

A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light green color. They are positioned diagonally, with the blue one in front of the green one.

Oversold Tickets in a New Airline

Diego Duque



Backstory

The Client: brand new airline

“Do other airlines oversell flights? Should we oversell the flights? Will it help us to make more money? Is this something that is controllable or predictable?”

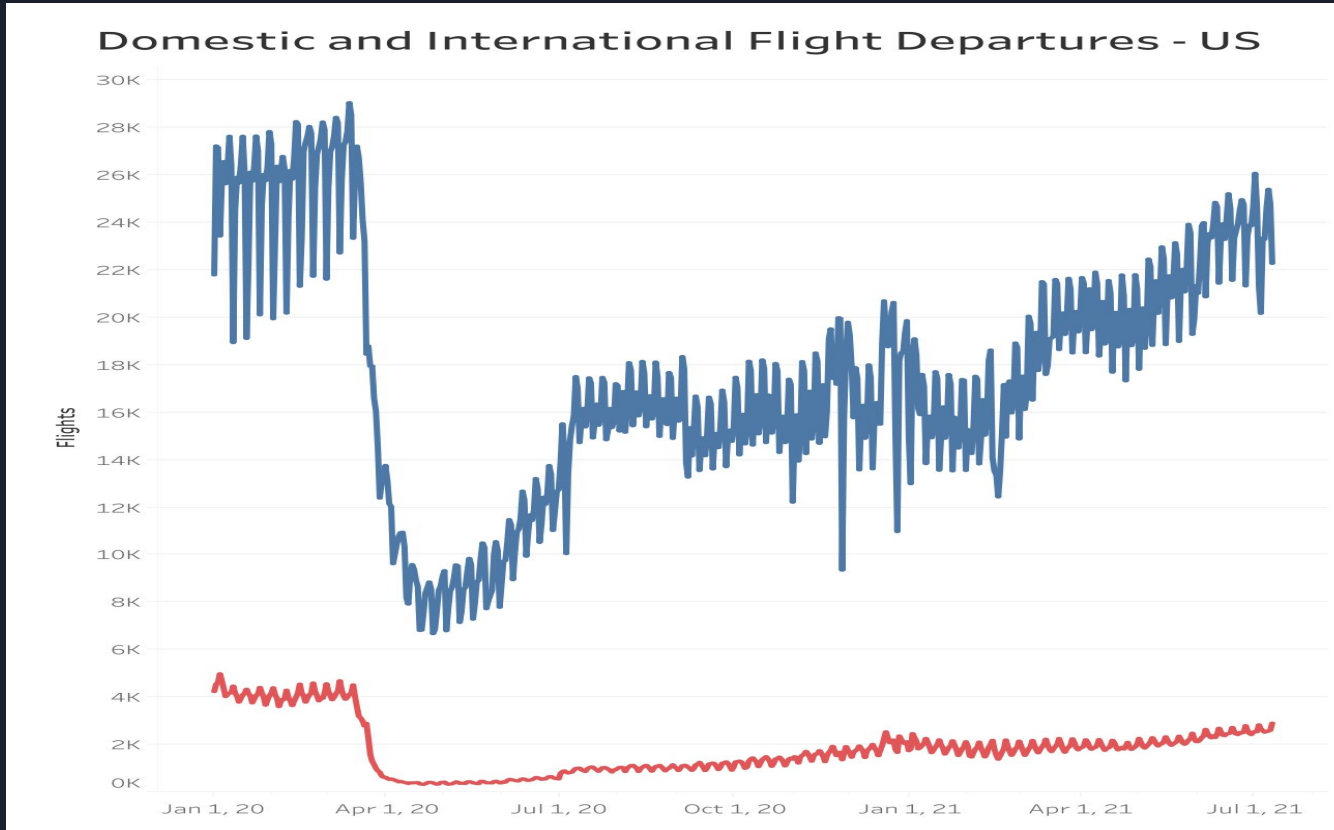


From the Industry

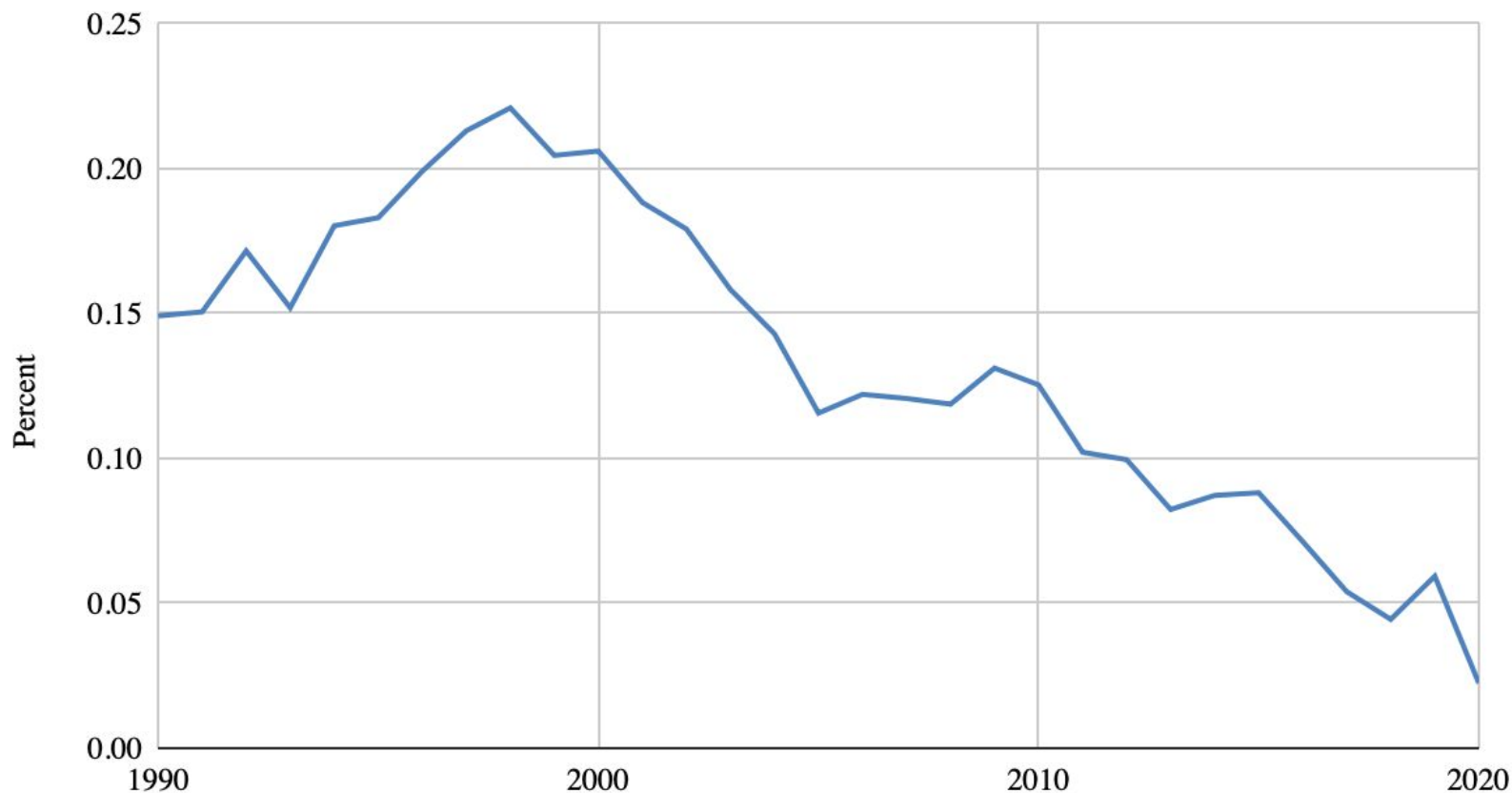
According to American Airlines from all bookings in 2015:

- 35% cancelled
- 15% did not show up

Recovery during COVID-19

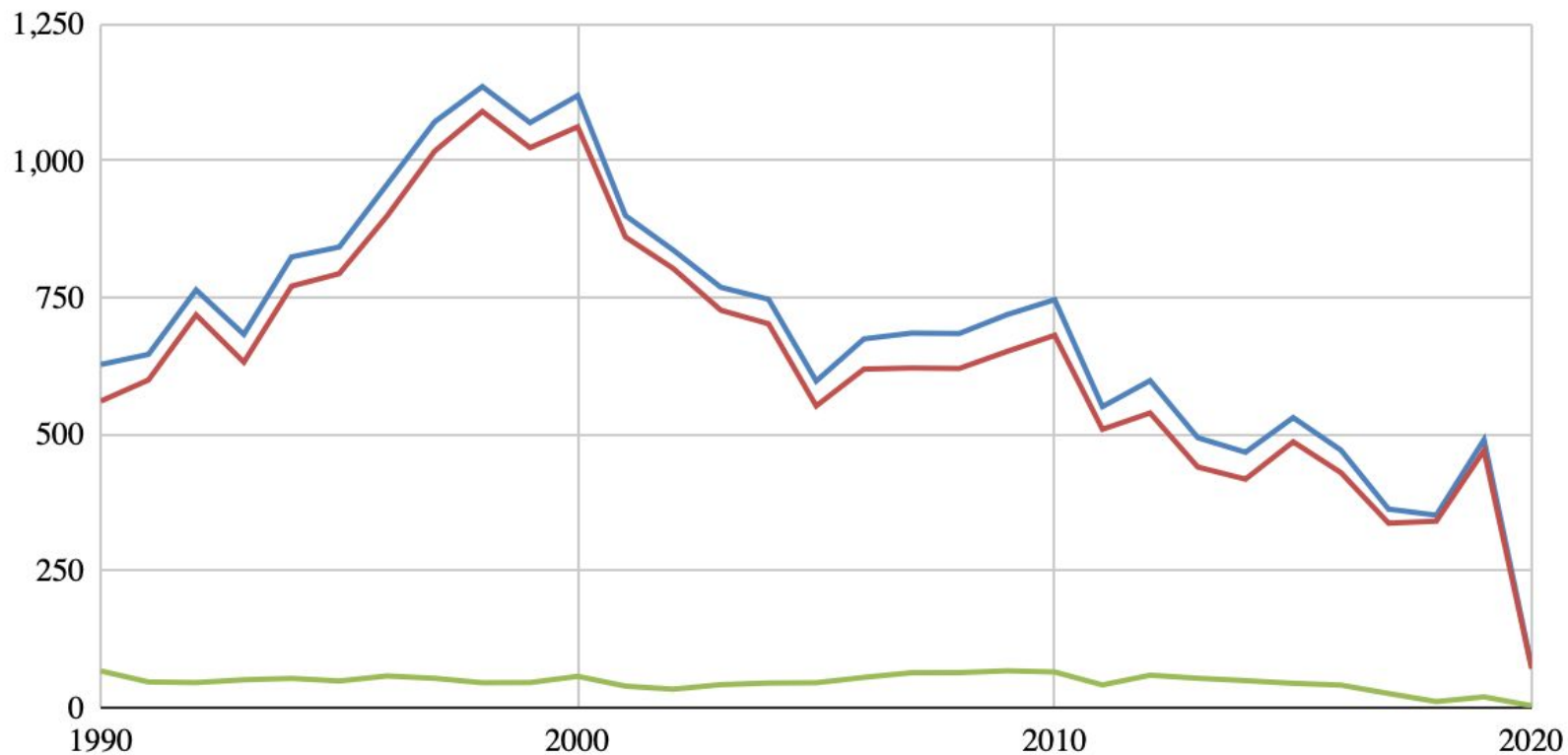


Percent of People Denied Boarding 1990-2020



Bumped People: Flights 1990-2020

— Total denied boarding — Voluntary — Involuntary



Risks

United stock 11/4/2017:
-4% in 1 day = -\$1 billion

BBC
NEWS

United Airlines: Shares drop after passenger dragging video

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How Many Seats to Oversell?

- Assuming 90% of passengers show
- 128 seats (AIRBUS A319)

Probability of a no-show:

$$\text{Max Seats} = 128 / .9 = 142.22 - 128 = 14.22$$

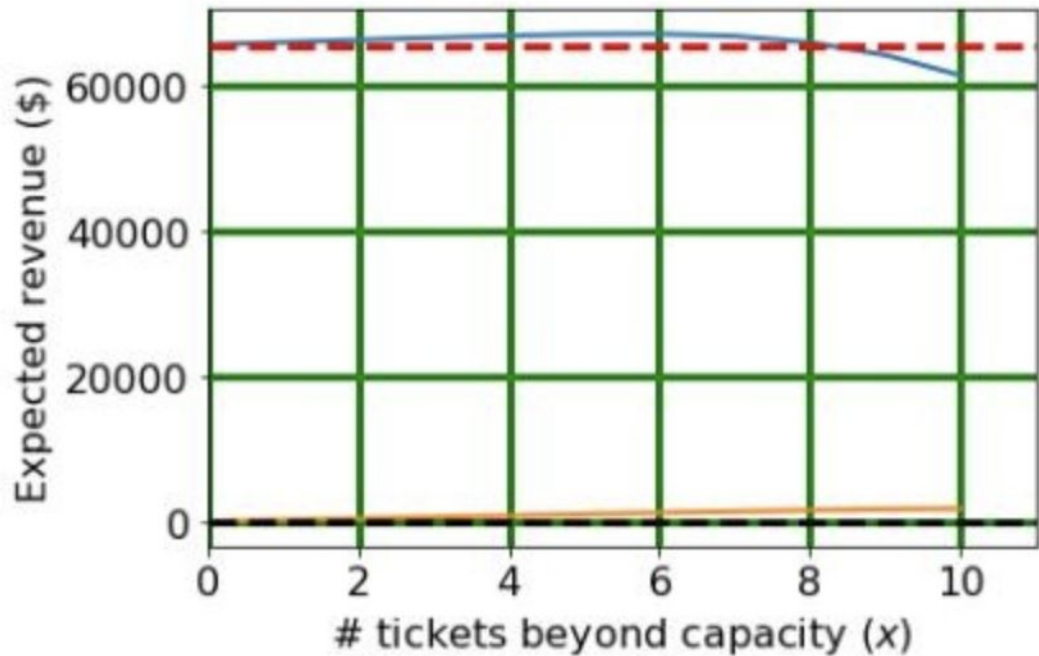
14 seats

Is it Worth it for an Airline?

- \$512 Ticket
- \$200 Overbooking Voucher

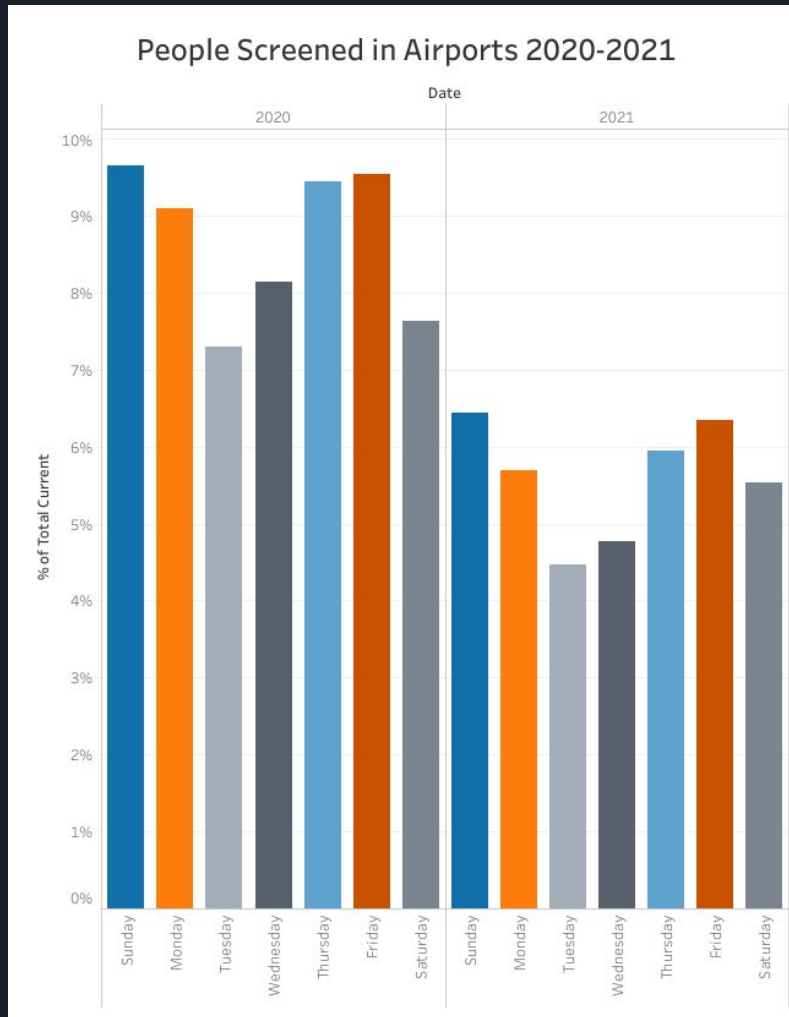
Binomial Function:

5	133	\$67,953.54	\$997.91	\$66,955.63
6	134	\$68,188.60	\$1,192.66	\$66,995.94
7	135	\$68,076.76	\$1,378.87	\$66,697.89



Tuesday is the day
more people miss
flights*

*TechCrunch





Conclusion: To overbook or not to overbook?

- Overbooking is a great opportunity to create more revenue
- Not overbooking means leaving money on the table



Future Work

Create a more advanced model with more features like:

- Weather
- Season (Thanksgiving, Christmas)
- Events (Superbowl, conventions)
- Previous data from client (does he usually miss a flight?)