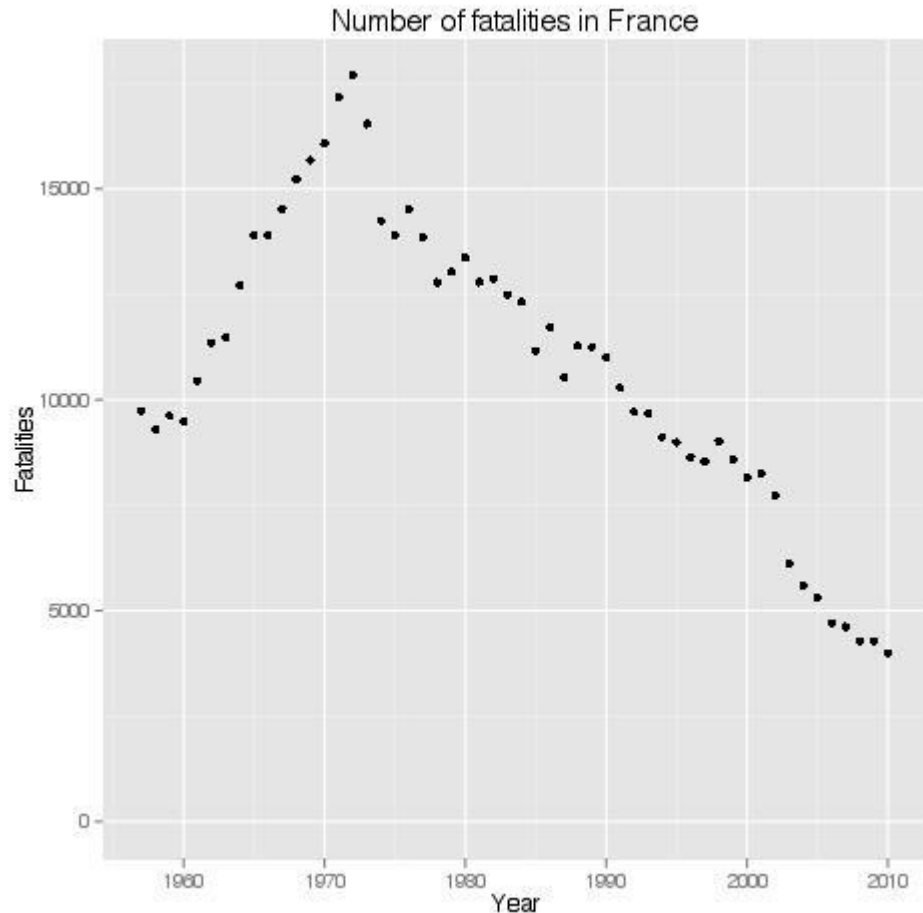


Road Safety Development

France

Fatalities

The fatality trend shows a turning point in 1973



- Marked increase in the number of fatalities from 1960 to 1972, during the large diffusion of cars in the society. From 1975 to 2002, regular decrease.
- In 1973 and 1974, sharp fall due to the introduction of speed limits on rural roads and seat belt law. The inversion in the trend is due to the change in the mobility trend during the first energy crisis. In 2003, a second sharp fall due to the introduction of the automatic control speed enforcement by cameras.

Registration of fatalities

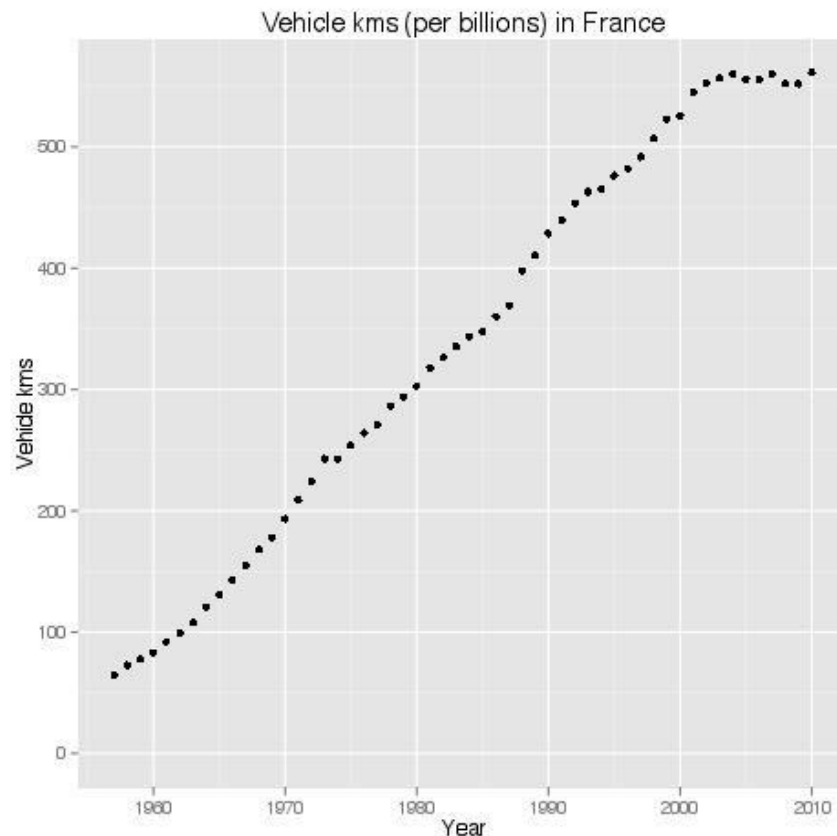
- There have been changes in the definition of the number of fatalities, from 3 days after the accident, to 6 days in 1967 and then 30 days in 2005. Multiplicative factors have been applied to pre-1967 and 2005 data in order to retrospectively count fatalities up to 30 days after the accident.



Road Safety Development - France

Mobility has been increasing in France up to 2006. Since then, it is stagnating.

Traffic Volume



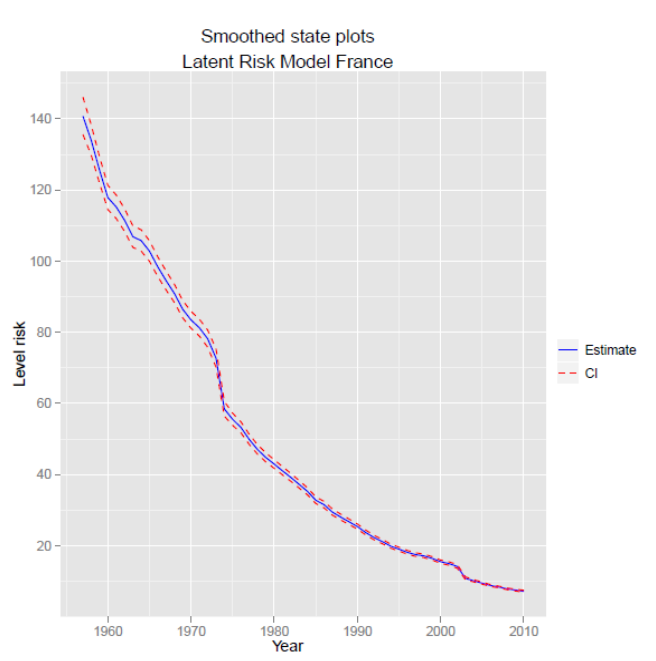
- The number of fatalities depends strongly on the amount of traffic (exposure). To forecast the fatalities, the development of exposure has to be forecasted first.
- The selected measure for traffic volume is the annual vehicle kilometres (in billions). These estimates are produced by a model relating the vehicle fleets and the yearly average distances driven to the fuel sales.
- Development:
 - o Between 1957 and 1973, regular increase, stopped by the first energy crisis in 1974.
 - o From 1975 to 2005, second period of increase, smaller in intensity than the previous one.
 - o Since 2006 due to a slowing down of the economic activity, stagnation and even decline.
- There is a significant relation between the development of the traffic volume and of the annual fatality numbers in France, more precisely between the stochastic slopes of fatalities and exposure.



Road Safety Development - France

Fatality Risk

- The fatality risk is the number of fatalities per billion (10^9) vehicle kilometres.
- Estimation model – technical definition:
 - o Latent Risk Model [1,2]
 - o Fixed level exposure, fixed slope risk.
- CI: 68% confidence interval



The fatality risk has
been decreasing by
4,8% yearly

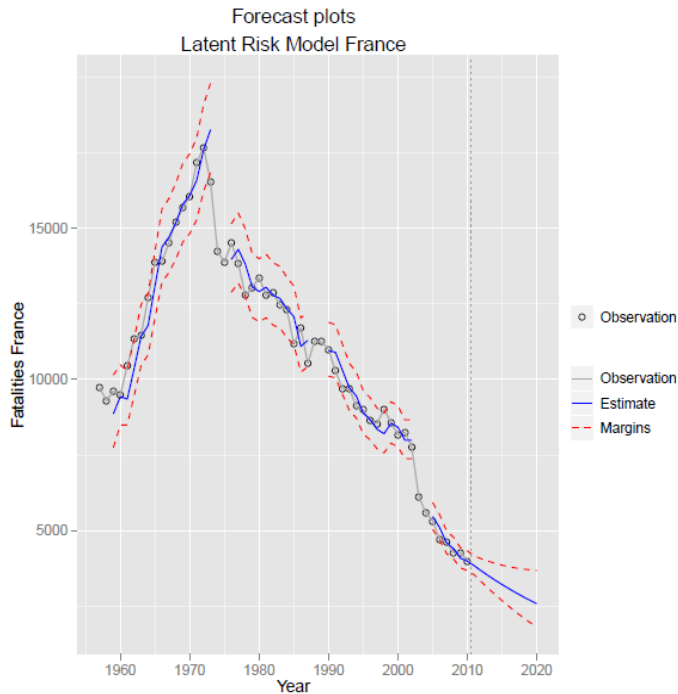
- The risk for fatalities in France has reduced from almost 140 per billion vehicle kilometres in 1957 to around 7 per billion vehicle kilometres in 2010.
- This amounts to a mean decrease of 4,8% per year.
- Two extreme decreases took the values of -16,2 % in 1974 and -22% in 2003.



Road Safety Development - France

Forecasts to 2020

- If road safety is improved at the same rate as previously and the past development of mobility continues, the following is to be expected for the number of fatalities in 2020:



If RS efforts continue at the same level, the expected number of fatalities in 2020 is 2576.

Forecast of road-traffic fatalities in France up to 2020

Year	Prediction	Lower CI	Upper CI
2011	3833	3532	4159
2012	3667	3306	4068
2013	3509	3089	3986
2014	3357	2880	3914
2015	3213	2679	3852
2016	3074	2486	3801
2017	2941	2301	3759
2018	2814	2126	3726
2019	2693	1959	3701
2020	2576	1802	3684

Disclaimer

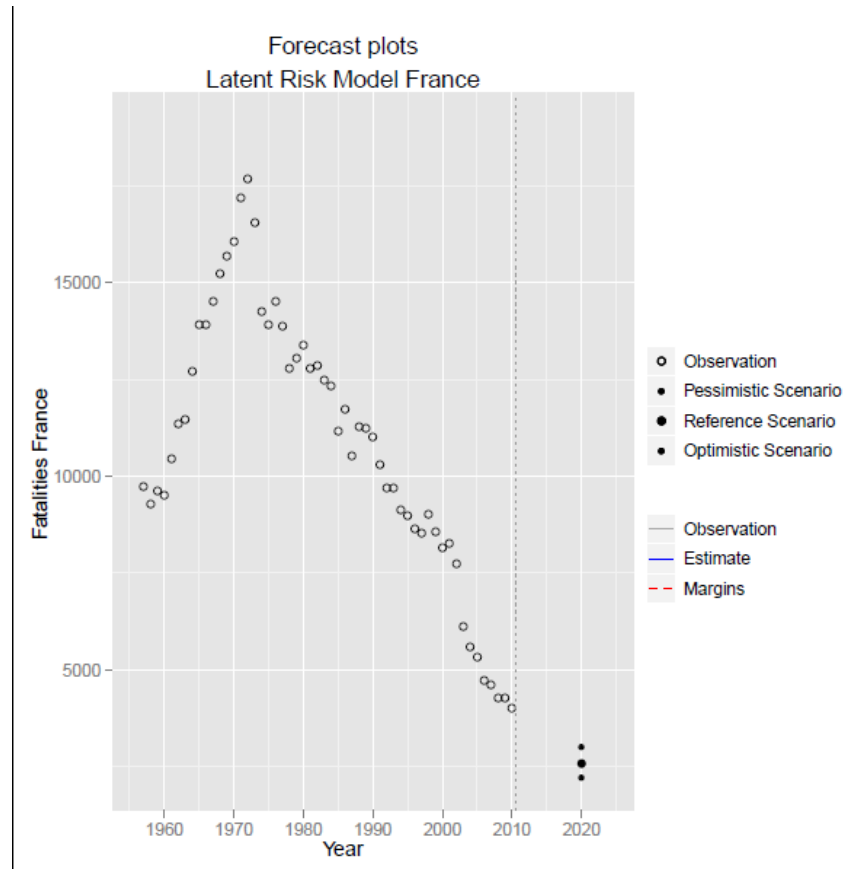
- Statistical forecasting does not offer a definite prediction of what is *actually* going to happen in the future.
- The estimates are based on the “business as usual” assumption: no *principal* changes between past and future development.
- Even in these conditions future outcomes are uncertain. This uncertainty is represented in the confidence intervals (plotted in the red margins: 68%; printed in table: 95%).



Road Safety Development - France

Scenarios

- The uncertainty about the development of the fatalities observed in France is for a good part due the development in traffic volume.
- To illustrate that, three point-estimates for fatalities in France in 2020 are plotted assuming three different scenarios for traffic volume:
 - o Reference: continuation of development, i.e.: increase in number of vehicle kilometres (forecasted value)
 - o Scenario 1: stronger growth (forecasted value +1 standard deviation)
 - o Scenario 2: decrease (forecasted value -1 standard deviation)



Scenarios for Traffic Volume

	<i>Vehicle kilometers (billions)</i>	<i>Road traffic fatalities</i>
<i>Situation 2010:</i>	561,3	3994
<i>Prediction 2020 according to mobility scenarios:</i>		
- Continuation of development (increase)	589	2576
- Decrease	504	2206
- Stronger increase than predicted	688	3008



References

Road Safety Development - France

[1] Dupont & Martensen (Eds.) 2012. Forecasting road traffic fatalities in European countries. Deliverable 4.4 of the EC FP7 project DaCoTA.

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[4] Lassarre S., (2001) « Analysis of progress in road safety in ten european countries », *Accident Analysis & Prevention*, 33, 743-751.

[5] EC National Expert for road accident statistics and road safety performance indicators.

[6] Martensen & Dupont (Eds.) 2010. Forecasting road traffic fatalities in European countries: model and first results. Deliverable 4.2 of the EC FP7 project DaCoTA.

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