High Cancellation Percentage Airports in the U.S.A.

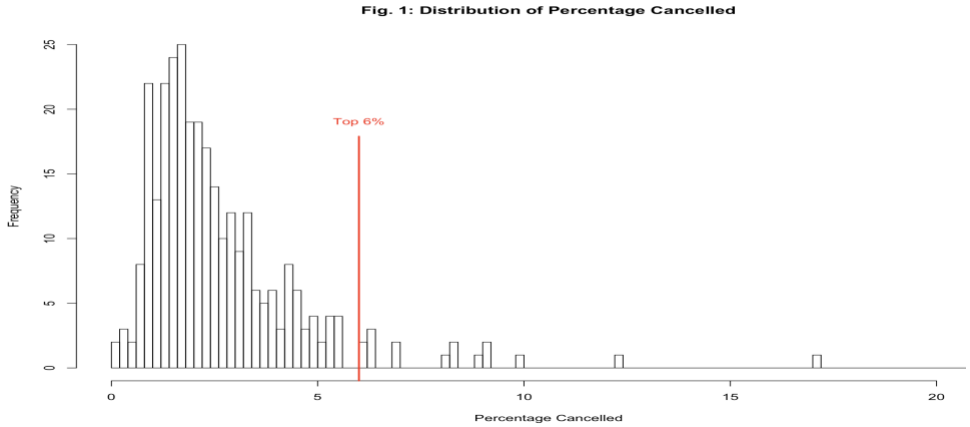


Fig. 1 What is considered a high cancellation percentage?
Higher than 6%. We will denote these airports as “Top 6%” airports

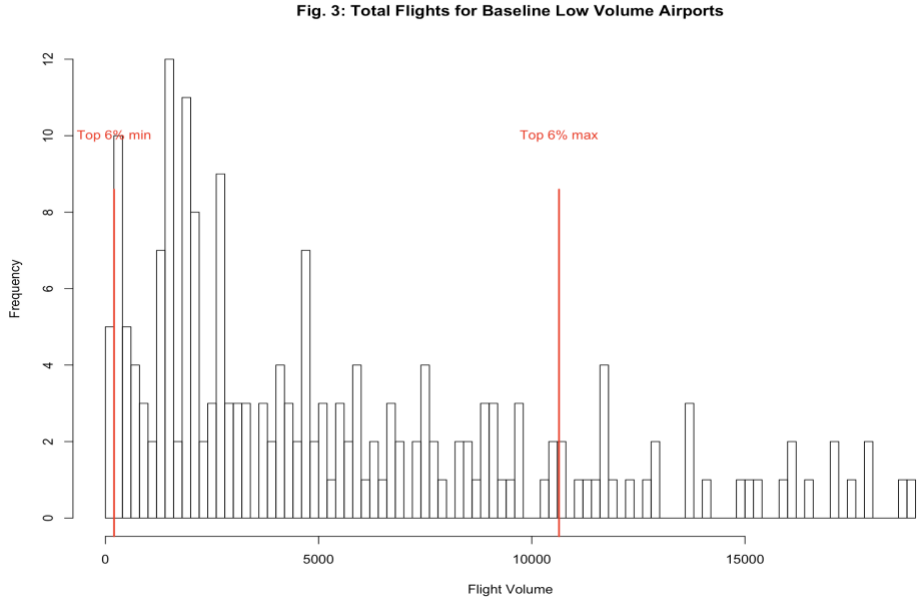


Fig. 3 The traffic volume of the “Top 6%” airports are all considered small nationwide. Airports with traffic volume of under 20,000 is considered to be small. This will be used as a comparison baseline to the “Top 6%” airports to find out the reasons behind such high cancellation percentages.

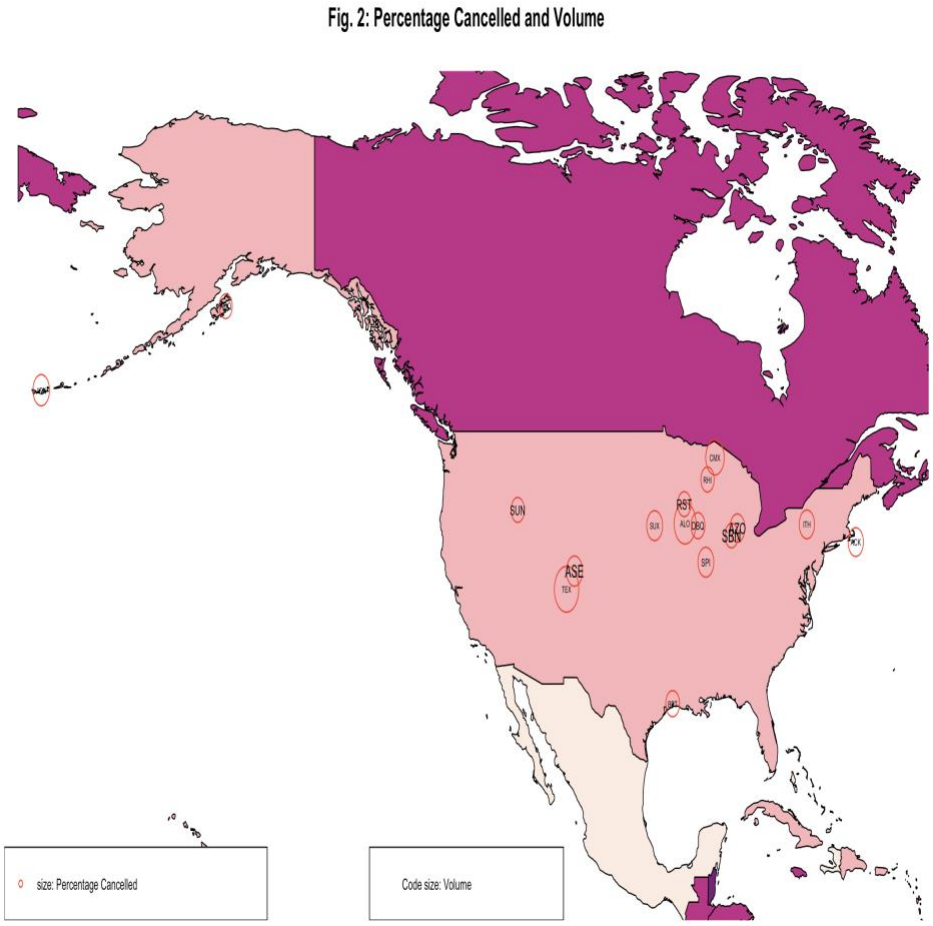
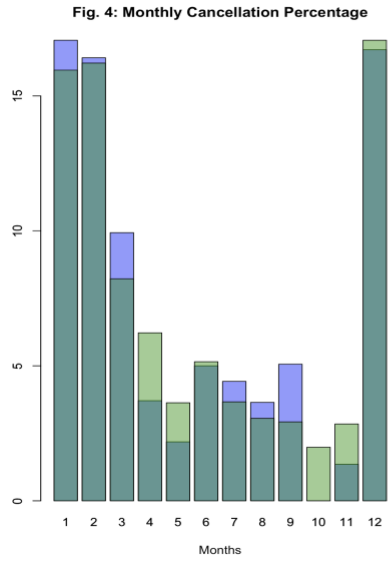


Fig. 2 Locating the “Top 6%” airports in the U.S. and we found that there exists a cluster around the Midwest. Note that the traffic volume (size of the circle) is not correlated to the cancellation percentage (size of airport code).

An analysis based on monthly and weekly cancellations will be conducted to suggest solutions. In addition, a case study of the airport clusters in the Midwest will be introduced in Fig. 6.



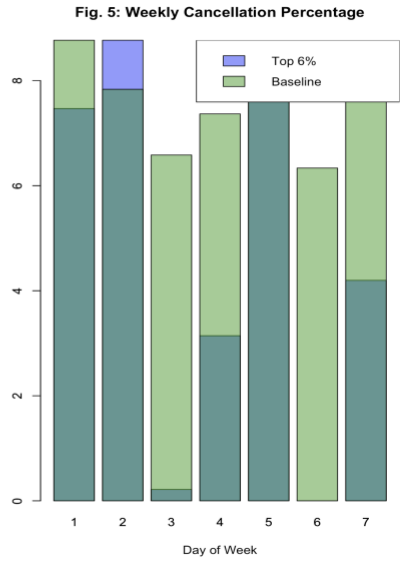


Fig. 4 The monthly percentage cancellation indicates that “Top 6%” airports have higher cancellation percentage in some some months (April, May and October, and November) while the baseline airports have higher cancellation percentages in January, March and September. This may suggest the “Top 6%” airports should optimize operations in the four months.

Fig. 5 Suggests that the “Top 6%” airports should optimize operations on Wednesday, Thursday, Saturday, and Sunday.

Future research could be done to find the relationship between cancellation percentages and other variables in the data set. The limitations of the suggestions above are that there is no data for other years and the analysis is based on visual observations.

Case Study: Cluster of “Top 6%” Airports in the Midwest

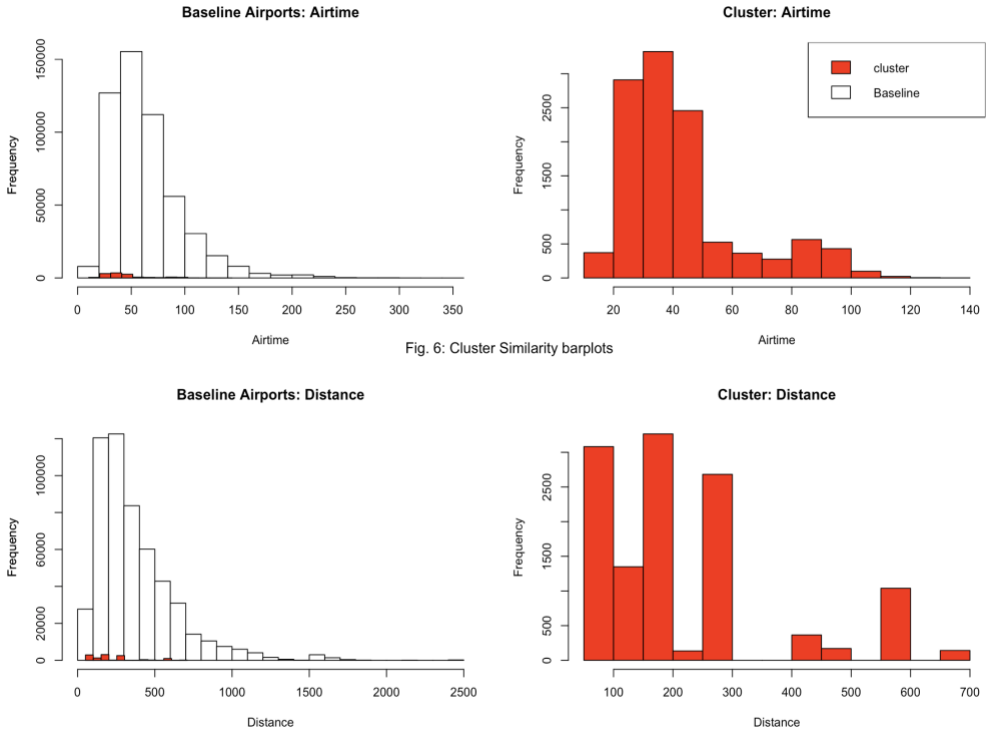


Fig. 6: Cluster Similarity barplots

Fig. 6 The upper two plots are the airtime of baseline airports (white bars) and the cluster airports (red bars). The lower two plots are the flight distance of baseline airports (white bars) and the “Top 6%” airports (red bars).

The two left-side plots are an overlay of red bars which represent the values coming from the airport cluster. The rather small values in airtime and distance suggest more short flights in the Midwest airport cluster compared to baseline airports. This is another indicator for operational improvement.

The two right-side plots show that most flights at these airports are approximately 200 miles within 40 minutes. Such flights may have a positive correlation to the cancellation percentage and should be monitored.