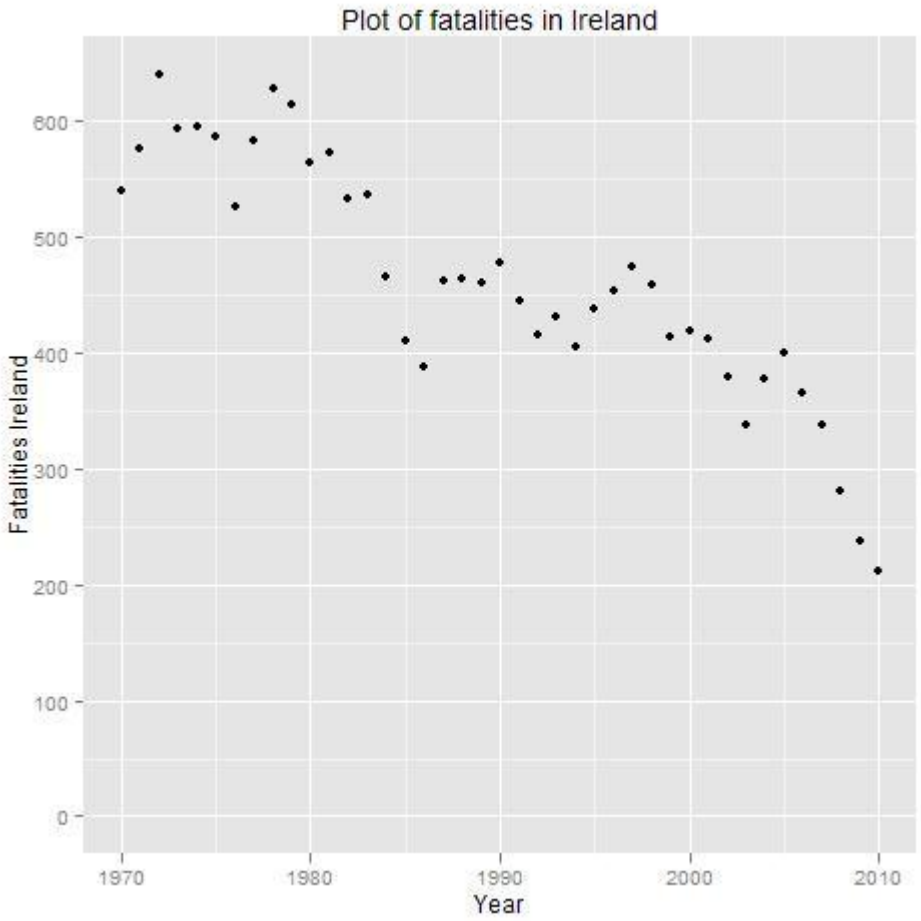
Ireland

Fatalities



- The fatality series has seen two large falls: one in the early 1980s and a second in 2008-2010. The latest drops may be associated with drops seen in GDP for these years.
- Fatalities also dropped in 2003 when penalty points were introduced. Initially there were high expectations but the IT was incomplete and people realized how inefficient it was and its effect on behaviour faded away quickly. In 2005 the Road Safety authority was established which coordinated all RS efforts. It had the effect of giving road safety a higher profile and resulted in the 2007 RS strategies.
- The number of fatalities observed in 2010 (212) is 2.5 times lower than in 1970 (540).

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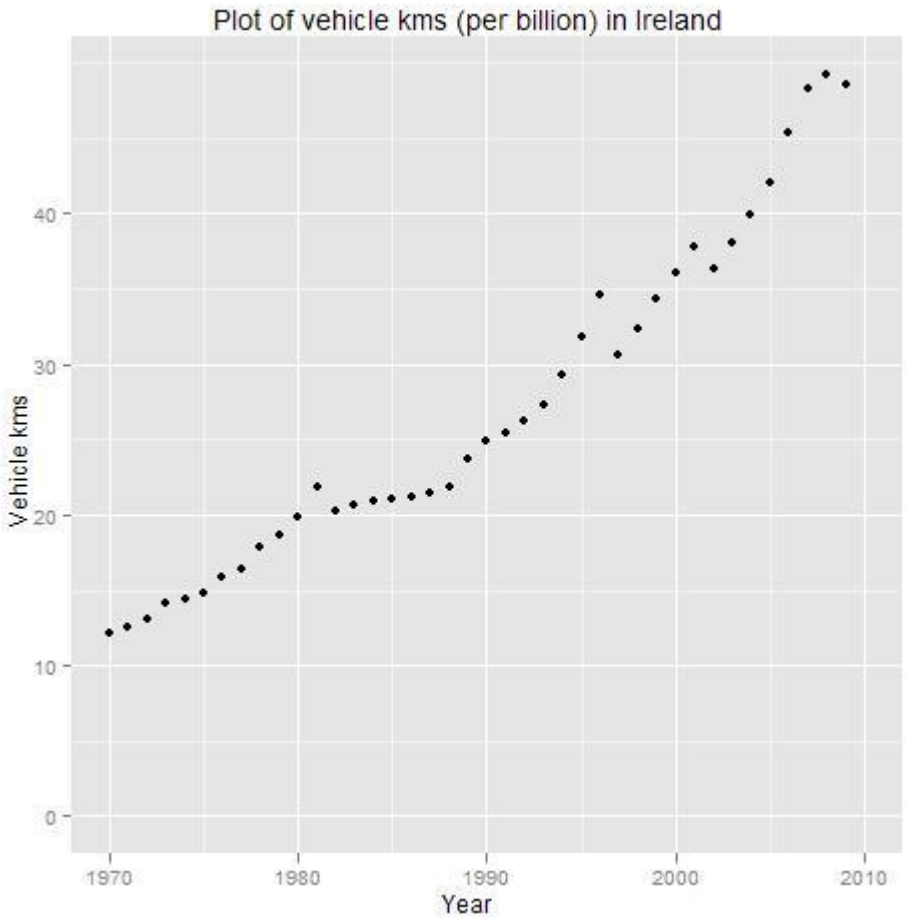
Traffic Volume



- Normally, the number of fatalities depends strongly on the amount of traffic (exposure).
- Annual vehicle kilometres are the best available measure. For Ireland they have been registered from 1970. There are two outliers in the series: 1981 and 1996.
- Overall, vehicle kilometers in Ireland have been increasing from 1970.
- The slope shows a 3-4% increase of the number of vehicle kilometers each year between 1970 and 2009.

- Relationship between traffic volume and fatalities:
  - No relationship between fatalities and vehicle kms could be identified.
  - Mobility scenarios could not be calculated.

Forecasting model:

- Technical definition
  - Local Linear Trend model[2,5].
  - Variable: yearly number of fatalities.

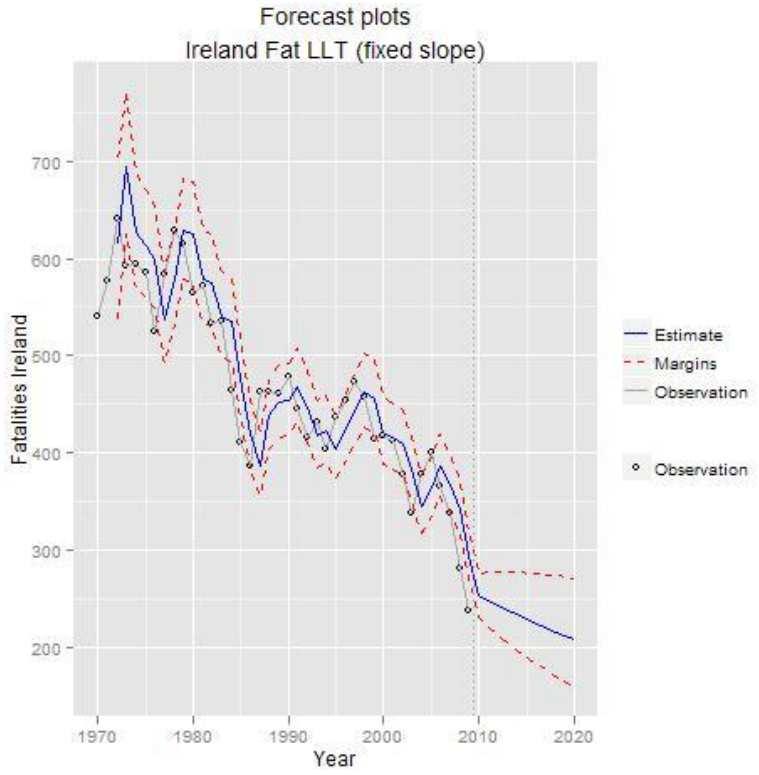
Smooth trend model: fixed slope stochastic level.

Road Safety Development - Ireland

Forecasts to 2020

If road safety is improved at the same rate as previously and the past development of mobility continues, 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 180



Forecast of road-traffic fatalities in Ireland up to 2020

Year	**Prediction**	Lower CI	Upper CI
2011	**220**	184	264
2012	**215**	170	273
2013	**211**	159	279
2014	**206**	149	284
2015	**201**	141	288
2016	**197**	133	292
2017	**193**	125	295
2018	**188**	119	298
2019	**184**	113	301
2020	**180**	107	303

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.