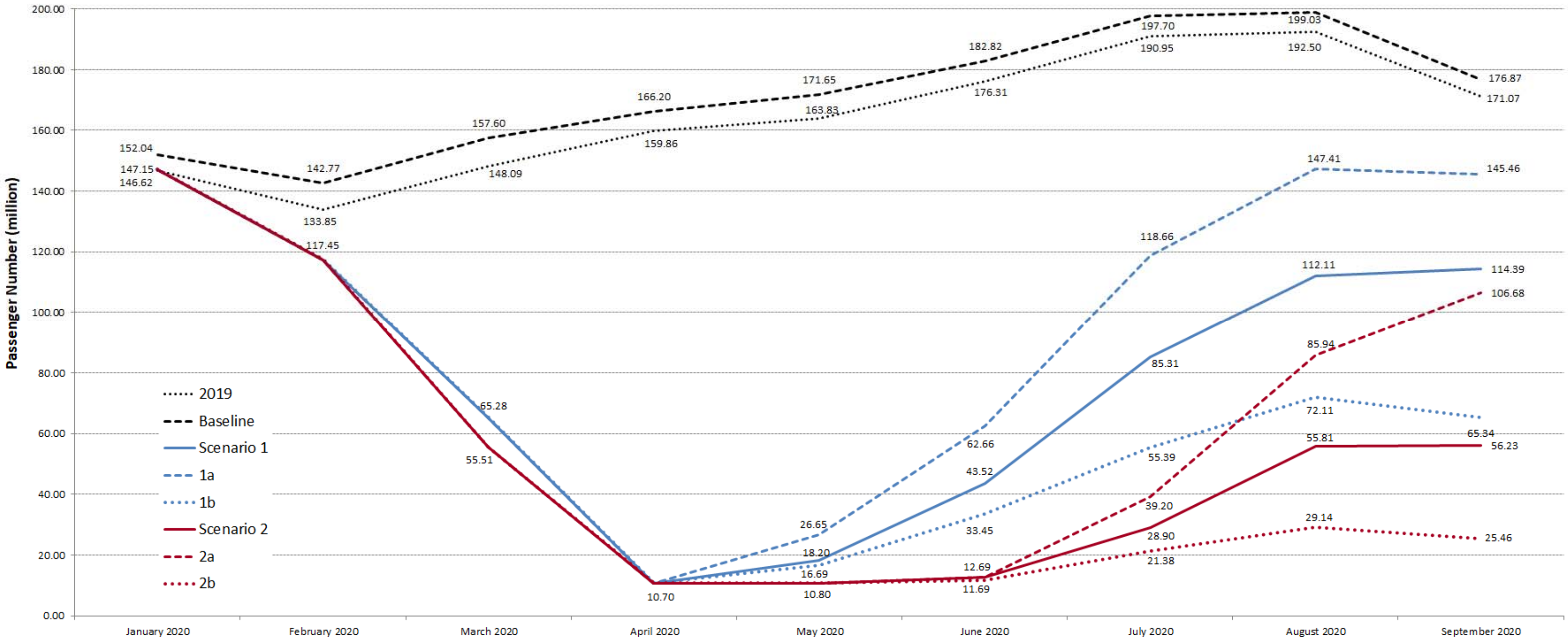
Baseline:
64 million increase of passengers from 2019



Note: Number of international passengers departing from each country and territory, which are aggregated at the regional level to avoid double counting

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

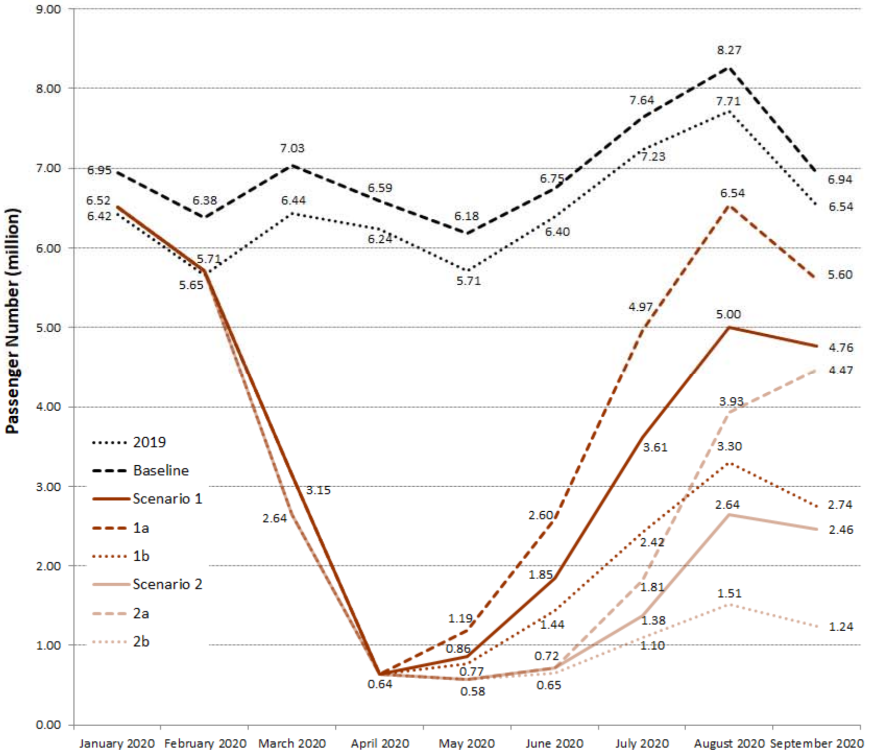
Scenarios 1 & 2: 705 - 1,117 million and 642 - 1,054 million less passengers than Baseline and 2019



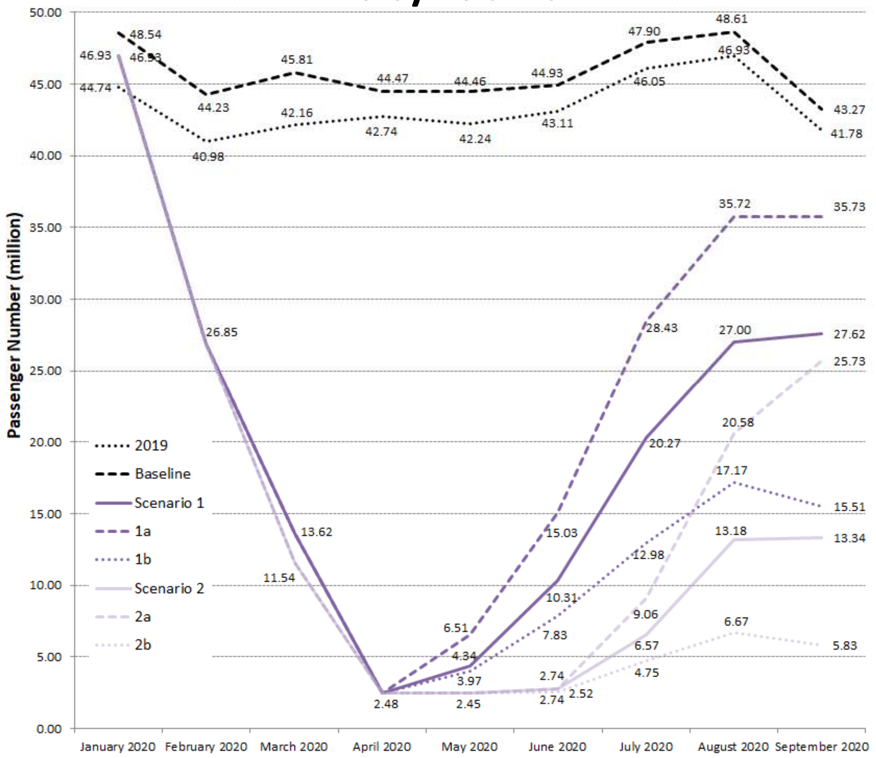
Note: Number of international passengers departing <u>from</u> each country and territory, which are aggregated at the regional level to avoid double counting

Break-down of passenger number by region (1)

Africa



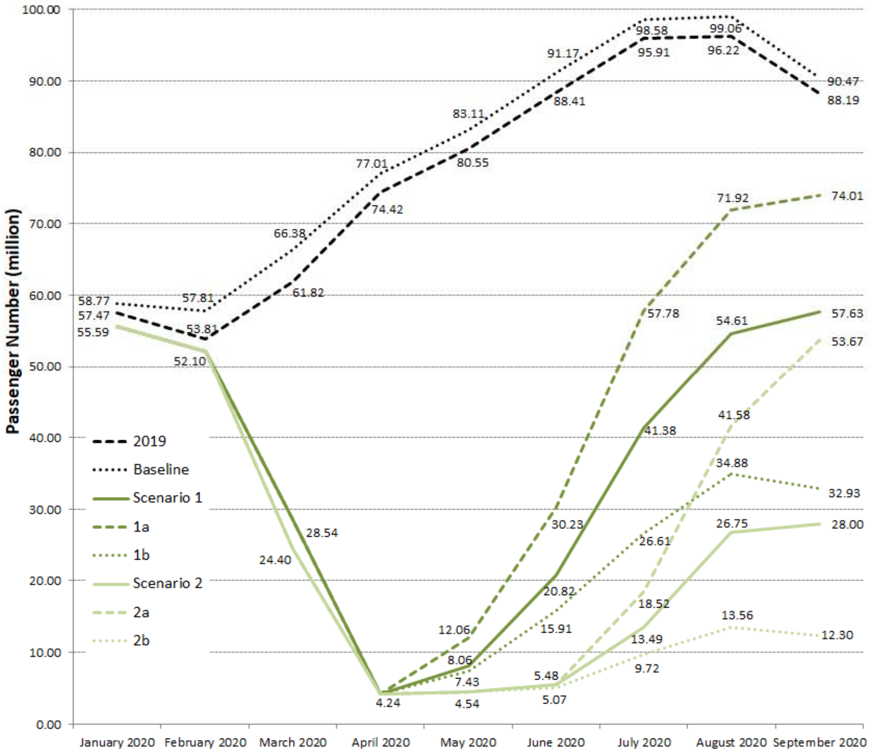
Asia/Pacific



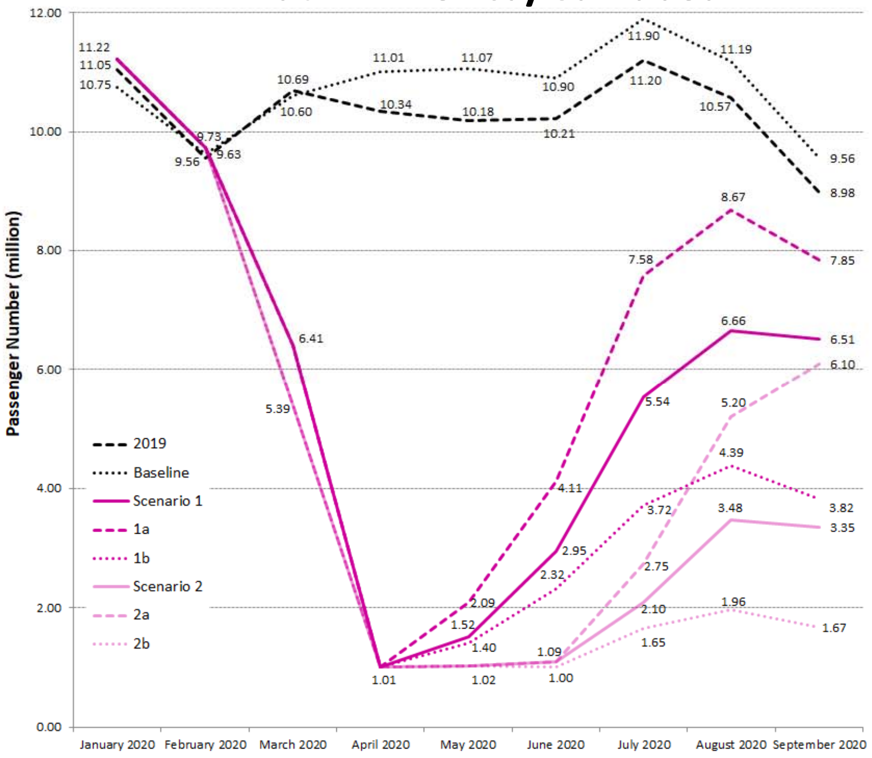
Source: ICAO estimates based on ICAO ADS-B, OAG, ICAO-ICM MIDT, ICAO LTF, ICAO Statistical Reporting, IATA Economics, and IMF Economic Outlook

Break-down of passenger number by region (2)

Europe



Latin America/Caribbean



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

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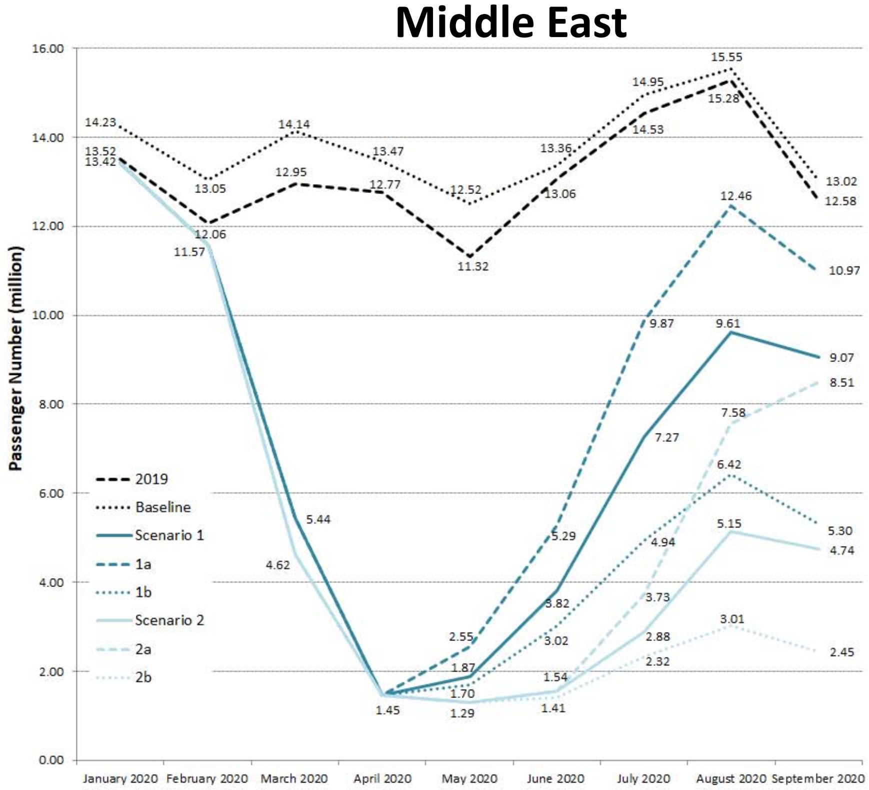
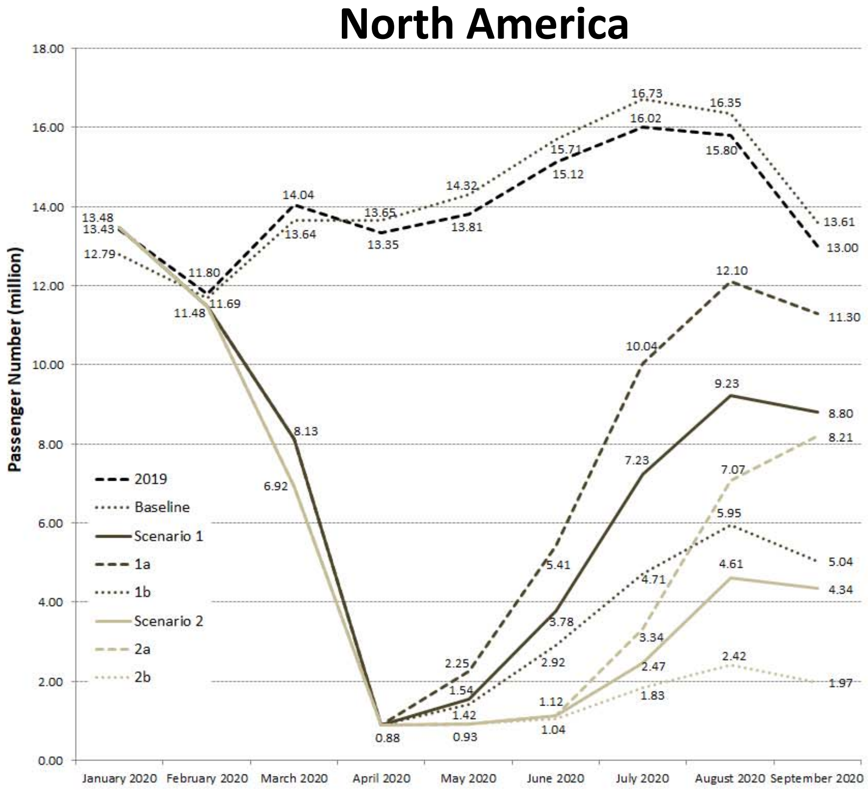
Break-down of passenger number by region (3)





Impact on Gross Passenger Operating Revenues of Airlines

- With the originally-planned seat capacity and trend line growth of demand, airlines' gross passenger operating revenues could have increased USD 15 billion for the first 9 months of 2020, compared to the same period of 2019.
- According to the latest estimates, airlines' revenues could instead plummet USD 160 to 218 billion (Scenario 1) and USD 218 to 253 billion (Scenario 2) below the above Baseline, or USD 145 to 204 billion (Scenario 1) and 203 to 238 billion (Scenario 2) below the 2019 level.
- Over two-third of revenue loss would be recorded by Asia/Pacific and Europe.

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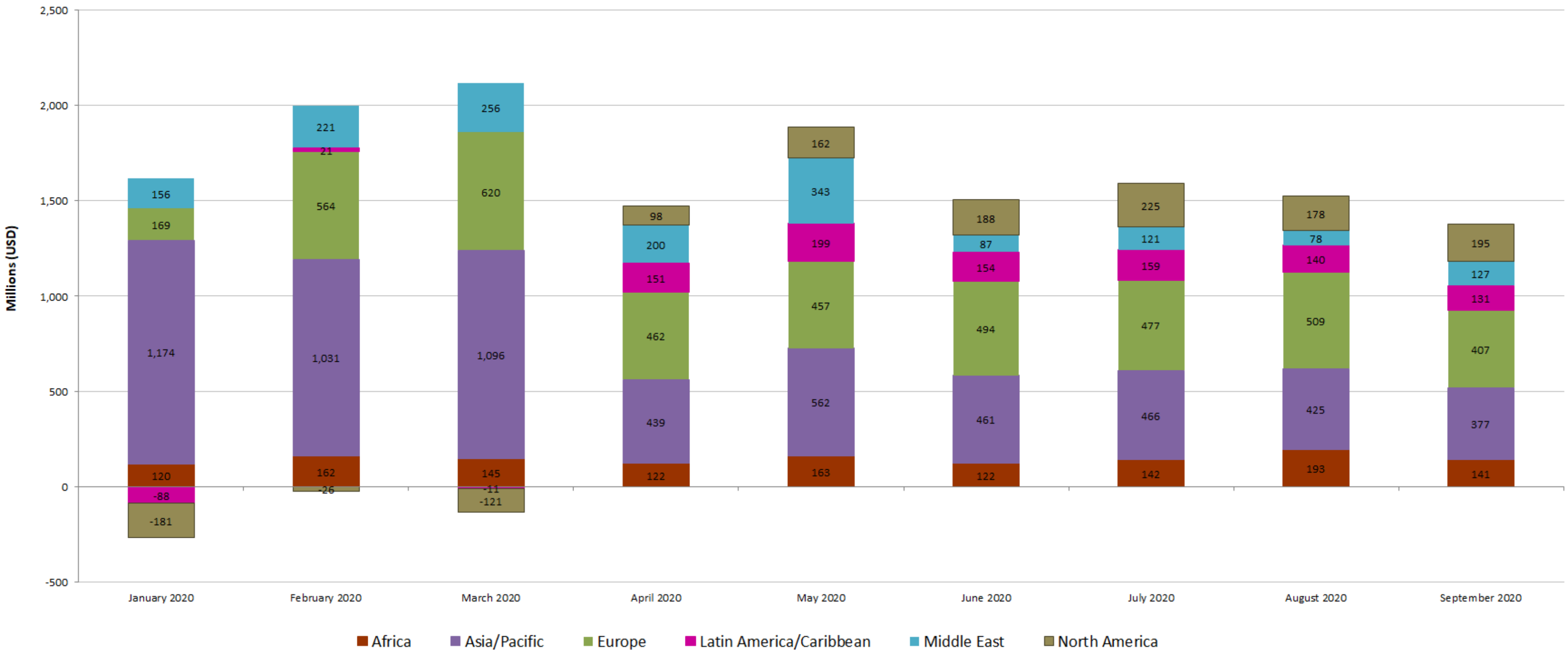
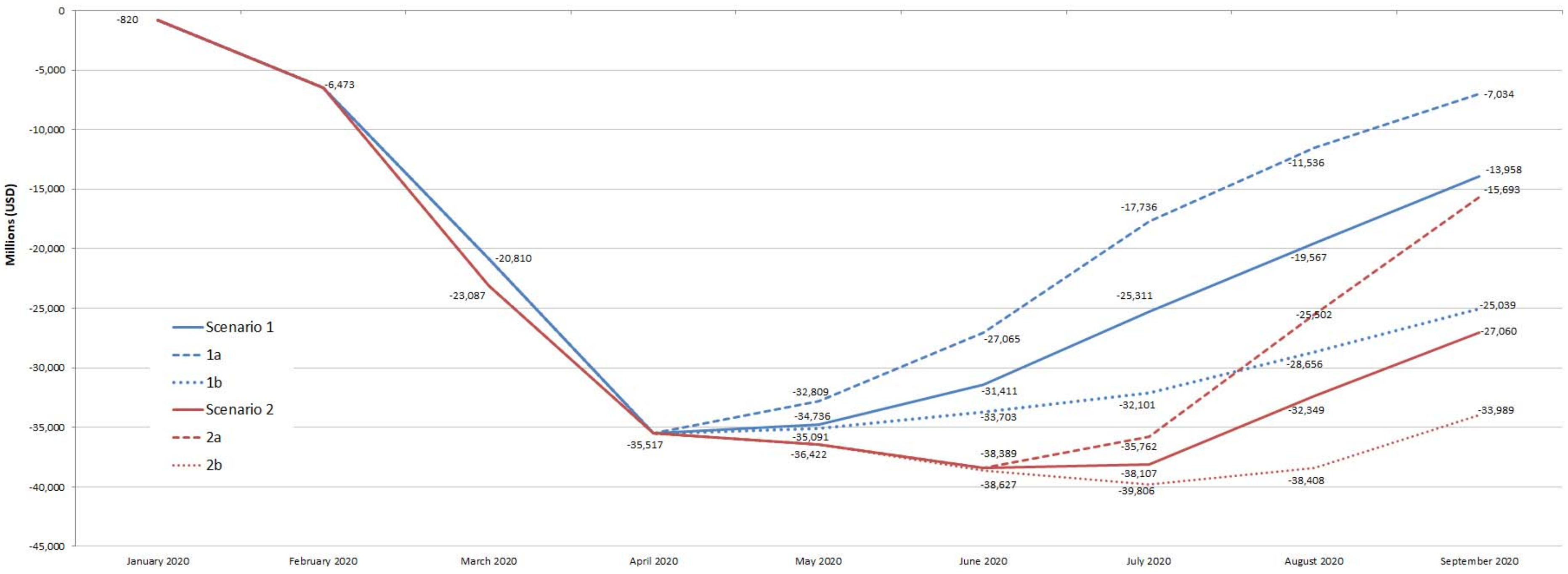
Baseline:
USD 15 billion increase of revenues from 2019



Note: The above revenues are gross passenger operating revenues of all airlines serving international routes from each country and territory, which are aggregated at the regional level (revenues of international routes to each country and territory were removed to avoid double counting.

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

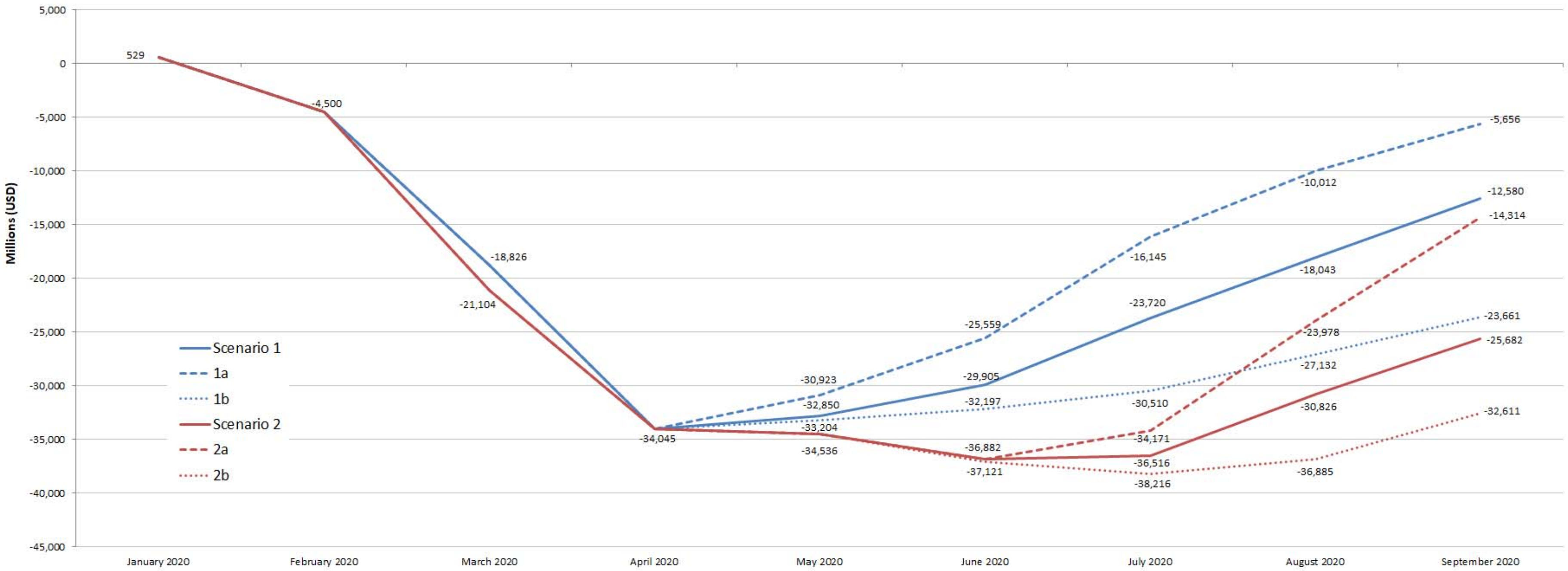
Scenarios 1 & 2: USD 160 to 253 billion less revenues than Baseline



Note: The above revenues are gross passenger operating revenues of all airlines serving international routes from each country and territory, which are aggregated at the regional level (revenues of international routes to each country and territory were removed to avoid double counting.

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

Scenarios 1 & 2: USD 145 to 238 billion less revenues than 2019

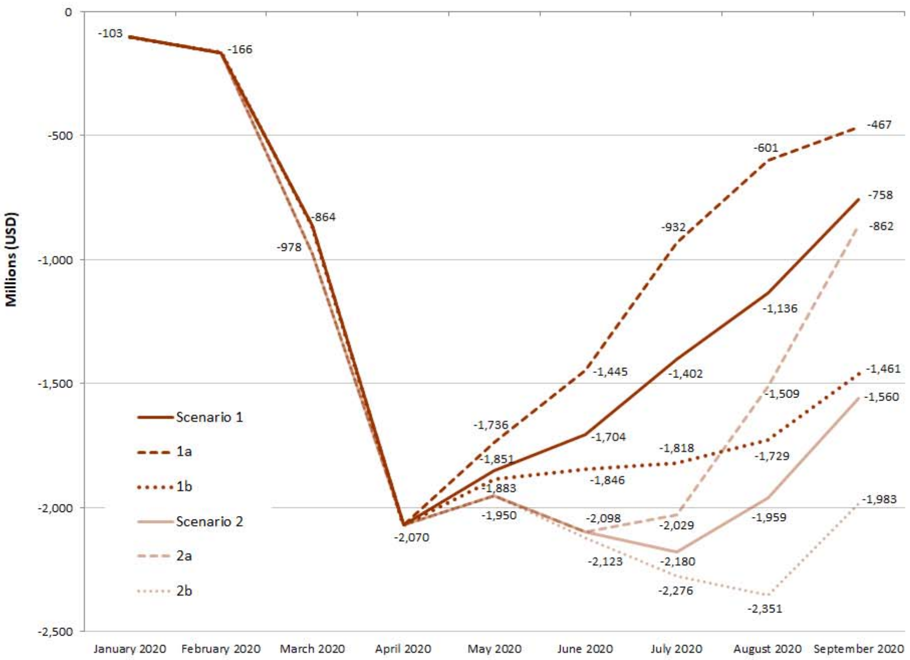


Note: The above revenues are gross passenger operating revenues of all airlines serving international routes from each country and territory, which are aggregated at the regional level (revenues of international routes to each country and territory were removed to avoid double counting.

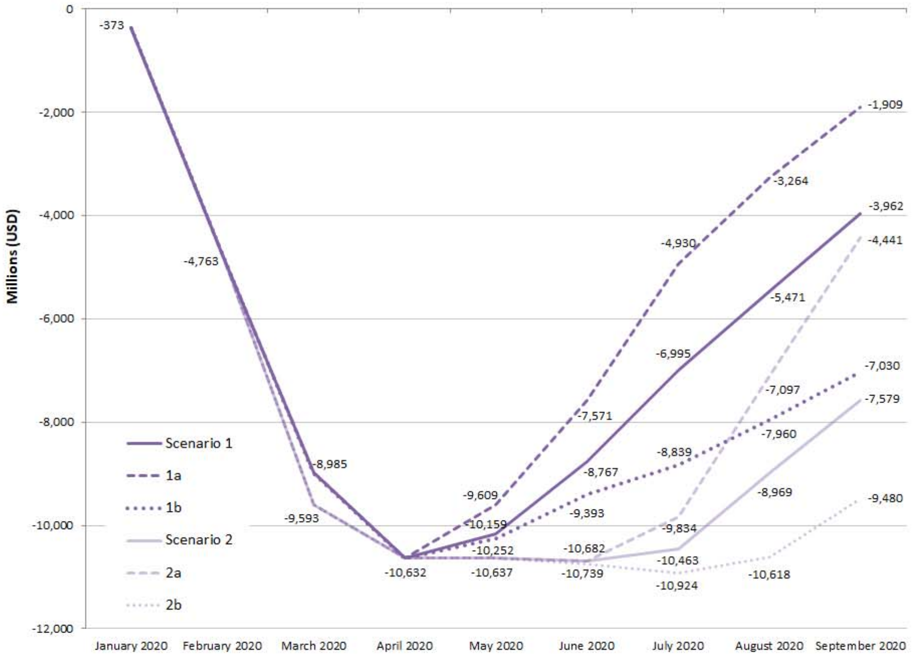
Source: ICAO estimates based on ICAO ADS-B, OAG, ICAO-ICM MIDT, ICAO LTF, ICAO Statistical Reporting, IATA Economics, and IMF Economic Outlook

Break-down of revenue reduction compared to Baseline by region (1)

Africa

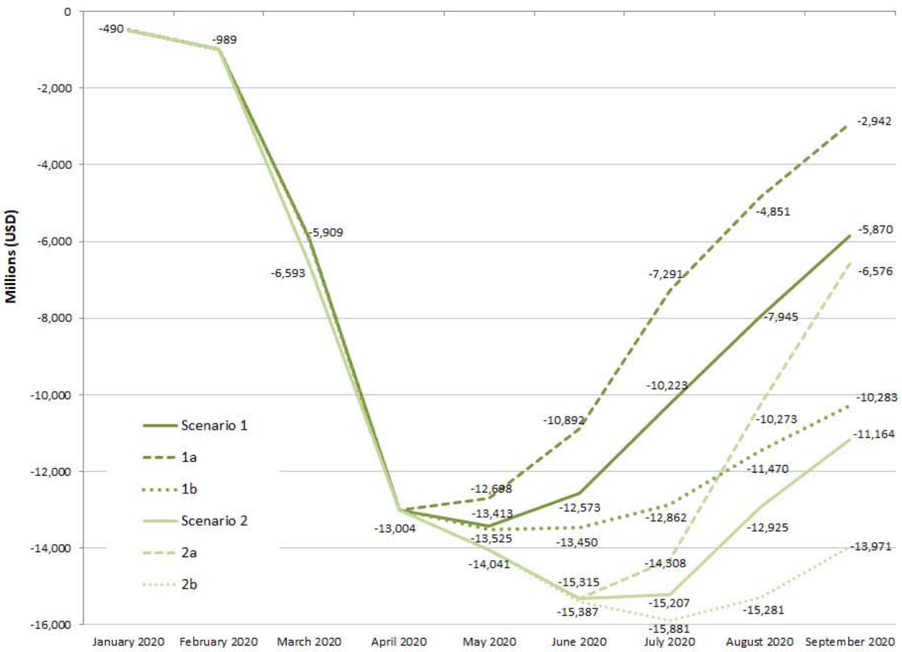


Asia/Pacific

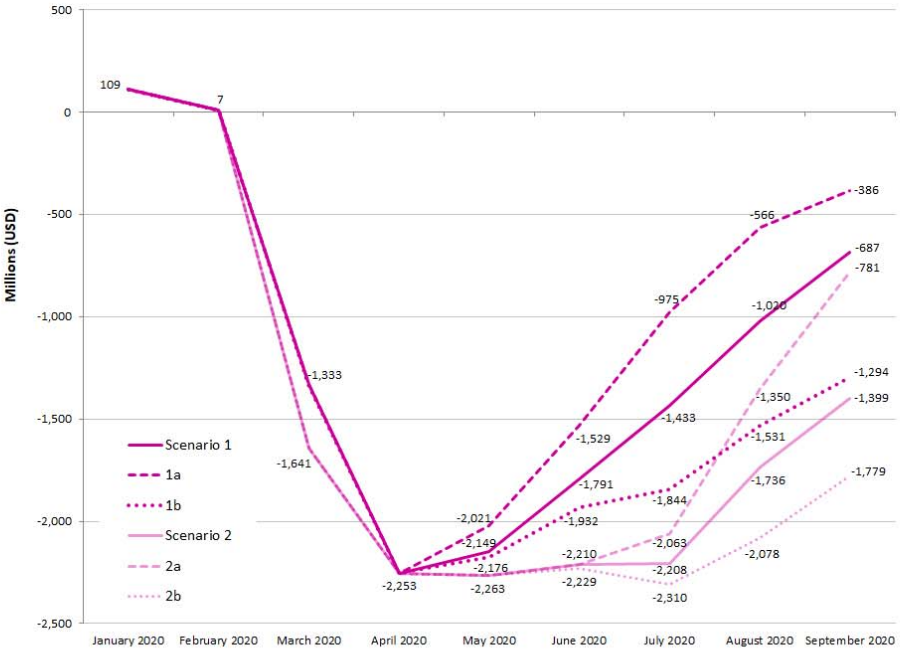


Break-down of revenue reduction compared to Baseline by region (2)

Europe



Latin America/Caribbean



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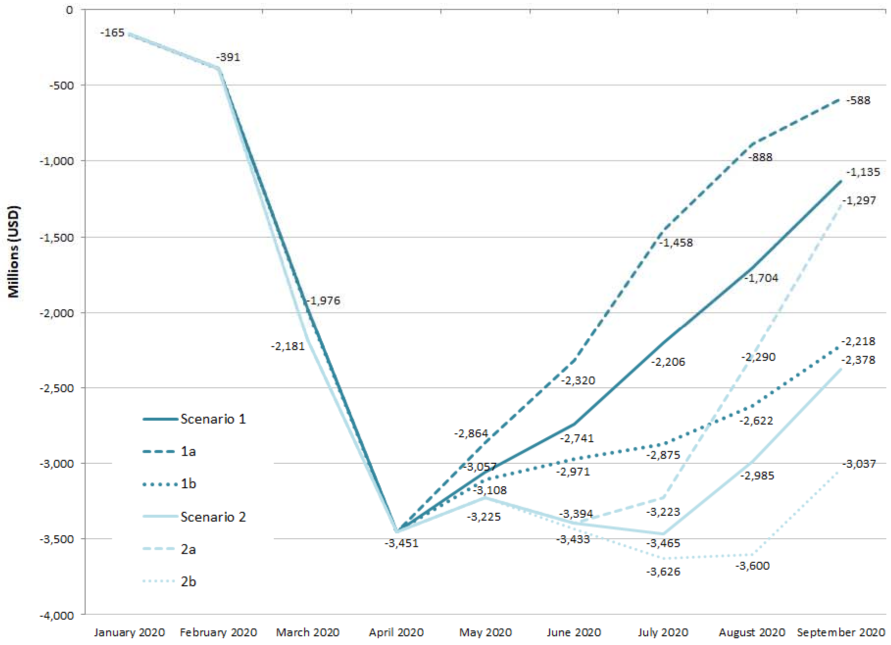
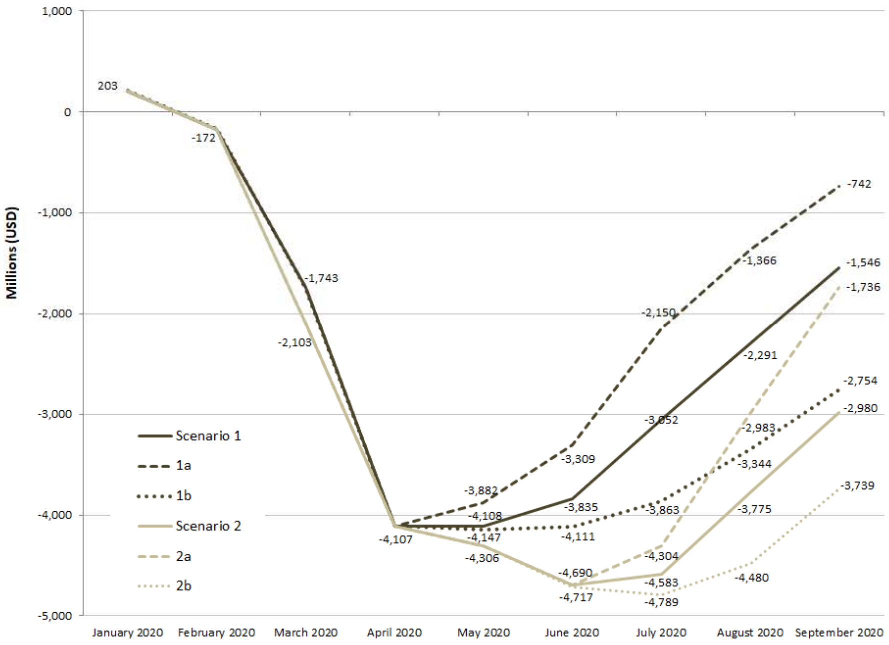
Break-down of revenue reduction compared to Baseline by region (3)

Middle East



North America



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

Summary of Key Impact Indicators

Figures and estimates herein is <u>subject to substantial changes</u>, and will be updated with the situation evolving and more information available.

Baseline compared to 2019 (year-on-year)

Compared to 2019 (year-on-year)	Baseline (Originally-planned or business as usual)		
Month	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)
January 2020	3.2%	5.42	1.35
February 2020	6.1%	8.92	1.97
March 2020	5.9%	9.51	1.98
April 2020	4.0%	6.34	1.47
May 2020	4.9%	7.83	1.89
June 2020	3.7%	6.51	1.51
July 2020	3.6%	6.75	1.59
August 2020	3.4%	6.53	1.52
September 2020	3.4%	5.80	1.38
Total	**4.2%**	**63.59**	**14.66**

Compared to 2019 (year-on-year)	Baseline (Originally-planned or business as usual)		
Region	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)
Africa	7.4%	4.38	1.31
Asia/Pacific	5.4%	21.49	6.03
Europe	3.5%	25.56	4.16
Latin America/Caribbean	3.8%	3.83	0.86
Middle East	5.2%	6.22	1.59
North America	1.5%	2.11	0.72
Total	**4.2%**	**63.59**	**14.66**

Source: ICAO estimates

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Estimated results by month: Scenario 1 compared to Baseline

Compared to Baseline (Originally-planned, business as usual)	Scenario 1 (V-shaped) Path 1			Scenario 1 (V-shaped) Path 1a			Scenario 1 (V-shaped) Path 1b		
Month	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)
January 2020	-4.0%	-4.89	-0.82	-4.0%	-4.89	-0.82	-4.0%	-4.89	-0.82
February 2020	-12.9%	-25.32	-6.47	-12.9%	-25.32	-6.47	-12.9%	-25.32	-6.47
March 2020	-49.0%	-92.32	-20.81	-49.0%	-92.32	-20.81	-49.0%	-92.32	-20.81
April 2020	-90.6%	-155.49	-35.52	-90.6%	-155.49	-35.52	-90.6%	-155.49	-35.52
May 2020	-85.7%	-153.45	-34.74	-80.7%	-145.01	-32.81	-85.7%	-154.96	-35.09
June 2020	-70.7%	-139.30	-31.41	-60.7%	-120.15	-27.06	-75.7%	-149.37	-33.70
July 2020	-50.7%	-112.39	-25.31	-35.7%	-79.04	-17.74	-65.7%	-142.31	-32.10
August 2020	-35.7%	-86.91	-19.57	-20.7%	-51.61	-11.54	-55.7%	-126.91	-28.66
September 2020	-25.7%	-62.48	-13.96	-11.8%	-31.41	-7.03	-50.7%	-111.53	-25.04
Total	**-48.1%**	**-832.56**	**-188.60**	**-41.1%**	**-705.24**	**-159.80**	**-55.9%**	**-963.11**	**-218.21**

Source: ICAO estimates

Estimated results by month: Scenario 1 compared to 2019 (year-on-year)

Compared to 2019 (year-on-year)	Scenario 1 (V-shaped) Path 1			Scenario 1 (V-shaped) Path 1a			Scenario 1 (V-shaped) Path 1b		
Month	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)
January 2020	-1.0%	0.53	0.53	-1.0%	0.53	0.53	-1.0%	0.53	0.53
February 2020	-7.6%	-16.40	-4.50	-7.6%	-16.40	-4.50	-7.6%	-16.40	-4.50
March 2020	-46.1%	-82.81	-18.83	-46.1%	-82.81	-18.83	-46.1%	-82.81	-18.83
April 2020	-90.3%	-149.15	-34.05	-90.3%	-149.15	-34.05	-90.3%	-149.15	-34.05
May 2020	-85.0%	-145.62	-32.85	-79.7%	-137.18	-30.92	-85.0%	-147.13	-33.20
June 2020	-69.6%	-132.79	-29.90	-59.2%	-113.64	-25.55	-74.8%	-142.86	-32.19
July 2020	-48.9%	-105.64	-23.72	-33.4%	-72.29	-16.15	-64.5%	-135.56	-30.51
August 2020	-33.5%	-80.38	-18.05	-18.0%	-45.08	-10.02	-54.2%	-120.38	-27.14
September 2020	-23.2%	-56.68	-12.58	-8.7%	-25.61	-5.65	-49.0%	-105.73	-23.66
Total	**-46.0%**	**-768.97**	**-173.94**	**-38.6%**	**-641.65**	**-145.14**	**-54.1%**	**-899.52**	**-203.55**

Source: ICAO estimates

Estimated results by region: Scenario 1 compared to Baseline

Compared to Baseline (Originally-planned, business as usual)	**Scenario 1 (V-shaped) Path 1**			**Scenario 1 (V-shaped) Path 1a**			**Scenario 1 (V-shaped) Path 1b**		
Region	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)
Africa	-42.7%	-30.62	-10.05	-36.5%	-25.81	-8.38	-50.5%	-36.04	-11.94
Asia/Pacific	-50.9%	-232.81	-60.11	-44.2%	-200.93	-52.04	-58.2%	-264.88	-68.23
Europe	-49.9%	-399.39	-70.42	-42.3%	-335.89	-59.07	-58.3%	-464.11	-81.98
Latin America/Caribbean	-39.9%	-45.05	-10.55	-33.8%	-37.93	-8.95	-46.9%	-52.58	-12.25
Middle East	-42.9%	-60.76	-16.83	-36.6%	-51.27	-14.10	-50.4%	-71.04	-19.78
North America	-43.5%	-63.93	-20.65	-36.5%	-53.41	-17.27	-51.1%	-74.47	-24.04
Total	**-48.1%**	**-832.56**	**-188.60**	**-41.1%**	**-705.24**	**-159.80**	**-55.9%**	**-963.11**	**-218.21**

Source: ICAO estimates

Estimated results by region: Scenario 1 compared to 2019 (year-on-year)

Compared to 2019 (year-on-year)	Scenario 1 (V-shaped) Path 1			Scenario 1 (V-shaped) Path 1a			Scenario 1 (V-shaped) Path 1b		
Region	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)
Africa	-38.4%	-26.24	-8.74	-31.8%	-21.43	-7.07	-46.8%	-31.66	-10.63
Asia/Pacific	-48.3%	-211.32	-54.08	-41.2%	-179.44	-46.01	-56.0%	-243.39	-62.20
Europe	-48.2%	-373.83	-66.26	-40.3%	-310.33	-54.91	-56.8%	-438.55	-77.82
Latin America/Caribbean	-37.6%	-41.22	-9.69	-31.3%	-34.10	-8.09	-44.8%	-48.75	-11.39
Middle East	-40.0%	-54.54	-15.24	-33.3%	-45.05	-12.51	-47.8%	-64.82	-18.19
North America	-42.7%	-61.82	-19.93	-35.6%	-51.30	-16.55	-50.3%	-72.36	-23.32
Total	**-46.0%**	**-768.97**	**-173.94**	**-38.6%**	**-641.65**	**-145.14**	**-54.1%**	**-899.52**	**-203.55**

Source: ICAO estimates

Estimated results by month: Scenario 2 compared to Baseline

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Compared to Baseline (Originally-planned, business as usual)	Scenario 2 (U-shaped) Path 2			Scenario 2 (U-shaped) Path 2a			Scenario 2 (U-shaped) Path 2b		
Month	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)
January 2020	-4.0%	-4.89	-0.82	-4.0%	-4.89	-0.82	-4.0%	-4.89	-0.82
February 2020	-12.9%	-25.32	-6.47	-12.9%	-25.32	-6.47	-12.9%	-25.32	-6.47
March 2020	-49.0%	-102.09	-23.09	-49.0%	-102.09	-23.09	-49.0%	-102.09	-23.09
April 2020	-90.6%	-155.49	-35.52	-90.6%	-155.49	-35.52	-90.6%	-155.49	-35.52
May 2020	-90.7%	-160.85	-36.42	-90.7%	-160.85	-36.42	-90.7%	-160.85	-36.42
June 2020	-90.7%	-170.13	-38.39	-90.7%	-170.13	-38.39	-90.7%	-171.13	-38.63
July 2020	-80.7%	-168.80	-38.11	-75.7%	-158.50	-35.76	-85.7%	-176.32	-39.81
August 2020	-65.7%	-143.22	-32.35	-50.7%	-113.09	-25.50	-80.7%	-169.89	-38.41
September 2020	-60.7%	-120.64	-27.06	-30.7%	-70.19	-15.69	-80.7%	-151.41	-33.99
Total	**-62.5%**	**-1,051.43**	**-238.22**	**-56.5%**	**-960.55**	**-217.66**	**-67.3%**	**-1,117.40**	**-253.15**

Source: ICAO estimates

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Estimated results by month: Scenario 2 compared to 2019 (year-on-year)

Compared to 2019 (year-on-year)	**Scenario 2 (U-shaped) Path 2**			**Scenario 2 (U-shaped) Path 2a**			**Scenario 2 (U-shaped) Path 2b**		
Month	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)
January 2020	-1.0%	0.53	0.53	-1.0%	0.53	0.53	-1.0%	0.53	0.53
February 2020	-7.6%	-16.40	-4.50	-7.6%	-16.40	-4.50	-7.6%	-16.40	-4.50
March 2020	-46.1%	-92.58	-21.11	-46.1%	-92.58	-21.11	-46.1%	-92.58	-21.11
April 2020	-90.3%	-149.15	-34.05	-90.3%	-149.15	-34.05	-90.3%	-149.15	-34.05
May 2020	-90.2%	-153.02	-34.53	-90.2%	-153.02	-34.53	-90.2%	-153.02	-34.53
June 2020	-90.3%	-163.62	-36.88	-90.3%	-163.62	-36.88	-90.3%	-164.62	-37.12
July 2020	-80.0%	-162.05	-36.52	-74.8%	-151.75	-34.17	-85.2%	-169.57	-38.22
August 2020	-64.5%	-136.69	-30.83	-49.0%	-106.56	-23.98	-80.0%	-163.36	-36.89
September 2020	-59.4%	-114.84	-25.68	-28.3%	-64.39	-14.31	-80.1%	-145.61	-32.61
Total	**-60.9%**	**-987.84**	**-223.56**	**-54.7%**	**-896.96**	**-203.00**	**-65.9%**	**-1,053.81**	**-238.49**

Source: ICAO estimates

Estimated results by region: Scenario 2 compared to Baseline

Compared to Baseline (Originally-planned, business as usual)	Scenario 2 (U-shaped) Path 2			Scenario 2 (U-shaped) Path 2a			Scenario 2 (U-shaped) Path 2b		
Region	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)
Africa	-56.9%	-39.44	-13.06	-51.0%	-35.71	-11.76	-61.7%	-42.13	-14.00
Asia/Pacific	-64.3%	-286.13	-73.69	-58.8%	-263.86	-68.05	-68.8%	-302.19	-77.76
Europe	-65.3%	-507.76	-89.73	-58.9%	-462.22	-81.59	-70.4%	-540.83	-95.64
Latin America/Caribbean	-52.9%	-58.22	-13.59	-47.7%	-53.11	-12.44	-57.1%	-61.96	-14.44
Middle East	-56.7%	-77.61	-21.63	-51.0%	-70.58	-19.62	-61.3%	-82.75	-23.11
North America	-57.5%	-82.27	-26.51	-51.9%	-75.06	-24.20	-62.1%	-87.54	-28.21
Total	**-62.5%**	**-1,051.43**	**-238.22**	**-56.5%**	**-960.55**	**-217.66**	**-67.3%**	**-1,117.40**	**-253.15**

Source: ICAO estimates

Estimated results by region: Scenario 2 compared to 2019 (year-on-year)

Compared to 2019 (year-on-year)	Scenario 2 (U-shaped) Path 2			Scenario 2 (U-shaped) Path 2a			Scenario 2 (U-shaped) Path 2b		
Region	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)	Seat Capacity (%)	Passenger number (million)	Passenger revenue (USD, billion)
Africa	-53.7%	-35.06	-11.75	-47.4%	-31.33	-10.45	-58.9%	-37.75	-12.69
Asia/Pacific	-62.4%	-264.64	-67.66	-56.6%	-242.37	-62.02	-67.1%	-280.70	-71.73
Europe	-64.1%	-482.20	-85.57	-57.5%	-436.66	-77.43	-69.4%	-515.27	-91.48
Latin America/Caribbean	-51.1%	-54.39	-12.73	-45.7%	-49.28	-11.58	-55.5%	-58.13	-13.58
Middle East	-54.5%	-71.39	-20.04	-48.4%	-64.36	-18.03	-59.3%	-76.53	-21.52
North America	-56.9%	-80.16	-25.79	-51.2%	-72.95	-23.48	-61.5%	-85.43	-27.49
Total	**-60.9%**	**-987.84**	**-223.56**	**-54.7%**	**-896.96**	**-203.00**	**-65.9%**	**-1,053.81**	**-238.49**

Source: ICAO estimates

Appendix A: Situation Overview

COVID-19 outbreak has impacted air traffic of China starting from late 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/VariFlight (retrieved on 9 March 2020)

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A surge of COVID-19 confirmed cases occurred in several States by late February 2020

January 2020	International passenger seat capacity	
Country/Territory	Capacity change from originally-planned	
Russian Federation	-89,778	-1%
Italy	-65,971	-1%
Turkey	-53,262	-1%
China	-45,484	0%
Morocco	-42,684	-2%
United Arab Emirates	-31,464	0%
Iraq	-29,326	-3%
Albania	-22,080	-7%
United Kingdom	-21,888	0%
South Africa	-21,476	-1%
Iran Islamic Republic of	-20,891	-2%
France	-19,537	0%
Poland	-18,154	0%
Romania	-17,493	-1%
Japan	-16,449	0%
United States	-13,067	0%
Indonesia	-12,114	0%
Bulgaria	-10,540	-1%
India	-10,342	0%
Cambodia	-10,158	-1%
Bahamas	-9,588	-2%
Denmark	-8,942	0%
Viet Nam	-8,489	0%
Malta	-7,372	-1%
Lebanon	-7,182	-1%
Bahrain	-7,123	-1%
Uzbekistan	-6,539	-1%
Tunisia	-6,362	-1%
Switzerland	-6,235	0%
Czechia	-5,642	0%

February 2020	International passenger seat capacity	
Country/Territory	Capacity change from originally-planned	
China	-10,532,219	-61%
Hong Kong SAR of China (CN)	-2,363,320	-36%
Republic of Korea	-1,717,147	-19%
Japan	-1,592,429	-15%
Thailand	-1,452,478	-15%
Taiwan, Province of China (CN)	-1,446,686	-23%
Singapore	-807,608	-12%
Viet Nam	-731,936	-16%
Macao SAR of China (CN)	-721,489	-64%
Philippines	-646,104	-18%
United States	-620,296	-3%
Malaysia	-448,172	-8%
Indonesia	-426,102	-10%
Russian Federation	-317,890	-5%
Cambodia	-307,968	-4%
Turkey	-277,868	-21%
Italy	-268,846	-3%
United Arab Emirates	-253,548	-2%
Australia	-241,284	-5%
United Kingdom	-188,864	-1%
Iran Islamic Republic of	-169,782	-18%
France	-157,998	-1%
Myanmar	-147,487	-21%
Germany	-145,561	-1%
India	-116,823	-2%
Morocco	-108,186	-5%
Qatar	-99,338	-2%
Canada	-96,231	-1%
Lao People's Democratic Republi	-71,910	-21%
Finland	-71,413	-4%

In February 2020, international passenger capacity **reduced by 13%**, mainly related to traffic from/to States experiencing an early outbreak and States deeply interconnected to China.

State/Territory with 100 to 999 confirmed cases*

State/Territory with 1,000 to 9,999 confirmed cases*

State/Territory with 10,000 to 49,999 confirmed cases*

State/Territory with 50,000 or more confirmed cases*

*: Coronavirus Disease 2019 (COVID-19) Situation Report by WHO (29 February 2020)

Source: OAG scheduled data adjusted by ICAO estimates

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COVID-19 Pandemic was declared and accelerating in March 2020

March 2020 International Passenger Capacity

Country/Territory	Capacity change from originally-planned	
China	-14,841,792	-82%
Italy	-6,860,837	-60%
Republic of Korea	-6,536,917	-70%
Japan	-5,837,894	-51%
Germany	-5,771,162	-31%
Hong Kong SAR of China (CN)	-5,352,855	-77%
United Kingdom	-4,965,296	-22%
United States	-4,950,969	-19%
Thailand	-4,587,421	-46%
Taiwan, Province of China (CN)	-4,074,431	-62%
Spain	-3,792,140	-26%
United Arab Emirates	-3,400,833	-26%
Singapore	-3,297,434	-45%
France	-3,216,482	-25%
Turkey	-2,879,271	-35%
Viet Nam	-2,599,336	-55%
Malaysia	-2,500,355	-42%
India	-2,077,578	-29%
Saudi Arabia	-1,747,385	-31%
Switzerland	-1,691,017	-28%

Country/Territory	Capacity change from originally-planned	
Philippines	-1,669,456	-45%
Indonesia	-1,466,518	-34%
Netherlands	-1,292,472	-17%
Canada	-1,218,383	-16%
Austria	-1,200,864	-30%
Russian Federation	-1,177,704	-19%
Australia	-1,119,345	-25%
Portugal	-1,118,941	-26%
Belgium	-1,060,572	-31%
Qatar	-1,041,439	-21%
Denmark	-980,211	-28%
Israel	-972,061	-44%
Poland	-967,520	-24%
Macao SAR of China (CN)	-954,453	-80%
Egypt	-818,043	-28%
Morocco	-762,145	-31%
Sweden	-761,425	-24%
Ireland	-733,678	-21%
Greece	-635,039	-34%
Czechia	-610,048	-37%

In March 2020, global international passenger capacity **reduced by 49%**, with significant reduction not only in States experiencing an early outbreak but also worldwide.

State/Territory with 100 to 999 confirmed cases*

State/Territory with 1,000 to 9,999 confirmed cases*

State/Territory with 10,000 to 49,999 confirmed cases*

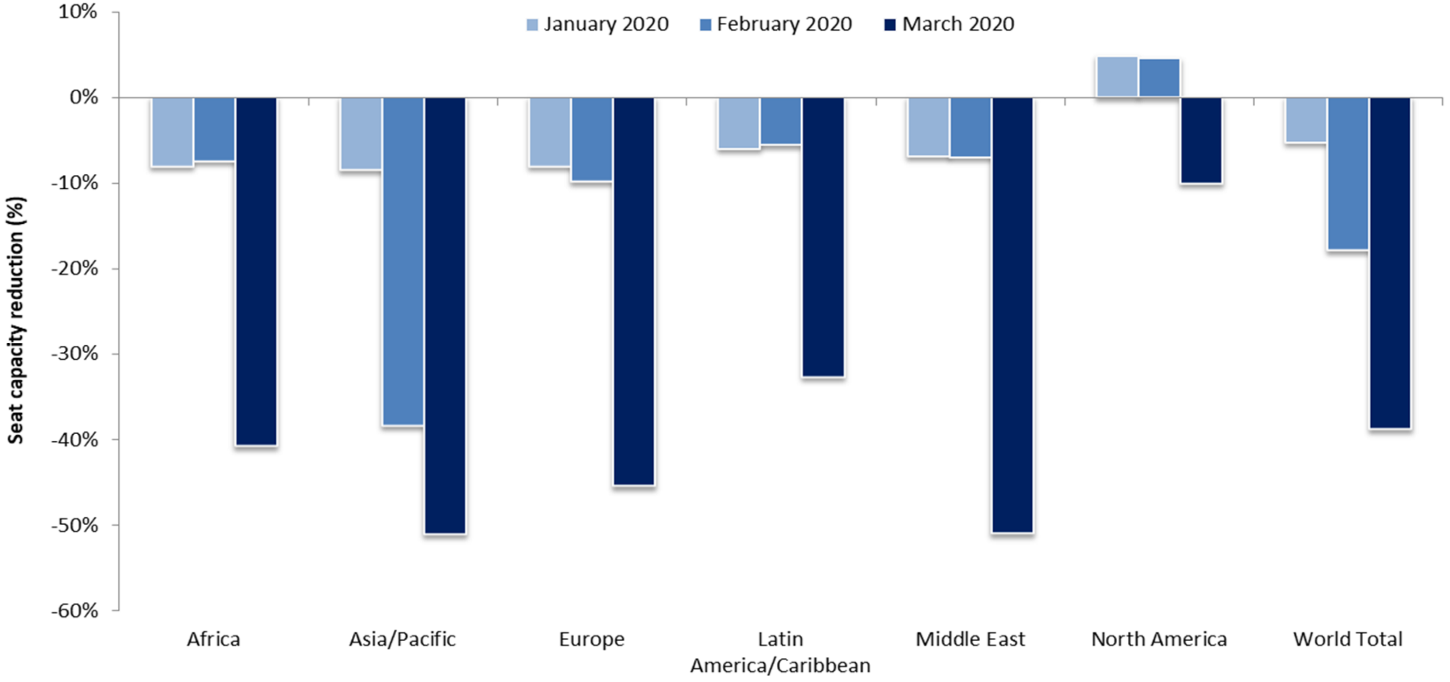
State/Territory with 50,000 or more confirmed cases*

*: Coronavirus Disease 2019 (COVID-19) Situation Report by WHO (31 March 2020)

Source: OAG scheduled data adjusted by ICAO estimates

Air traffic reduction no longer limited to initial outbreak countries

Monthly seat capacity change compare to originally-planned by region (total international and domestic)



Source: ICAO ADS-B operational data

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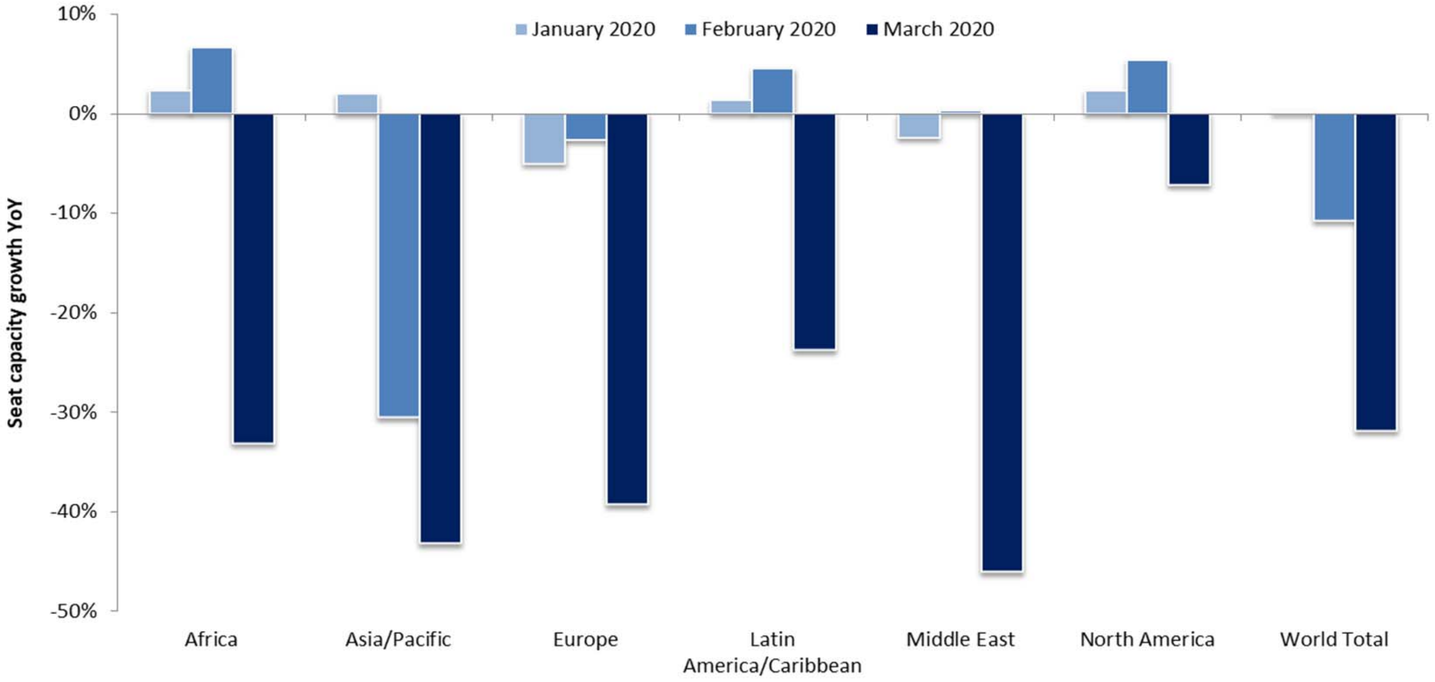
Air traffic reduction no longer limited to initial outbreak countries (2)

Monthly seat capacity change compared to 2019 by region (total international and domestic)



Source: ICAO ADS-B operational data

Air freight volumes have also been declining

Total air cargo throughout declined by 19% in March 2020 YoY, with a significant withdraw of passenger aircraft belly cargo capacity while the increase in all-cargo freighters have offset the capacity reduction

	Millions of Tonnes Transported		
	March 2019	March 2020	Change
Belly Cargo	3.49	2.40	-31%
Freighter Cargo	1.48	1.61	9%
Net	**4.97**	**4.01**	**-19%**

Preliminary analysis indicates air cargo revenues have dropped 22% from USD 8.3 to 6.5 billion in March 2020 over the same period

Source: ICAO ADS-B data and ICAO Statistical Reporting

The world reached 1 million confirmed COVID-19 cases in April 2020

April 2020 International Passenger Capacity

Country/Territory	Capacity change from originally-planned	
United States	-22,915,300	-88%
United Kingdom	-22,305,471	-90%
Germany	-19,318,831	-92%
Spain	-18,028,235	-93%
China	-16,683,876	-95%
France	-13,438,751	-91%
Italy	-12,464,502	-94%
United Arab Emirates	-10,970,004	-88%
Japan	-9,491,396	-88%
Turkey	-8,766,226	-94%
Thailand	-8,367,908	-93%
Republic of Korea	-7,960,525	-86%
Hong Kong SAR of China (CN)	-7,122,206	-93%
Netherlands	-6,928,918	-89%
Singapore	-6,589,567	-93%
Canada	-6,276,870	-90%
India	-6,263,030	-89%
Switzerland	-5,976,542	-93%
Russian Federation	-5,711,234	-86%
Taiwan, Province of China (CN)	-5,400,277	-85%

Country/Territory	Capacity change from originally-planned	
Malaysia	-4,947,684	-85%
Portugal	-4,913,073	-95%
Saudi Arabia	-4,129,100	-76%
Australia	-4,122,768	-92%
Mexico	-4,102,568	-78%
Austria	-3,810,434	-91%
Qatar	-3,737,335	-80%
Indonesia	-3,719,785	-87%
Viet Nam	-3,666,454	-89%
Ireland	-3,564,968	-91%
Poland	-3,437,848	-78%
Belgium	-3,307,979	-87%
Denmark	-3,273,692	-89%
Greece	-3,073,240	-94%
Philippines	-2,993,411	-86%
Sweden	-2,842,252	-86%
Norway	-2,400,329	-87%
Egypt	-2,221,944	-77%
Brazil	-2,213,426	-92%
Israel	-2,187,797	-90%

In April 2020, global international passenger capacity so far experienced by **unprecedented 91% reduction** (estimated)

State/Territory with 100 to 999 confirmed cases*

State/Territory with 1,000 to 9,999 confirmed cases*

State/Territory with 10,000 to 49,999 confirmed cases*

State/Territory with 50,000 or more confirmed cases*

*: Coronavirus Disease 2019 (COVID-19) Situation Report by WHO (19 April 2020)

Source: OAG scheduled data adjusted by ICAO estimates

Appendix B: Summary of Analysis by Other Organizations

ACI: Airport would lose USD 76 billion revenues in 2020

Region	**Passenger number** - both interntional and domestic for full year 2020		**Airport revenue** - both aeronautical and non-aeronautical for full year 2020	
	million and % change from 2020 "business as usual" baseline scenario		USD billion and % change from 2020 "business as usual" baseline scenario	
Africa	-77	-32.5%	-1.5	-35%
Asia/Pacific	-1,465	-42.1%	-23.9	-48%
Europe	-894	-35.0%	-24.6	-42%
Latin America/Caribbean	-244	-34.0%	-4.0	-38%
Middle East	-157	-36.5%	-5.7	-43%
North America	-790	-37.7%	-16.9	-49%
Total	**-3,627**	**-38.1%**	**-76.6**	**-45%**

https://aci.aero/wp-content/uploads/2020/03/200401-COVID19-Economic-Impact-Bulletin-FINAL-1.pdf

Source: The Impact of COVID-19 on the Airport Business (dated 1 April 2020)

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IATA: Airlines would lose USD 314 billion revenues under "3-month lock-down + recession" scenario

The analytical difference between ICAO and IATA estimates:

- **Period**: 1Q to 3Q 2020 (ICAO) vs. full year 2020 (IATA)
- **Traffic**: international only (ICAO) vs. both international and domestic (IATA)
- **Regional break-down**: by all traffic from States in each region (ICAO) vs. region of airline registration (IATA)
- **Baseline**: originally-planned i.e. 2020 business as usual scenario (ICAO) vs. 2019 level with 2020 airline schedules (IATA)

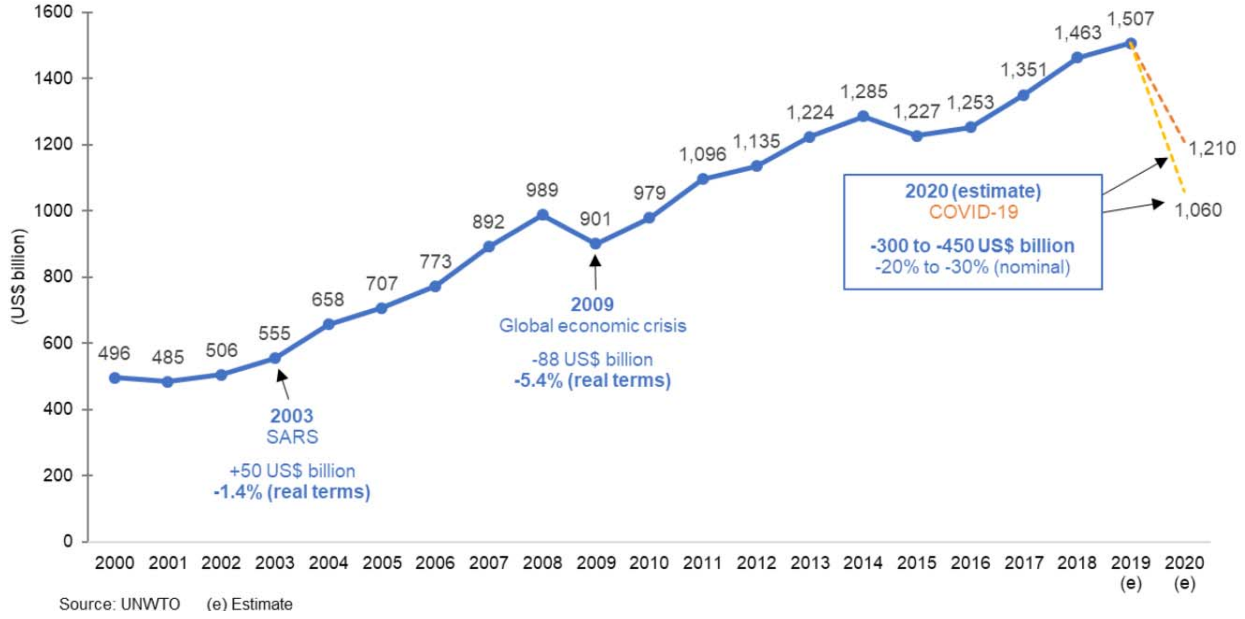
Region of airline registration	**Revenue Passenger Kilometres (RPKs)** - both interntional and domestic for full year 2020	**Gross passenger revenue** - both interntional and domestic for full year 2020
	year-on-year % change from 2019 level	USD billion, compared to 2019 level
Africa	-51%	-6
Asia/Pacific	-50%	-113
Europe	-55%	-89
Latin America/Caribbean	-49%	-18
Middle East	-51%	-24
North America	-36%	-64
Total	**-48%**	**-314**

https://www.iata.org/en/iata-repository/publications/economic-reports/covid-fourth-impact-assessment/

Source: IATA COVID-19 Updated Impact Assessment (dated 14 April 2020)

UNWTO: A loss of USD 300 to 450 billion in international tourism receipts in 2020

2020 forecast - international tourism receipts, world (US$ billion)



-290 to 440 million	International Tourist Arrivals
5 to 7 years	lost in number of tourists
-300 to 450 US$ bn	Tourism Exports (receipts)
1/3 of 1.5 US$ trillion	lost in Tourism Exports

https://www.unwto.org/news/international-tourism-arrivals-could-fall-in-2020

Source: Impact Assessment of the COVID-19 Outbreak on International Tourism (UNWTO)

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IMF: Global economy is projected to contract sharply by -3% in 2020

The Projections assume that the pandemic fades in the second half of 2020 and containment efforts can be gradually unwound

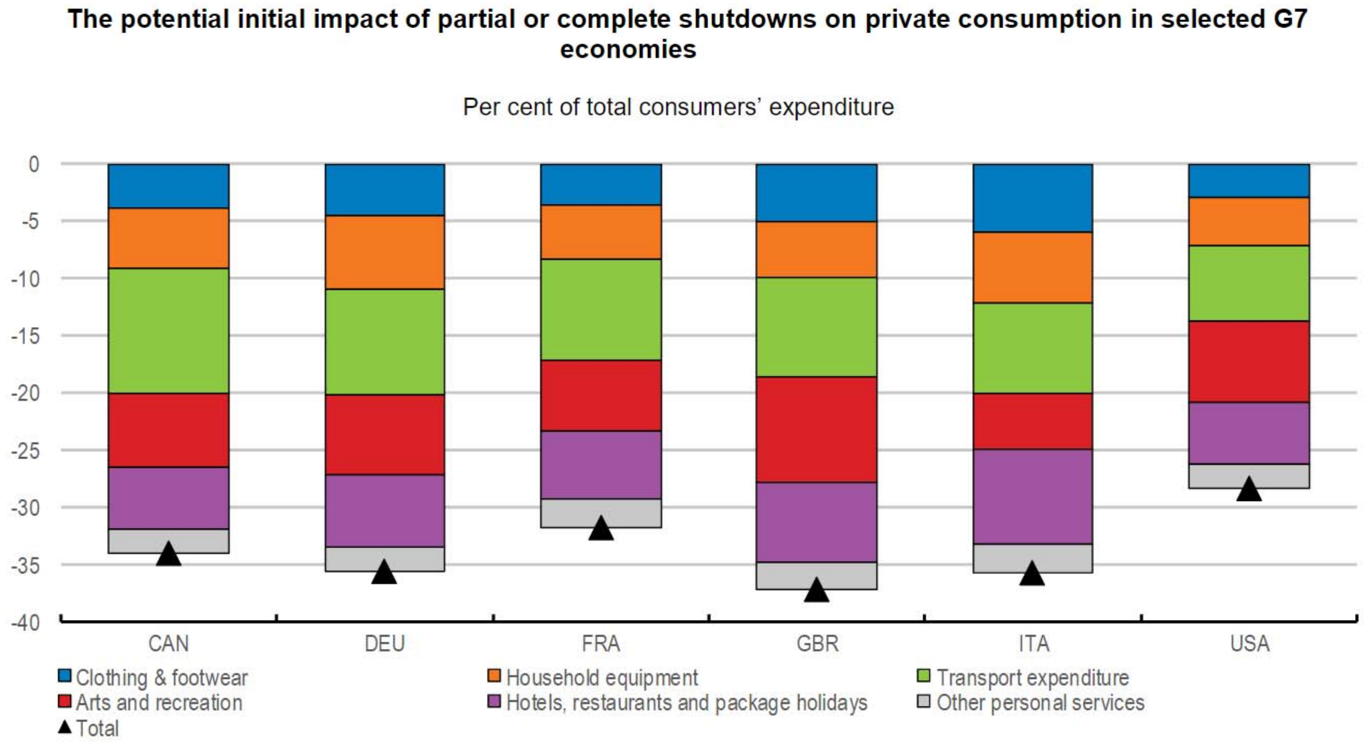
(real GDP, annual percent change)	2019	2020	2021
World Output	**2.9**	**-3.0**	**5.8**
Advanced Economies	**1.7**	**-6.1**	**4.5**
United States	2.3	-5.9	4.7
Euro Area	1.2	-7.5	4.7
Germany	0.6	-7.0	5.2
France	1.3	-7.2	4.5
Italy	0.3	-9.1	4.8
Spain	2.0	-8.0	4.3
Japan	0.7	-5.2	3.0
United Kingdom	1.4	-6.5	4.0
Canada	1.6	-6.2	4.2
Other Advanced Economies	1.7	-4.6	4.5

(real GDP, annual percent change)	2019	2020	2021
Emerging Markets and Developing Economies	**3.7**	**-1.0**	**6.6**
Emerging and Developing Asia	5.5	1.0	8.5
China	6.1	1.2	9.2
India	4.2	1.9	7.4
ASEAN-5	4.8	-0.6	7.8
Emerging and Developing Europe	2.1	-5.2	4.2
Russia	1.3	-5.5	3.5
Latin America and the Caribbean	0.1	-5.2	3.4
Brazil	1.1	-5.3	2.9
Mexico	-0.1	-6.6	3.0
Middle East and Central Asia	1.2	-2.8	4.0
Saudi Arabia	0.3	-2.3	2.9
Sub-Saharan Africa	3.1	-1.6	4.1
Nigeria	2.2	-3.4	2.4
South Africa	0.2	-5.8	4.0
Low-Income Developing Countries	5.1	0.4	5.6

https://www.imf.org/en/Publications/WEO/Issues/2020/04/14/weo-april-2020

Source: IMF Word Economic Outlook (April 2020)

OECD: Sharp decrease in consumers' expenditures for air travel due to containment measures



Source: OECD Evaluating the Initial Impact of Containment Measures (27 March 2020)

Appendix C: Airlines' Financial Analysis

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

Break-even weight load factor

Scenarios are based on the assumption that air traffic, measured in Revenue Tonnes-Kilometres (RTKs, both international and domestic), will **decrease by 50% in 2020** compared to 2019

	Scenario A **Weight load factor = 70%**	**Scenario B** **Weight load factor = 60%**	**Scenario C** **Weight load factor = 50%**	**Scenario D** **Weight load factor = 45%**
	Load factor remains high, rebound of demand in Q3 and Q4 with severe capacity cuts	Load factor moderate-high and rebound during Q4, with capacity cuts in all regions	Low load factor and moderate return of normal capacity in Q3 and Q4	Low load factors (social distancing) and airlines increase capacity in Q2 2020
Total capacity reduction	-51%	-42%	-31%	-23%
Fuel costs (USD, billion) *Oil price: 49% decrease compared to 2019 levels*	46	54	65	72
Break-even weight load factor *(excluding depreciation and amortization costs)*	70.5%	63.1%	55.8%	52.1%

Source: ICAO estimates based on ICAO Statistical Reporting

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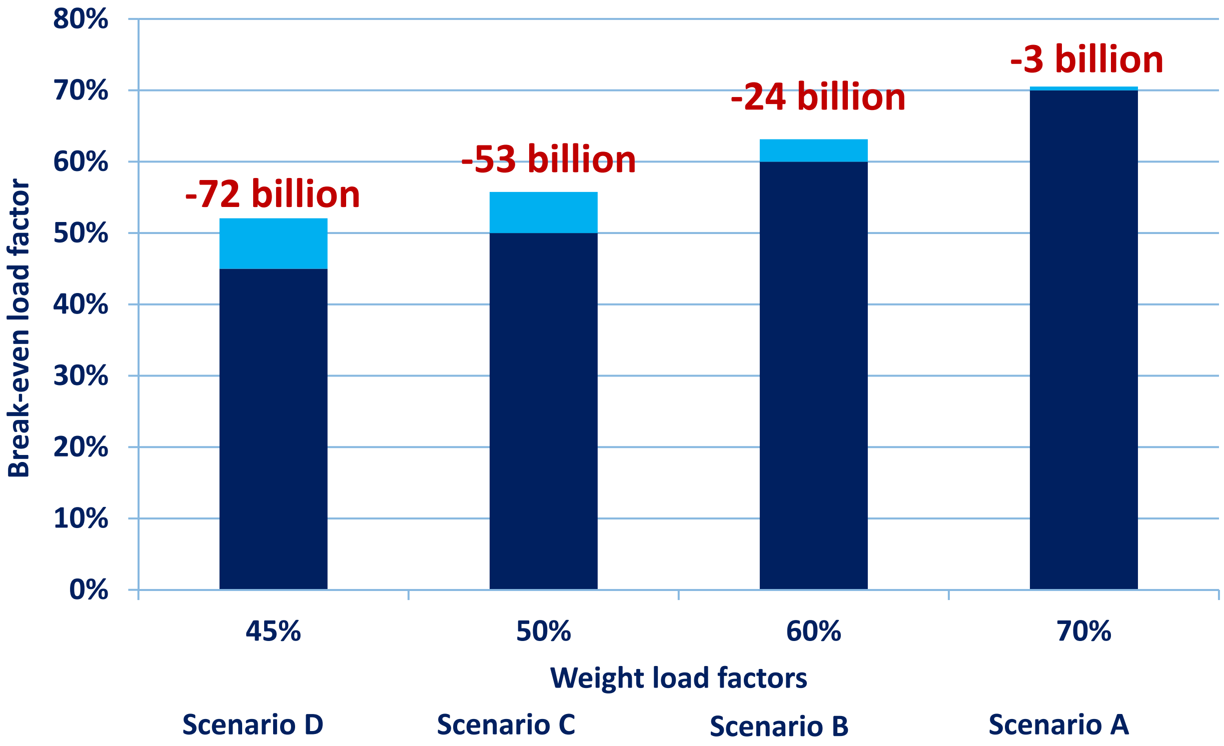
Airlines close to break even as load factor increases

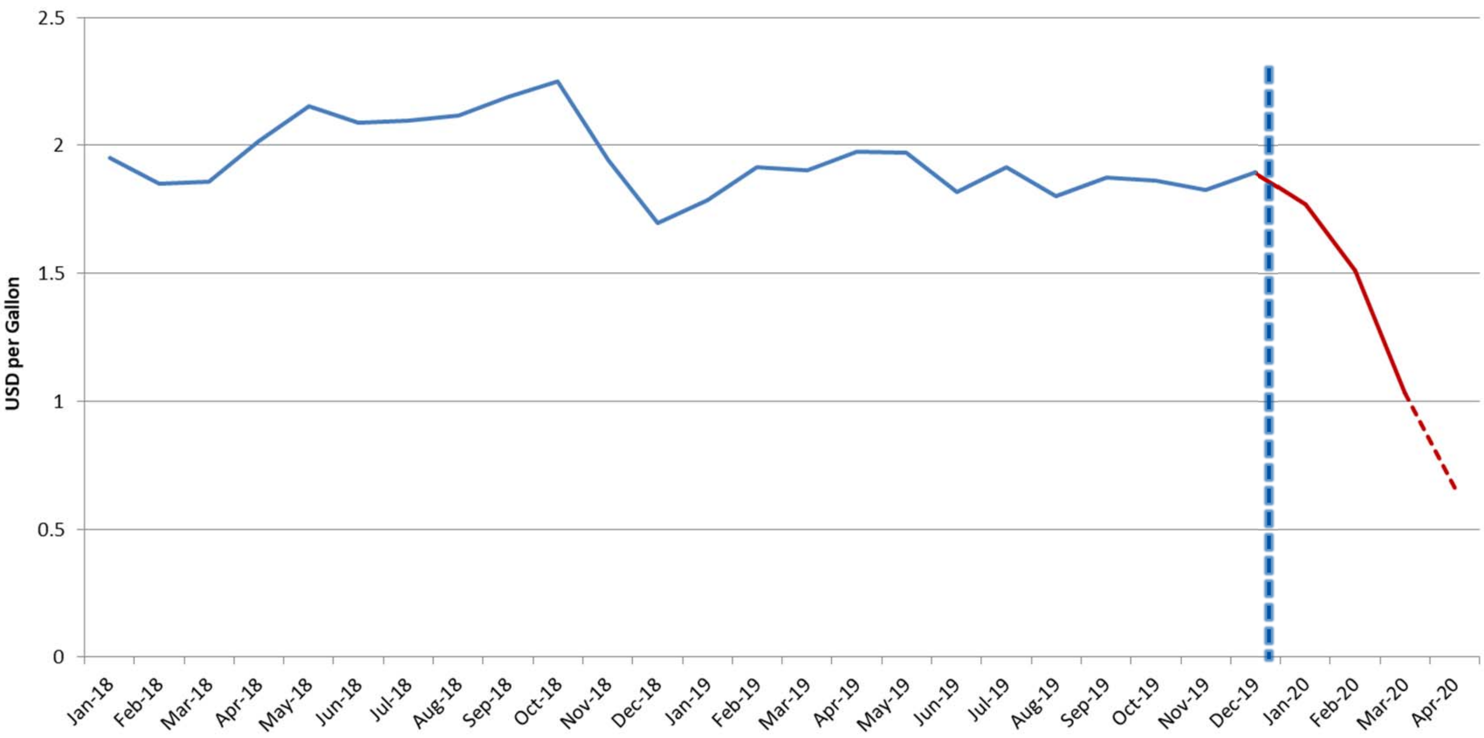


Operating loss Excluding depreciation and amortizations costs

Difference between load factor and break-even load factors in each scenario

Jet fuel price is estimated to go down 49% annually compared to 2019

U.S. Gulf Coast Kerosene-Type Jet Fuel Spot Price FOB



Source: EIA Jet Fuel Tracker and estimates

Appendix D: Route Group Level Analysis

The analysis will be updated and expanded with the situation evolving and more information available.

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Estimated results by route group for 1Q 2020 (compared to Baseline)

Route Group	DOM/INT	Seat capacity			Scheduled passenger (thousand)			Gross revenue (USD, million)		
		Jan 2020	Feb 2020	Mar 2020	Jan 2020	Feb 2020	Mar 2020*	Jan 2020	Feb 2020	Mar 2020*
Africa	Domestic	-11%	-8%	-36%	-447	-472	-2,258	-44	-47	-224
Africa - Asia/Pacific	International	4%	-19%	-46%	15	-123	-260	6	-47	-99
Africa - Middle East	International	-6%	-7%	-56%	-177	-218	-1,919	-43	-53	-467
Africa - North America	International	-9%	-3%	-26%	-18	-10	-102	-6	-4	-37
Africa & Middle East - Central America/Caribbean	International	-	-	-	0	0	0	0	0	0
Africa & Middle East - South America	International	2%	5%	-22%	2	-9	-61	1	-5	-32
Central America/Caribbean	Domestic	-8%	-7%	-25%	-442	-366	-2,565	-41	-34	-240
Central America/Caribbean - Europe	International	-2%	0%	-20%	14	-13	-657	5	-5	-239
Central America/Caribbean - North America	International	5%	4%	-18%	608	263	-3,799	146	63	-909
Central America/Caribbean - South America	International	5%	10%	-26%	120	100	-560	47	39	-220
China	Domestic	-13%	-76%	-62%	-10,181	-48,337	-39,169	-693	-3,291	-2,667
China - Europe	International	-4%	-54%	-75%	-63	-995	-1,620	-25	-391	-636
China - Middle East	International	5%	-57%	-77%	28	-353	-519	14	-176	-259
China - North America	International	3%	-45%	-66%	42	-702	-1,133	23	-377	-608
China & South West Asia - North Asia	International	-1%	-44%	-84%	-124	-3,516	-6,072	-40	-1,134	-1,958
China & South West Asia - Pacific South East Asia	International	-2%	-47%	-72%	-373	-5,788	-8,410	-93	-1,449	-2,106
Europe	Domestic	-11%	-13%	-42%	-2,273	-3,436	-16,273	-327	-494	-2,340
Europe - Middle East	International	-11%	-11%	-48%	-705	-859	-5,074	-173	-210	-1,244

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

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Estimated results by route group for 1Q 2020 (compared to Baseline)

Route Group	DOM/INT	Seat capacity			Scheduled passenger (thousand)			Gross revenue (USD, million)		
		Jan 2020	Feb 2020	Mar 2020	Jan 2020	Feb 2020	Mar 2020*	Jan 2020	Feb 2020	Mar 2020*
Europe - North Africa	International	0%	1%	-41%	39	-27	-2,069	5	-4	-288
Europe - North America	International	3%	3%	-36%	296	109	-3,532	88	32	-1,043
Europe - North Asia	International	-2%	-1%	-43%	-8	-66	-596	-4	-35	-312
Europe - Pacific South East Asia	International	-13%	-10%	-21%	-221	-278	-754	-91	-115	-311
Europe - South America	International	-8%	-8%	-39%	-73	-107	-794	-34	-51	-376
Europe - South West Asia	International	-15%	-14%	-46%	-270	-353	-1,206	-69	-91	-309
Europe - Sub Saharan Africa	International	-9%	-10%	-35%	-137	-188	-1,017	-47	-65	-353
Intra Africa	International	-10%	-11%	-44%	-294	-380	-1,696	-61	-78	-350
Intra Central America/Caribbean	International	4%	4%	-26%	122	43	-667	18	6	-96
Intra China & South West Asia	International	-10%	-61%	-79%	-548	-3,099	-4,128	-105	-591	-787
Intra Europe	International	-7%	-8%	-49%	-2,619	-4,315	-33,320	-317	-523	-4,036
Intra Middle East	International	-6%	-6%	-68%	-268	-248	-3,221	-40	-37	-480
Intra North America	International	3%	3%	-24%	108	21	-1,400	19	4	-248
Intra North Asia	International	-2%	-3%	-79%	-36	-224	-1,104	-4	-24	-119
Intra Pacific South East Asia	International	-1%	-6%	-46%	-165	-1,640	-5,135	-36	-360	-1,129
Intra South America	International	-10%	-7%	-40%	-104	-122	-995	-40	-47	-385
Latin America/Caribbean - China	International	5%	-	-	0	0	0	0	0	0
Latin America/Caribbean - North Asia & Pacific South East Asia	International	3%	0%	-18%	3	-9	-33	2	-8	-29

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

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Estimated results by route group for 1Q 2020 (compared to Baseline)

Route Group	DOM/INT	Seat capacity			Scheduled passenger (thousand)			Gross revenue (USD, million)		
		Jan 2020	Feb 2020	Mar 2020	Jan 2020	Feb 2020	Mar 2020*	Jan 2020	Feb 2020	Mar 2020*
Middle East	Domestic	-11%	-6%	-45%	-220	-206	-2,178	-23	-21	-225
Middle East - North America	International	2%	3%	-27%	22	13	-408	12	7	-222
Middle East - North Asia & Pacific South East Asia	International	-2%	-2%	-36%	-57	-358	-1,467	-22	-136	-557
Middle East - South West Asia	International	-3%	-2%	-44%	-202	-679	-3,158	-40	-136	-630
North America	Domestic	5%	5%	-7%	4,856	4,268	-27,162	626	551	-3,504
North America - North Asia	International	5%	5%	-24%	64	-101	-637	38	-59	-374
North America - Pacific South East Asia	International	4%	6%	-18%	29	-52	-312	16	-28	-170
North America - South America	International	5%	5%	-24%	106	50	-633	49	23	-294
North America - South West Asia	International	4%	5%	-28%	7	-15	-98	4	-8	-53
North Asia	Domestic	-2%	-4%	-21%	-69	-1,202	-5,585	-5	-82	-380
North Asia - Pacific South East Asia	International	0%	-8%	-64%	-54	-1,071	-3,523	-20	-402	-1,322
Pacific South East Asia	Domestic	-11%	-11%	-33%	-2,645	-3,680	-15,360	-180	-251	-1,046
South America	Domestic	-10%	-10%	-41%	-1,591	-1,752	-9,571	-149	-164	-897
South West Asia	Domestic	-14%	-14%	-38%	-2,488	-2,480	-8,993	-169	-169	-612
Domestic		-6%	-21%	-32%	-15,501	-57,662	-129,115	-1,006	-4,003	-12,137
International		-4%	-13%	-49%	-4,889	-25,321	-102,089	-820	-6,473	-23,087
Total		-5%	-18%	-39%	-20,390	-82,983	-231,203	-1,826	-10,475	-35,224

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

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Estimated results by route group for 1Q 2020 (compared to 1Q 2019 year-on-year)

Route Group	DOM/INT	Seat capacity			Scheduled passenger (thousand)			Gross revenue (USD, million)		
		Jan 2020	Feb 2020	Mar 2020	Jan 2020	Feb 2020	Mar 2020*	Jan 2020	Feb 2020	Mar 2020*
Africa	Domestic	5%	10%	-25%	140	129	-1,705	14	13	-169
Africa - Asia/Pacific	International	18%	-1%	-35%	66	-51	-188	25	-19	-71
Africa - Middle East	International	7%	10%	-50%	184	167	-1,545	45	41	-376
Africa - North America	International	8%	22%	-10%	16	27	-65	6	10	-23
Africa & Middle East - Central America/Caribbean	International	-	-100%	-	0	0	0	0	0	0
Africa & Middle East - South America	International	-6%	2%	-26%	-9	-13	-68	-5	-7	-36
Central America/Caribbean	Domestic	8%	12%	-12%	397	462	-1,784	37	43	-167
Central America/Caribbean - Europe	International	-3%	2%	-18%	6	18	-617	2	7	-225
Central America/Caribbean - North America	International	0%	4%	-22%	271	263	-4,112	65	63	-984
Central America/Caribbean - South America	International	4%	8%	-25%	103	87	-542	40	34	-213
China	Domestic	-4%	-73%	-57%	-4,949	-42,659	-33,436	-337	-2,905	-2,277
China - Europe	International	-2%	-51%	-73%	-21	-884	-1,480	-8	-347	-581
China - Middle East	International	6%	-56%	-76%	38	-350	-510	19	-174	-254
China - North America	International	-6%	-48%	-70%	-98	-785	-1,312	-52	-421	-704
China & South West Asia - North Asia	International	22%	-32%	-81%	1,234	-2,340	-4,768	398	-754	-1,537
China & South West Asia - Pacific South East Asia	International	7%	-46%	-70%	644	-5,374	-7,727	161	-1,346	-1,935
Europe	Domestic	-4%	-3%	-36%	-409	-867	-13,678	-59	-125	-1,967
Europe - Middle East	International	-7%	-6%	-44%	-392	-399	-4,519	-96	-98	-1,108

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

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Estimated results by route group for 1Q 2020 (compared to 1Q 2019 year-on-year)

Route Group	DOM/INT	Seat capacity			Scheduled passenger (thousand)			Gross revenue (USD, million)		
		Jan 2020	Feb 2020	Mar 2020	Jan 2020	Feb 2020	Mar 2020*	Jan 2020	Feb 2020	Mar 2020*
Europe - North Africa	International	-1%	6%	-42%	44	142	-2,116	6	20	-295
Europe - North America	International	-3%	2%	-37%	-19	85	-3,651	-6	25	-1,078
Europe - North Asia	International	-2%	1%	-41%	-11	-49	-559	-6	-25	-292
Europe - Pacific South East Asia	International	-5%	-4%	-22%	-62	-156	-770	-26	-64	-318
Europe - South America	International	-5%	-2%	-36%	-27	-32	-721	-13	-15	-341
Europe - South West Asia	International	-23%	-19%	-49%	-457	-459	-1,308	-117	-118	-335
Europe - Sub Saharan Africa	International	-11%	-8%	-33%	-168	-145	-946	-58	-50	-328
Intra Africa	International	2%	5%	-36%	26	-11	-1,355	5	-2	-279
Intra Central America/Caribbean	International	1%	4%	-27%	82	50	-679	12	7	-98
Intra China & South West Asia	International	-2%	-57%	-77%	-112	-2,670	-3,674	-21	-509	-700
Intra Europe	International	-6%	-1%	-45%	-1,325	-764	-29,074	-160	-93	-3,522
Intra Middle East	International	-2%	0%	-65%	-85	-15	-2,817	-13	-2	-420
Intra North America	International	-4%	-1%	-26%	-80	-60	-1,487	-14	-11	-263
Intra North Asia	International	-32%	-31%	-84%	-623	-714	-1,557	-67	-77	-168
Intra Pacific South East Asia	International	7%	2%	-40%	531	-1,057	-4,410	117	-232	-969
Intra South America	International	-9%	-4%	-37%	-93	-54	-919	-36	-21	-355
Latin America/Caribbean - China	International	-66%	-100%	-100%	-6	-8	-8	-4	-6	-6
Latin America/Caribbean - North Asia & Pacific South East Asia	International	3%	1%	-15%	3	-8	-31	3	-7	-27

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

Estimated results by route group for 1Q 2020 (compared to 1Q 2019 year-on-year)

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Route Group	DOM/INT	Seat capacity			Scheduled passenger (thousand)			Gross revenue (USD, million)		
		Jan 2020	Feb 2020	Mar 2020	Jan 2020	Feb 2020	Mar 2020*	Jan 2020	Feb 2020	Mar 2020*
Middle East	Domestic	-7%	1%	-43%	-62	36	-2,041	-6	4	-211
Middle East - North America	International	5%	7%	-24%	45	41	-373	24	22	-203
Middle East - North Asia & Pacific South East Asia	International	0%	3%	-33%	-21	-229	-1,334	-8	-87	-507
Middle East - South West Asia	International	3%	9%	-39%	126	-168	-2,694	25	-34	-538
North America	Domestic	3%	6%	-8%	3,765	5,242	-27,870	486	676	-3,595
North America - North Asia	International	4%	5%	-26%	47	-99	-662	28	-58	-389
North America - Pacific South East Asia	International	6%	13%	-14%	50	-7	-280	27	-4	-153
North America - South America	International	-8%	-3%	-31%	-81	-41	-756	-37	-19	-351
North America - South West Asia	International	20%	24%	-15%	35	14	-67	19	7	-36
North Asia	Domestic	6%	6%	-11%	776	-128	-4,228	53	-9	-288
North Asia - Pacific South East Asia	International	16%	9%	-58%	671	-359	-2,886	252	-135	-1,083
Pacific South East Asia	Domestic	6%	8%	-21%	1,781	999	-10,958	121	68	-746
South America	Domestic	2%	4%	-29%	580	475	-6,904	54	44	-647
South West Asia	Domestic	1%	7%	-23%	109	694	-5,716	7	47	-389
Domestic		1%	-13%	-26%	2,128	-35,619	-108,319	371	-2,142	-10,457
International		-1%	-8%	-46%	529	-16,404	-92,583	529	-4,500	-21,103
Total		0%	-11%	-34%	2,657	-52,023	-200,902	900	-6,642	-31,560

***: Scenario 2 estimates**

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

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