

The Thirty Thousand Foot View for Restructuring Air Travel Post-COVID

A photograph taken from an airplane window, showing a vast landscape below. In the foreground, there's a large, dark blue body of water, possibly a lake or a bay. Beyond it, several mountain ranges are visible, their peaks covered in white snow. The sky above is a clear, pale blue. The right side of the frame shows the white wing and engine of the airplane.

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21 February 2021

Outline

1. Introduction
2. Objectives and Goals
3. Datasets and Considerations
4. Recent Flight Trends
5. Current Flight Trends
6. Vacation Travel
7. Conclusions and Actionable Insights



1. Introduction

Pre-pandemic, business travel accounted for 12% of travel and 75% of airline profits.¹

In the wake of the pandemic, travel in recent weeks is only at 60% pre-pandemic levels.²

As vaccines and therapeutics become widely available, leisure travel is expected to increase but business travel is predicted to remain low due to the shift to remote work and online meetings.

Our analysis looks to offset this lost revenue and take advantage of accelerating trends and shifting demand caused by the pandemic.

1: Trondent Development Corp (<https://www.trondent.com/business-travel-statistics/>)

2: Airlines for America (<https://www.airlines.org/dataset/impact-of-covid19-data-updates/#>)

2. Objectives and Goals

We provide the following insights:

1. Recommend airports where an increased presence will yield outsized returns
2. Identify cities primed for post-pandemic growth
3. Highlight vacation destinations to offset lost business travel
4. Utilization of coupons to drive consumer behavior

3. Available Dataset



Ticket Information:

- Ticket Price (USD)
- Number Purchased
- Coupons Available

Location Information

- Origin Airport
- Destination Airport
- Miles of Flight
- Contiguous USA

Metadata:

- Purchase Code
- Purchase Quarter
- Airline Company

3. The dataset and its complexities

- Quarter feature not useful as not clear what time this specifies, flight date or purchase date?
- Price per ticket feature not helpful as don't have any further details: what class purchased, if cost includes extras like luggage, time bought before flight, etc. Can only use to calculate overall average ticket prices.
- Coupons feature not useful as do not know what it signifies

3. Additional Information Sources

Demand Information

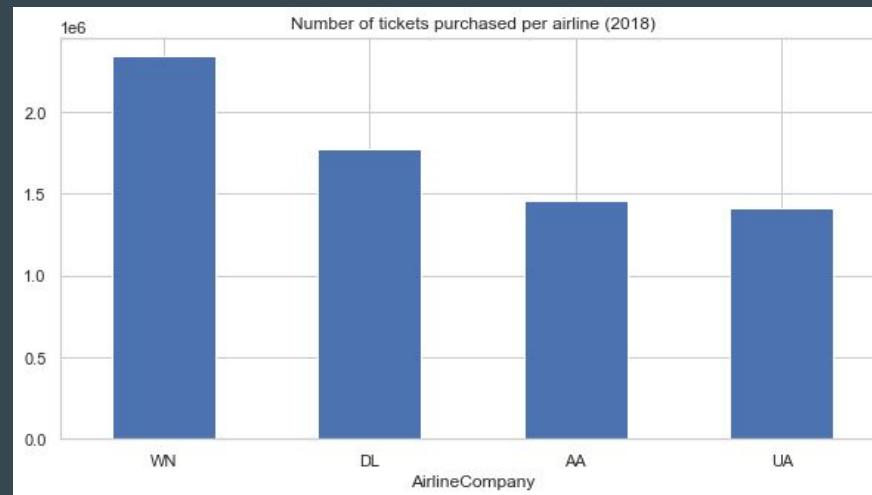
- US Census: Population, Growth Rate, Metropolitan Statistical areas
- Mckinsey Global Institute: Changes in worker location due to Covid-19
- Forbes & RENTCafe: Predicted Vacation Destinations

Airport Information

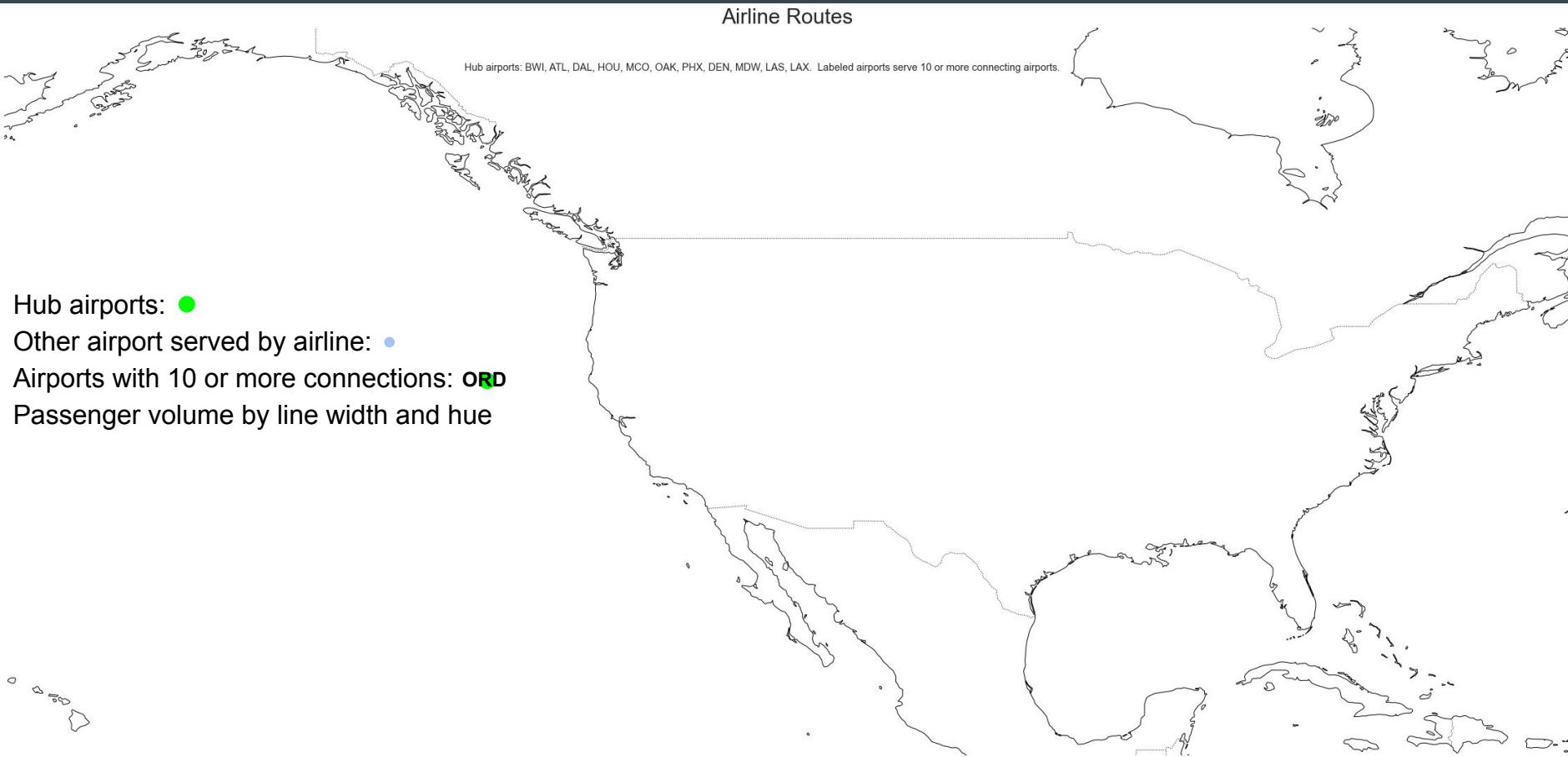
- List of Hubs cities by Airline
- R Package to connect IATA codes to Cities

3. The dataset and its complexities

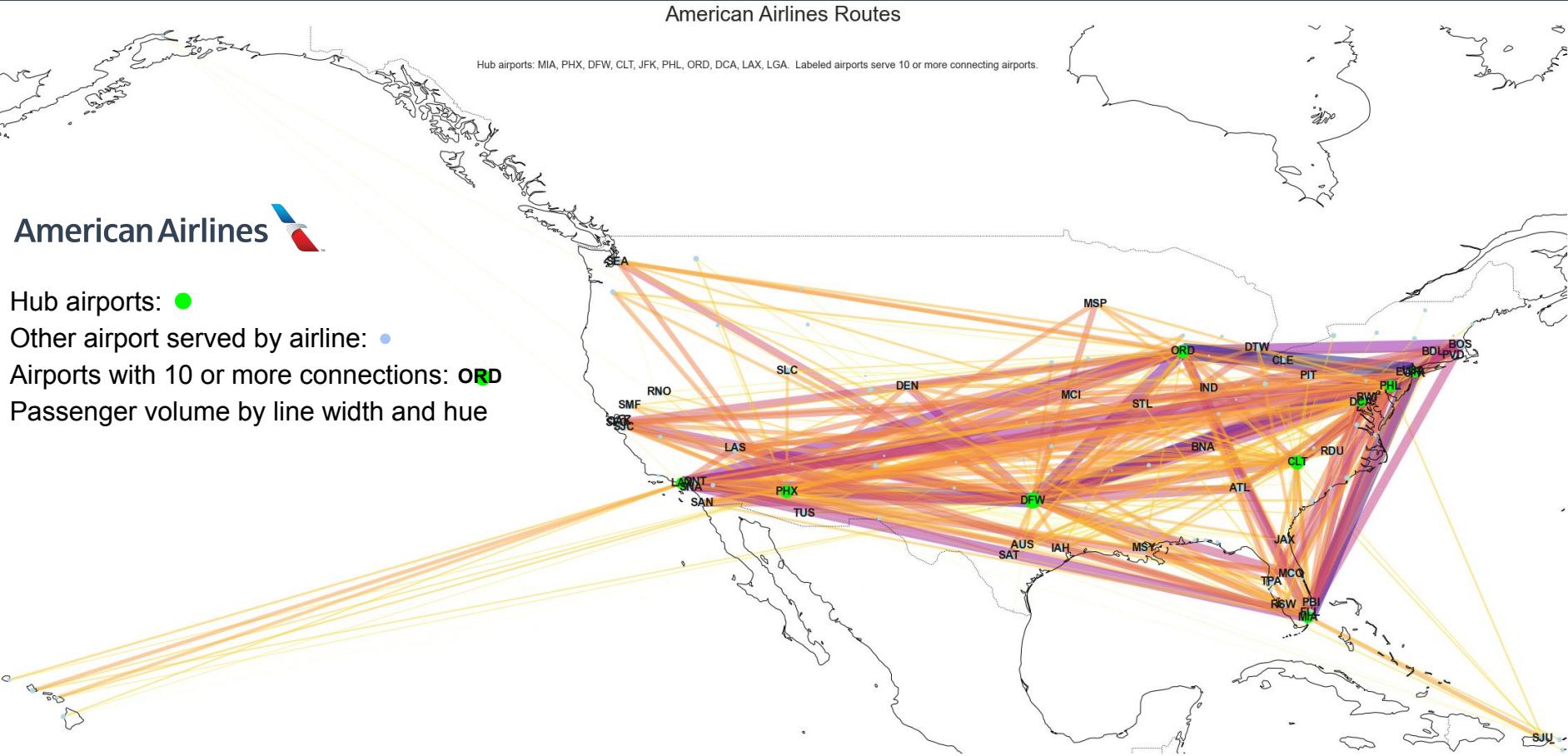
Number of tickets purchased from 9335 routes serving 199 US airports (year 2018)



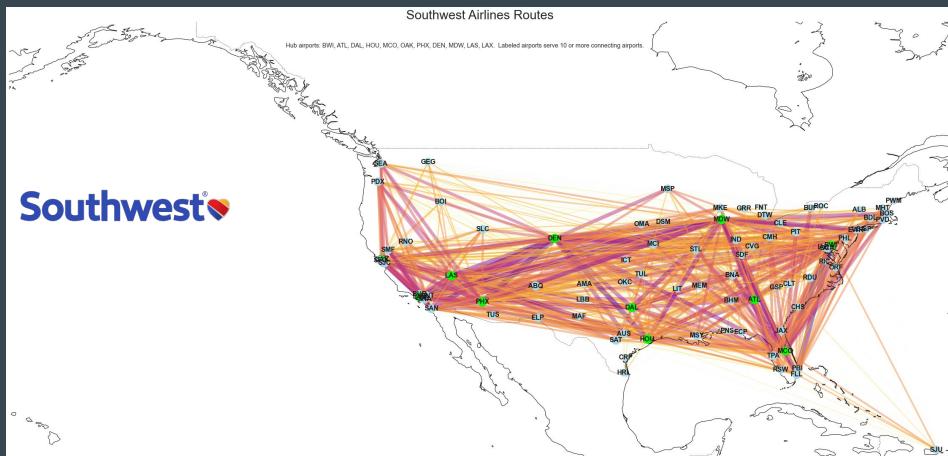
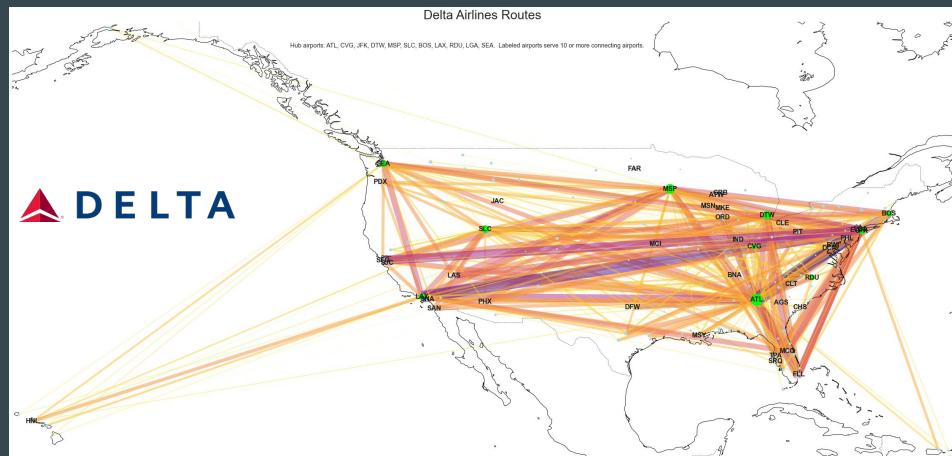
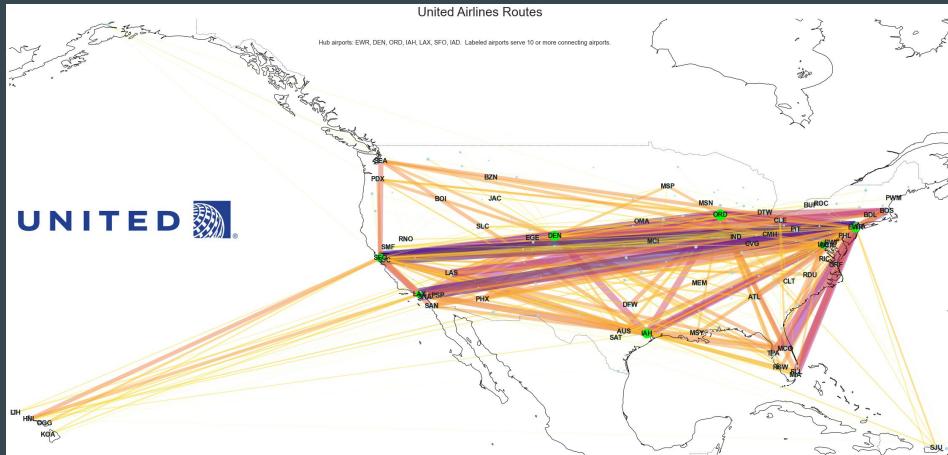
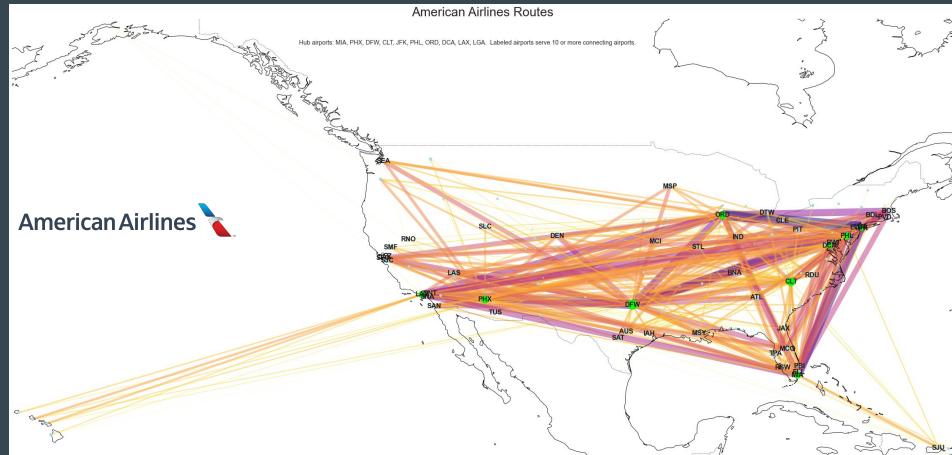
4. Exploration of 2018 route networks: overall



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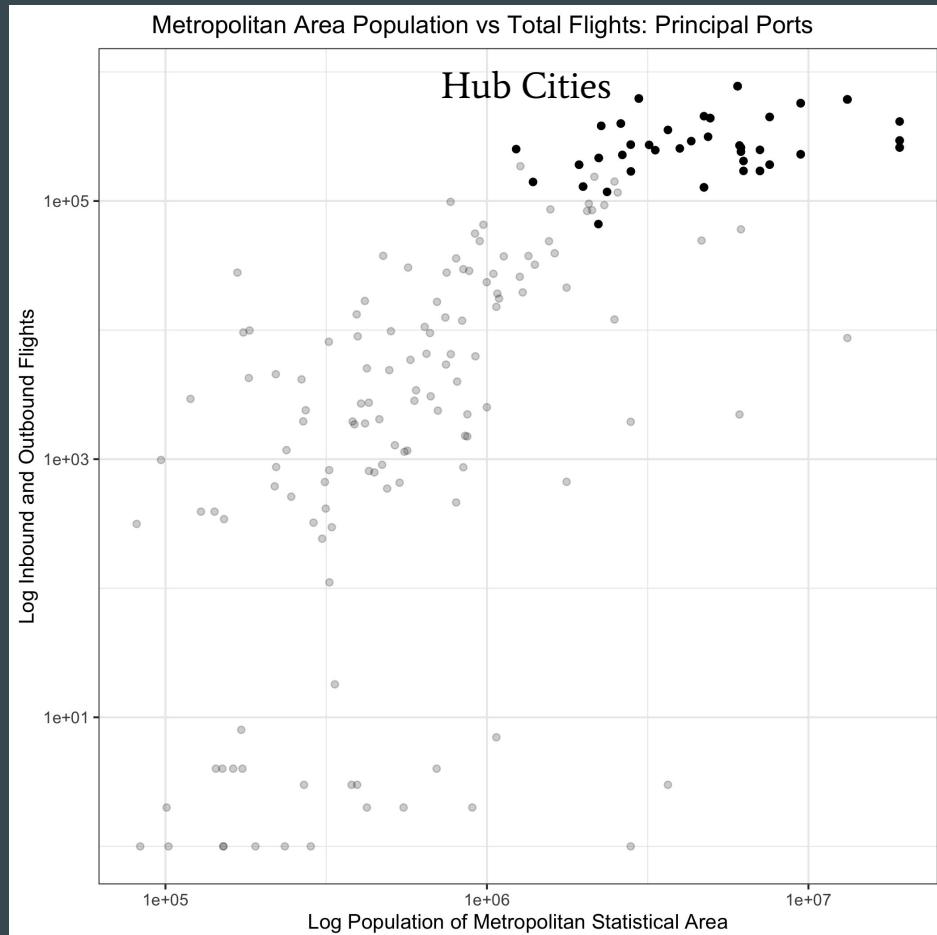


4. Long-term Trends

Airport hubs and focus cities are heavily disproportionately large cities.

This ‘hub’ system works well for travelers going to large cities, but looks weaker in the face of current trends.

Solid Point: Hub Airports



4. Decade Growth Trends

Using 2010-to-2019 census data for Metropolitan Statistical areas, we can see that while hub airports are in large cities, they do not necessarily serve fast growing cities.

There are cities like Myrtle Beach SC, Midland TX, Fort Myers, FL which have a high growth rate but are not airline hubs



4. High Opportunity Metro-Areas

We used our combined datasets to identify cities with a large opportunity for growth and market saturation. The criteria were, 2010-19 growth rate >10%, a single airline accounting for more than 50% of flights and a high population.

City Name	IATA	Population	Pop. change 2010-2019	Main Carrier	Market Share
San Antonio, TX	SAT	2.5 Million	19.0 %	Southwest	60%
Sarasota, FL	SRQ	840 Thousand	19.2 %	Delta	69%
Midland, TX	MAF	180 Thousand	21.5 %	Southwest	94%
Oklahoma City, OK	OKC	1.4 Million	12.5 %	Southwest	73%

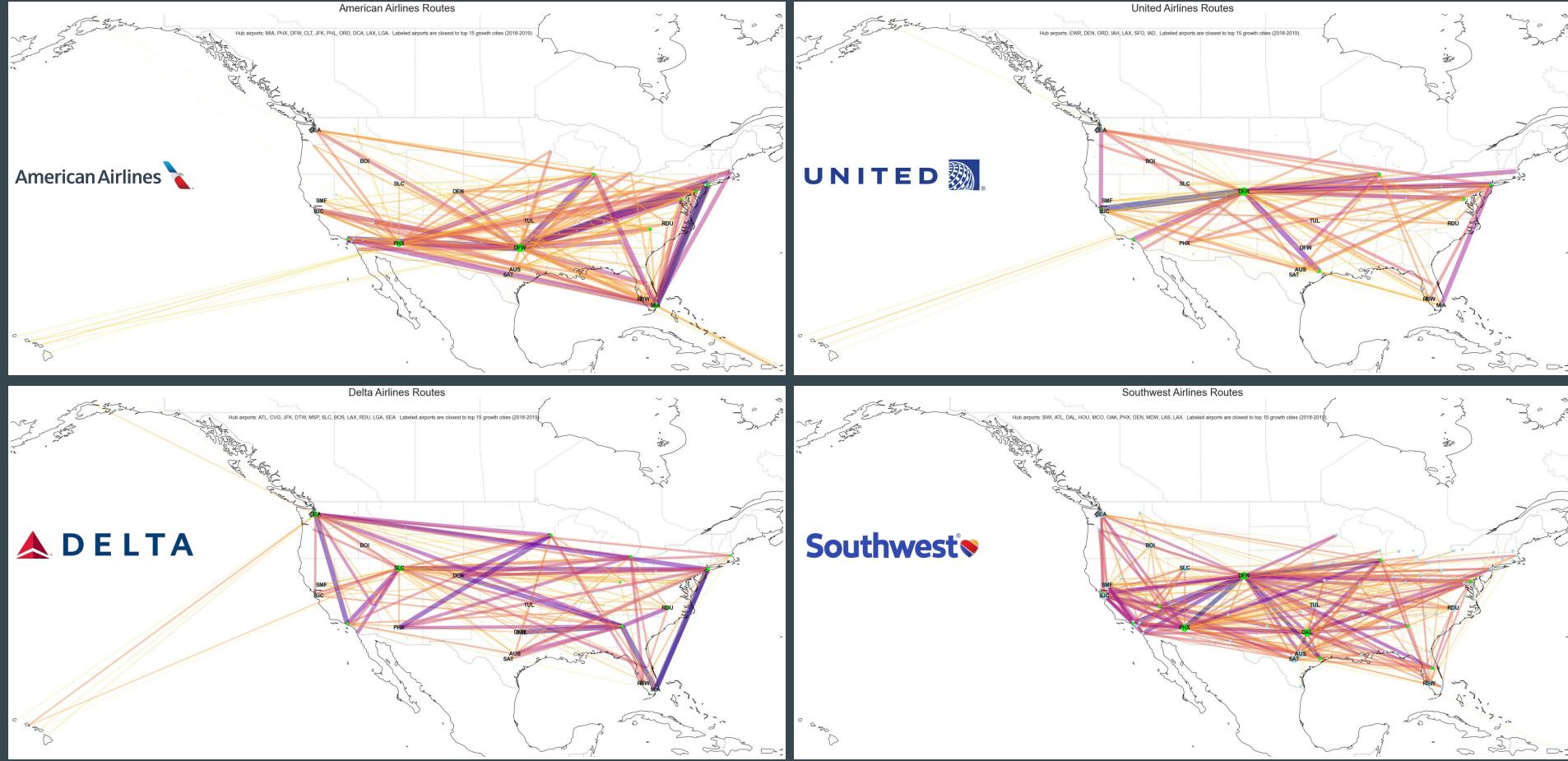
5. Top 15 growth cities

While we can learn much examining decade long growth trends, metropolitan areas are large and a decade is a long time. We can use more recent data to examine a subset of cities for their potential to grow. Here we use a combination of US Census data and LinkedIn data to examine recent (1-2 yr) and covid specific (<1 yr) changes in population.

The 15 Fastest-Growing Large Cities - By Percent Change: 2018-2019 (2020 US Census data)

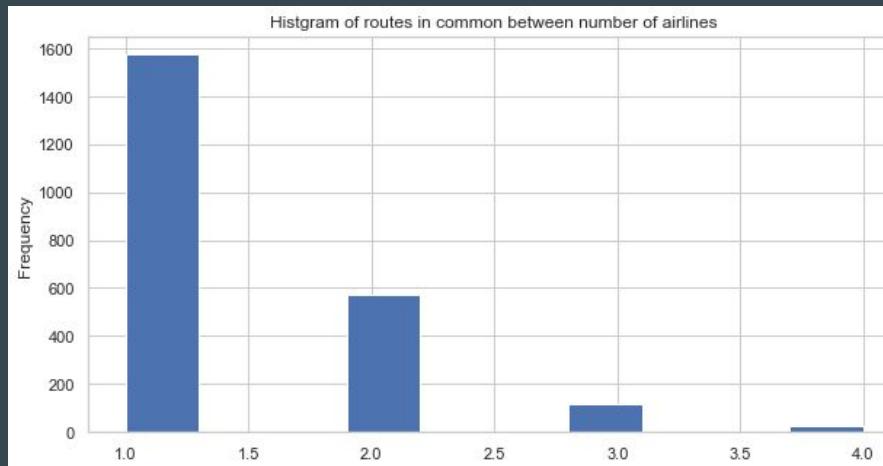
1. Leander, TX (AUS)
2. Apex, NC (RDU)
3. Chico, CA (SMF)
4. Doral, FL (MIA)
5. Bentonville, AR (TUL)
6. Meridian, ID (BOI)
7. Georgetown, TX (AUS)
8. Buckeye, AZ (PHX)
9. New Braunfels, TX (AUS, SAT)
10. Redmond, WA (SEA)
11. Frisco, TX (DFW, DAL)
12. Fort Myers, FL (RSW)
13. Lehi, UT (SLC)
14. Castle Rock, CO (DEN)
15. Milpitas, CA (SJC)

5. Current route networks: 15 growing cities



5. Current route networks: 15 growing cities

For routes to top 15 growth cities, the majority are served by just one airline, meaning that there is no competition for these routes.

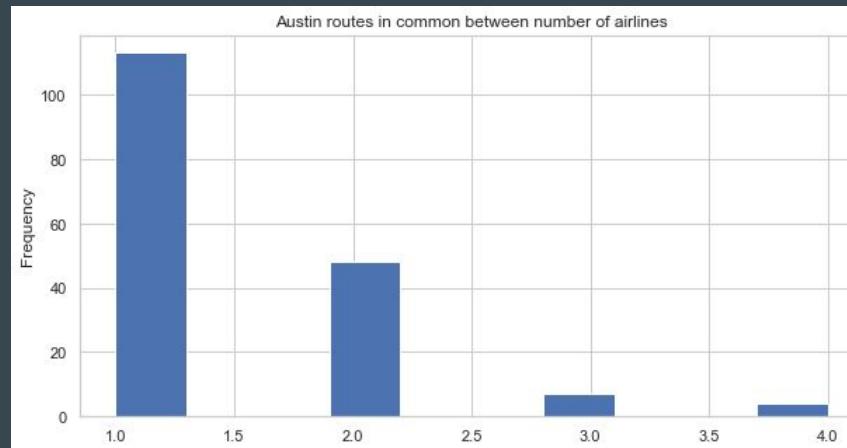


5. Austin case study

Three of the top 15 rapid growing cities are in the Austin, TX metro area:

Leander, Georgetown and New Braunfels

There are 246 routes in to or out of AUS airport



5. Austin case study

To fly between Austin and Chicago, there is only one option: Southwest Airlines to Midway airport

13480 passengers flew this route in 2018

Southwest average ticket cost:

AUS to MDW: \$226

MDW to AUS: \$222

Considering that both United and American airlines have hubs at Chicago's other airport, O'Hare, this is a case for growth opportunity for these two competitors

Southwest could also strengthen this route to solidify market share

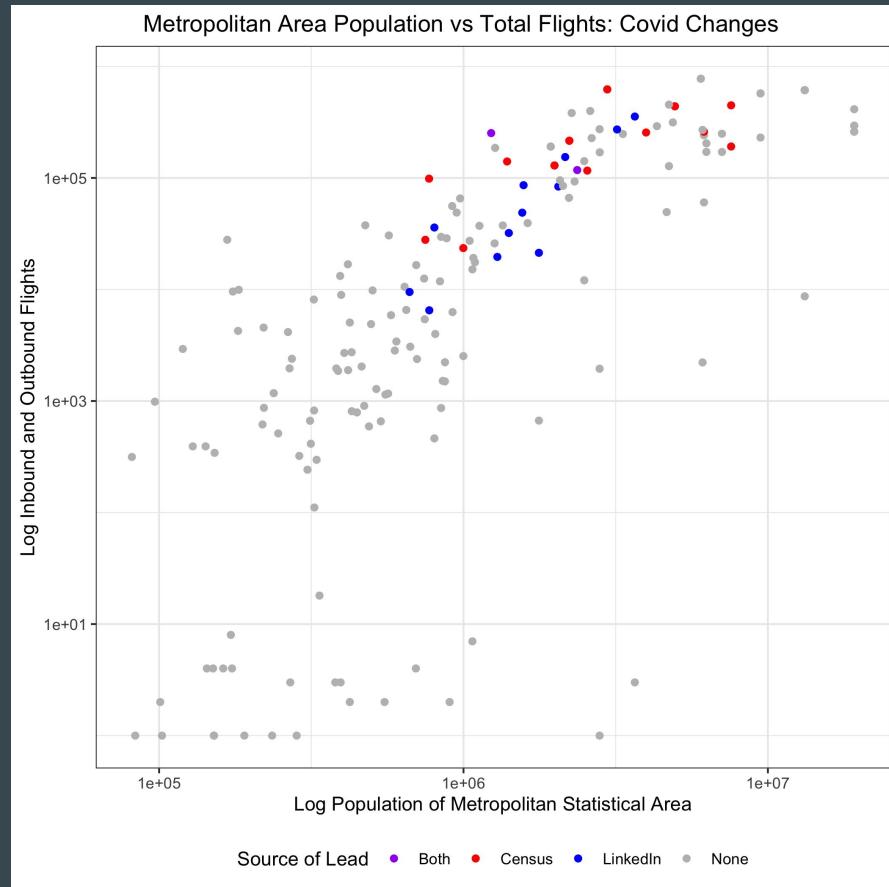
5. High Growth Cities: Conclusions

Predicting which of these changes will last is beyond the scope of our project.

However, we can see that many of the high growth cities identified are not hubs.

Providing them with services and establishing a hub location early may help fortify customer loyalty.

2018-2019 US Census: Red
Covid-19 LinkedIn: Blue



6. Current route networks: vacation destinations

Vacation travel presents an opportunity for airlines to offset lost revenue from reduced business travel.

Encouraging off-season travel to cities where your companies have a large footprint will help balance the travel load.



6. Current route networks: vacation destinations

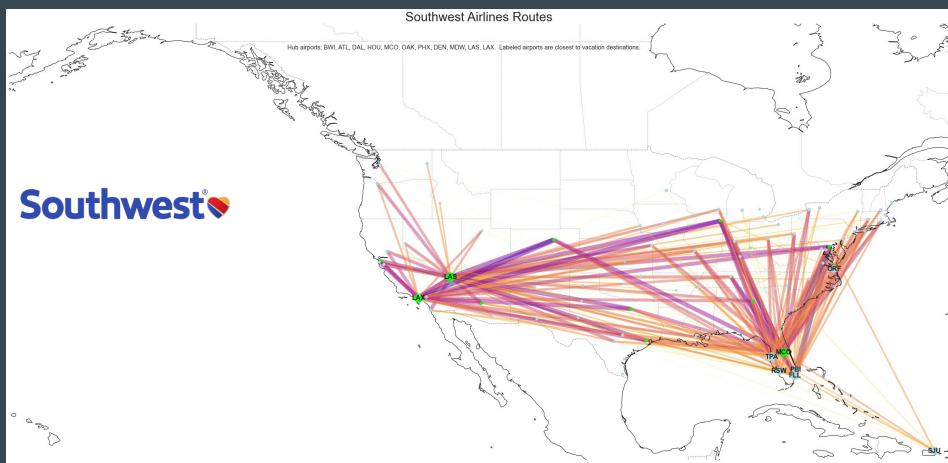
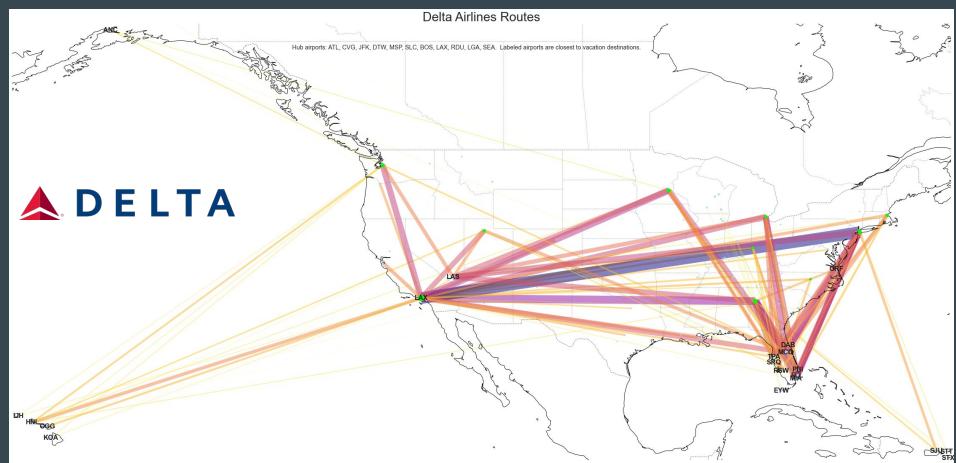
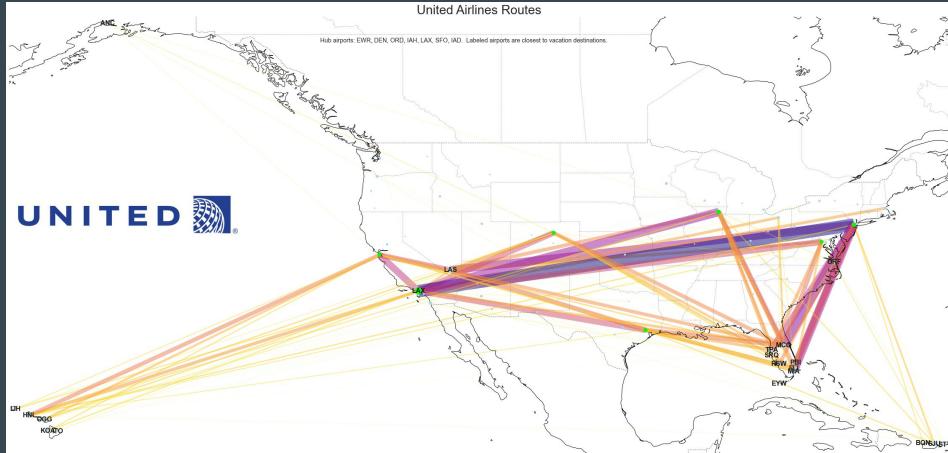
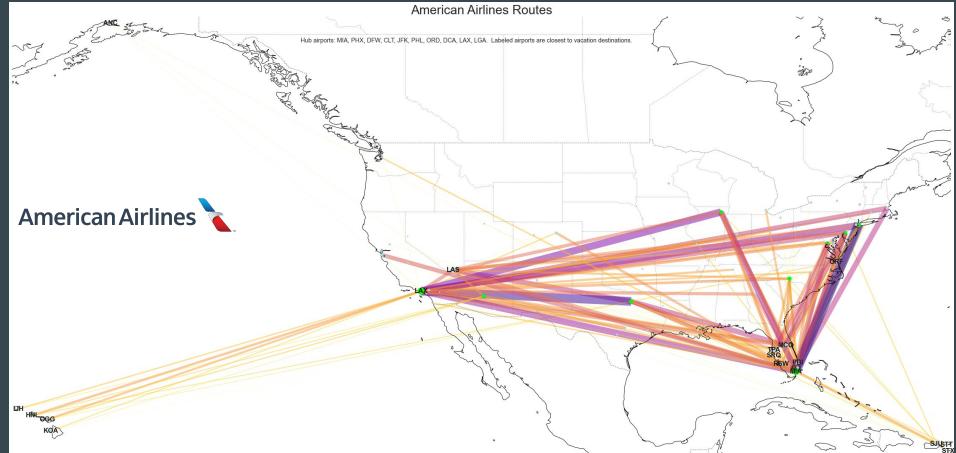
Top post-COVID travel destinations

From Forbes magazine based on results from a study of search results carried out by RENTCafé-a nationwide apartment search website and research blog

Includes:

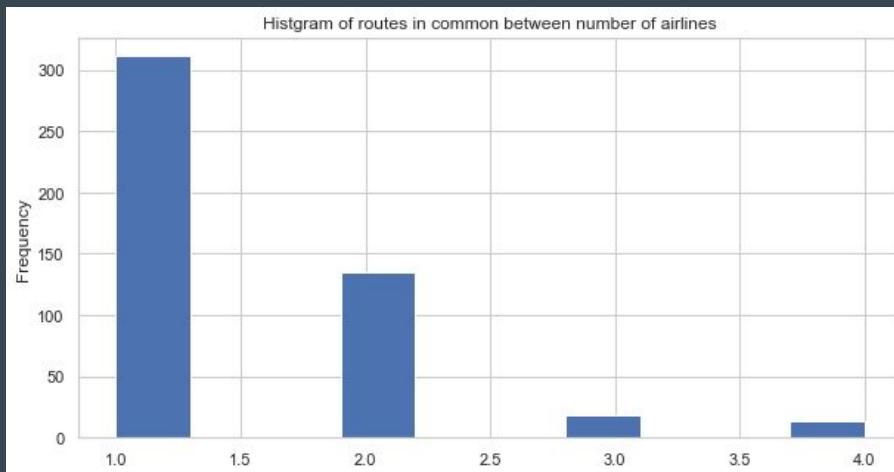
- Beach destinations
- Large cities
- Small towns
- Nature travel destinations

6. Current route networks: vacation destinations



6. Current route networks: vacation destinations

For routes to vacation destinations, the majority are served by just one airline, meaning that there is no competition for these routes.



6. Caribbean case study

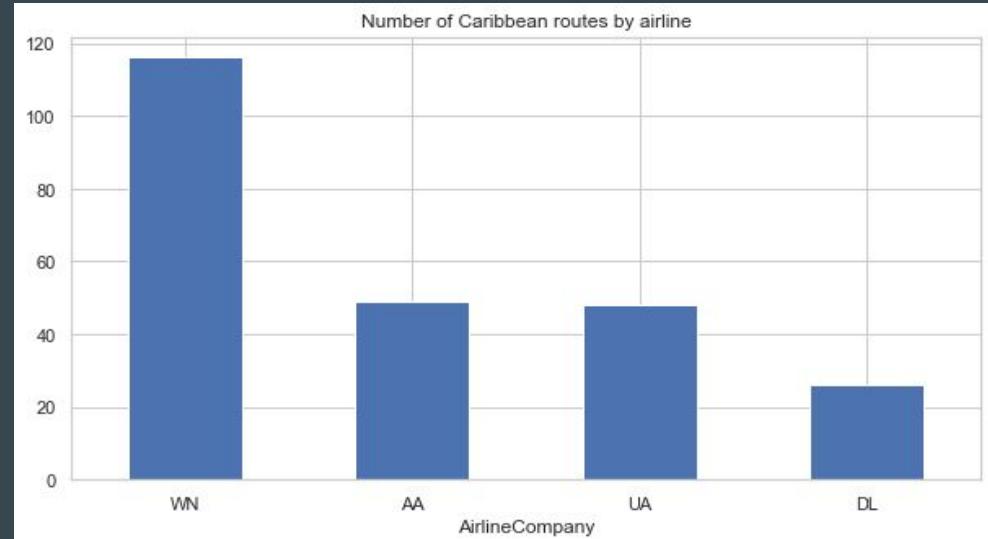
All four airlines fly to US Caribbean destinations:

Puerto Rico (SJU and BQN)

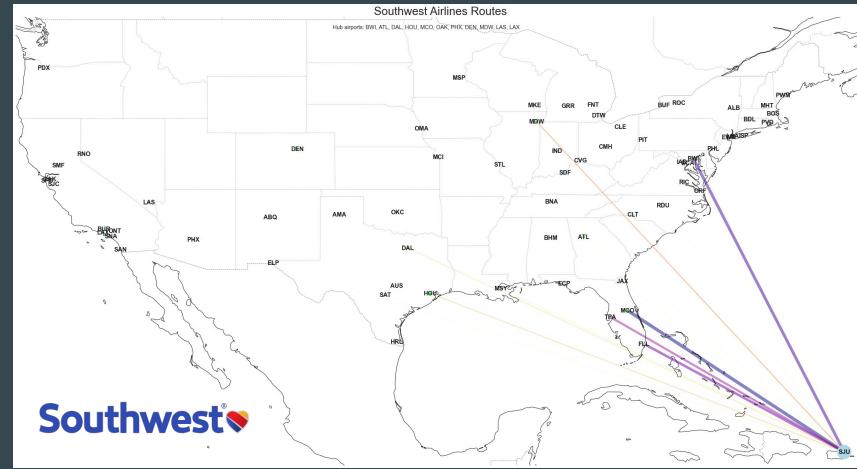
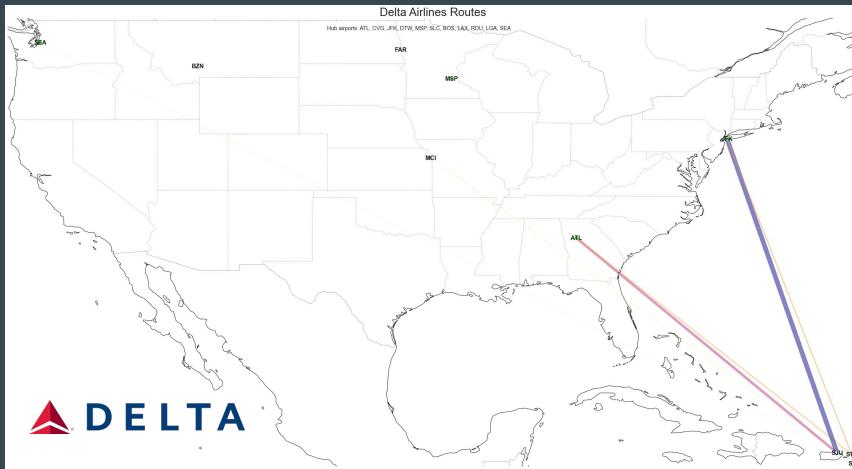
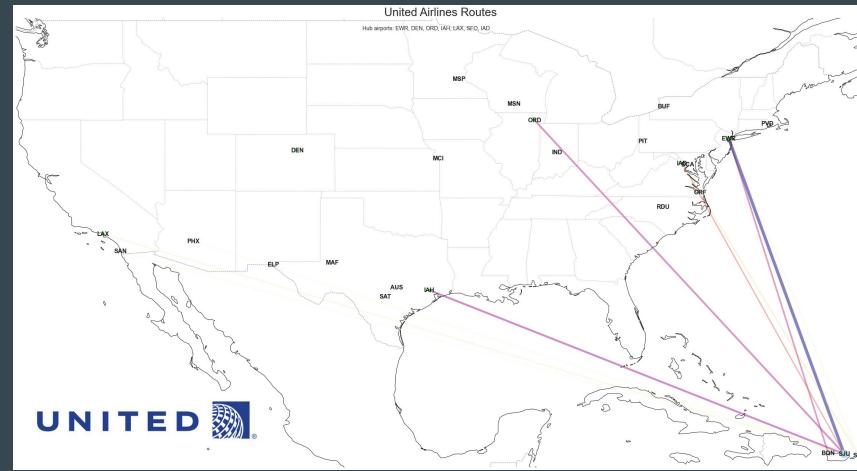
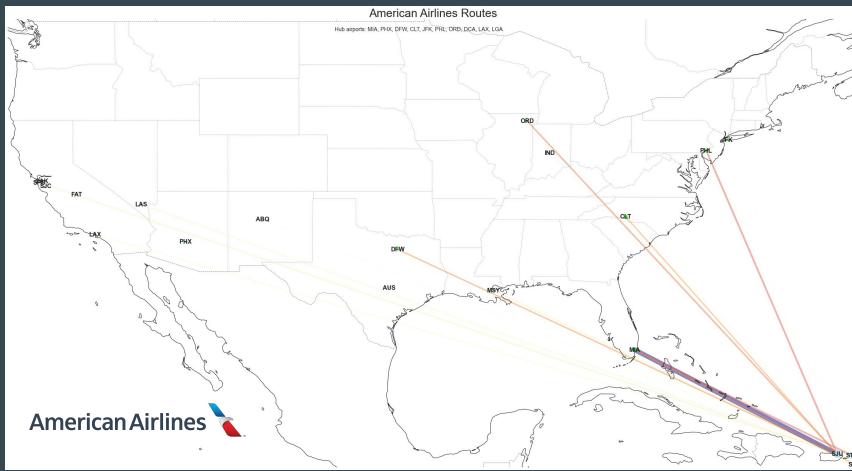
St. Thomas (STT)

St. Croix (STX)

239 routes total



6. Caribbean case study



6. Vacation Travel: Conclusions

The Caribbean is just one of many vacation destinations that is predicted to become more fundamental for airline revenue generation post-COVID

Airlines should plan to restructure routes to accommodate new vacation travel demand

7. Conclusions and Actionable Insights: SWOT Analysis

	AmericanAirlines 	UNITED 	DELTA 	Southwest 
Strength				
Weakness				
Opportunity				
Threat				

7. Conclusions and Actionable Insights: SWOT Analysis

	American Airlines 	UNITED 	DELTA 	Southwest 
Strength	Hubs in growth cities: PHX, DFW Hubs in vacation destinations: MIA, LAX 3 hub cities serve Hawaii routes	Hubs in growth cities: IAH, DEN Hubs in vacation destination: LAX Many Hawaii routes	Hubs in growth city: SLC Hubs in vacation destinations: LAX Many Hawaii routes	Hubs in growth cities: MCO, HOU, DAL, LAS, DAL, DEN Massive route network
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Weakness		Less expansive route network with respect to high growth areas and most vacation destinations	Having hubs in northern cities might hinder establishment of new routes in growth areas and vacation destinations No hubs in southern/SW growth areas and limited vacation destinations Only cities with Caribbean destinations: NYC, ATL	No Hawaii routes (vacation destination)
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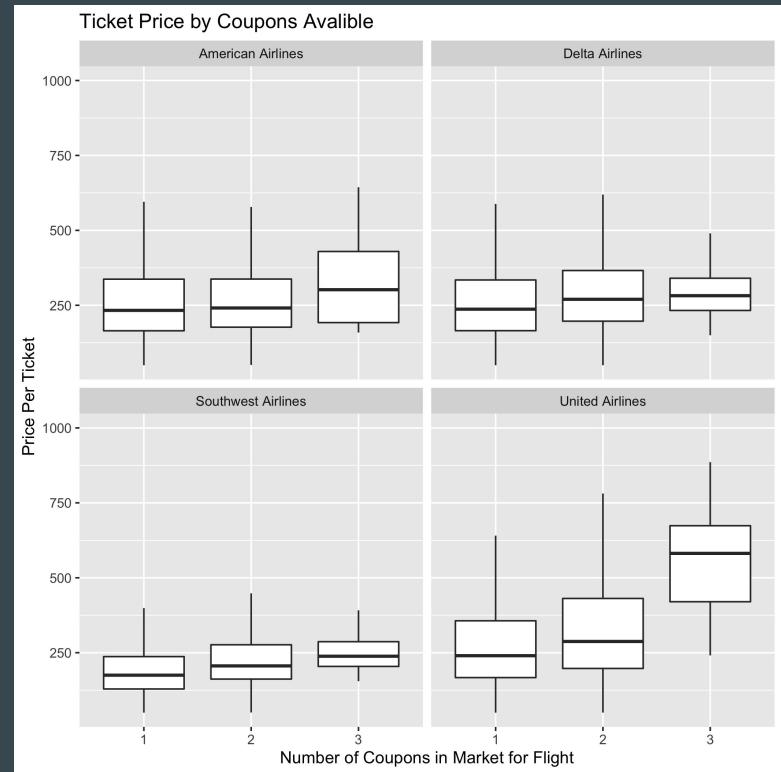
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Threat	Need to maintain market share in grow areas and vacation destinations Heavy FL competition	Need to maintain market share in grow areas and vacation destinations	Having much route coverage in northern cities may prove detrimental as these are not growth areas (with the exception of SEA and PDX) Very weak route coverage for some vacation areas (Caribbean)	Exposure to competition in cornered markets in growth areas Heavy FL vacation travel competition

7. Coupons: An option to influence travel timing

Only 3% of flights have 2 or 3 coupons available.

Manipulation of coupon offerings can be used to drive off-season travel to offset losses in business travel.

Currently the coupons data is not sufficient to make market predictions but we can identify that it is an underutilized aspect of customer engagement.



Thank you

Growing markets offer outsized returns

Vacation travel can offset lost business travel

Sources

Airline Hubs, Codes, Locations:

<https://www.airfarewatchdog.com/blog/50066526/airline-hub-guide-which-u-s-cities-are-major-hubs-and-why-it-matters/>

<https://www.partow.net/miscellaneous/airportdatabase/>

Metropolitan Statistical Area Statistics:

https://en.wikipedia.org/wiki/List_of_metropolitan_statistical_areas

US Census:

<https://www.census.gov/newsroom/press-releases/2020/south-west-fastest-growing.html>

McKinsey Global Institute:

<https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Future%20of%20Organizations/The%20future%20of%20work%20after%20COVID%2019/The-future-of-work-after-COVID-19-Report.pdf?shouldIndex=false>

Forbes Post-Covid Travel Destinations:

<https://www.forbes.com/sites/laurabegleybloom/2020/05/20/america-best-places-travel-beaches-small-towns/?sh=2dd239bb7e3a>