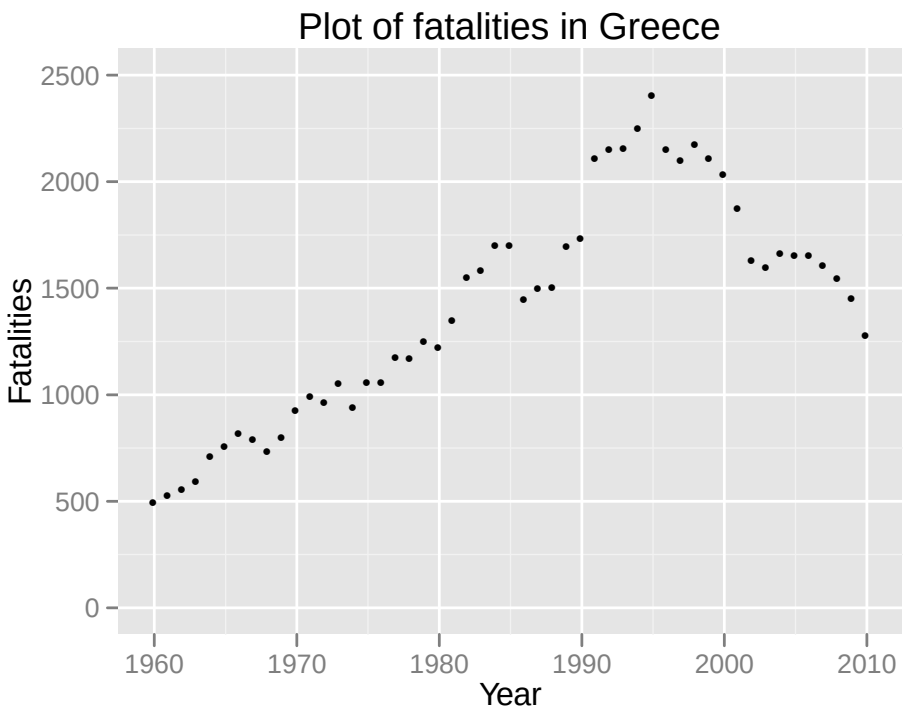
Greece

Fatalities



- The number of fatalities has increased from about 500 in 1960 to about 2300 in 1995, at which point a decreasing trend started, reaching about 1300 fatalities in 2010.
- The rate of change in the fatalities has been reducing consistently, starting with an increase of 6% in 1960, reaching +3% in 1990 when the increase started to slow down more quickly, reaching zero in 1995. Since then, a decrease has been observed that is consistently getting stronger, reaching about -4% in 2010.

Interventions

Three events were entered as interventions into the forecasting model:

- **1986:** Greece encountered a financial crisis, which affected mobility and therefore exposure (note, due to lack of data, exposure in Greece is indicated by vehicles in circulation, which do not show a reduction)
- **1991:** Greece introduced a “car-scrapping” scheme, under which old cars could be exchanged for a cash incentive to buy a new car. While this did not affect the number of vehicles in circulation, the introduction of newer, safer cars had a positive net effect on road safety.
- **I1996:** the fatality recording system in Greece switched from 24-hour to 30-days. This meant that the use of the adjustment factor stopped at that time and real data was used from that point on.

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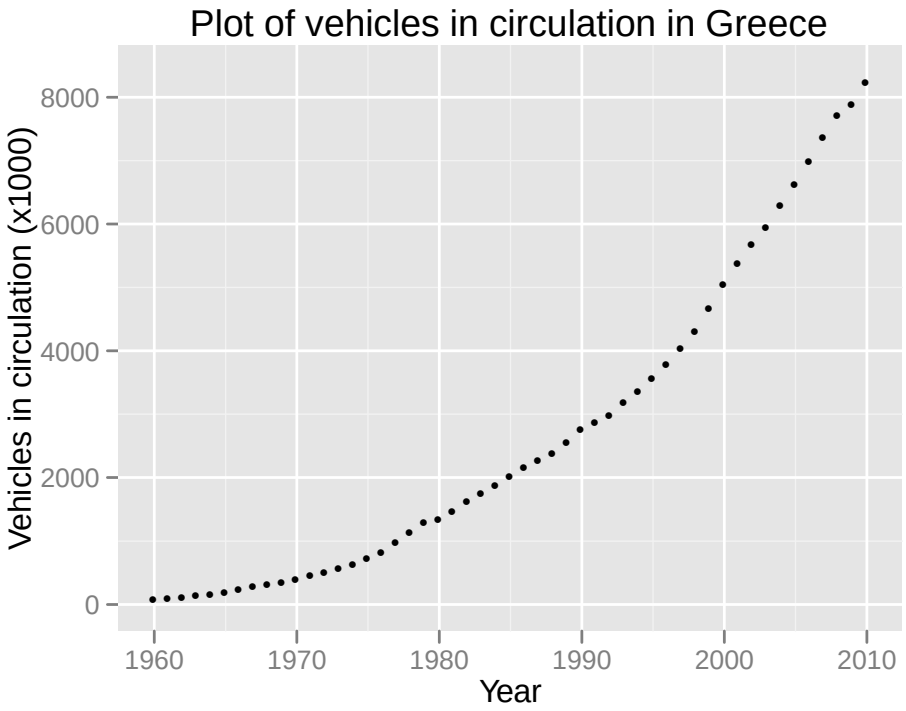
Vehicles in circulation



- The number of fatalities depends strongly on a measure reflecting the amount of traffic. In Greece there are no traffic volume data available, so to forecast the fatalities, the number of vehicles in circulation is used.
- The number of vehicles shows an increase that becomes steeper and steeper from 1960 to almost 2008. During the last couple of years, the increase appears to slow down, reflecting the effect of the recession. However, this effect is not as evident as it probably would be if a more appropriate measure of exposure, such as vehicle-kilometres, was available. The number of vehicles is a less volatile measure of the exposure, as (i) a reduction in the use of the vehicles does not necessarily correspond to a reduction on the number of vehicles and (ii) even when the vehicles are removed from traffic, it is not as easy to update the vehicle register.
- Relation between traffic volume and fatalities:
  - No relation can be established between the number of fatalities and this estimate for the traffic.
  - No risk (number of fatalities per unit of traffic volume) is calculated.
  - No mobility scenario can be calculated.
- Forecasting model (technical definition [2]):
  - Local Linear Trend model [2,5].
  - Variable: yearly number of fatalities.
  - Fixed components: slope
  - Interventions: 1986, 1991, 1996.

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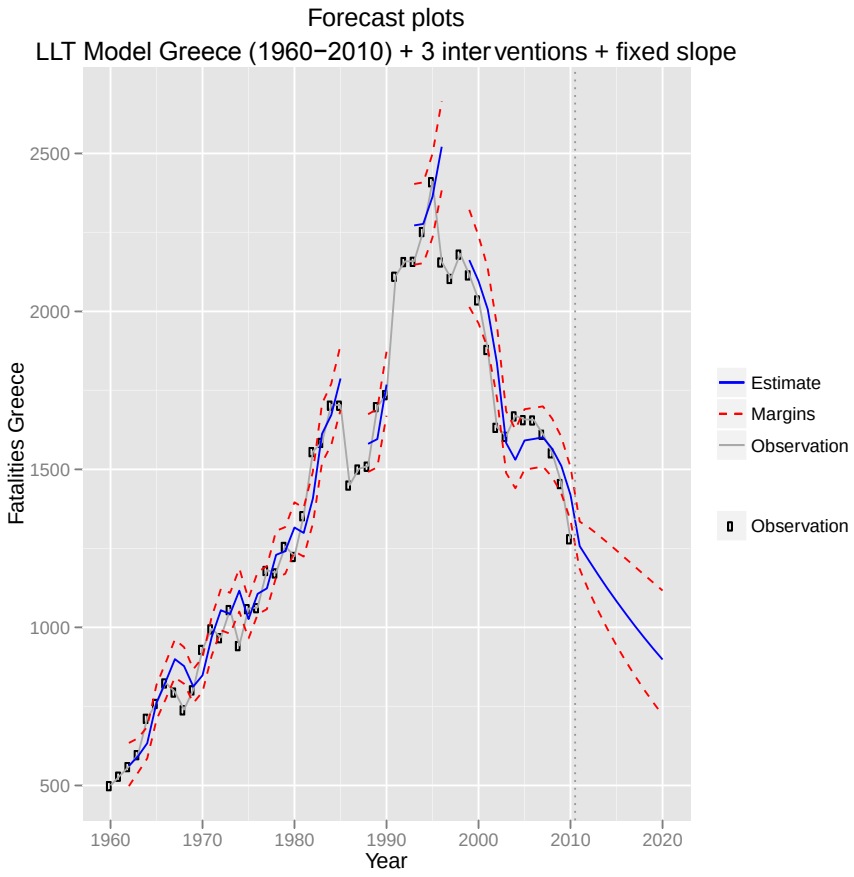
Road Safety Development - Greece

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 898.

Forecast of road-traffic fatalities in Greece up to 2020

Year	**Prediction**	Lower CI	Upper CI
2011	**1257**	1118	1414
2012	**1211**	1029	1426
2013	**1167**	953	1429
2014	**1124**	885	1427
2015	**1083**	824	1422
2016	**1043**	769	1415
2017	**1005**	717	1407
2018	**968**	670	1398
2019	**932**	626	1389
2020	**898**	585	1379

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.