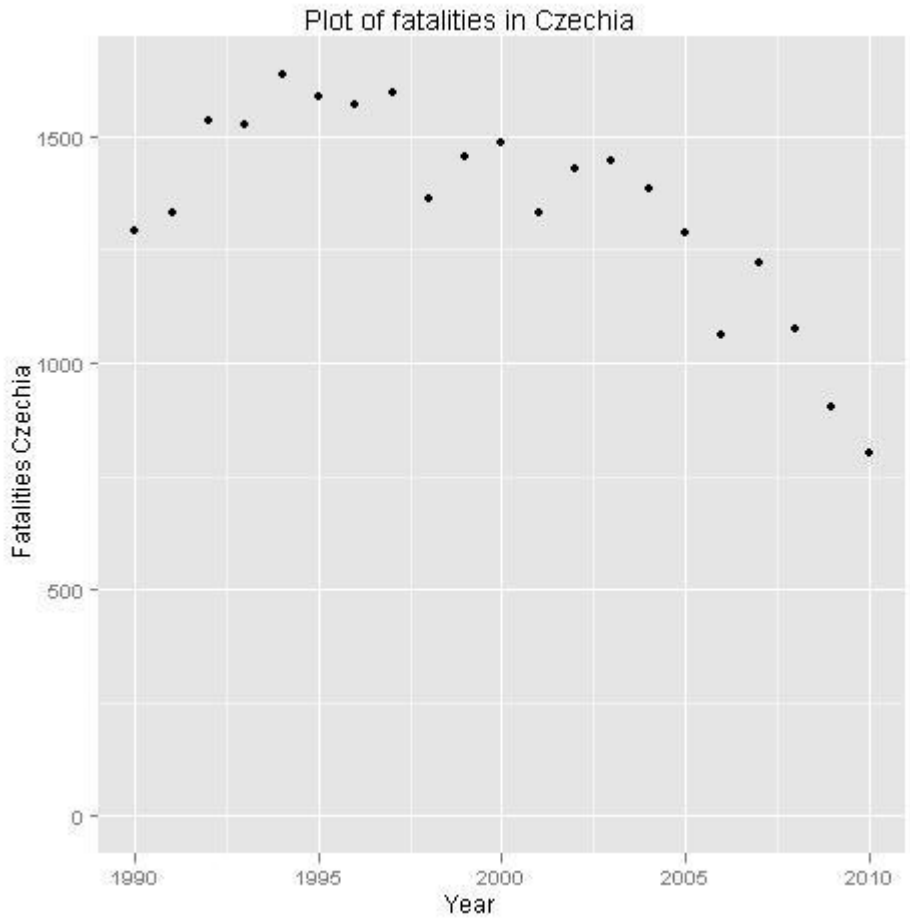
Czech Republic

Fatalities

Fatalities have shown a declining trend since 1994.

Since 2007 fatalities have decreased more quickly than before.



Development

- 1990: New regime replaced the soviet system.
- 1990 – 1994: increase of fatalities (+5% annually).
  - Increase in traffic volume.
  - Change of driver behaviour (less strict police surveillance, more freedom, drivers not used to the new situation)
- 1994 – 2005: slow decrease of fatalities (less than 5% annually)
  - National safety strategy system
  - Measures: Seatbelt & helmet obligation, speed limits.
- 2006:
  - Demerit point system was introduced
  - At first with strong media anti-campaign.
- 2007 – 2010: strong decrease (10% annually). [1]

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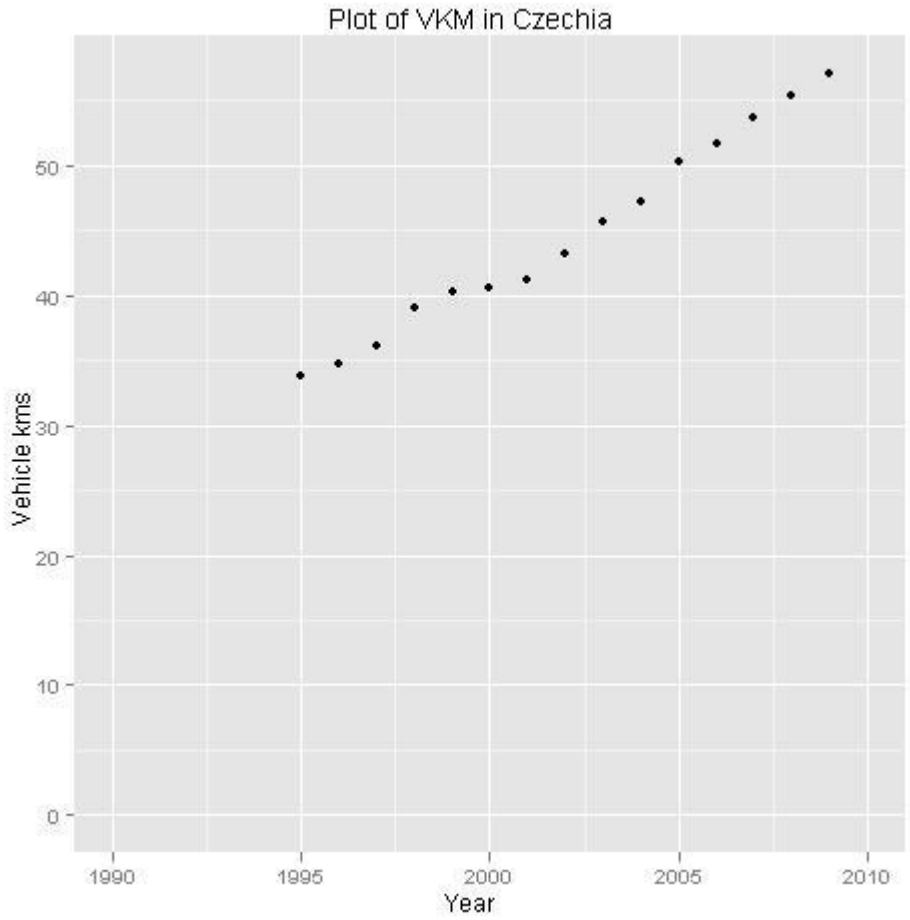
Traffic Volume



- The number of fatalities normally depends strongly on the amount of traffic.
- The best estimate for traffic volume available is the number of vehicle kilometres (per million) that has been measured since 1995.
  - The vehicle kilometres show a rising trend.
  - With the exception of a small plateau around the millennium change, the vehicle kms rise in an almost straight line.
  - The number of vehicle kilometres is not affected by the recession in 2008.
- Relation between traffic volume and fatalities:
  - No relation between fatalities and vehicle kms can be established.
  - No mobility scenario can be calculated.

Forecasting model:

- Technical definition
  - Local Linear Trend model [5,2].
  - Variable: yearly number of fatalities
  - Smooth trend model: fixed slope stochastic level.

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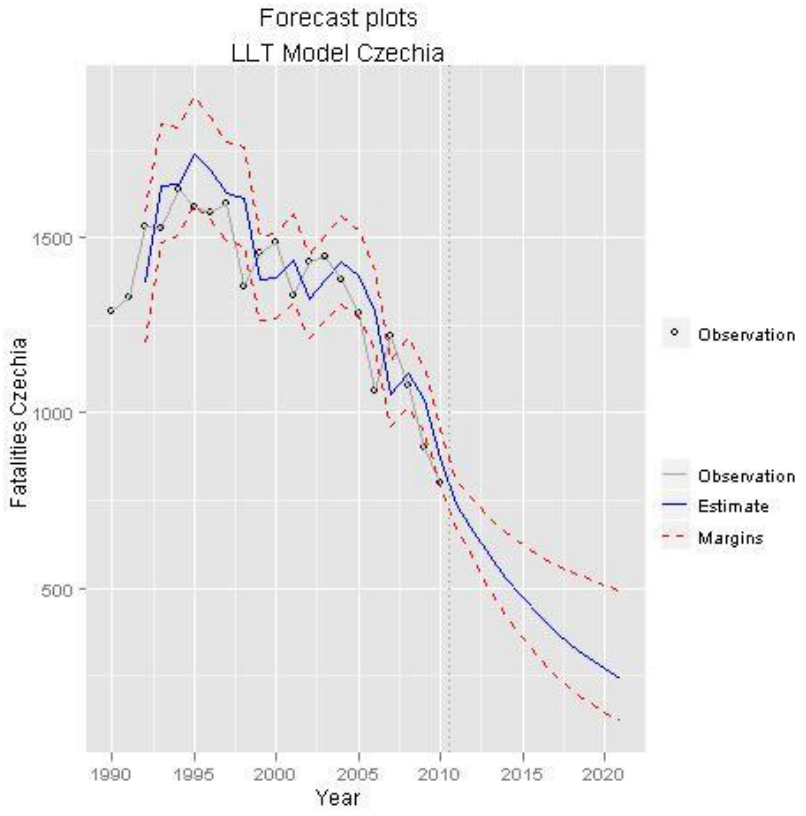
Road Safety Development – Czech Republic

Forecasts to 2020

– If road safety is improved at the same rate as previously the following forecasts can be made for the number of fatalities in 2020:



If RS efforts continue at the same level, the expected number of fatalities in 2020 is 271.

Forecast of road-traffic fatalities in the Czech Republic

Year	Prediction	Lower CI	Upper CI
2011	**740**	619	885
2012	**662**	516	848
2013	**592**	423	828
2014	**529**	342	820
2015	**473**	273	820
2016	**423**	216	829
2017	**378**	169	846
2018	**338**	132	870
2019	**303**	102	902
2020	**271**	78	942

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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References

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

|2] Dupont & Martensen (Eds.) 2012. Forecasting road traffic fatalities in European countries. Deliverable 4.4 of the EC FP7 project DaCoTA.

[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.