

Is flying safer than driving?

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“You’ve already completed the most dangerous part of your journey.” This reassurance is often proffered to nervous flyers who have just driven to the airport. It is a myth that has become established through repetition.

It rests on simple statistics poorly understood. It is true that the average number of deaths per billion miles travelled on the road is much higher than the number per billion miles travelled by air - about 40 times higher. But

- the airline figure includes only passengers, while the most commonly used figure for roads includes pedestrians and cyclists,
- the relevant comparison to make with air travel is the death rate on the rural motorways or the US Interstate system which is much lower than the rate for the *average* road,
- the *average* road accident death rates that lead to the conclusion that it is safer to fly are strongly influenced by the high rates of drunken young men, while people dying in air crashes are, on average, much older and, when on the road, safer-than-average drivers, and
- because most crashes occur on take-off or landing, the death rate for air travel increases as trip length decreases.

Taking all these factors into account, Leonard Evans of General Motors Research Laboratories has demonstrated that in the USA a 40-year-old, belted, alcohol-free driver in a large car is slightly *less* likely to be killed in 600 miles of Interstate driving - the upper limit of the range over which driving is likely to be considered a realistic alternative to flying - than in a trip of the same distance on a scheduled airline. For a trip of 300 miles he calculated that the air travel fatality risk is about double the risk of driving.

This comparison, of course, is not the complete story, it simply demonstrates the importance of disaggregating averages to make sure that they are relevant to your circumstances. The categories “young men” and “40 year old driver” also contain within them large variations. If you are on the road at 3am Sunday your probability of dying is over 100 times greater than at 10am Sunday. Tyres, brakes, state of alertness, and above all attitude towards risk are among the myriad other relevant factors that bear upon the outcome.

The risks associated with flying also need to be disaggregated by factors such as aircraft type and age, maintenance, airline, the pilots’ age, health and experience, weather, air traffic control systems etc. Judged by such factors the Swissair flight from New York to Geneva should have been extremely safe. The cause of the crash has not yet been established but, assuming the investigation does establish the cause, it will become apparent that the probability of dying on that particular flight was 1 - certainty.

Risk refers to the probability of something nasty happening in the future. The future exists only in our imaginations. Most commonly quoted risk estimates refer to the probability of dying *last year* - the number of deaths in the past divided by some measure of exposure. Their use as risk estimates assumes that next year will be like last year. Often it is, but often it isn’t. They are often little more than authoritative-sounding expressions of uncertainty.

We are very partial masters of our fates. We respond to risk estimates. High ones can make us more careful, low ones more complacent. Perhaps a good argument for flying by Swissair on your next trip.

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