

Why Flights Delays Are Becoming Such a Problem

It was 5:30 p.m., Saturday, March 16th. I was on my way to JFK airport when suddenly, a message popped up on my cell phone: my flight from JFK to ORD was delayed by one hour due to the delay of the previous aircraft. I froze in the moment. I would miss the bus from ORD to Champaign if my flight got delayed by one hour! But there was no way I could change it. I checked the bus and train schedules to see if there was an alternative for me to get to Champaign that night. Unfortunately, there weren't any buses later than the one I originally booked. There weren't any trains either. The only option was to call a two-hundred-dollar Uber from ORD to Champaign.

It was 8 pm, an hour after the original departure time, but all the passengers were still waiting to board. The one-hour delay seemed like it was just the beginning. Nobody knew how much more time we had to wait. Finally, at 8:45 pm, we started to board the flight. Around 11 pm, I arrived at ORD. I tried to call an Uber, but no drivers took the order since it was too late in the evening. I was in the worst-case scenario: I had to stay in Chicago overnight. I have encountered flight delays several times, but this was the worst. I didn't receive compensation from the airline company and had to spend an extra one hundred dollars on hotel expenses. Therefore, this intrigued me to want to explore flight delays.

Airline Delays/Cancellations and the Impact on Consumers

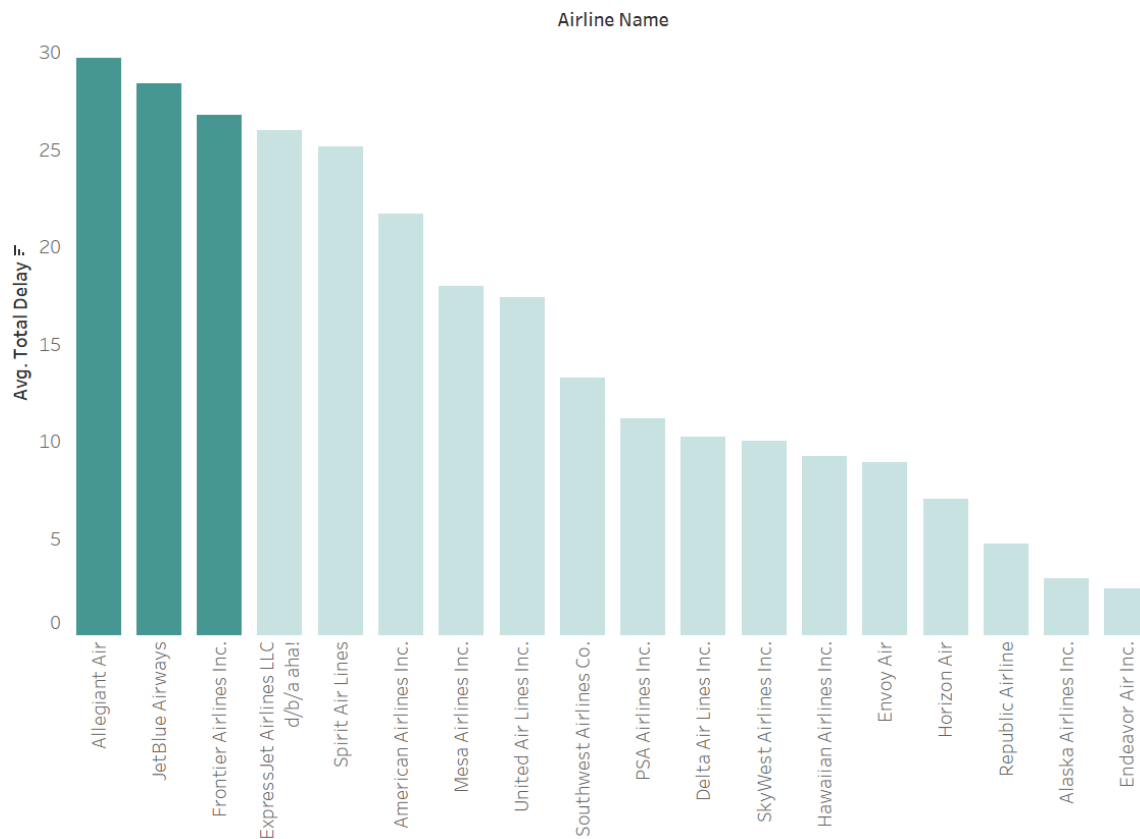
According to the Federal Aviation Administration (FAA), an average of 45,000 flights and 2.9 million passengers fly in and out of USA airports daily. As impressive as these numbers are, FlightAware data from June 2023 showed that 7,000 to 9,000 flights are delayed daily in the U.S., approximately 15 - 20% of daily flights. With flight delays becoming more prominent, we've decided

to dive deeper into domestic airlines. More specifically, which airlines are currently the worst offenders, why delays keep happening, and if anything is being done to fix it.

Airlines That Are Most Likely to Be Delayed

First, we wanted to look into what airlines are having the most delays. Based on the data set we looked at, we found that the three following airlines were experiencing the longest delays on average: Allegiant Air, JetBlue Airways, and Frontier Airlines.

Average Total Delays By Airline



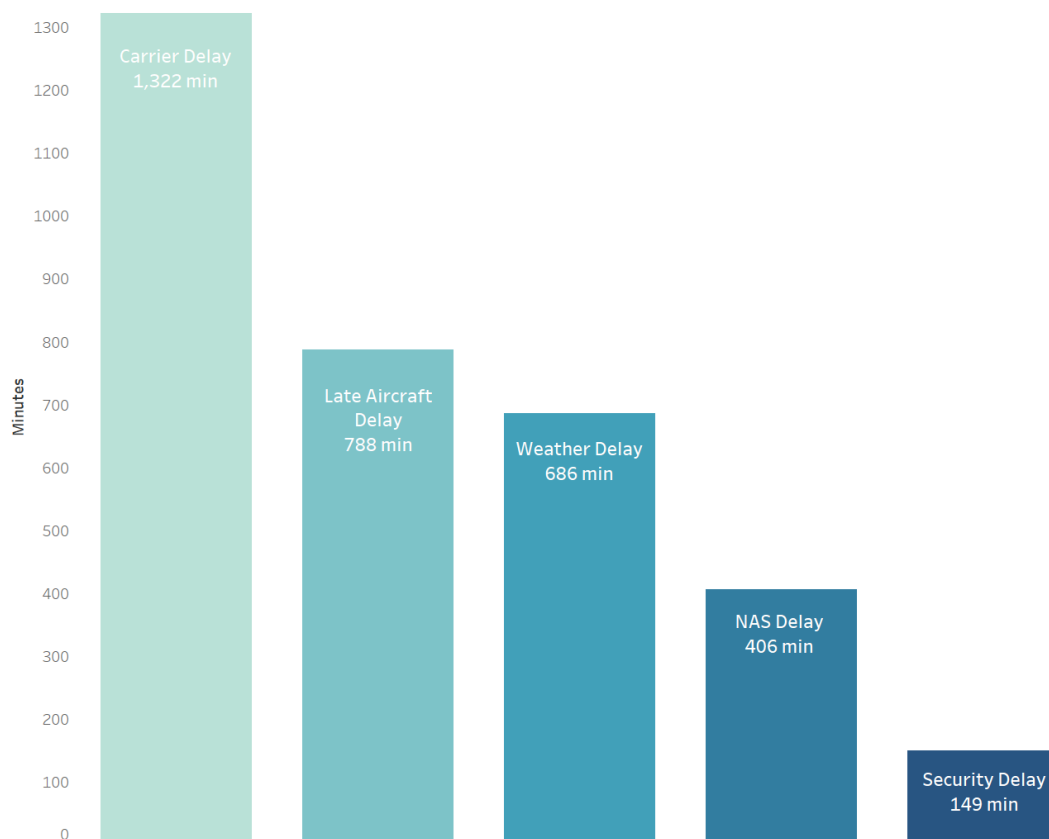
As observed in our visual above, Allegiant Air had an average delay time of 29.67 minutes, JetBlue Airways had an average delay time of 28.39 minutes, and lastly, Frontier Airlines had an

average delay time of 26.76 minutes. Airlines with the lowest average delay times included Endeavor Air with 2.43 minutes, Alaska Airlines with 2.92 minutes, and Republic Airways with 4.73 minutes.

The Most Common Type of Delays

After finding out about the airlines most impacted by flight delays, we wanted to investigate the cause of these delays and which are most common.

Average Delay Times By Delay Type



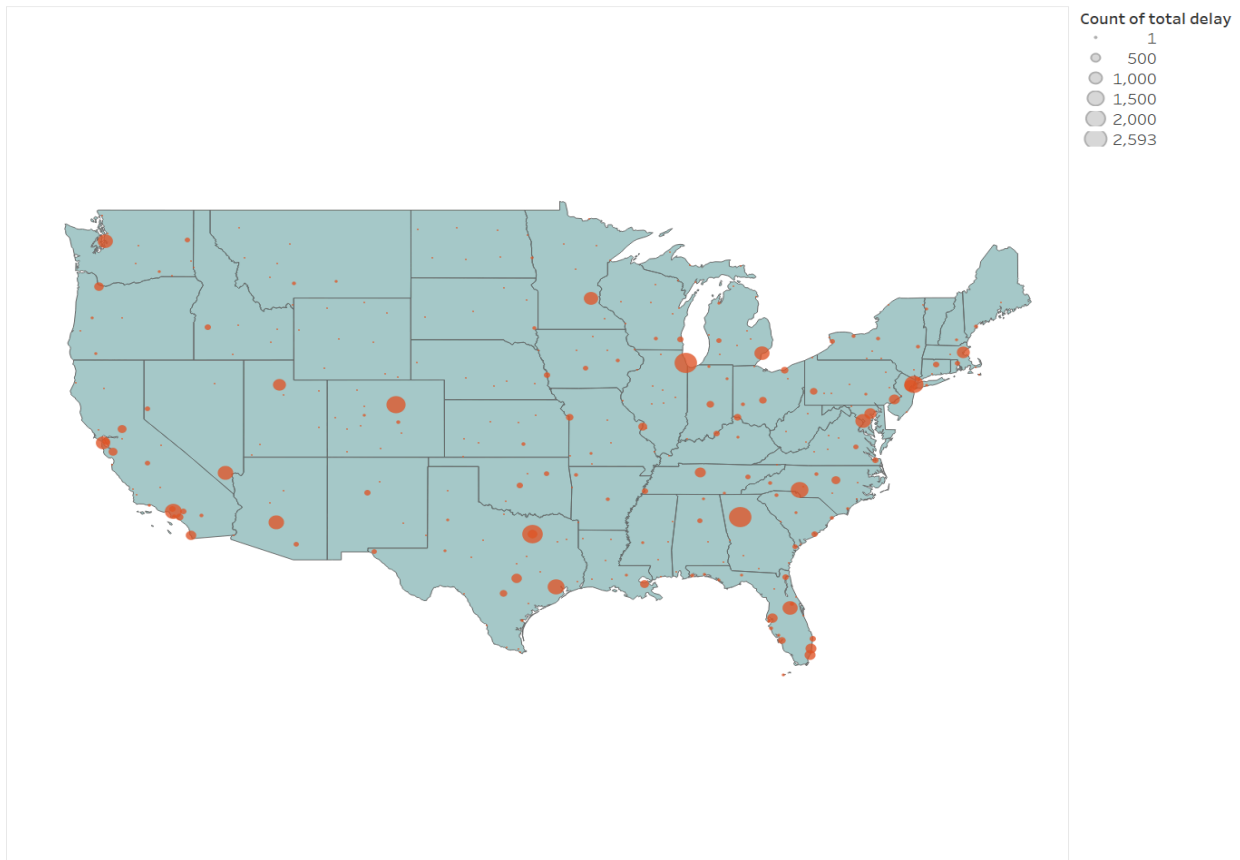
As observed above, the most common delay is carrier delay. This category has an average delay of 1,322 minutes. This delay is classified as within the airline's control, such as aircraft cleaning, awaiting the arrival of crew or connecting passengers, boarding problems, baggage loading, etc. The most common delays after carrier delays include late aircraft delays which have an average

delay time of 788 minutes, and weather delays which have an average delay time of 686 minutes. Additionally, our dataset included information surrounding flight cancellations. Even though flight cancellations are still a problem with airlines, they're not nearly as noticeable a problem as flight delays have been for customers. Taken from the same June 2023 FlightAware study, only 1-2% of flights are canceled daily compared to the 15-20% of daily delays. There are several reasons for these delays as shown in the visual above. The lack of cancellations shows that airline companies prioritize getting flights out every day to maximize their profit rather than having to cancel flights and refund or compensate their customers. However, with the majority of flight delays resulting from both plane and airline-specific problems, it's clear that the most common type of delays are usually preventable.

U.S. Cities That Are Experiencing the Most Delays

Although we've reviewed the airlines most likely to be delayed, we also want to go over U.S. cities and their airports most negatively impacted by delays.

Number of Delays by City



As shown above, varying U.S. cities are experiencing continuous delays, especially certain flight routes to and from certain cities. The top three most impacted cities include Atlanta, Chicago, and Dallas-Fort Worth. Customers who fly in or out of these major cities are those most affected by the widespread issue of flight delays among all major airlines. For customers who frequently fly in and out of these cities, growing frustrations with flight delays can impact consumer satisfaction with flying.

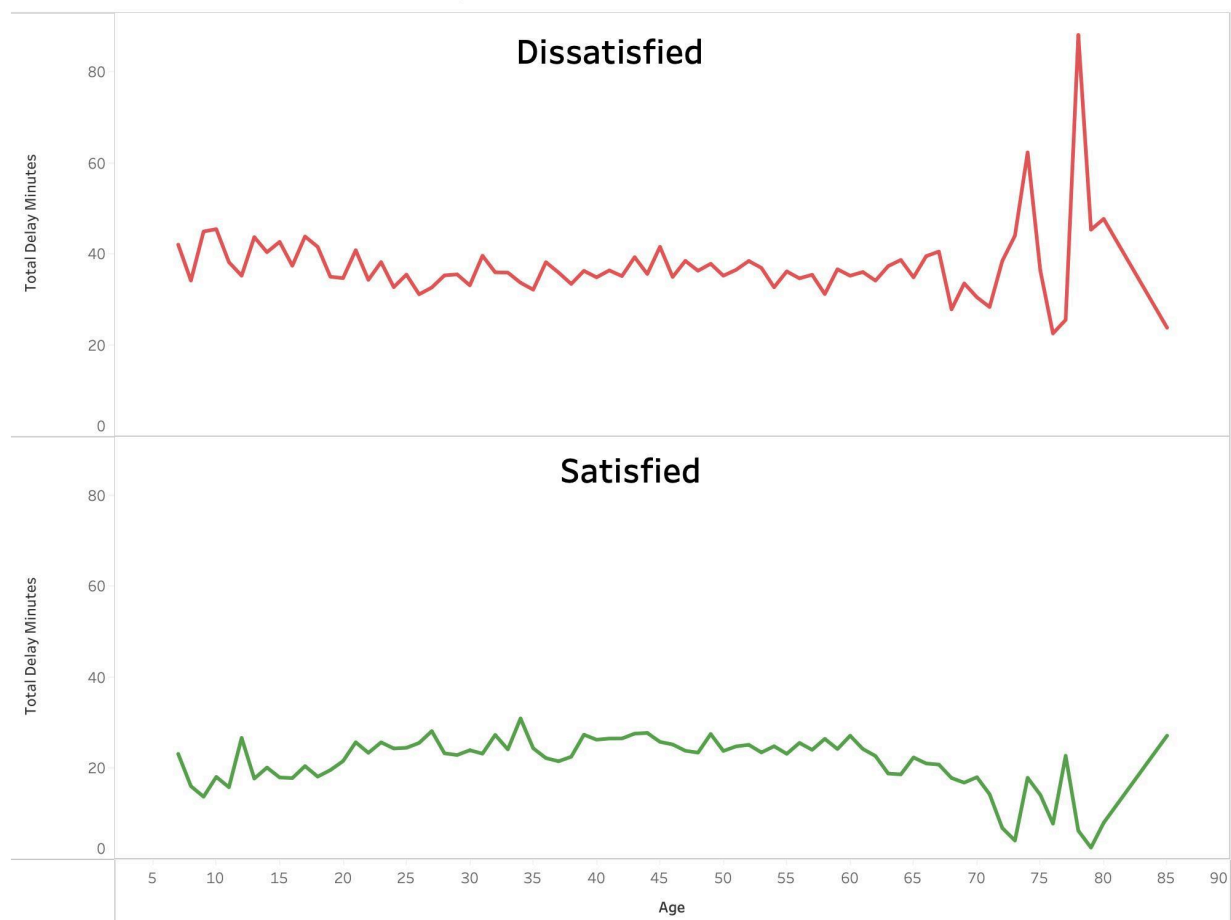
The Impact of Flight Delays on Customer Satisfaction

The amount of aviation travel has been steadily increasing since the COVID-19 pandemic. However, there has also been an increase in frustration from passengers. Taken from an airline

customer satisfaction dataset, we found that delay times negatively impact around 60% of customer satisfaction when traveling domestically.

After diving deeper into different variables that impact customer satisfaction, one of the most interesting insights was how varying customer demographics tolerated flight delays and the average delay time that would have to pass for customers to become dissatisfied with their flight. The demographic that experienced the most discrepancies in customer satisfaction was age.

The Impact of Average Amount of Delay Minutes on Age & Customer Satisfaction



The data taken from this set was the average flight delay time and how this impacts customer satisfaction based on age. As observed in the visual, starting at the age of seventy and ending at eight-five, there was a significant range of fluctuating customer satisfaction on both sides. The peak

age of most dissatisfied customers experiencing flight delays was seventy-seven, and the peak age of least satisfied customers experiencing flight delays was seventy-nine. The ages seven to sixty-nine reported similar satisfaction rates of flight delays and did not experience as large fluctuations in customer satisfaction as the ages seventy and above.

How Airlines are Combating Delays

As customer dissatisfaction is increasing with the delays across the industry, a handful of airlines have decided to combat these growing delay times with new technology to prevent losing customer loyalty and brand status. For example, American Airlines started using new technology to assign gates at the Fort Worth International Airport, not only one of the busiest airports in the U.S.A. but in the world, which has resulted in saving an average of two minutes of taxi time per flight, adding up to about 11 hours a day. This technology, called Smart Gating, adapted by American Airlines has been implemented in other major cities that face large delay times such as Charlotte, Miami, Washington D.C., and Chicago.

Besides American Airlines, other major domestic airline companies such as United Airlines, Southwest Airlines, Delta Airlines, and Frontier Airlines have launched new boarding procedures that aim to speed up boarding and lower the frequency of delays. The CEO of Frontier, Barry Biffle, has even said that Frontier's new boarding and deplaning approach of having two bridges on each side of the airplane instead of one has saved flights as much as ten minutes.

Flight delays can be an inevitable and unfortunate part of traveling as highlighted in Yitao's experience at the beginning of this story. Yet, with growing frustrations surrounding these worsening flight delays, airline companies are starting to take notice as customer satisfaction scores continue to plummet. Airline companies are working towards a goal of shortening and possibly even eliminating the frequency of flight delays, which will both improve their brand reputation and future flyers.

Works Cited

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Datasets

<https://www.kaggle.com/datasets/hetsuhagiya/flight-delays-cleanded>

<https://www.kaggle.com/code/firuzjuraev/airlines-customer-satisfaction-classification/input>