How safe is flying?

An investigation on the history of flight safety and contributing factors.

[5]

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Somewhat topically relevant...

Boeing Board to Call for Safety Changes After 737 Max Crashes

American Airlines flight attendants say they fear flying on Boeing's 737 Max

Boeing pilots discussed 'fundamental issues' with 737 MAX in internal messages

Is the Boeing 737 Max safe?

Data Set & Background

- FAA Accidents and Incidents System Database
  - Domestic Flights
  - Complete data from about 1983-2014

- ‘Commercial’ vs ‘Private’

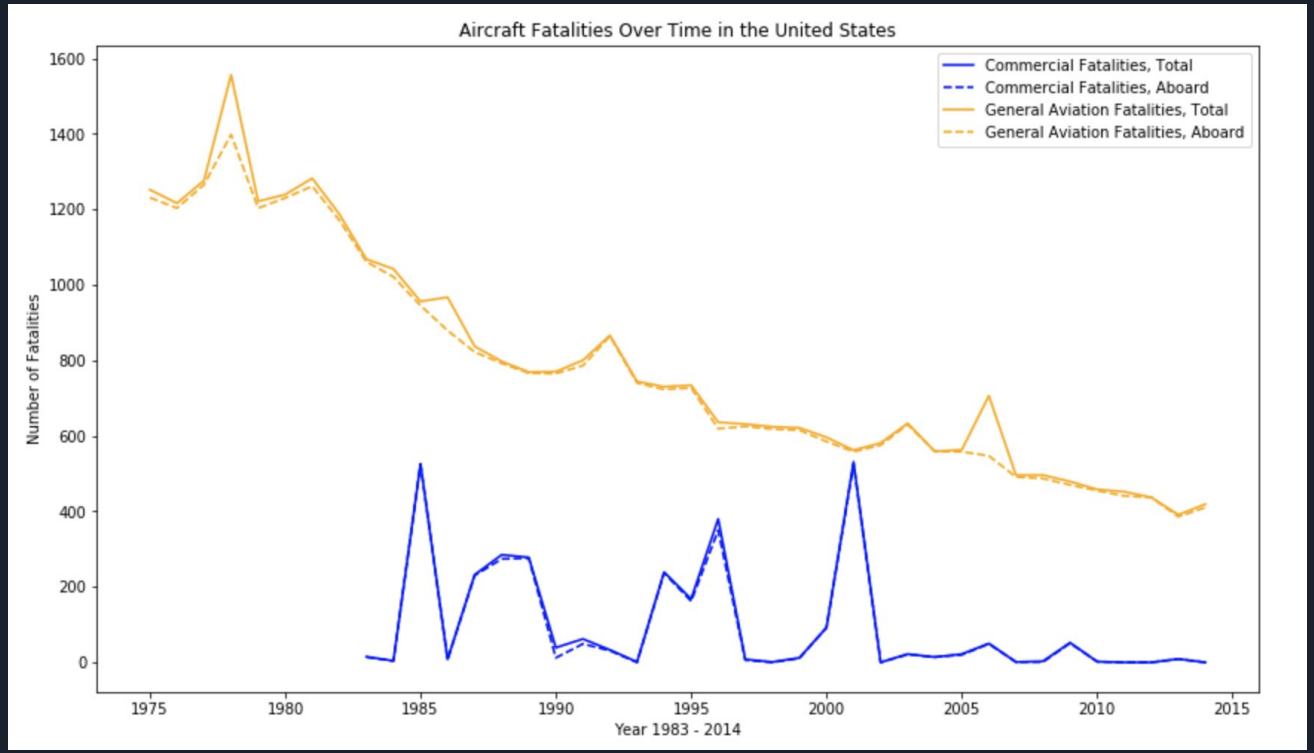
  ‘Commercial’ = 14 CFR-121

  - Domestic, Flag, and Supplemental Operations, more than 10 passengers, scheduled service

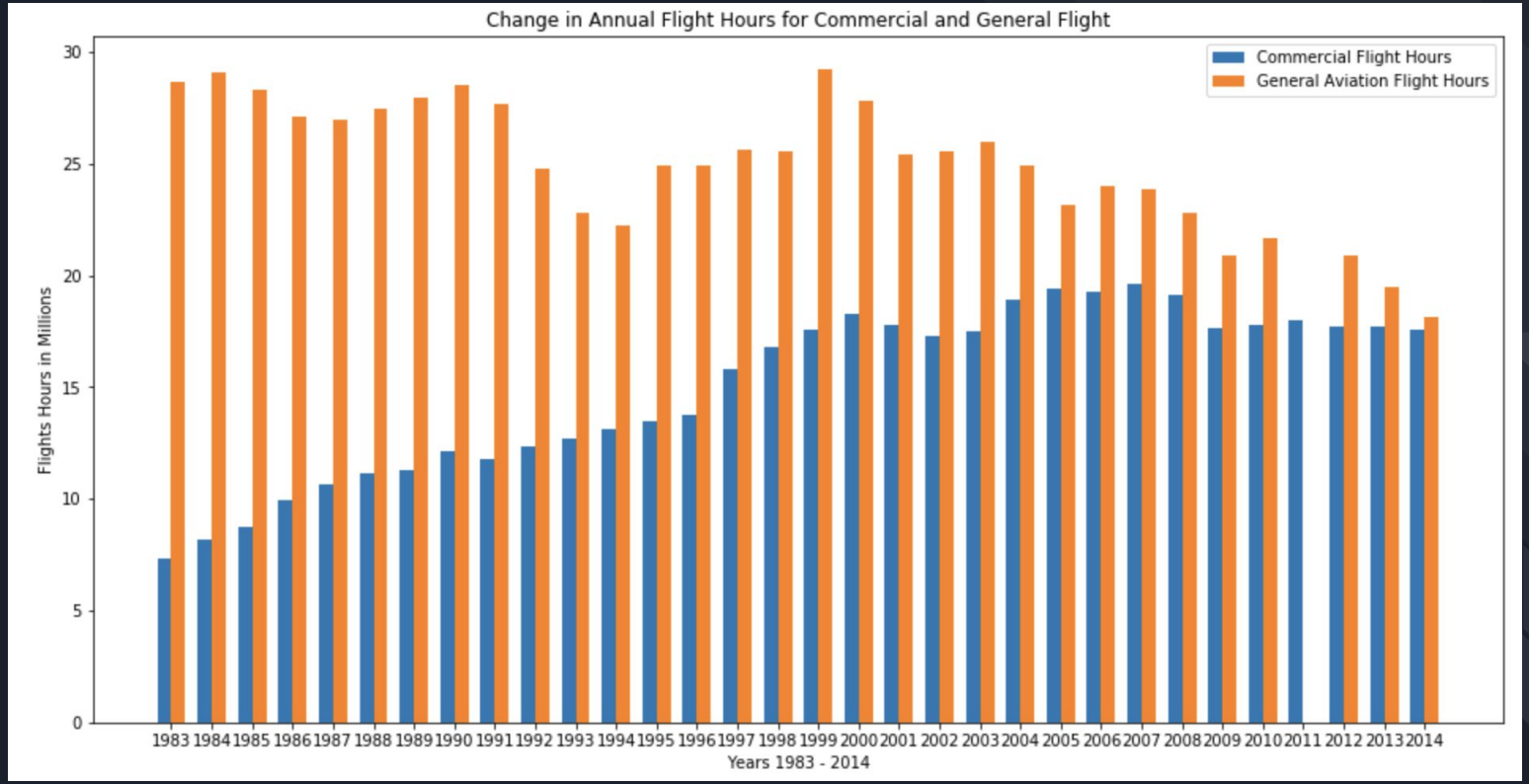
  ‘Private’ = General Aviation

  - Examples: Personal, Instruction, Business, Travel Club, Executive, Air Taxi

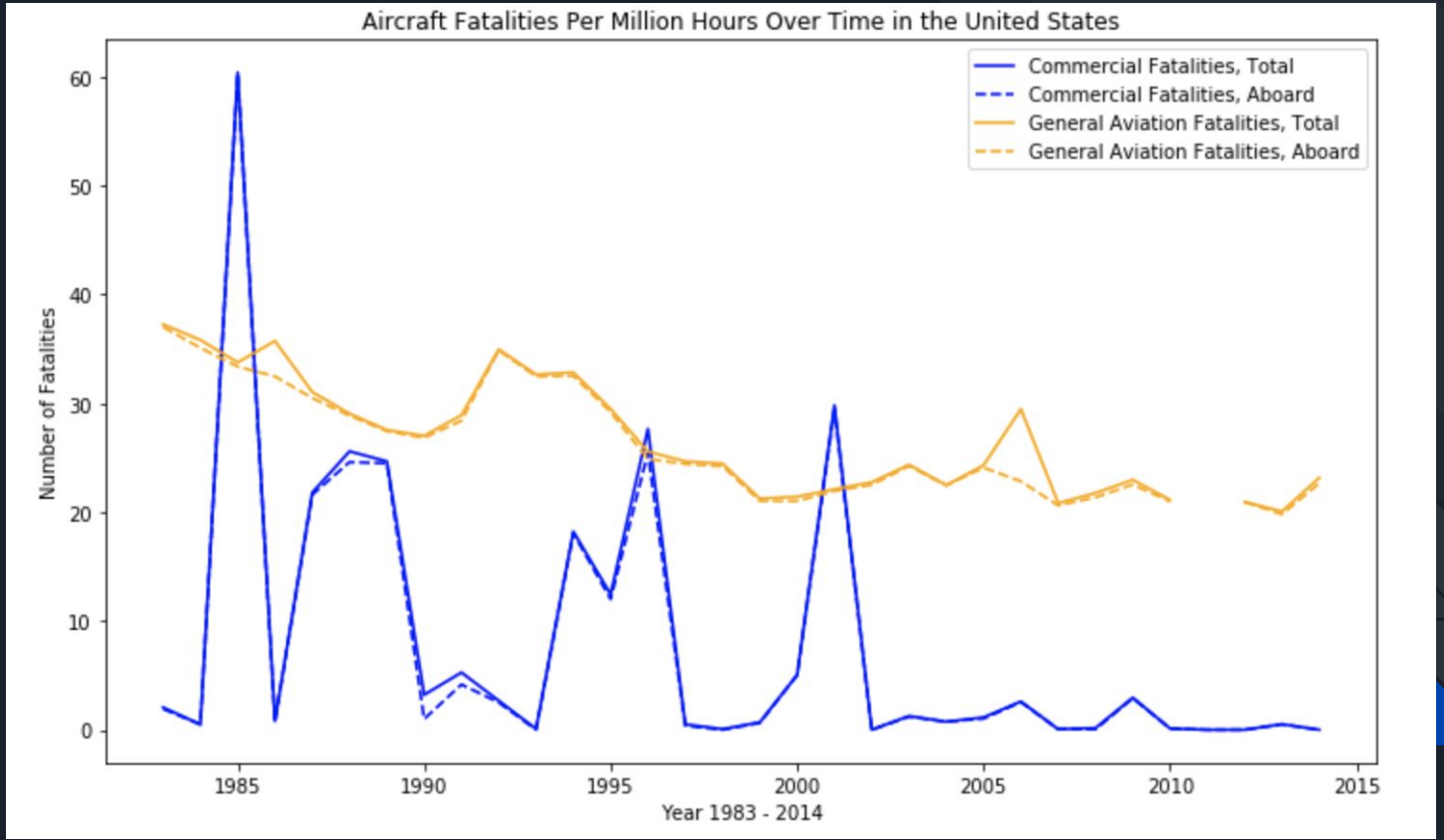
Fatalities have decreased over time, but private flight is more dangerous than commercial flight!



Commercial flight has grown more in comparison to private flight



Fatalities dropping even more with respect to increased air travel.



0.261 per billion miles

This is 1 in 3.83 billion miles.

Seattle to New York is 2422 miles. Let’s say you flew this route every single day.

Flying this route every single day for 4,524 years would bring you to the 3.83 billion miles.

What airplanes have the most fatalities?

Airplane Make/Model	Number of Fatal Crashes Reports from 1983-2014
CESSNA CE-182	216
DE HAVILLAND-BOMBARDIER DHC-6 TWIN OTTER	55
CESSNA CE-180	40
CESSNA CE-206	39
DOUG DC-3	38

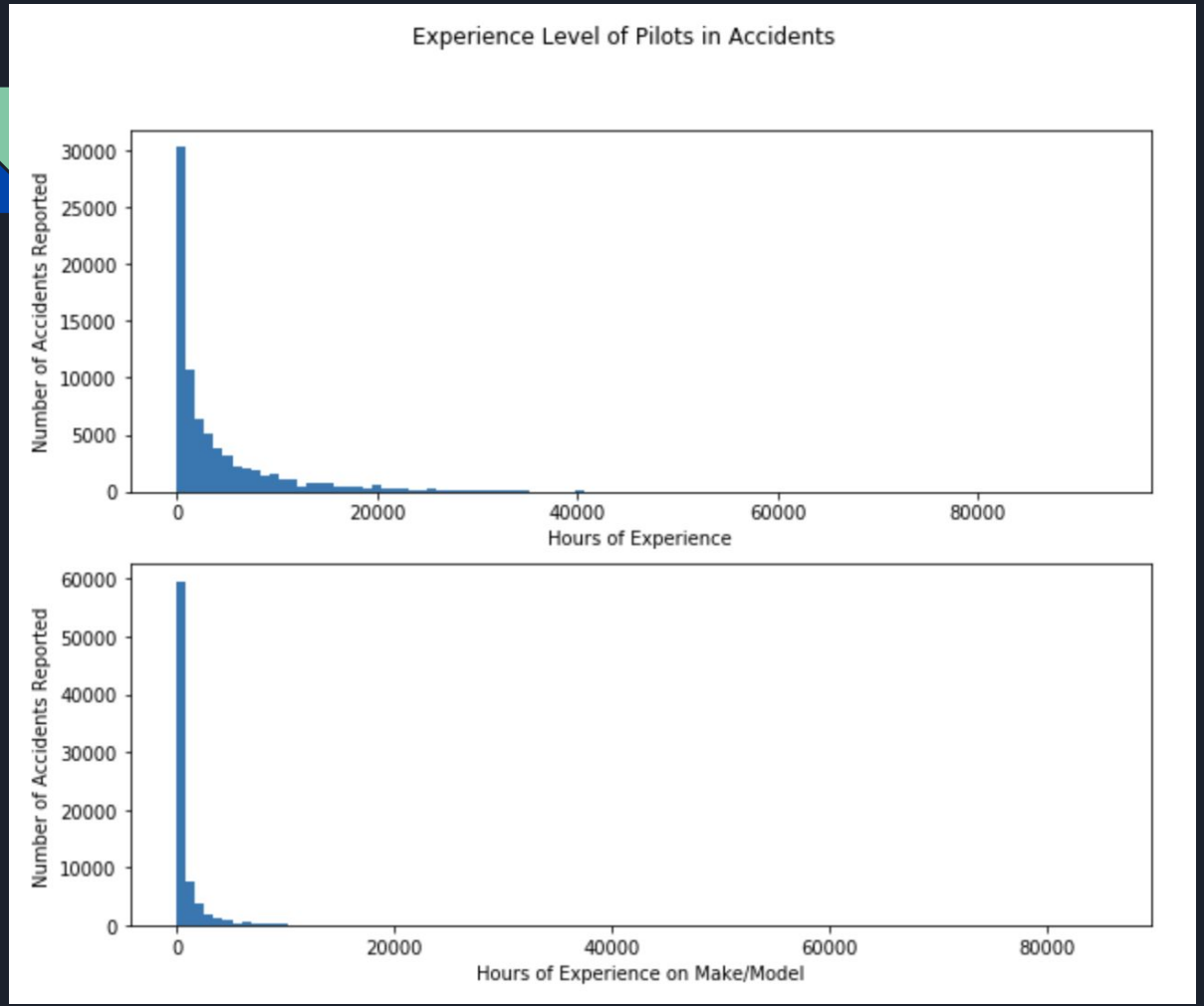
Cessna CE-182 [8]

De Havilland-Bombardier DHC-6 Twin Otter[6]

Cessna CE-180 [9]

Cessna CE-206 [10]

DOUG DC-3 [7]



Pilots experience matters!

[1]

Conclusion

Why is private flight more dangerous than commercial flight?

Larger plane → more flight hours required for certification to fly

More flight hours → more experienced pilots

More experienced pilots → Safer

Larger plane → more expensive

More expensive→ fewer exist, fewer privately owned

Fewer planes → Less chances for them to crash

Thinking bigger: why is flight so much safer than driving?

Sources

[1] https://www.asias.faa.gov/apex/f?p=100:11:::NO:::

[2] https://catalog.data.gov/dataset/accidents-and-accident-rates-by-ntsb-classification-1995-through-2014-for-u-s-air-carriers

[3] https://catalog.data.gov/dataset/accidents-fatalities-and-rates-1995-through-2014-for-u-s-air-carriers-operating-under-14-c-dae36

[4] https://catalog.data.gov/dataset/accidents-fatalities-and-rates-1995-through-2014-u-s-general-aviation

[5] http://www.oogazone.com/2019/best-free-airplane-vector-library/

[6] https://en.wikipedia.org/wiki/De_Havilland_Canada_DHC-6_Twin_Otter#/media/File:WinAir_De_Havilland_Canada_DHC-6-300_Twin_Otter_Breidenstein.jpg

Sources

[7] https://en.wikipedia.org/wiki/Douglas_DC-3#/media/File:Douglas_DC-3,_SE-CFP.jpg

[8] https://en.wikipedia.org/wiki/File:Cessna182t_skylane_n2231f_cotswoldairshow_2010_arp.jpg

[9] https://en.wikipedia.org/wiki/Cessna_180#/media/File:Cessna.180a.g-btsm.arp.jpg

[10] https://en.wikipedia.org/wiki/Cessna_206#/media/File:Cessna.206h.stationair2.arp.jpg