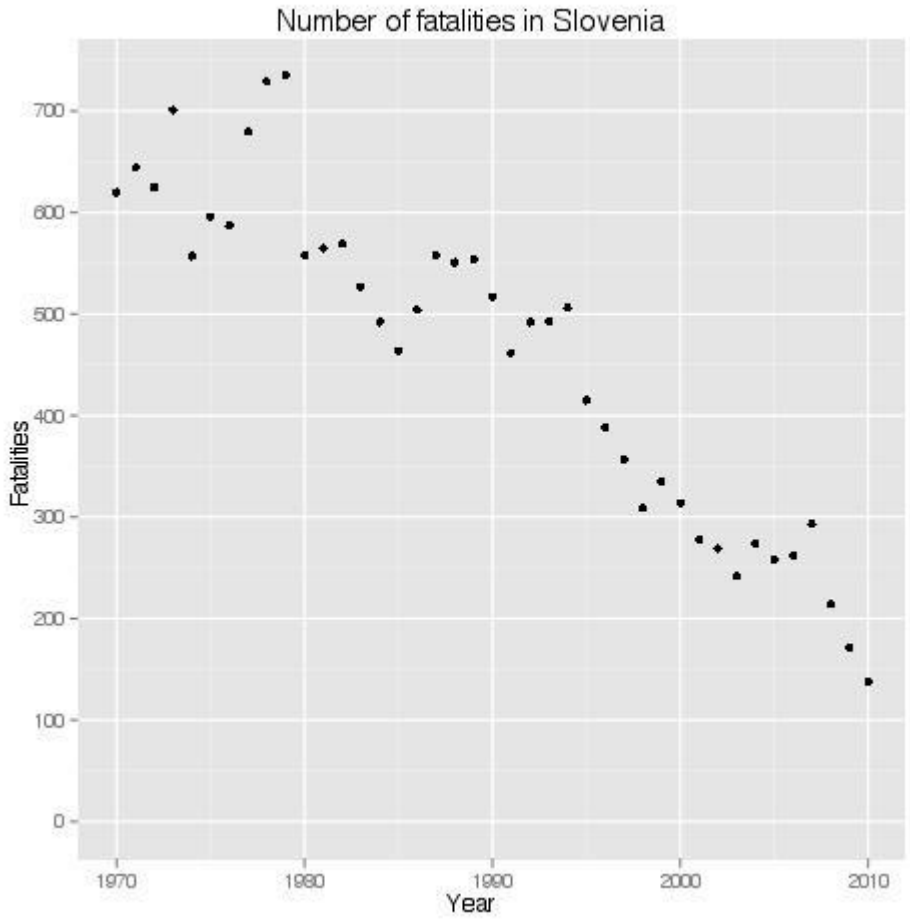
Slovenia

Fatalities

Irregular decrease due to political situation



- The number of fatalities is chaotic during the 70s and 80s because of the big change in the political situation which lasted until 1991 (independence).
- Since then, the trend is decreasing with a burst in 2007.

Registration of fatalities

- A fatality is defined as a death occurring within 30 days following an accident. A 100% registration can be assumed with confidence in the case of Slovenia as far as fatalities are concerned.

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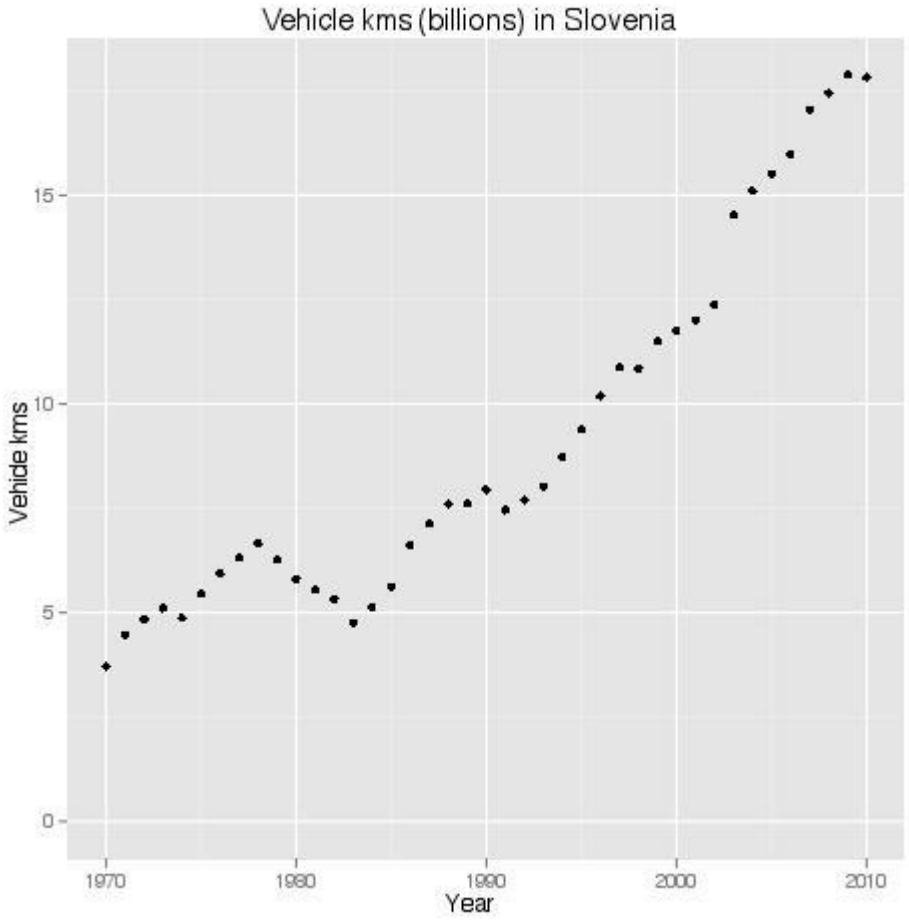
Road Safety Development - Slovenia

Mobility has been increasing after the independence in 1991

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:
  - Between 1970 and 1978, regular increase, stopped by a strong increase of fuel price in 1979,
  - From 1979 to 1983, period of decrease, due to the crisis after Tito's death.
  - Since 1984, second period of increase, stopped in 1991 with the independence war.
  - Since then, third period of increase with an acceleration in 2003.

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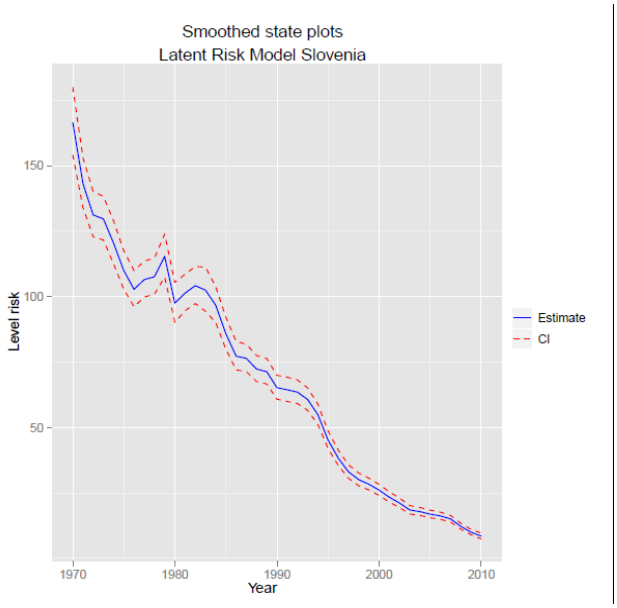
Fatality Risk

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



The fatality risk has been decreasing by 5 to 10% yearly

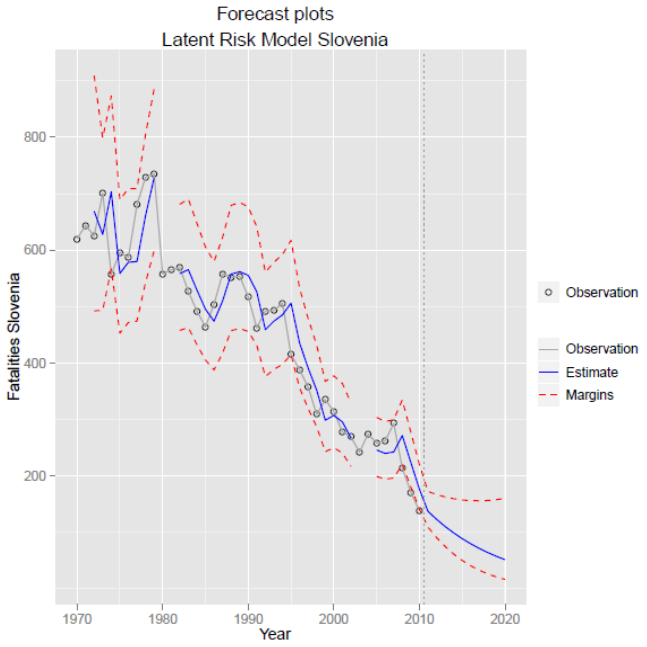
- The risk for fatalities in Slovenia has reduced from 150 per billion vehicle kilometres in the early 70s to less than 30 per billion vehicle kilometres in the most recent years.
- This amounts to a decrease between 5 to 10% per year.
- The decrease in the level is -21 % in 1980.

Road Safety Development - Slovenia

Forecasts to 2020

– f 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 52.



Forecast of road-traffic fatalities in France up to 2020

Year	**Prediction**	Lower CI	Upper CI
2011	**137**	109	172
2012	**123**	91	167
2013	**110**	75	163
2014	**99**	61	159
2015	**89**	50	157
2016	**80**	41	156
2017	**71**	33	156
2018	**64**	26	156
2019	**57**	21	158
2020	**52**	17	160

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%).

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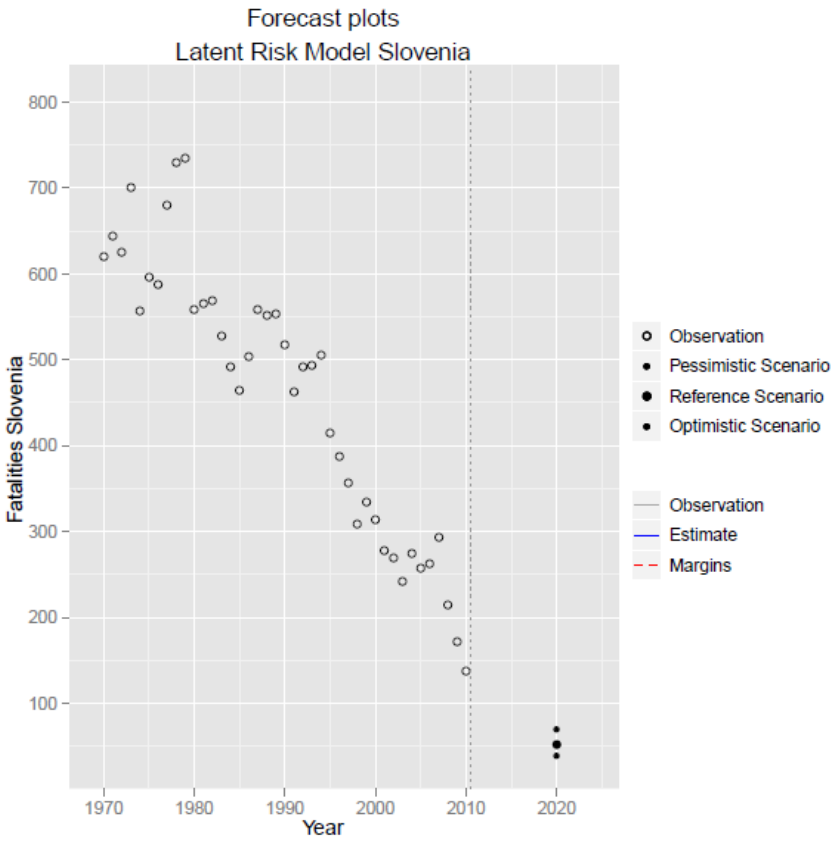
Scenarios

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



Scenarios for Traffic Volume

	Vehicle kilometers (billions)	*Road traffic fatalities*
Situation 2010:	17,83	138
Prediction 2020 according to mobility scenarios:		
- Continuation of development (stagnation)	18,7	52
- Increase	46	70
- Decrease	7,6	39

References

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

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

[3] Bijleveld F., Commandeur J., Gould P., Koopman S. J. (2008),. Model-based measurement of latent risk in time series with applications. Journal of the Royal Statistical Society, Series A, 2008.

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

[5] Commandeur, J. & Koopman, S.J. (2007) An Introduction to State Space Time Series Analysis. Oxford University Press.