Romania
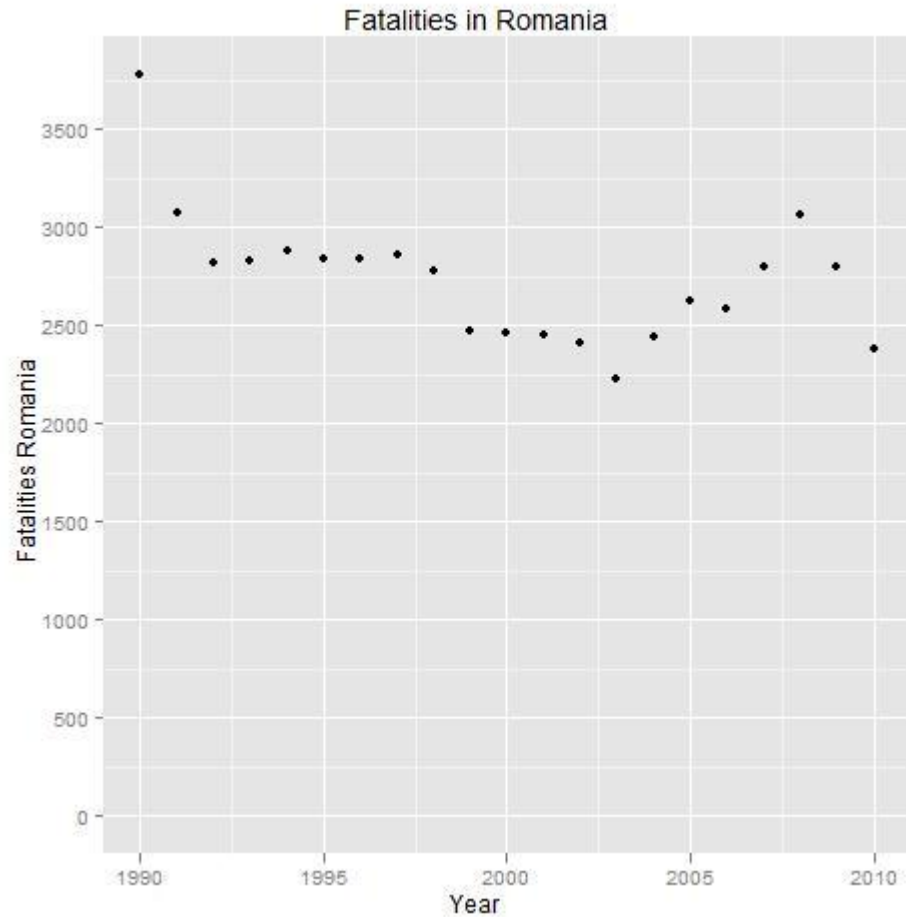
Fatalities

The fatalities show a very irregular pattern.

In the last two years, fatalities have been strongly decreasing.

Fatalities in Romania

- The trend in fatalities since 1990 has been very irregular.
- 1990 – 2003: reduction of fatalities.
  o Possibly the economic problems after the change of political system kept the mobility low in that time.
- 2003 – 2008: strong increase
  o Economic progress,
  o Road safety was not a priority and no strategy to improve it existed.
- After 2008: reduction
  o Police made a huge effect to decrease the number of road traffic accidents [1].
  o Economic recession.
- *Conclusion: the development of fatalities shows no clear trend.*
- Altogether the periods of increase, decrease and stagnation amount to average reduction of the fatalities of 2.5% per year.

Road Safety Development - Romania

T r a n s p o r t
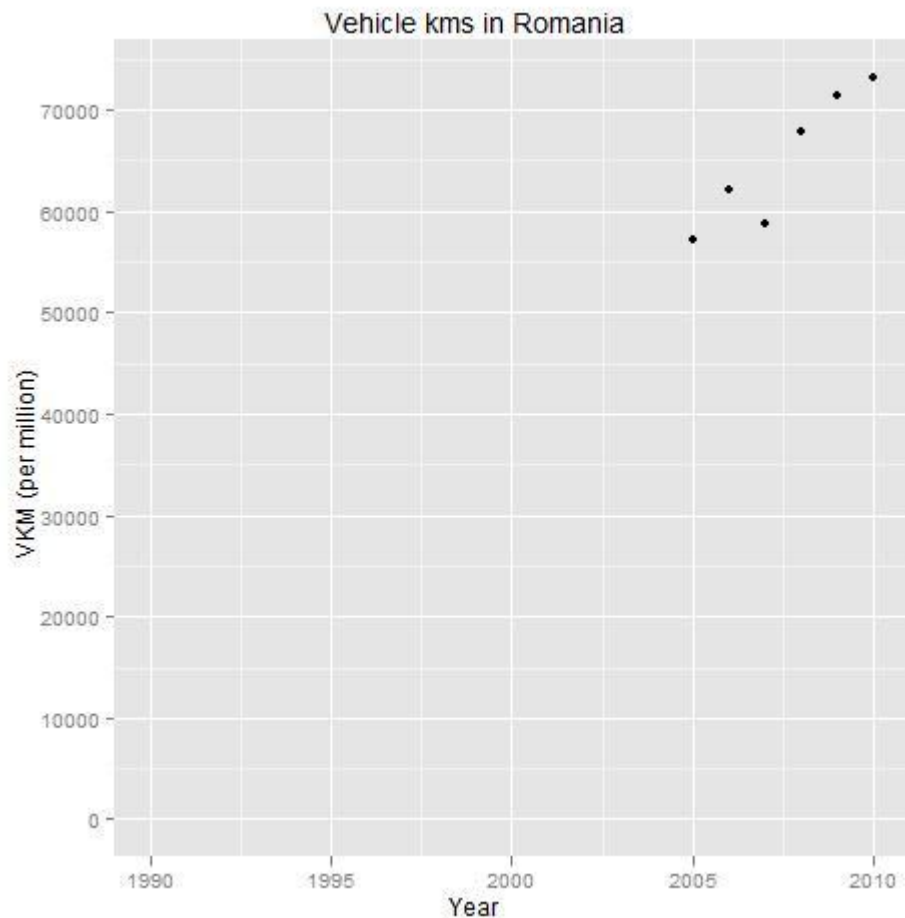
Traffic Volume

Between 2005 and 2010 vehicle kms show a more or less a constant annual increase of 5 to 6%.


Vehicle kms in Romania

- Normally, the number of fatalities depends strongly on the amount of traffic. To forecast the fatalities, the traffic volume (measured as vehicle kilometres per million) has to be considered.
- The only available estimate for traffic volume is vehicle kms that is available from 2005 onwards only.
  - Between 2005 and 2010 more or less a constant increase.
  - No sign of reduction due to recession (after 2007).
- Relation between traffic volume and fatalities:
  - No relation can be identified.
  - Reduction after 2008 is not related to development of exposure.
  - No mobility scenario can be calculated.
- Forecasting model (technical definition [2]):
  - Local Linear Trend model.
  - Variable: yearly number of fatalities.
  - Fixed components: Level.
  - Intervention in 2008: Significant change of direction.

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Forecasts to 2020

– Because of the strong irregularities in the past, no clear conclusions about the trend can be drawn.

– The forecasts for the number of fatalities in 2020 are based on the assumption that road safety is improved at the same rate as between 2008 and 2009 and that the economic development observed in these years continues.
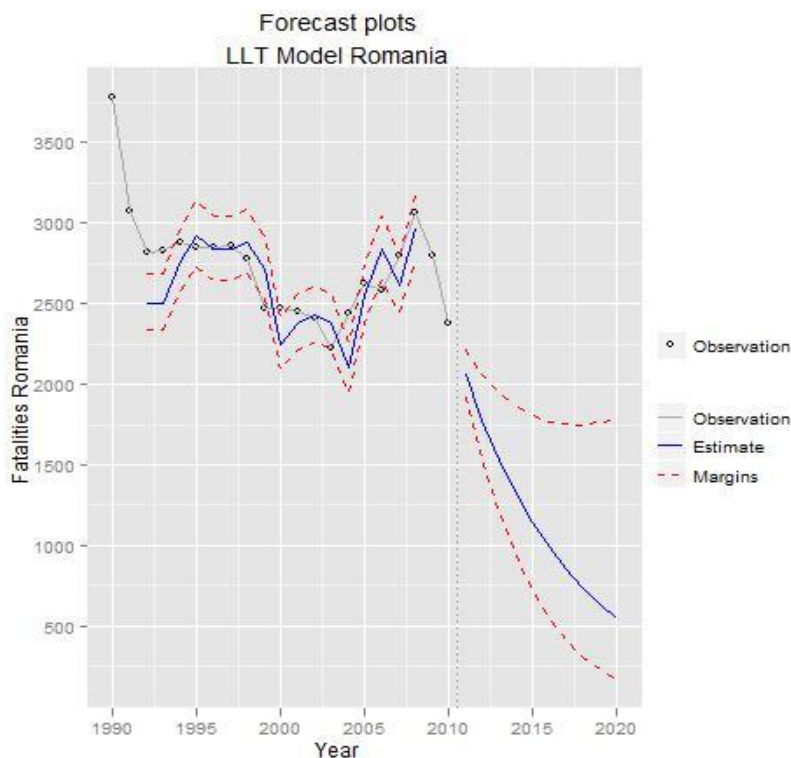
The irregular development in the past does not allow a useful forecast.

Forecast plots
LLT Model Romania

Forecast of road-traffic fatalities in Romania up to 2020

Prediction	Lower CI	Upper CI
2062	1792	2373
1779	1334	2373
1535	962	2449
1324	676	2596
1143	464	2816
986	311	3121
851	205	3527
734	133	4059
633	84	4752
546	53	5655

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%).

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.