

US Aviation Trends in 2019-2020



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INTRODUCTION



- What actually happened to the US aviation market when COVID-19 lockdown began?
- How did changes to aviation trends in 2019 to 2020 correlate to COVID-19 developments?
- How did domestic aviation trends compare to those internationally?

Covid-19 impact: Airlines expected to lose \$84.3 bn in 2020, says IATA

Even as the number of coronavirus cases continue to rise globally, various countries have restarted domestic and international air travel, albeit with precautions

Topics

Coronavirus | IATA | Lockdown

Business Standard

Coronavirus: Airlines set for 'worst' year on record

9 June 2020



Coronavirus pandemic



BUSINESS TRAVELLER



Global air travel won't recover till 2024, says airline body

Maureen O'Hare, CNN • Published 29th July 2020

Bureau of Transportation Statistics



DATA SOURCES



World Health Organization



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention



UNWTO
World Tourism Organization

Updated
June 7, 2021

Data Last Updated June 7, 2021
Metadata Last Updated June 7, 2021

Date Created
May 15, 2020

Views 837K
Downloads 40.1K

Data Provided by
CDC Case Surveillance Task
Force
Dataset
Owner
Brian Lee

Contact Dataset Owner

Common Core

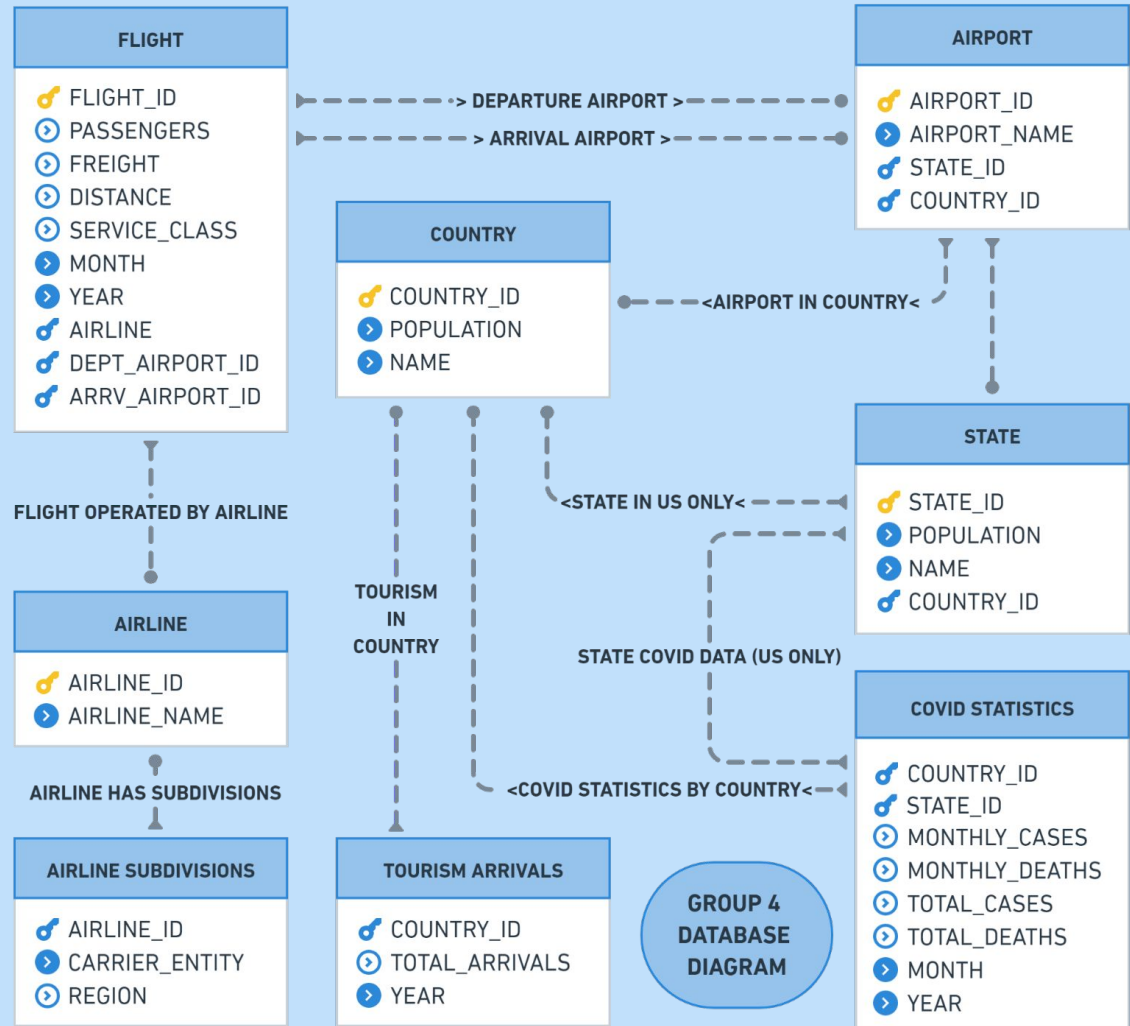
Contact Name	Surveillance Review and Response Group
Contact Email	eocevent394@cdc.gov
Publisher	CDC
Public Access Level	public
References	https://data.cdc.gov/api/views/vbim-akqf/files/bf489ec2-a7e9-4fe3-8331-1bbd7bea2dce?download=true&filename=utility_summary_public.pdf
Issued	2020-05-15
Bureau Code	009:20
Program Code	009:020
Geographic Coverage	US
Temporal Applicability	2020-01-01/2021-05-21
Data Dictionary	https://data.cdc.gov/api/views/vbim-akqf/files/0eb0e326-d1bd-42a3-a748-acc6d6663326?download=true&filename=data_dictionary_covid_cases_public.xlsx
Update Frequency	Every 2 weeks

[Show More](#)

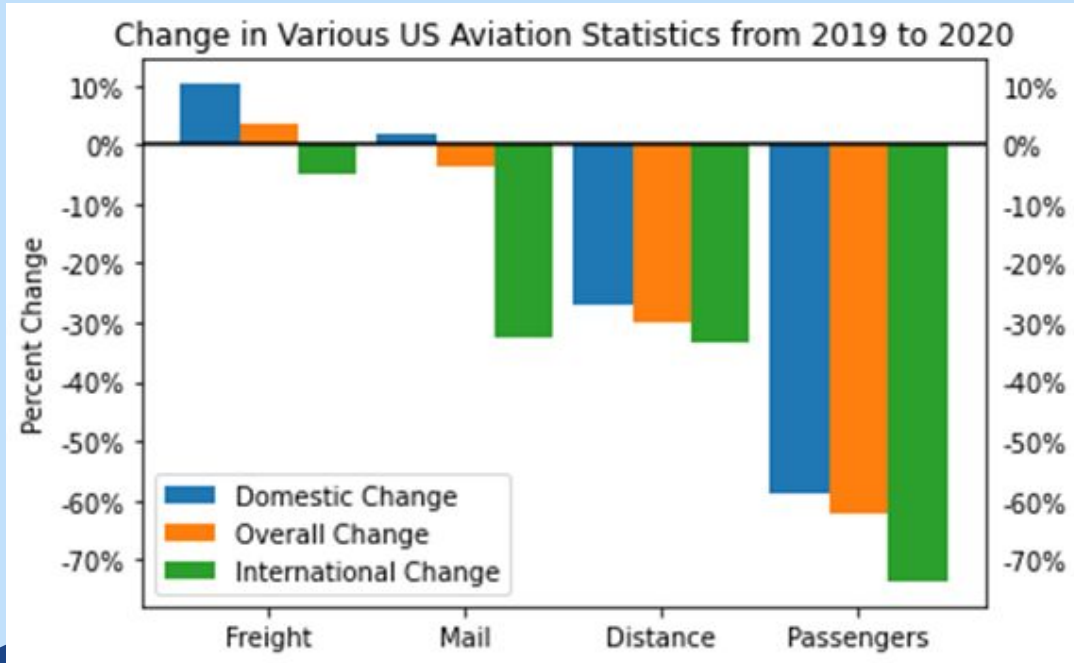
CarrierGroupNew	Carrier Group New	Analysis
Origin		
OriginAirportID	Origin Airport, Airport ID. An identification number assigned by US DOT to identify a unique airport. Use this field for airport analysis across a range of years because an airport can change its airport code and airport codes can be reused.	Analysis

DATABASE DESIGN

- All aviation data imported into a staging table
- Staging table populated airline, airport, & flight data
- External CSVs populate reference & lookup tables (ie Country and State)



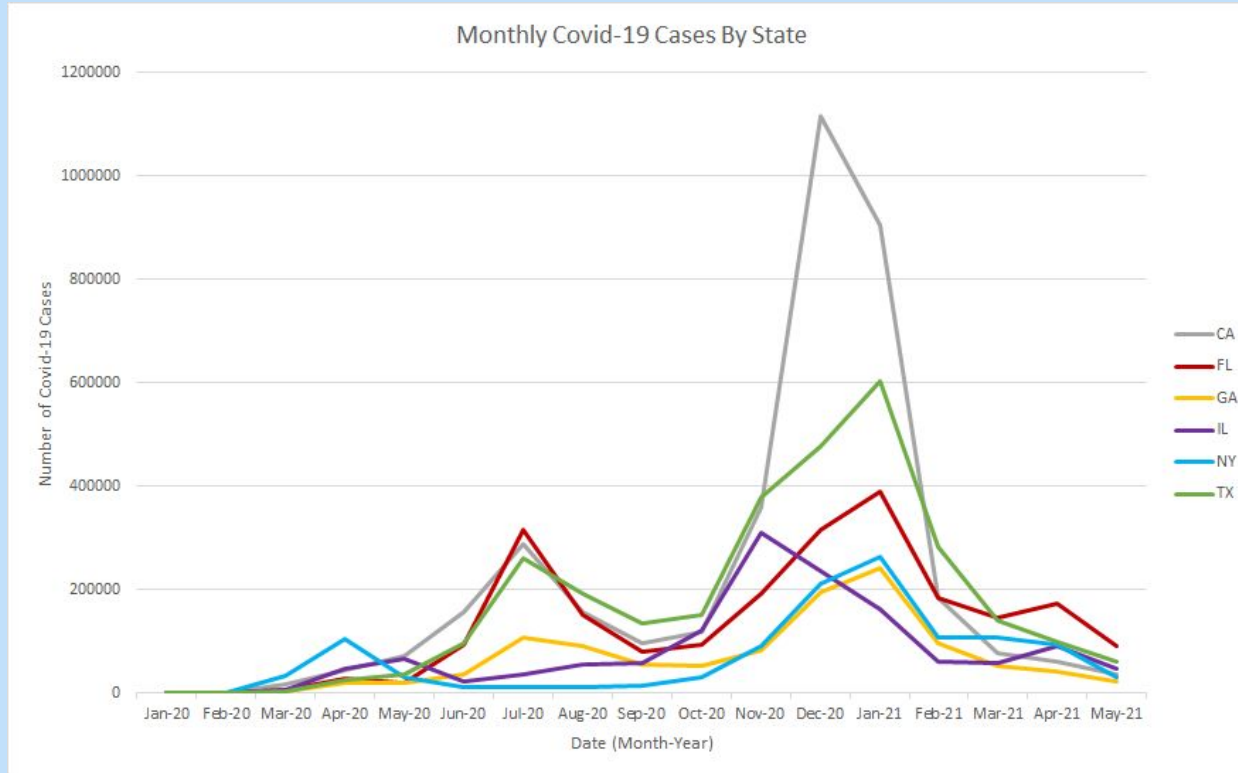
DOMESTIC VS. INTERNATIONAL AVIATION STATS



International data
saw bigger drops
than domestic
data in all four
categories



MONTHLY COVID TRENDS



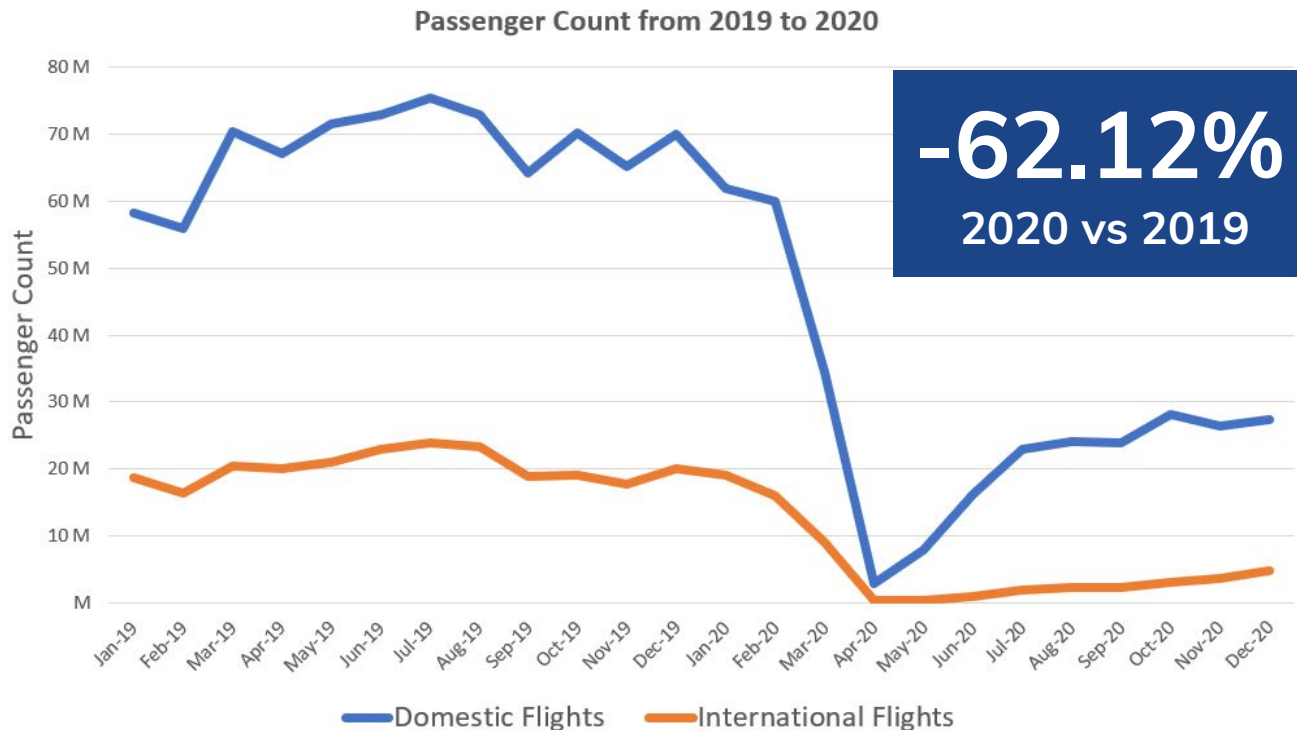
3 Notable Spikes in Covid-19 Cases during 2020

Monthly Cases Stagnated in April 2020 due to Increased Mandates

Steady Increase in Cases Starting in May 2020

Major Decrease in Cases Starting 2021

TOTAL PASSENGER COUNT TREND



How were the top 10 US airlines in 2019 affected during 2020?

Airline Name	% Decrease
Southwest	-58.34
Delta	-66.05
American	-57.80
United	-67.41
JetBlue	-66.60
SkyWest	-52.00
Alaska	-65.44
Spirit	-45.94
Frontier	-50.62
Republic	-53.44

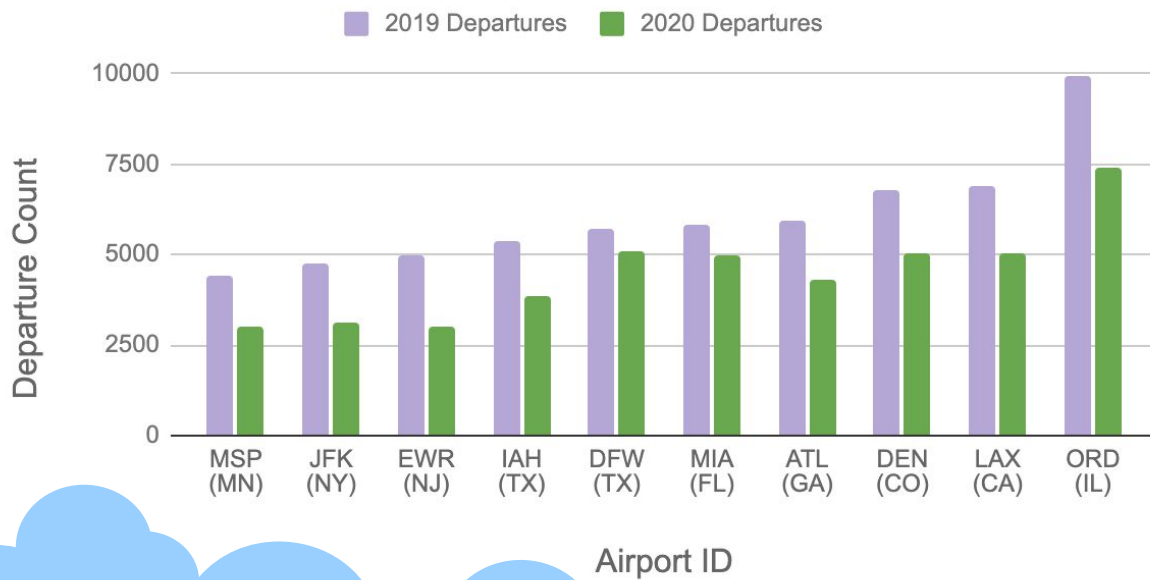
(% Decrease of Passengers)

US Departure Counts in 2019 vs 2020



Top 10 US Airport Departure Counts

During 2019 vs 2020



Which Airport had the highest decrease?

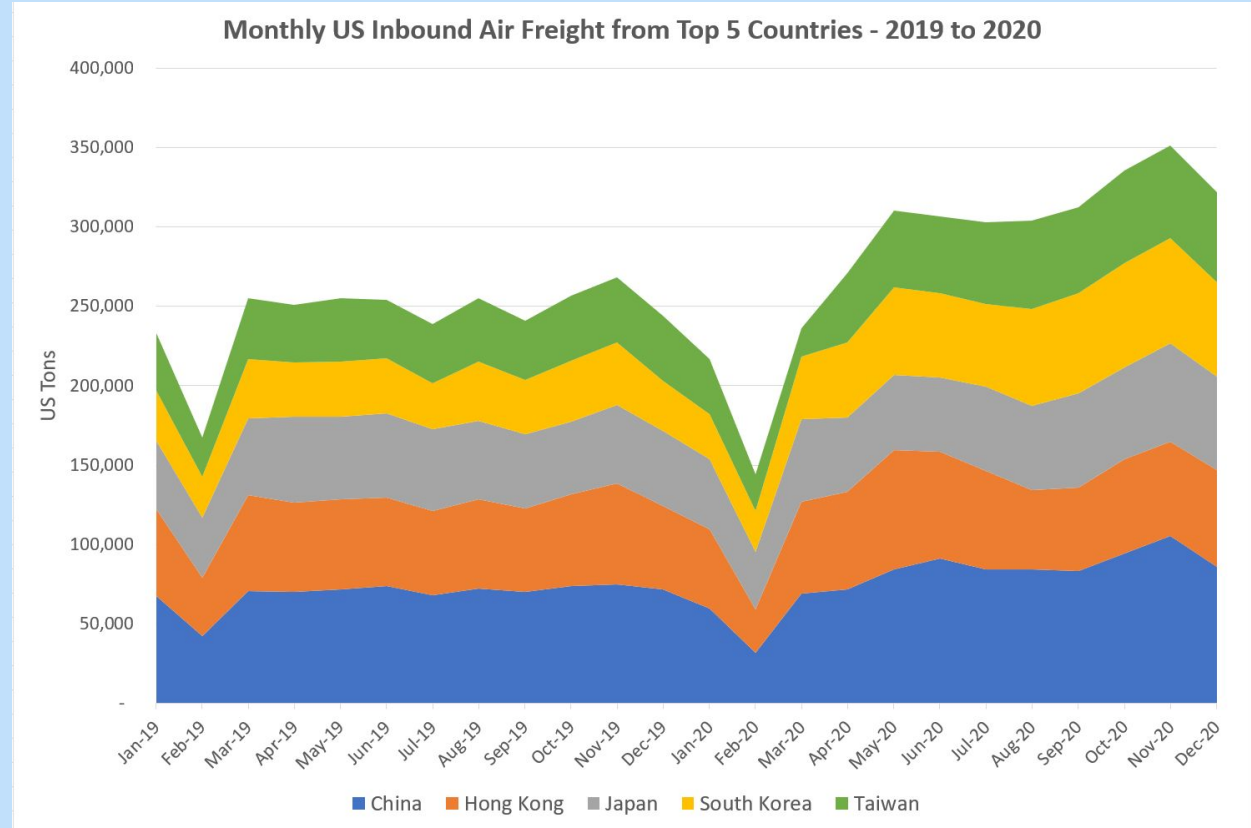
Airport ID	% Decrease
EWJ (NJ)	-39.05
JFK (NY)	-33.54
MSP (MN)	-31.80
IAH (TX)	-28.53
LAX (CA)	-27.16
ATL (GA)	-26.97
DEN (CO)	-25.55
ORD (IL)	-25.33
MIA (FL)	-14.36
DFW (TX)	-11.01

(% Decrease of Departures)

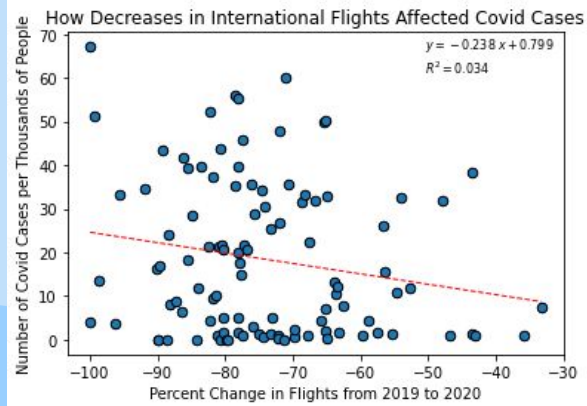
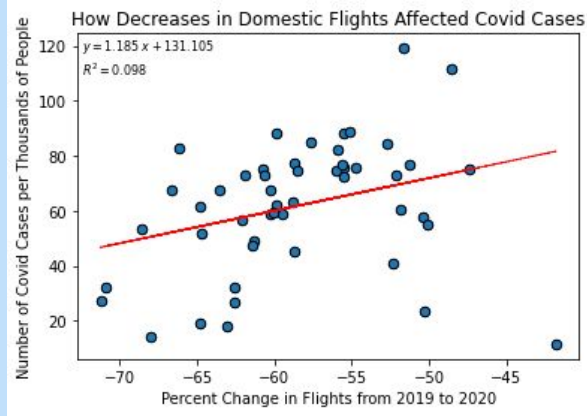
TOTAL INBOUND FREIGHT TREND

Monthly Year-over-Year Freight Change

Month	YOY Change
January	-1.89%
February	-0.19%
March	-6.04%
April	-5.15%
May	-3.08%
June	2.92%
July	7.53%
August	1.43%
September	11.76%
October	9.41%
November	9.23%
December	13.66%



FLIGHTS AND COVID CASES CORRELATION



- There is a weak positive correlation of about .31 between number of cases and percent change in flights
- This means states with a smaller decrease in the number of flights are more likely to have higher number of Covid-19 cases per capita
- When looking at cases on a global scale, though, the correlation coefficient is only .18, and the positive correlation becomes a negative one

CONCLUSIONS



- **Data Usefulness**
 - Countries can use flight numbers in conjunction with Covid data to help decide when to open and what countries to open their borders to
- **Data Limitations**
 - Countries may misrepresent Covid cases
 - Flight data from 2021 is currently unavailable
 - Flight data sourced from the U.S. only; lacks between international countries
- **Future Objectives**
 - Analyze 2021 flight data when available - look at vaccinations' role?
 - Add geographical subdivisions data for other countries
 - Integrate airlines' financial data



Thank you!
Any Questions?