

Is air travel no longer safe, data proves otherwise!

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Airline Safety

Recently, we observed a few airline crashes happening across the globe giving media an opportunity to focus on trends on airline safety and that it is no longer the safety way to travel. Is that really the case? It is my opinion that statistics can be presented in a certain way to prove a point and the details can be hidden on purpose. Therefore, let's explore if there is an element of truth in those claims by looking at airline safety data and comparing with road travel data.

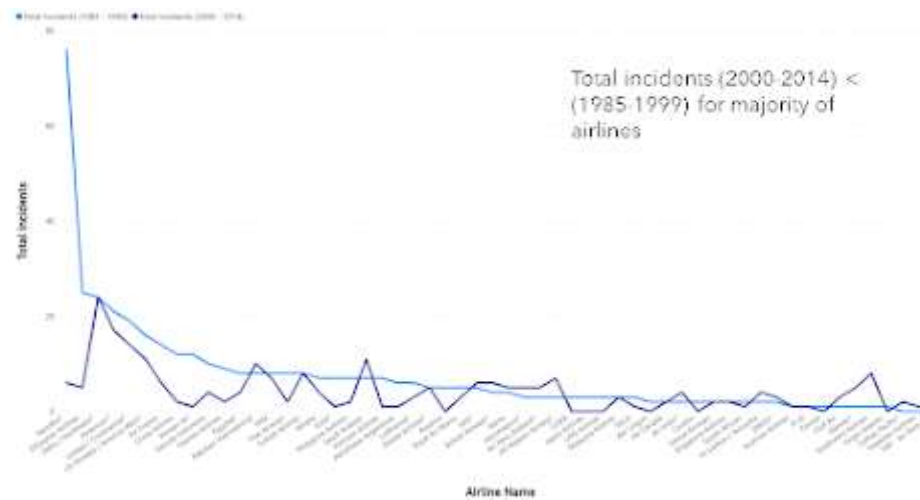
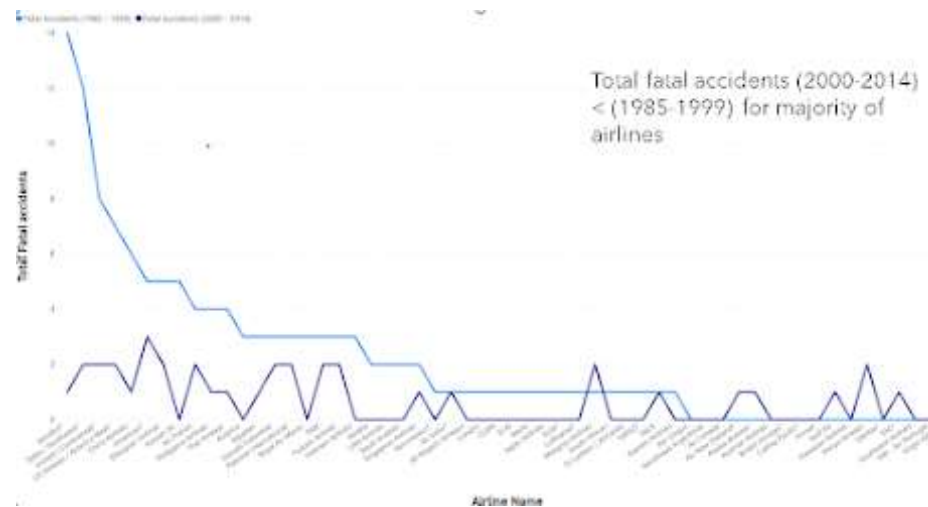
Airline safety can be measured in many ways such as number of incidents, not necessarily resulting in crashes or fatalities, fatal accidents, fatalities, and others. My analysis will be based on the mentioned parameters as these are easy to interpret and understand and utilizing publicly available data as noted below (see References):

1. Airline Safety
2. Airline Safety and Fatalities per year
3. Vehicle safety

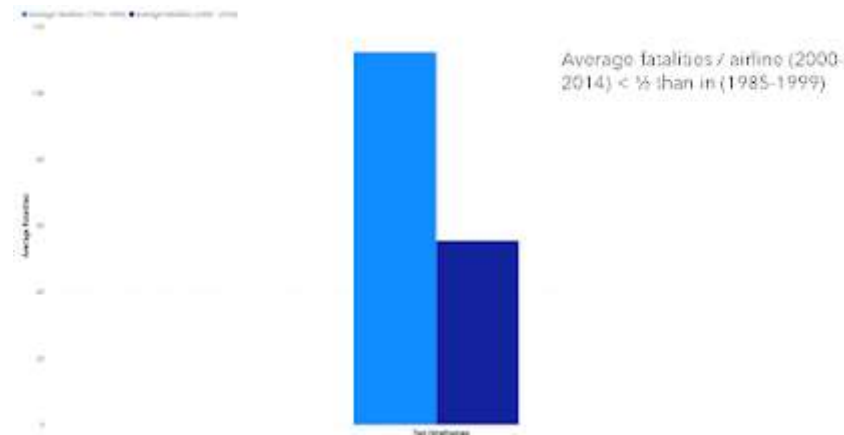
I am going to use visualizations to make determinations and arrive at any conclusion. I also leave to the individuals to make their own judgements looking at the visualizations.

First question that should come to any traveler's mind that before comparing with other modes of travel, how is the airline industry doing in terms of its own safety? Other modes of travel doing worse does not make air travel safe. Airline safety data (1) included two timeframes (1985-1989 & 2000-2014). This gives me an opportunity to check whether the two timeframes show a definitive increase or decrease when safety parameters such as incidents per airline, fatal accidents per airline, and average fatalities per airline are compared in those timeframes.

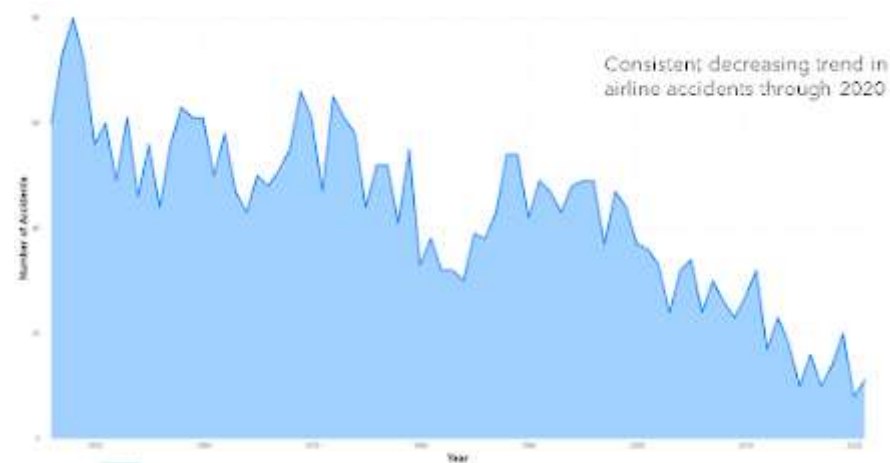
I find that the safety parameters are much better in the later timeframe thereby indicating that air travel has become safer in the recent years. This is consistent with the expected improvement with technology, training and procedures as with evolution of any industry.



Average fatalities per airline have in fact reduced by more than 50% and that is a remarkable improvement and instills confidence as a traveler.



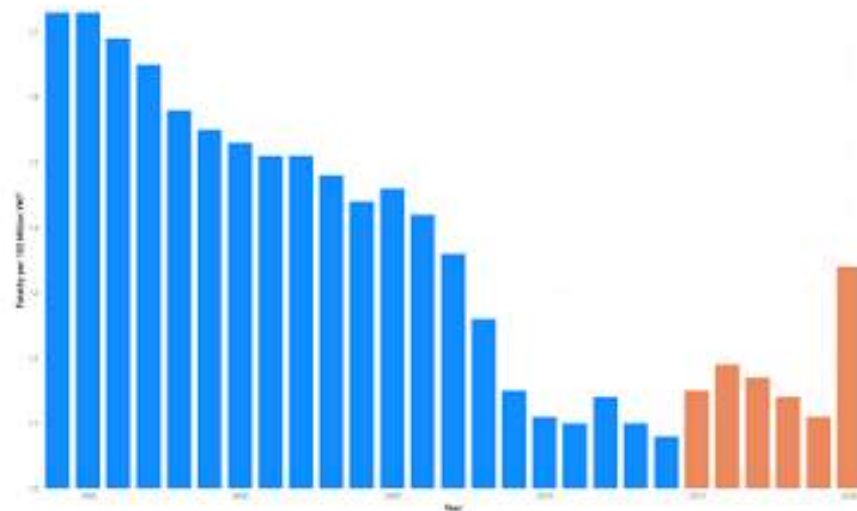
Utilizing another data source to independently validate the above observations, I am also going to check airline safety data available from 1946 onwards (2) to see an overall trend. I find consistent improvements through 2020 buttressing the statement I made above regarding improvements in safety data in the recent years and with experience gained by the airline industry as a whole.



This further makes me feel safe as an air traveler. The second approach I am going to check is how vehicle safety has been over the years and that if there is an improvement or deterioration being observed by this mode of travel.

I am going to use the U.S. vehicle safety data available 1994 onwards and having fatalities per 100 million vehicle miles traveled. I observed a decreasing trend in fatalities through 2014; however, showing an uptick in fatalities starting 2015.

Can observe a rising trend starting 2015 in the U.S (orange bars)



Based on the above observations, I conclude that air travel safety has been improving consistently over the years as shown by the safety parameters analyzed during the two timeframes and airlines accidents data since 1946. Whereas the U.S. road travel data show an increasing trend in fatalities starting 2015. However, it is worth noting that the data used for

road travel is only for the U.S while for air travel is for global. It can be justified that U.S. data can be used as population sample for global representation, but we must keep in mind that number of cars, road safety infrastructure and requirements, etc. are different in different countries. Therefore, for ethical like-to-like comparison, global data should be used and parameters such as fatalities per 100 million miles traveled should be calculated.

Based on the above observations, I am of the opinion that while discussions on airline safety is justified in the wake of the latest crashes; however, to term this mode of travel as no longer safe vis-a-vis another mode of travel is going to an extreme.

References

1. **Airline Safety** - [data/airline-safety at master · fivethirtyeight/data · GitHub](#)
2. Airline Safety and Fatalities per year - [Accidents and fatalities per year - Google Sheets](#)
3. Vehicle safety, Supplemental data - [FARS Encyclopedia: Trends - General \(dot.gov\)](#)



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