Airline Safety Snapshot

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Is Air Travel Safe?

Public concerns over the safety of air travel have existed since air travel began. It is important to address those concerns in a way that is empathetic while also presenting the appropriate facts regarding air safety. One of the ways to analyze air safety is to showcase the number of fatalities that occur due to airline safety incidents versus other forms of transportation. This is a metric that the public can understand easily without requiring knowledge such as statistical standardization across mileage traveled or analysis of the various sizes of aircraft. These additional variables are helpful for internal investigation to make air travel even safer. However, if we would like to encourage public confidence in air travel, relying on fatality information is a reliable method.

Visualization Information

In the dashboard provided, you will find three visualizations and two measures of central tendencies covering seven different metrics:

- Fatalities by Airline from 2000 – 2014
- Fatalities for Air Transportation, Railroad Transportation, and Water Transportation from 2000-2014 (United)
- General Aviation Fatalities 1985-2007 (United States)
- Average (mean) Highway Fatalities per year 2000-2014 (United States)
- Average (mean) Airline Fatalities per year 2000-2014 (United States)

Bar charts were chosen for the Airline Fatalities and Transportation Fatalities visualizations to showcase a strong impression of each number represented to the viewer. Using a stacked bar chart for the Transportation Fatalities visualization allows for an easy comparison between the three types of transportation represented. Detail labels were added to easily highlight the exact numbers of each variable.

Highway Fatalities were important to incorporate but since they so outnumbered the other transportation fatalities, I chose to demonstrate that metric by using the mean over the five years. Then to compare that to airline fatalities, I found that mean as well. A line chart was used for the General Aviation Fatalities for the purpose of demonstrating that airline fatalities have continuously trended downwards over time. I did not include detail labels here as the exact numbers are not necessary to showcase the downward trend. I chose a purple and blue color scheme to maintain a color-blind friendly palette.

Takeaways

It should be noted that there are at least five outliers present in the airline incidents that have artificially inflated the number of fatalities over the 2000-2014 period. The terrorist attacks of September 11, 2001 involved four planes and a Malaysian Air commercial plane was shot down over Ukraine in 2014. Although these incidents could be considered a risk when flying in an airplane versus other forms of transportation, the incidents were not in themselves caused by preventable safety measures that the airlines could have undertaken. Even with those outliers, it is clearly shown that the number of fatalities from airline incidents is vastly lower than those of highway incidents and even other forms of transportation.

Data Sources

Aviation Safety Network. *Airline Safety*.
https://github.com/fivethirtyeight/data/tree/master/airline-safety

United States Department of Transportation: Bureau of Transportation Statistics. *Air Carrier Fatalities*.
https://data.bts.gov/Research-and-Statistics/Air-Carrier-Fatalities/pxc9-6ify

United States Department of Transportation: Bureau of Transportation Statistics. *Transportation Fatalities by Mode*.
https://www.bts.gov/content/transportation-fatalities-mode