

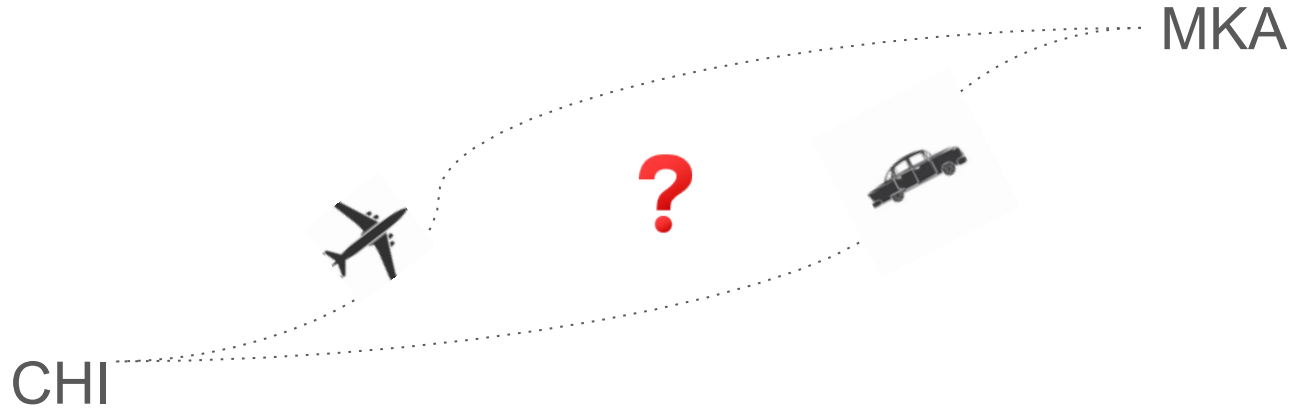


FLY OR DRIVE?

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INTRODUCTION

Your job in Chicago has required that that you go to Milwaukee, WI for a meeting at the Milwaukee airport. Is it safer for you to fly or drive?



GIVEN INFORMATION

- You live very near Chicago's O'Hare airport
- The distance to Milwaukee is 71 miles



Relevant to Flying

- 90% of plane accidents occur during the takeoff or landing phase
- There are approximately 0.2 deaths per 10 billion miles flown



Relevant to Driving

- You always wear a seatbelt and are sober while driving
- In 2023, there were 40,100 auto traffic deaths in the U.S.
- The risk of being in a fatal car crash while sober and wearing a seatbelt is only 20% of the risk for the general population

ASSUMPTIONS



Relevant to Flying

- Average Take off distance = Average Runway Length (in miles) = 2 miles
- Average Landing distance = Average Runway Length (in miles) = 2 miles
- All accidents results in death



Relevant to Driving

- Annual number of deaths in the US is 233,00,000
- Average driving miles per driver in US is 14263
- Annual auto traffic deaths in US (40100) is the entire deaths

RISK ESTIMATION [\(calculation\)](#)



Relevant to Flying

Risk of death in air = [1 - % accidents while takeoff or land] × Avg Distance in Air × % deaths per mile flown = **1.34E-10**

+

Risk of death in air = [% accidents while takeoff or land] × Avg Distance on Land × % deaths per mile flown = **7.20E-11**

=

Risk = 2.06E-10



Relevant to Driving

Distance from Chicago to Milwaukee
(in miles) = **71**

+

Adjusted number of auto traffic death per mile in US (safer driving) = number of auto traffic death per mile in US* Risk rate with sober and safe driving = **2.41E-09**

=

Risk = 1.71E-07

CONCLUSION

Based on the given information and our assumption, the data and calculations indicate that **flying is significantly safer**.

The calculated risk of flying, at approximately $2.06\text{E}-10$, is substantially lower than that of driving, which stands at approximately $1.71\text{E}-07$. While both forms of transportation exhibit relatively low risks, flying is approximately 830X safer than driving.