

Covid-19

What will be the impact to the aviation sector from the Corona virus outbreak?

20th April 2020

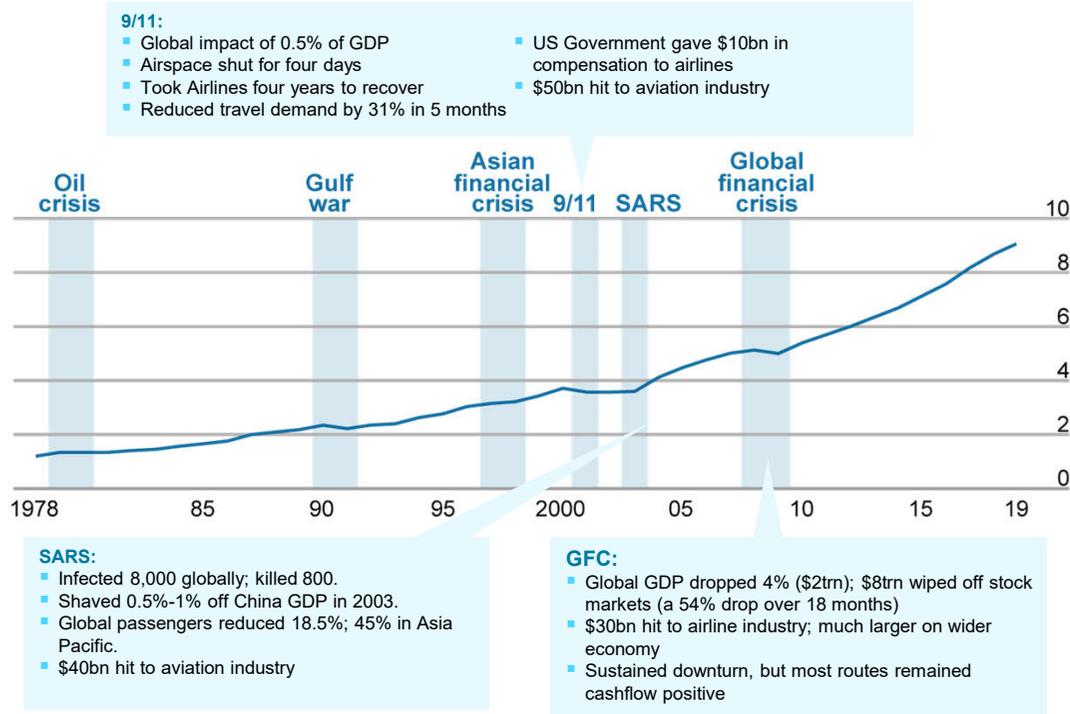


Comparison to Previous Market Shocks

Flight path

Global airline traffic, revenue-passenger kilometres, trn

Source: Airbus | The Economist



Covid-19 combines simultaneous aviation demand and supply side shocks like no other event post-WWII

The impact this time will be defined by government intervention

Covid-19

What is different this time?

- China is now 16% of GDP (in 2003 during SARS this was 4%). IMF estimate China made up 39% of global economic expansion in 2019.
- Covid-19 has global reach – all geographies and all economic output.
- Unknown length of time until a return to normal is in sight.
- Unknown impact on household wealth – while economy was in relatively strong position, the length of time that productivity is affected will have an ever-growing impact on consumer spending.
- Low oil prices of limited short term benefit due to hedging at higher prices by most airlines.
- Stimulus Packages: The response to this crisis is unprecedented in size and scope. To date, around \$7trn has been announced globally which includes government spending, tax breaks, loan guarantees, as well as monetary expansion. This number dwarves the amount spent during the GFC which was worth \$1.1trn in 2008.

Covid-19 (to date)

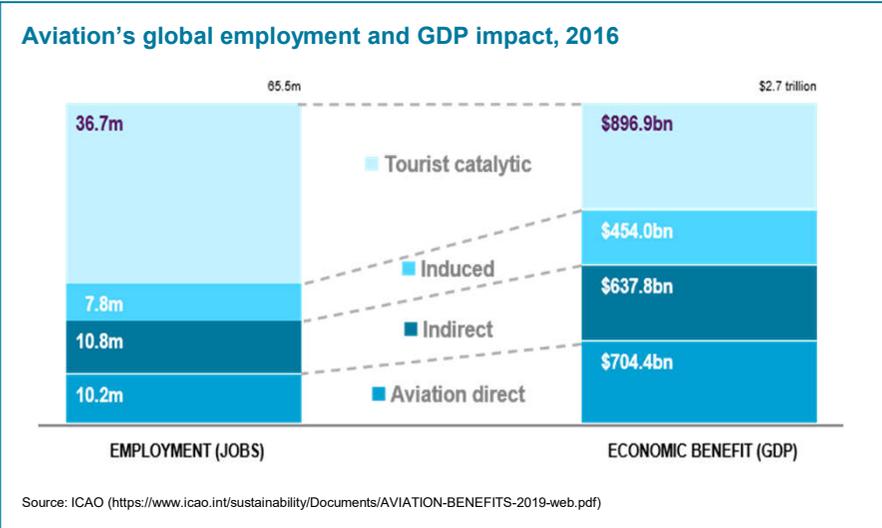
- Global stock markets volatility reflecting the heightened uncertainty.
- IMF Global GDP growth of -3% predicted. Advanced economies expected to deliver large downturns of -6.1% (UK: -6.5%; US: -5.9%; EU: -7.5%)
- Current global infections 2.5m+; deaths at 175,000+
- Airline industry particularly hard hit; Latest IATA estimates are that airlines will require bailouts in the region of \$314bn from governments.
- 75% of airlines had less than three months of cash to pay fixed costs; most airlines would expect to go bust in May. Only the top 30 airlines had paid down debt to manageable levels and would be likely to survive.

How will global governments respond?

A situation shifting by the hour; expect aviation to be protected by many governments around the world with perhaps the largest threat to airlines in European market.

How important is the aviation sector to the world economy?

- 2016 data showed a contribution (direct and indirect) of \$2.7trn (3.6% of global GDP) and 65.5m jobs. This is up from \$1.36trn and 27.7m jobs in 1998.
- Aviation Multiplier: estimated that each job in aviation (and tourism made possible by aviation) supported another 6.4 jobs elsewhere worldwide. Also each dollar of economic activity in aviation created another \$3.80 in other sectors.
- Value Creation: Aviation employees average \$69,000 GDP per capita which is approximately 3x the global average and far exceeding most sectors.
- Airlines are often seen as a key part of the global image that countries wish to portray. Airlines also form a key part of travel infrastructure provided to citizens.
- Importance to global trade; moving 35% of world trade by value.



How will Governments respond to the threat to aviation?

China

- Are ahead of the curve for the virus; experienced peak outbreak in mid-Feb and saw 70% of flights grounded. Latest capacity data down 43% year-on-year.
- State support: China Eastern/China Southern are state-owned; rumours exist that heavily indebted HNA group could be nationalised. Beijing has already promised to cover losses which are estimated at \$3bn in February alone.

USA

- President Trump has given promised support of \$50bn to the airline sector; \$25bn as a grant to support employees' salaries, and a further \$25bn as loans..
- Large amount of domestic travel means they are considered a key part of infrastructure meaning there will be a requirement for airlines to deliver minimum levels of service in return for help.

Europe

- Air France KLM could temporarily lay-off up to 80% of their workforce. Lufthansa talking to German government about aid. EU rules would need to be relaxed for government intervention to take place. European market seen as most competitive and with largest restrictions on state aid – would expect many airlines not survive.
- Virgin Atlantic have stated they need government help to survive with Richard Branson ready to use Necker Island as collateral after the UK Government reportedly rejected a request for £500m bailout.
- UK Government has stated they expect airlines to explore all funding options before requesting state aid, and would make sure any help is "equitable and fair across the sector".

Middle East

- Strong state support/ownership models mean they would be expected to be eligible for state aid. Unlikely to see any airlines fail.

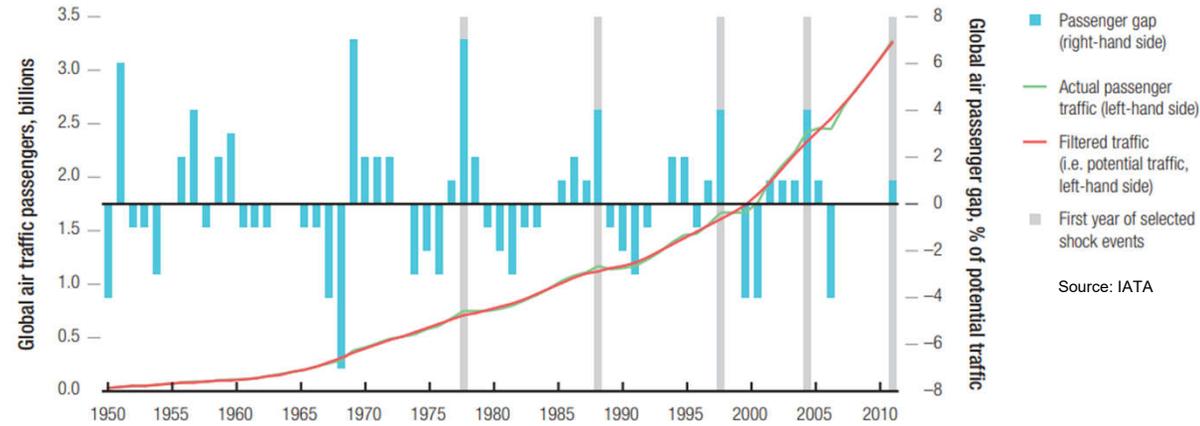


The Passenger Gap - Predicting the depth and length of external shocks

Passenger traffic has always remained resilient in the face of external shocks.

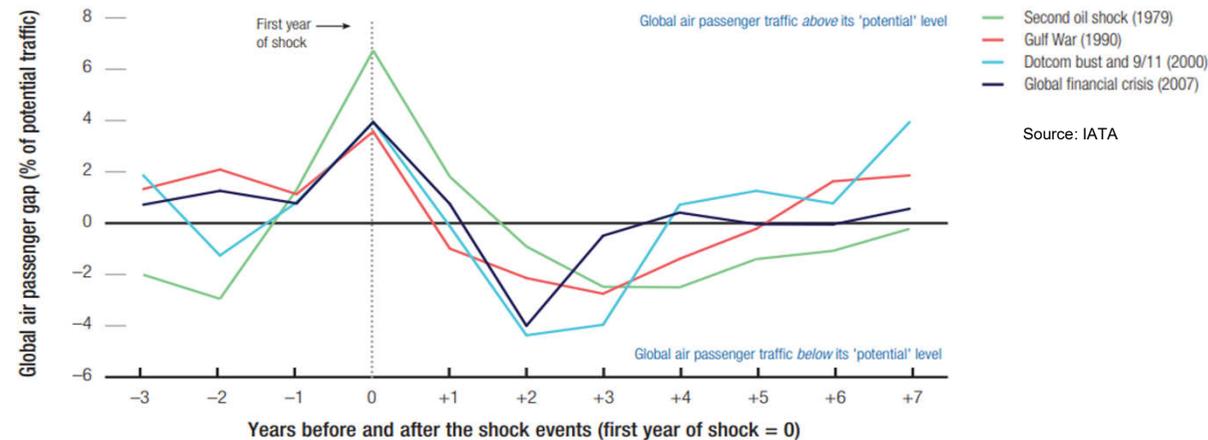
Can we rely on history to predict the impact this time?

Global air passenger traffic and the 'passenger gap', 1950-2014



- Analysis has shown that by comparing passenger traffic to the long term trend level, the passenger numbers have always reverted back to this average growth rate.
- The 'passenger gap' is the difference between the actual passengers and the trend level.

Global air 'passenger gap' before and after shock events

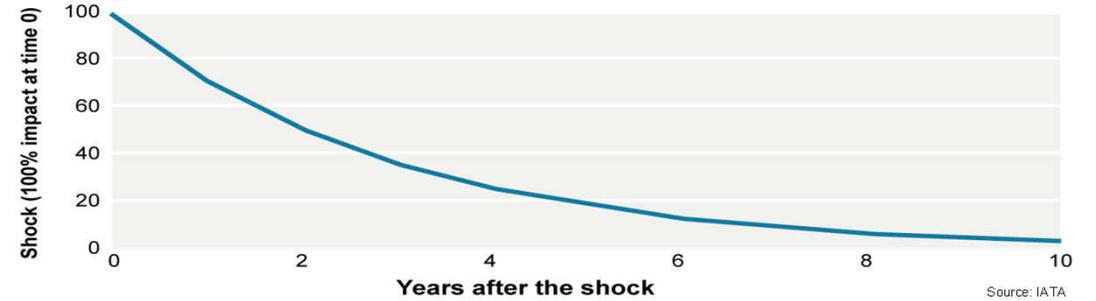


- In all four major shocks studied, passenger numbers were well above the trend level in the year of the shock – is part of this a cyclical reversion to the average?
- Shallowest, but longest lasting: 1979 Oil Crisis
- Relative drop: 9/11 (& Dotcom bubble) and 2008 Global Financial Crisis 2008 – however in both these cases, traffic had moved back above the trend within four years.

Predicting the 2020 Impact

- Using a 2015 IATA study into the impacts of external shocks, we can attempt to model the likely statistical impact of Covid-19. Using the assumptions mentioned previously, that passenger traffic will return to the long term growth trend, we can estimate the prolonged impact of any given shock.
- Thus, by using an estimation on the likely impact, we can estimate the aggregate impact over a period of years.
 - After one year, around 72% of the impact from the shock is felt
 - Two years on, the effect is reduced to about half
 - After five years, the effect is a little under 20%.
 - If we total all these impacts by year, we can estimate the aggregate shock over a 10 year period.

Impulse response function of global air passenger traffic to a shock (100%) in time 0



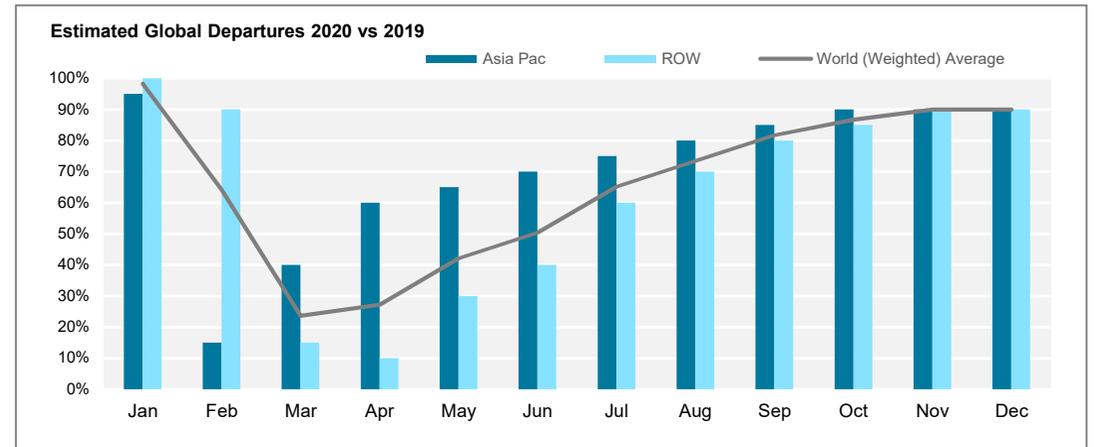
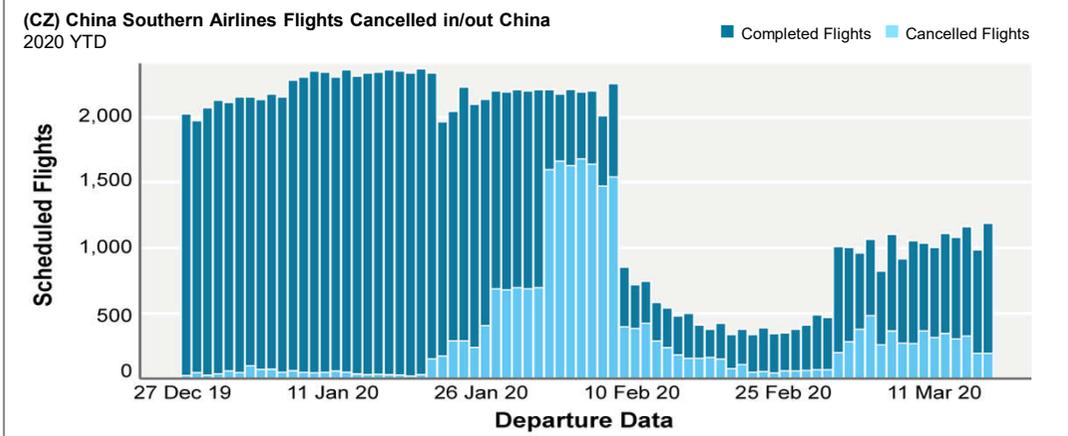
What can we do to estimate the immediate impact from the pandemic?

Using Ascend data for individual airlines, we can estimate the aggregate impact for airlines in China. Given China appears to be in the downward trend of the virus, we can use this data to estimate a global impact. Latest statistics from China (up to 17th March 2020) indicate that February saw a 85% drop in traffic, and this had recovered to 40% of the 2019 total in March. China Southern are now operating 60% of their domestic departures compared to a year ago.

Estimated 2020 fall of 34% compared to 2019

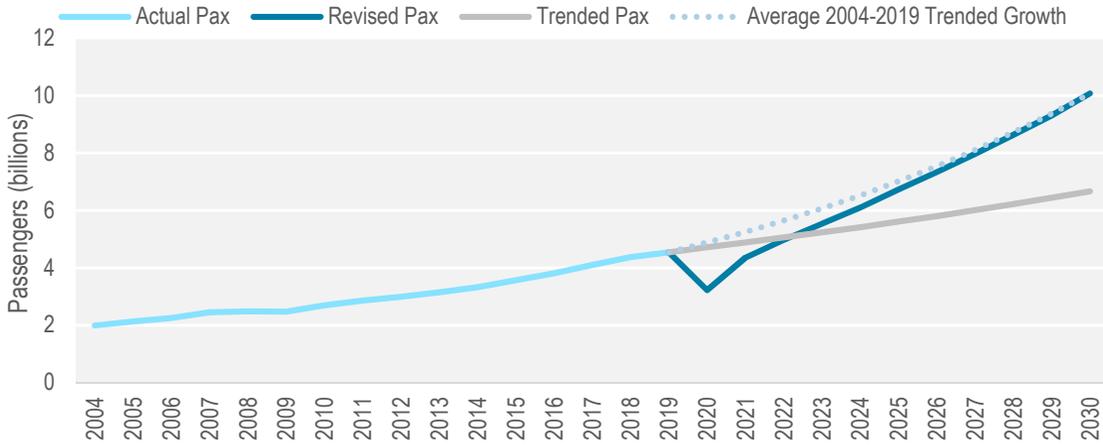
We have used the China departure data for the whole of the Asia Pacific region, and then applied the same logic to come up with a likely reduction month by month for the rest of the world, where the virus is assumed to be on a similar trajectory. The aggregate impact for the industry can therefore be estimated at -34%.

IATA currently estimate Revenue Passenger Kilometres (RPK) to be -48% (revised from -38%), whilst McKinsey have calculated an optimistic scenario of -31%, and a pessimistic scenario at -45%



Extrapolating the Trend for 2020 onwards

Global Airline Passenger Numbers 2004-2030



Source: IATA

	Trended Pax (m)	Impact %	Size of Impact	Revised Pax (m)	Difference Trend / Revised (m)
2020	4,723	100%	33.94%	3,225	- 1,498
2021	4,888	50%	16.97%	4,357	- 531
2022	5,059	35%	11.88%	4,972	- 88
2023	5,236	26%	8.82%	5,530	-
2024	5,420	19%	6.45%	6,101	-
2025	5,609	12%	4.07%	6,725	-
2026	5,806	8%	2.71%	7,333	-
2027	6,009	5%	1.70%	7,966	-
2028	6,219	3%	1.02%	8,623	-
2029	6,437	2%	0.68%	9,303	-
2030	6,662			10,070	-
Aggregate Change					- 2,117

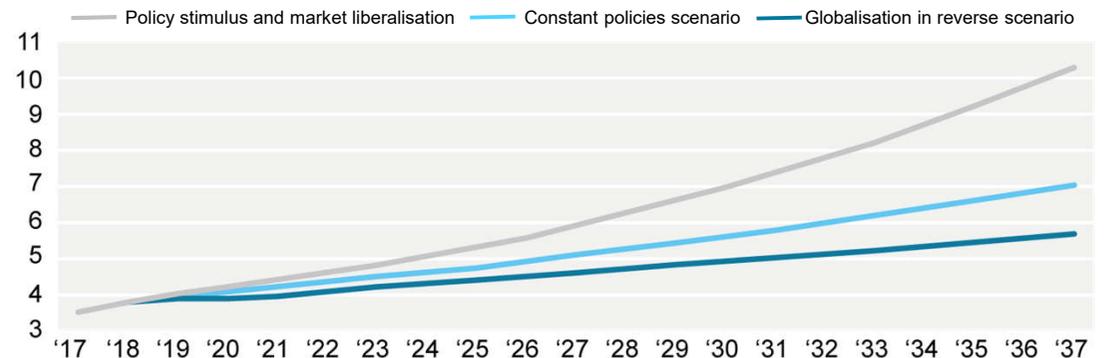
- Prior to the shock, global passenger numbers were predicted for 2020 at 4.723bn.
- Using this as a proxy for departures means a 34% drop in global departures gives a revised passenger estimate for 2020 of 3.225bn.
- We can use the trended passenger numbers (using the 2004-2019 trended growth of 7.5%), combined with the impact of Covid-19 to estimate aggregate impact.
- The global industry would be predicted to recover lost activity and surpass the +3.5% trend level in 2023.
- Aggregate impact to the industry is 2.1bn fewer passengers over 10 years.
- This equates to a 3.18% total contraction of the global market over the next 10 years

Scenario	CAGR	Total Pax in 2037 (Origin-Destination Paxs)	Jobs Supported in 2037	GDP Supported in 2037 (2016 Prices)
Reverse Globalisation	2.4%	5.7bn	90m	\$4.6 trillion
Constant Policy	3.5%	7.0bn	100m	\$5.5 trillion
Maximum Liberalisation	5.5%	10.3bn	119m	\$7.6 trillion

Source: IATA/Tourism Economics & Oxford Economics

Passengers (billion, O-D basis)

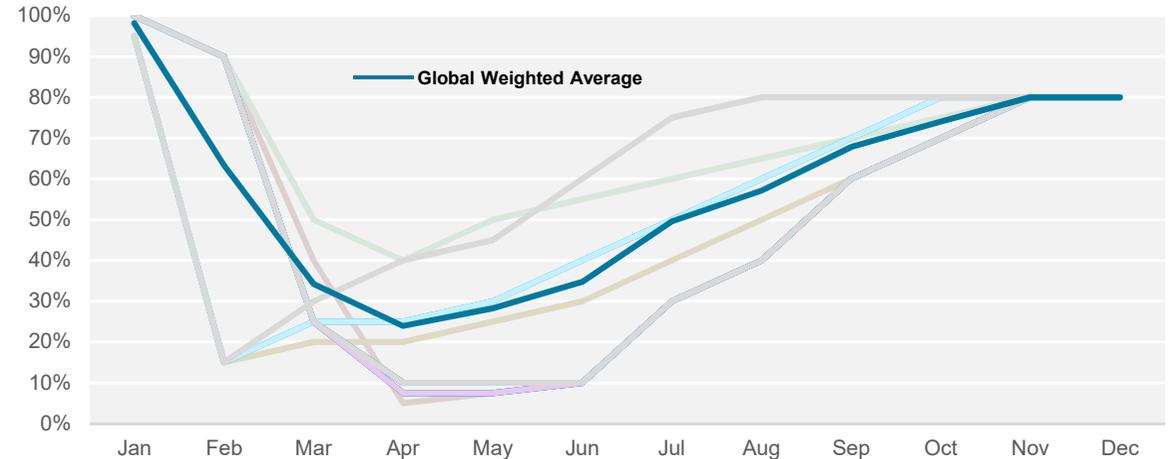
Source: IATA/TE



Predicting the 2020 Impact II – An extended downturn

- As the crisis has developed and we have seen a divergence of reactions and outcomes in different countries, our second scenario is to look at an extended global downturn.
- We have assumed different curves for each of our 14 regions depending on their likely circumstances to build up a picture of global activity.
- The new scenario is based on a three month lockdown, with:
 - International travel remains depressed for the remainder of 2020 (quicker rebound for domestic)
 - Cargo activity insulated from downturn.
 - Increased variation between regions (faster recoveries for China; US activity relatively less affected)
 - Total departures only return to 80% of 2019 levels by the end of 2020.
 - GDP impact of -3% globally weighs on the recovery (IMF estimates)
- Recovery looks increasingly 'U-Shaped' rather than 'V-Shaped'.
- Our aggregate impact, weighted by region, becomes -42% for 2020. This compares to Mckinsey at -45% (pessimistic scenario) and IATA at -48% for the year.**

Passenger numbers year-on-year by region



Revised 2020 fall of -42% compared to 2019

- The new scenario shows a steeper decline in 2020 which is quickly lessened, and remains on track to surpass +3.5% trended passenger numbers in 2023.
- The aggregate impact means 2.8bn less passengers over the next 4 years.

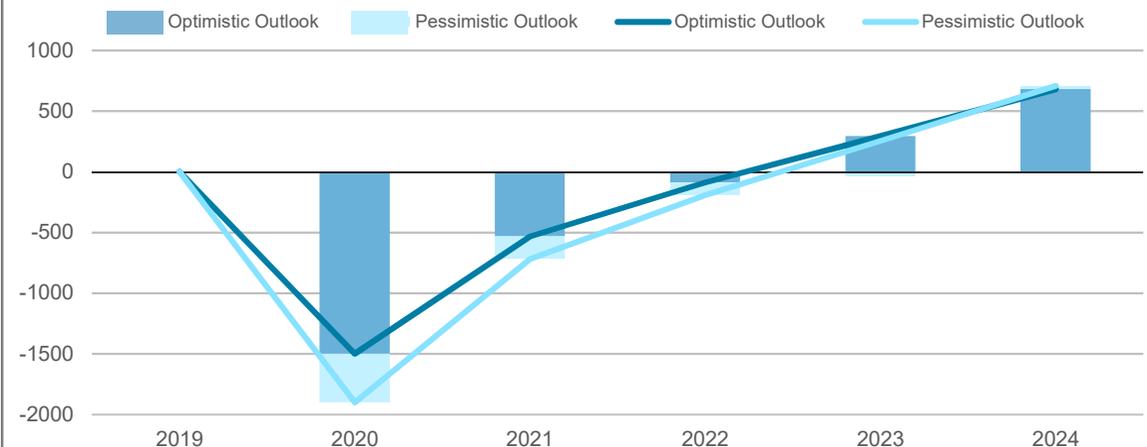
	Trended Pax (m)	Impact %	Size of Impact	Revised Pax Pessimistic Outlook (m)
2019	4,540			4,540
2020	4,723	100%	-42.40%	2,824
2021	4,888	50%	-21.20%	4,171
2022	5,059	35%	-14.84%	4,868
2023	5,236	26%	-11.02%	5,492
2024	5,420	19%	-8.06%	6,128

What does this mean for the insurance market?

We have used this methodology as a framework for forecasting the impact on aerospace insurance premiums. If you would like further detail on this then please contact one of the team overleaf.

Slower recovery loses an additional 1.1bn passengers over 10 years

Lost Activity vs Trend



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