Detroit Air Travel Tips

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（picture source link）

Hi there! I'm a travel blogger based in Detroit. If you've traveled frequently from Detroit, you may have experienced delayed or canceled flights due to various reasons. I have collected historical data on flights departing from Detroit, including the season, delay time, carrier name, distance of the trip, and air time (how long the plane was in the air during the flight). Let's dive into this data and examine the delay situation and how well different airlines handle flight delays.

Average delay time

To start, let's examine the average delay times for flights departing from Detroit.

- According to the dataset, the delay times range from approximately 4.69 to 8.47 minutes, with a 95% confidence interval.

You may wonder why we have a range of delay times instead of a single number. Since we drew a random sample from an unknown distribution, we can only estimate the true population mean based on the thousands of data points we have. Thus, our approximation of the population mean can be a range of values, as our sample may not reflect the actual scenario in the population. However, due to our large sample size, the distribution of the inferred population mean based on the sample mean will be normally distributed, resulting in a symmetric, bell-shaped curve.

The 95% confidence interval indicates that, given the sample we have, there is a 95% chance that the true population mean lies within the range mentioned above. In this

case, the center of the interval represents the most likely value of the population mean, which is 6.85 minutes based on the delayed times from the 1007 samples.

Based on the analysis, we can conclude that flight delays are a common occurrence when departing from Detroit, but the delays are typically not significant enough to cause major disruptions to your travel plans. You can expect a delay of a few minutes on average, but this should not prevent you from reuniting with your family, attending casual business meetings the next day, or keeping your hotel resort reservations.

Flights more likely to delay during winter ?

(picture source link)

We also examined whether flights departing from Detroit are more likely to be delayed during winter months due to extreme weather conditions, such as snow, blizzards, and freezing temperatures. On average, we found that approximately 35% of all flights departing from Detroit are delayed throughout the year.

To explore further, we examined a sample of winter flights and found that 68 out of 205 flights were delayed, which is about 33%. We performed a one-proportion test and learned that it is 71% likely that there is a random sample with a 33% or higher

probability of delay at any time of the year. This indicates that the likelihood of experiencing a delay during the winter months is not significantly different from other times of the year.

Thus, you can feel assured when flying to visit your family during Thanksgiving and Christmas or traveling during the New Year break, as the likelihood of experiencing a delay is not significantly higher during the winter months.
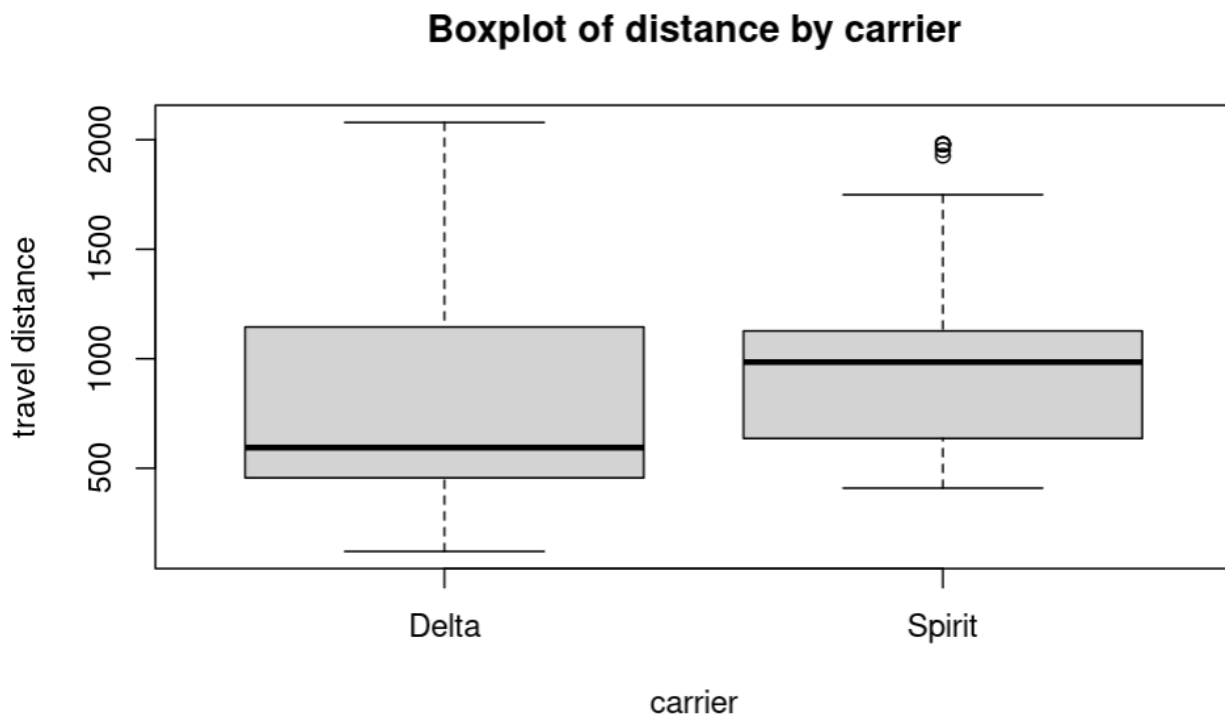
Delta, a regional airline VS Spirit

(picture source link)

If you travel frequently from Detroit, you may already know that Delta is a major airline carrier and a hub at Detroit Metropolitan Wayne County Airport (DTW). We wanted to determine whether, on average, Delta flights departing from Detroit covered shorter distances than those of Spirit Airlines.

Let's take a look at the data we have:

Boxplot of distance by carrier

As shown in the box-plot, we found that the average flight distance for Delta was around 878 miles, while the average distance for Spirit Airlines was 1070 miles, as indicated by the box plot. This suggests that Delta may be a more experienced and popular choice for shorter distance flights, while Spirit Airlines may be more popular for longer distance flights.

Conclusion

In conclusion, we hope that our statistical analysis has provided helpful insights for travelers departing from Detroit. If your flight is slightly delayed, don't be surprised as this is a common occurrence. During winter months, there is no need to worry excessively about above-average delay situations as our analysis found no significant difference between winter and other seasons. Additionally, if you are traveling a relatively shorter distance, Delta might be a great option for you, while for long distance flights, Spirit is a good fit.

However, it is important to note that our findings provide generalized guidance, and not a guarantee. While our data was accurately sampled, there may be other underlying factors that affect flight delays. For example, while the average flight delay may only be a couple of minutes, it is still possible that in one particular winter season, there may be a huge number of flights being delayed.

As a follow-up note, we will dive deeper into the airtime of two popular airlines: Delta and Spirit in our next chapter. We will analyze the paired data of airtime for each destination between Delta and United Airlines, where both airlines are heading to the same destination. The linking factor in this case is the destination, allowing us to compare the airtime recorded for each destination between the two airlines.

Reflection

I didn't submit the initial draft, so I didn't receive any comments or revision recommendations from my peers. However, I ended up making some changes after self-proofreading it. One area that I focused on was adding more descriptive notes to explain why the reader should care about each statistic. For example, in the section about winter flight delays, I emphasized that many people fly to visit their families during the holiday season, making this a relevant and important topic. In the first draft, I didn't pay much attention to the journal format, but with a more reader-focused perspective, I ended up adding notes like this for each section.

Additionally, I was inspired one of my peer's draft that used a beautiful airline-themed template to give the article a journal-like feel. As a result, I incorporated more colorful pictures and even some meme pictures to add visual interest. The other article I reviewed used sub-titles for each section of the article, which made it easier to read. I followed this example and used sub-titles in my own draft to improve readability.

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