

# Air Travel: Trends in Safety

## A Data Analysis Report on NTSB Aviation Accident Database

### Background

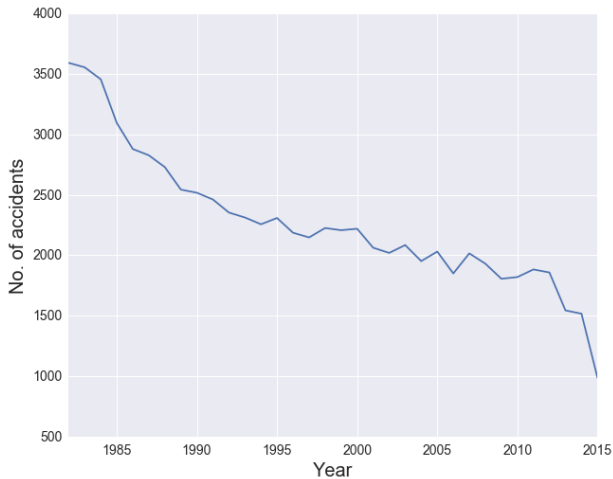


Figure 1: Number of Accidents per Year

In 2012, 815 million passengers traveled using airlines in United States for a cumulative of 580 billion miles safely<sup>1</sup>. While air travel is considered one of the safest mode of transportation, especially if measured by distance travelled, thousands of accidents involving aircraft do happen as air travel grew in popularity over year. National Safety Transport Bureau (NTSB) Aviation Accident Database is a continuously updated database containing civil aviation accidents and incidents since 1962 where NTSB, in certain capacity, is involved due to its investigative responsibility. Figure 1 shows the declining trend of accidents per year, as the number as a whole decrease by as much as 57% between 1982 to 2014. Notably, a very large percentage of these incidents happened not to scheduled commercial flights, as what most people

associated with flying, but rather a category called general aviation where most flights were self-piloted and generally taken with small, 2 to 10 seater propeller aircraft. In fact, only 5,663 typical commercial flights experienced any accidents at all over three decades, compared to more than 30 million scheduled flights each year in 2014 alone. Of these accidents, 88% of them resulted in injuries for less than 20% of the passengers involved.

### Pilot Error: A Major Cause

In over 50,503 investigations by NTSB that produces result containing probable cause, 40% of them were found where pilot or pilot instructor error plays a part in causing the accident. This number, however, differs between commercial and non-commercial flights as illustrated by Table 1 where human factors plays a much bigger role in non-commercial flights. The phase of flight also matters, as up to 36% of the accidents happens while the plane is on approach or landing. However, maneuvering and cruising is the least survivable phase of flight, making the largest percentage of factor in accidents having fatality of more than 60% of its passengers. Notably, in commercial flights, 90% of accidents that do happen in landing has fatality rate of 20% or lower despite it being one of the most feared phase of flight for many.

Factor	Flight Type	
	Commercial	Non-Commercial
Human	21%	42%
Others	78%	57%

Table 1: Factor of accidents based on flight type

<sup>1</sup> Bureau of Transportation Statistics

[http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national\\_transportation\\_statistics/html/table\\_01\\_40.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_01_40.html)