

Airline Safety – Project Task 3

As a part of Project Task 3, the Airline safety analysis has variety of different measures and visuals – some of them have been reused from previous milestones while some have been newly created for the current milestone 3. We will get into the details further as we look at the different aspects of the data for the Air Travel and Road Travel with help of supporting data.

First, we looked at the ***US fatalities statistics for the Air travel vs. Road travel during years 1994 – 2019*** from the below two aspects

- 1) The total fatalities counts
- 2) The fatalities rate per 100M miles of travel

We can see while the Air travel within US has gotten increasingly safer as we scan through the data from 1994 – 2019. Highest Air travel Fatalities were encountered back in 2001 at 531. However it is down to near zero levels for the past ten years between 2010 to 2019. This is reflected on the fatalities rates for the Air travel as well with fatalities rates being down from 4.36 back in 1994 to rate of 0.04 in 2019. In contrast, Road travel fatalities have only gone down from 40,000+ levels to around 36,000+ in the same 25 year timeframe. The fatalities rate as well is still lingering around 1.11 in 2019 per 100M miles of road travel which was at 1.73 per 100M miles of road travel back in 1994. I have used the **Area charts and Line charts** to be able easily picture these trends.

I have tried adding another aspect to the above fatalities statistics for the Road Travel this time. I checked the ***US State wise fatalities information***. The maps visuals underline the fact that road travel fatalities are affecting all of the US states in terms of number of fatalities on account of vehicle miles

traveled, fatal incidents and fatality rates per 100M miles of vehicle travel. ***It is evident that higher the number of miles traveled, higher is the fatalities counts and rates, via road travel.***

I have used the **Bubble charts and Tableau Heat maps** to highlight some of these aspects at State level – in terms of the Vehicle Miles traveled, number of fatal crashes and fatality rates per 100M miles of road travel in each of the states.

Finally, I reviewed the ***Worldwide Airlines data – from operations as well as safety perspectives*** as another measure for the larger picture for the Air Travel. The statistics clearly indicated that the Worldwide Airlines Operations have been steadily increasing on the aspects like number of Flights Departures and the Aircraft Travel distance in the period 1984 to 2019 e.g. Number of flight departures have increased from 11,453 back in 1994 to 38,299 i.e. more than tripled in this period. To go along with this, Worldwide Airlines adverse incidents and fatalities data has shown significantly Downward trend in on 3 aspects : Number of incidents, Number of Fatal accidents and Number of total fatalities between 1985 to 2014 e.g. number of fatalities between 1985 – 1999 stood at 6295, however these went down to 3109 for the period 2000 – 2014, which is a decrease of more than 50%. This a major ***booster to Air Travel that despite the increased operations and travel coverage, the adverse and fatal incidents have greatly decreased in the past 25 – 30 years.*** I have used the **Area charts and Bar graphs** to present the trends in operations and relative changes in the adverse incidents / fatalities aspects.

We can safely conclude that Air Travel has become increasingly safer as compared to Road Travel on variety of parameters like total fatalities and incidents, fatality rates. The fact check has been performed not only for the air travel within U.S., but also for the worldwide air travel.

References:

- 1) fivethirtyeight/data. (n.d.). GitHub. <https://github.com/fivethirtyeight/data/tree/master/airline-safety>
- 2) Fatality Analysis Reporting System (FARS), FHTSA. <https://www-fars.nhtsa.dot.gov/Trends/TrendsGeneral.aspx>
- 3) <https://www.bts.gov/content/us-air-carrier-safety-data> (scraped the necessary data)
- 4) <https://www.airlines.org/dataset/world-airlines-traffic-and-capacity-2/> (Scraped the required data for number of departures and miles traveled by World Airline)
- 5) <https://www.iihs.org/topics/fatality-statistics/detail/state-by-state> (formatted the data in useful excel file)