

NON-LIFE PRICING WITH R

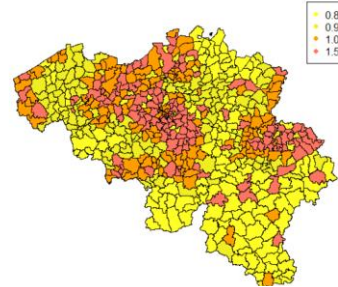
Context & Goals

- Presentation of state-of-the-art pricing techniques
- Go through the whole process of pricing
- Application to a Belgian MTPL portfolio using R
- Training organized by the European Actuarial Academy (EAA) and national Actuaries' associations

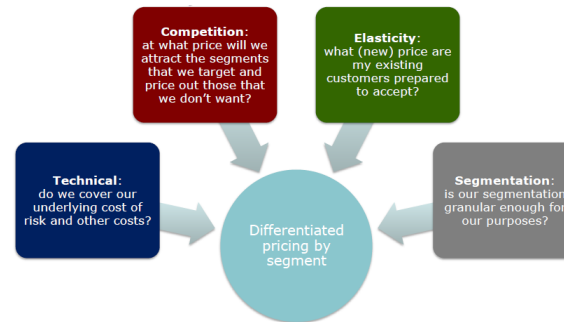
Benefits

- Practical examples where the R code is explained and the outputs are analyzed by the lecturers
- Case studies performed by the participants on real data

Smoothed GAM geographical function



$$N_i \sim Poi(d_i \exp(\beta^T x_i)), \quad i = 1, 2, \dots, n$$



Deliverables

- Set of slides with the theoretical aspects
- R code with comments and databases
 - Example used during the training
 - Correction of the case studies

Agenda

- Introduction to Risk Classification
- Generalized Linear Models
 - Poisson regression for claim counts
 - Overdispersion
 - Gamma regression for attritional claims
 - Logistic regression for large claims occurrence
 - Extreme value theory for large claims severity
 - Practical difficulties
- Generalized Additive Models
 - Modelling of continuous variables
 - Geographical ratemaking
- Inclusion of commercial and capital constraints in final pricing
- Portfolio follow-up and segmented premium increase
- Introduction to credibility theory and bonus-malus system