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## DSC 640 - Project

Home

About

Entries

Search

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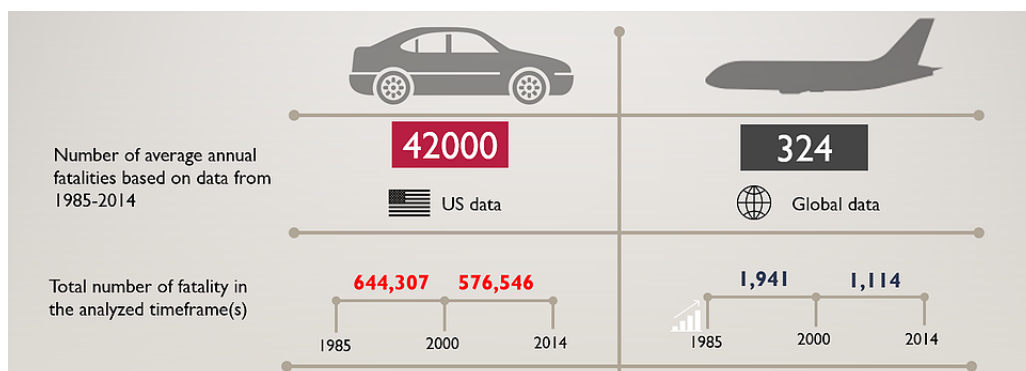
# Airline Travel - Is it safer than car?

By: Thanh Nguyen-Duong

## Why does airline catastrophes catch our attention?

We experience automobile accidents and fatalities every day, but when it comes to an airline accident and fatalities it really catch our attention. What is the reason behind it? One main reason is due to the risk perception hyped by the media. When we heard of airline accident, it induce fear and tend to give us false impression that these events can occur no matter how infrequently they happen unlike automobile accidents. The reason is that we tend to experience automobile accidents almost every day. Another part of the reasons is the scale and magnitude of an airplane incident; one airplane contains hundreds of lives, thus, one accident can cause a fatality of hundreds of lives. People often think automobile are safer than airline travels, due to the fact, that they are in control of their automobile whereas in air travel, safety and control is completely depended on the flight crew and captain.

For years, many news and media outlets try to exaggerate the dangers of air travel and flying. As we all know, air travel is the most convenient, if not, the most efficient option to travel from one part of the country to another part, or globally. There are many reasons why people use air travel. From families taking a vacation to business work related travel. Thus, it is essential to know that air travel is safe when they are thousands of feet off the ground. Media often times compare air travels against automobile and make it seem like that air travels is not any safer than automobile. But is it true?



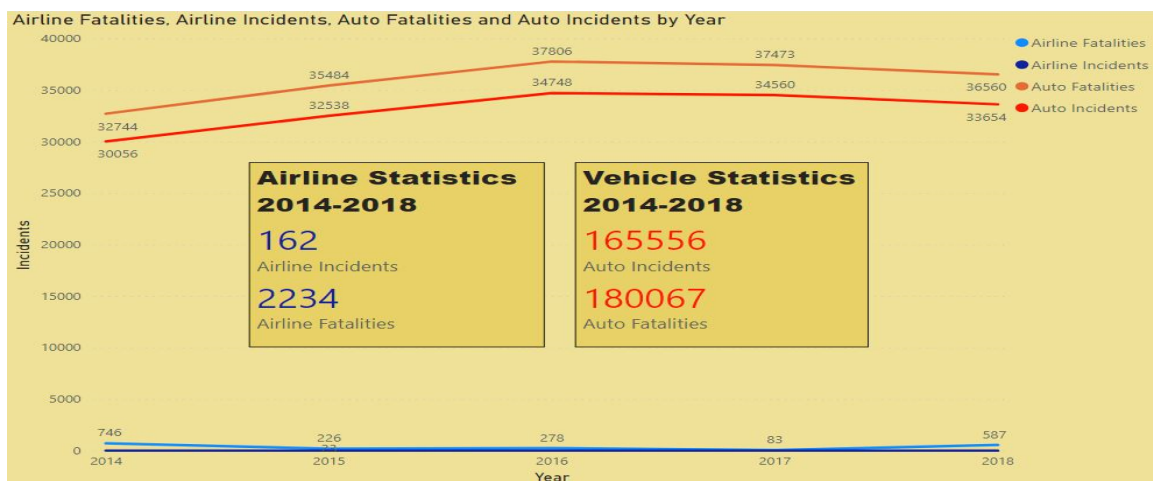
Source: Aviation Safety Network and National Highway Traffic Safety Administration (NHTSA)

For media outlets, yes, they would like us to think that air travel is not safer than automobile. They show charts that are manipulated and biased to make it seem like air travel incidences are worse than they

appeared to be. So what is really the truth? Are air travels not as safe as people think they are? Are airlines

no longer have strict regulation on passenger safety? Would we be better off driving or take other mode of transportation for vacation than travel by air? In order to determine whether it is safe or not and make a conclusion, we decided to do a few research and see if it is actually safer than automobile.

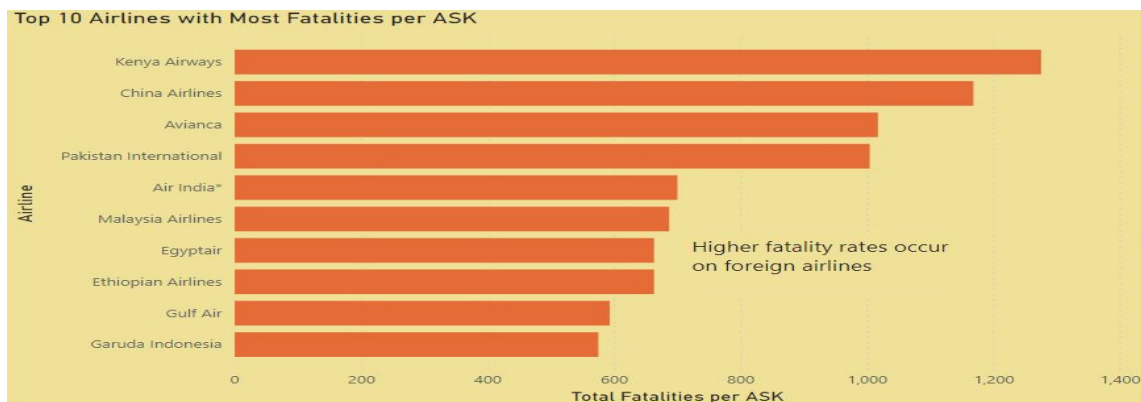
As always, accidents can happen anywhere and at anytime no matter which modes of transportation you take. This include air travels, no matter how safe they are, there will always be a few accidents here and there. But, let's compare it to auto accidents statistics from 1985 to 2014. During this time period, the number of automobile fatality accidents were 1,220,853 compared to the same period, with airline travel, it had roughly 3,055 fatality accidents. During 1985 to 2014 period, automobile had roughly 400 times more fatality incidents compared to air travel. This number of incidents averaged out to be 42000 for automobile to 324 airline travel incidents annually.



Source: Aviation Safety Network

Let's dive deeper in some more numbers from a five-year period, 2014 to 2018. During this period, the number of auto incidents was as much as 1,021 times over airline incidents (U.S. Department of Transportation, 2019). Glancing at the chart, some may say that car accidents usually involved fewer people than airline accidents. Is it possible that the small numbers of airline incidents can account for larger fatalities than auto fatalities? Let's look at those chart again, we can see there is a huge difference between the number of airline fatalities and incidents compared to auto incidents and fatalities. To put in a different perspective, auto fatalities accounted 80 times more than airline fatalities during the period, 2014 to 2018. From these two statistics and graphs between the year 1985 - 2018, we can see that air travel still had lower fatalities and lower incidents compared to automobile. It seems like air travel is safer than automobile.

## Does this mean airline travel is safe?



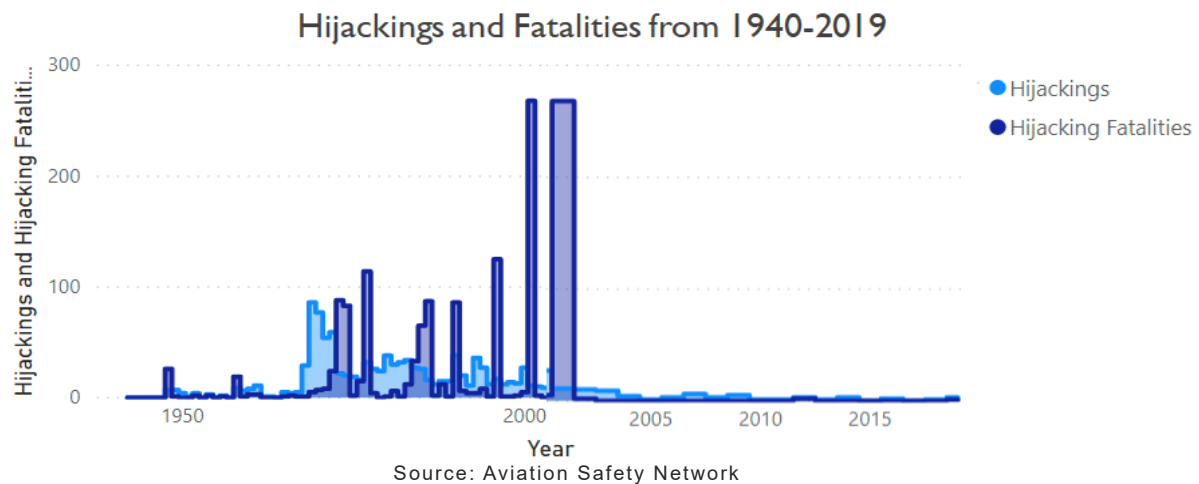
Source: Aviation Safety Network

While we did see that airline fatalities and incidents were not as high as auto incidents and fatalities from 1985 to 2018, for some, they may still be skeptical about whether airline travel is actually safe or not. Let's dive deeper into airline travels incidents and fatalities, when it comes to these numbers, they are accounted for all airlines. Thus, both international and domestic airlines are taken into account. Is it possible that one

airline has higher fatality and incident rate than others?

Media outlets sometimes portrayed charts and graph showing how some airlines are less safe than others. This may not be entirely true, and these raw numbers can be misleading because some airline have more flights and longer flight path than others. In fact, an airline that has 10 flights per week with 5 accidents will have a higher accident rate than an airline that has 100 flights per week with 5 accidents in total. Hence, it is more precise to compare airlines fatalities by available seat kilometers flown to normalize both small and large airlines.

Once we break down the airlines fatalities by available seat kilometers flown, it is easier to see that domestic flights have much lower both fatalities and incidents compared to international flights. In fact, domestic airlines are not in the top 10 airlines with most fatalities per ASK, or available seat kilometer. Kenya Airways is the airline that has the most fatalities per available seat kilometer. Based on Flight Safety Foundation, Kenya Airways reported 2 fatal accidents and 283 fatalities throughout their flight record. When adjusted to per available seat kilometer, it is equal to 1,275 fatalities and 9 accidents per available seat kilometer (1996 - 2020). Based on this graph, we can see that domestic airlines are much safer than international airlines, especially in countries where airline regulations are not as stringent.



For us, flying has become much safer after the 2001 terrorist attacks. After 2001, United States has imposed many regulations and more aviation security to ensure the safety of its passengers. From the chart, we can see the number of aviation hijackings and hijacking fatalities have significantly dropped from 2001 onward. We can see huge differences before and after 2001 terrorist attack incidents from the chart and how aviation industry have changed dramatically. More security and more regulation imposed may mean longer wait times to board planes, but it also means the safety of our country's travelers have increased.

## Conclusion

Aviation industry is always competitive and constantly evolving both to meet travelers' demand and ensure the safety of their passengers. There have been numerous changes from when airplanes were first invented by the Wrights Brothers in 1903, and when Amelia Earhart first flew across the Atlantic Ocean in 1928 to today's autopilot equipped airplanes, evolving cockpit safety technology, constant flight status monitoring, security check and passenger cabin safety measures. All of these features existed to provide a more enhanced and a safer travel for passengers. With all of these aspects in place, it is safe to say that air travel is safer than automobiles in today's world. Why wait, book those plane tickets now, while price is still cheap, to your favorite destination this summer. Worry-free with our stringent airline safety measures and technology in place.

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