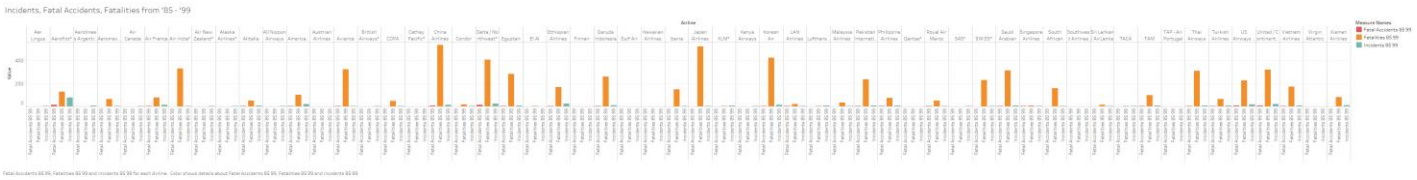
'Come Fly With Me?';

The Dilemma of Air Travel Safety vs Automobile Travel Safety

It is no surprise that we are currently in the middle of a heated debate between the safety in airline travel, and that in automobile travel, with the media doing a great job of fanning the flames of any argument against the safety of airline travel. Now, this is not a fear a person would likely have when driving to their local grocery store, or in an Uber on their way home from a friend's house, but the truth of the matter, according to statistics from the United States government, is that flying on a plane on average is overwhelmingly safer than driving a car. For this claim to stick, my team took the time to analyze an Airline safety dataset, as well as an automobile crash dataset, and using basic statistics, exposed trends that supported our claims.

Taking A Look At The Data

Airline Accident Numbers from 85-99:



Now because the Graphic is very broad, the numbers can be seen below:

Airline Accident Numbers from 85-99:

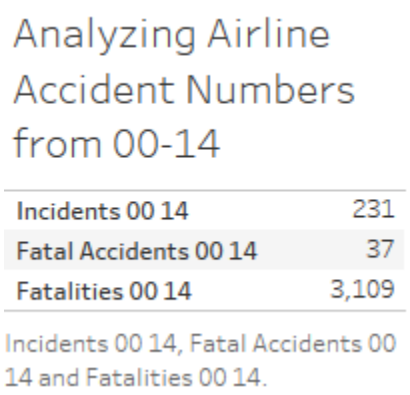
Analyzing Airline Accident Numbers from 85-99

Incidents 85 99	402
Fatal Accidents 85 99	122
Fatalities 85 99	6,295

Incidents 85 99, Fatal Accidents 85 99 and Fatalities 85 99.

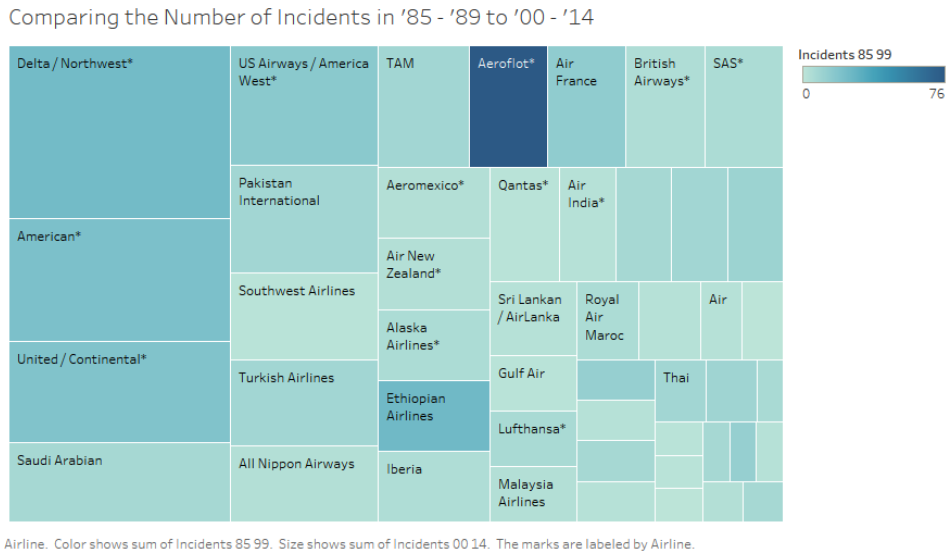
Now looking over the data from the '85-'99 period shows the number of incidents, fatal accidents and fatalities, but with nothing to compare it to or against, the data means almost nothing. So now we look at data from a more recent period; the '00-'14 period:

Airline Accident Numbers from 00-14:

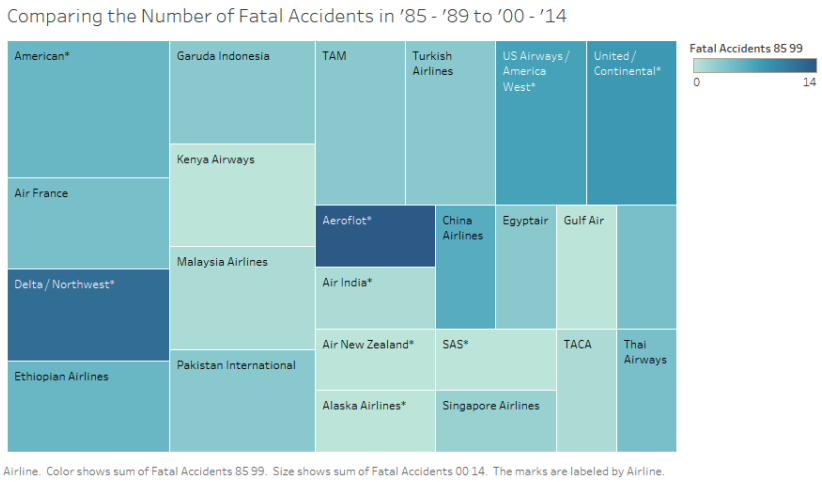


Now what do we notice? We can see a significant fall in all the categories of Incidents, Fatal Accidents and Fatalities, but now we want to take a deeper look at the difference in incidents and fatalities in both periods, using treemaps.

Treemap of Incidents from '85 – '99, comparing against data from '00 – '14:



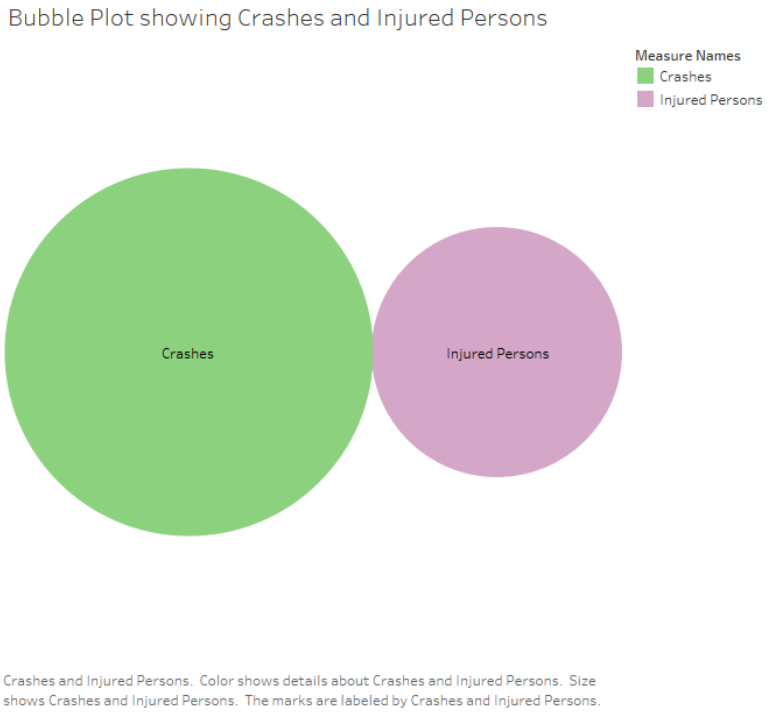
Treemap of Fatalities from '85 – '99, comparing against data from '00 – '14:



The Treemaps did a good job of highlighting the differences, grouping the data by the specific airlines, and shows clear trends of a reduction in fatalities and incidents across almost all airlines. So this shows airline travel is becoming even safer, but what does this have to do with automobile travel? This would be where our auto-crash supplemental dataset comes in.

A preliminary analysis of the auto crash dataset shows the following:

Bubble Chart showing Car Crashes and Injured Persons:



At first glance, the numbers look very similar when represented as bubbles, so we decided to take a better and more accurate look at the numbers:

Table showing Car Crashes and Injured Persons:

Car Crashes and Injuries

Crashes	159,330,832
Injured Persons	73,599,823

Crashes and Injured Persons.

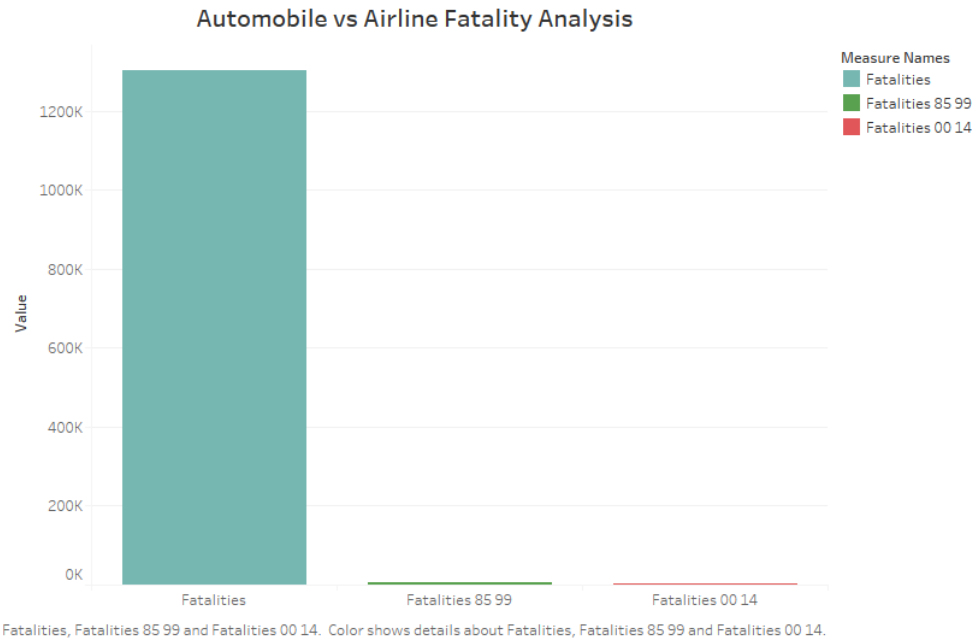
These numbers show an outrageous number of casualties in a similar time period to the latter airline period, but why are these numbers astronomically high?

This could primarily be a result of the variations of means of automobile travel, be it cars, buses, motorcycles, etc, with their collective accident numbers and fatalities constituting this dataset.

So how does this stack up against Airline Travel?

To do this, we would make use of the graphs and tables to paint a clearer picture. This can be seen below:

Graph showing Fatality Analysis across groups:



Fatalities, Fatalities 85 99 and Fatalities 00 14. Color shows details about Fatalities, Fatalities 85 99 and Fatalities 00 14.

Notice how the fatalities in the airline groups are barely readable? This is where the table comes in:

Table showing Fatality Analysis across groups:

Comparing Fatalities in Automobiles against Airlines

Fatalities	1,302,530
Fatalities 85 99	6,295
Fatalities 00 14	3,109

Fatalities, Fatalities 85 99 and Fatalities 00 14.

From the above analysis, it can be seen that the automobile fatalities trumped both year groups of airline fatalities by astronomical proportions. If we refer back to the previously stated statement regarding context in visualizing data, we can see that even with context, the airlines had a lot less fatalities than the auto accidents did.

So, from a declining accident rate, declining fatality rate, quicker travel time, and the convenience of a bathroom onboard, what method of travel would you think was more ideal? I hope this post helps you decide.

References

Airline Safety Dataset, Aviation Safety Network

Monroe County Crash Data_2003 to 2015 ,Data Catalog, Data.Gov