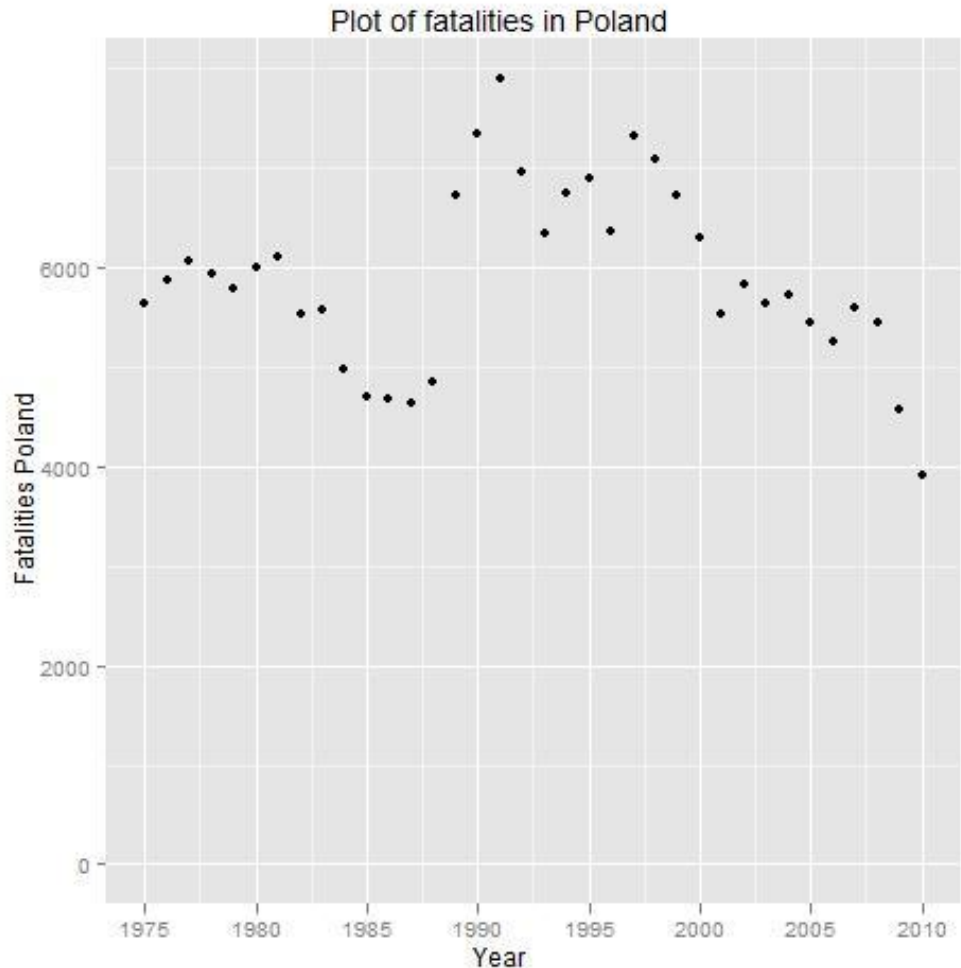


# Road Safety Development

## Poland

### Fatalities



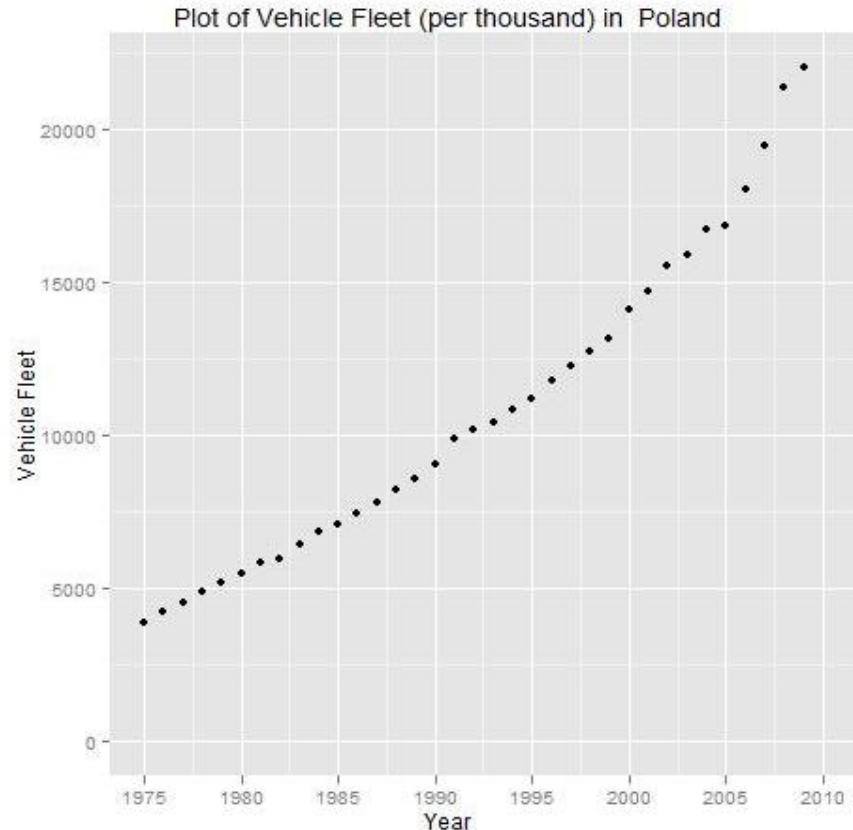
- The plot shows the number of fatalities in Poland from 1975 to 2010.
- In general, there is a decrease in the number of fatalities over the years.
- The number of fatalities is estimated on the basis of a single source: police data. The registration method has not changed since the 70s, although there has been a change in the institution collecting the data in 1996 [1].



# Road Safety Development – Poland

## Vehicle fleet

- The number of fatalities normally depends strongly on a measure reflecting the amount of traffic. For Poland, a long series of vehicle fleet data (presented below) is available (1975-2009), as well as a shorter series of vehicle kilometres data (1996-2008 with 2006 missing).



- The total number of vehicles (excl. mopeds) in Poland are presented above. (Yearly data are available from IRTAD for the years 1975, 1980, 1985 and for the period 1990 to 2009; intervening data were obtained from [1] (source = central statistical office)).
- In general, the graph shows a gradual increase in the vehicle fleet in Poland. However, in 1991 and 2000 there was a stronger increase while the fleet barely changed between 2004 and 2005. In addition, there was a very strong increase in vehicle fleet in 2006-2008.
- Relation between mobility and fatalities:
  - No relation between fatalities and vehicle fleet on the one hand and between fatalities and vehicle kilometres on the other hand can be established.
  - No mobility scenario can be calculated.

### Forecasting model:

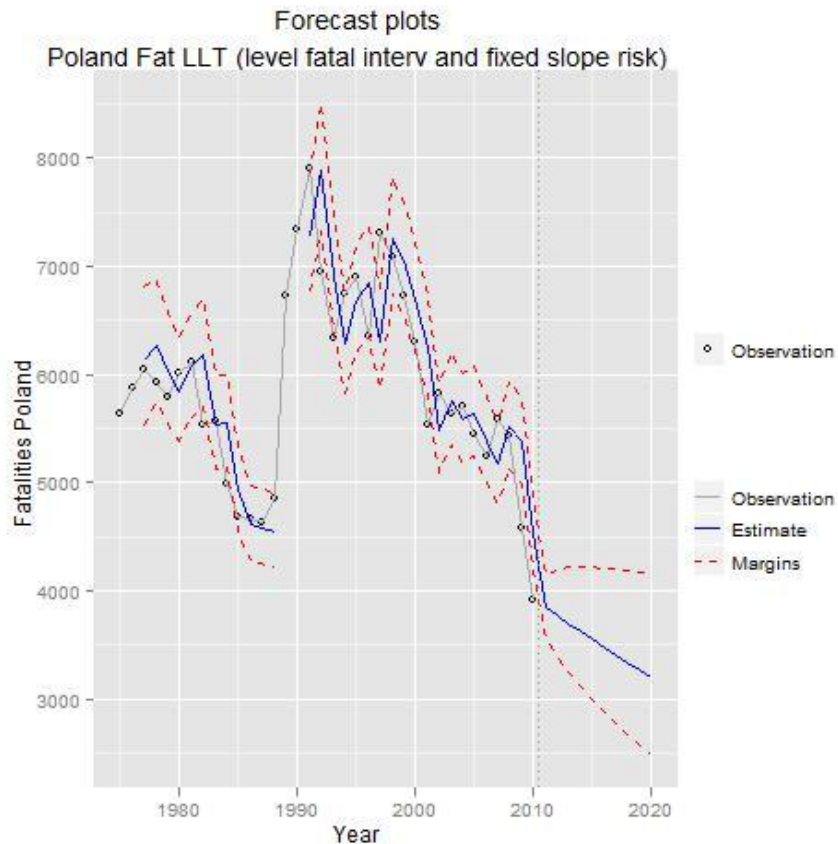
- Technical definition
  - Local Linear Trend model [2].
  - Variable: yearly number of fatalities.
  - Fixed slope.
  - Intervention in 1989.



# Road Safety Development – Poland

## 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 3207.

### Forecast of road traffic fatalities in Poland

Year	Prediction	Lower CI	Upper CI
2011	3853	3329	4460
2012	3775	3068	4645
2013	3699	2862	4781
2014	3624	2686	4890
2015	3551	2530	4984
2016	3480	2390	5066
2017	3409	2261	5140
2018	3340	2143	5208
2019	3273	2032	5271
2020	3207	1930	5330

### 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.

