Airline Departure Time Reliability in Hawaii (2023)

Aaron Rice, Chaminade University of Honolulu

Introduction

Air-travel is one of the primary modes of transportation among the Hawaiian Islands or abroad. This study explored airlines that operate in Hawaii comparing the reliability of departure timeliness. The importance of this study is that untimely travel can cause stress for consumers. Residents and travelers will benefit from understanding airline reliability and what time of year or day of week is best to travel.

This study used open-source data pulled from the Department of Transportation Statistics 2023 repository. The analysis used in this study includes R programming tools to organize and analyze the data repository.

Hypotheses

H1: Hawaiian Airlines has the best departure time reliability of all airlines in Hawaii

H2: Airlines experience the most delays between Nov-Jan and weekends

H3: Highest issue causing delays stems from aircraft arriving to the gate late

Methodology

Data Information

Publicly available delay data was pulled from the U.S. Department of Transportation statistics 2023 repository with 40+ columns and 180,000+ rows of data.

Airlines Studied

United, Southwest, Hawaiian, Delta, American, Alaska

Tools and Resources

- Spreadsheets
- R

Analysis

- Bar Charts, Heatmap, Line Chart

Analyses

Figure 1: Avg Departure Delays by Airline (2023)

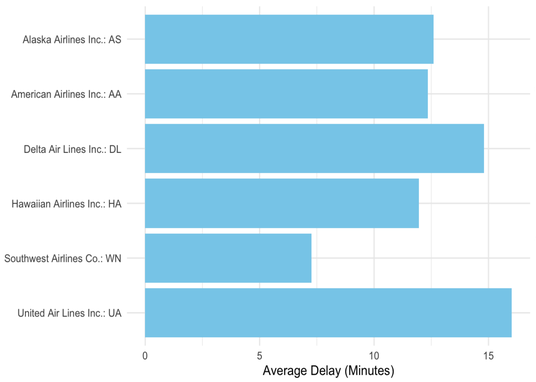


Figure 2: Heatmap of Monthly Avg Delays by Airline (2023)

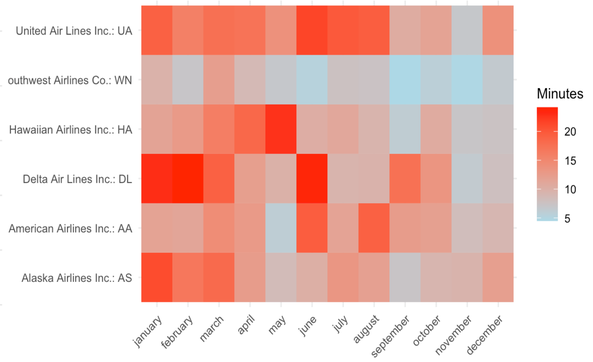


Figure 3: Avg Daily Departure Delays by Airline (2023)

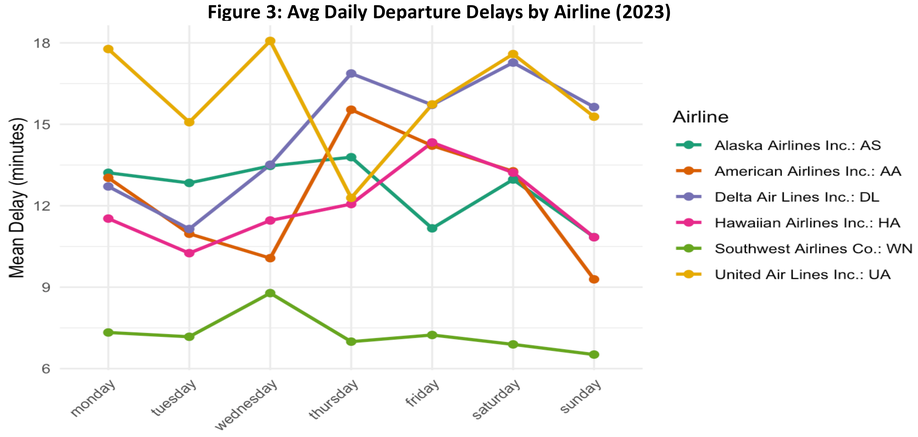
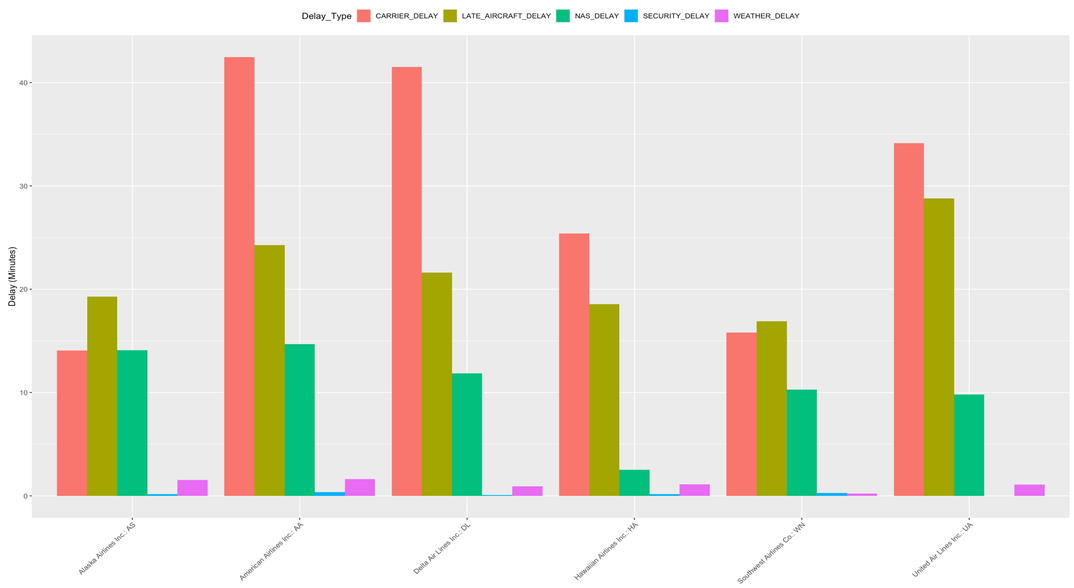


Figure 4: Delay Types by Airline (2023)



Discussion

H1: Hawaiian Airlines does not have the highest departure time reliability in Hawaii. Southwest Airlines has the best departure time reliability throughout the Hawaiian Islands.

H2: The best time to fly with any airline is during the months of October and November, and on Tuesdays and Sundays.

H3: The highest delays were caused by carrier delays followed by aircraft arriving late to the gate.

Limitations

Dataset classified types of delays into five categories. Carrier delay is a very broad classification. The reason for the carrier delays would provide better analysis.

Future Work

- Narrow study down to specific oceanic routes and compare reliability
- Investigate post-merger effects of Hawaiian and Alaskan Airlines
- Investigate complete 2024 dataset when it becomes available and compare it to 2023 and pre-covid years

Acknowledgments

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References

Bureau of Transportation Statistics. "TranStats Database." *Bureau of Transportation Statistics*, www.transtats.bts.gov/DL_SelectFields.aspx?gnoyr_VQ=FGJ&QO_fu146_anzr=b0-gvzr. Accessed 1 Oct. 2024.