

Uncertainty in property insurance

Background: Evaluations of premia and solvency capital in property insurance are based on models for claim numbers and size. Even in the simplest of situations with identical risks and Poisson claim numbers evaluations deviate from their target since the parameters estimated differ from the true ones. A second source of such error is the shape of the distributions where prior assumptions rarely carry firm conviction. Whether there is a significant gap between what we seek and what we get depends on how much experience there is to go on and also on how-heavy-tailed the distribution of the losses are. Another factor of relevance is the limit on the responsibilities and even the size of the portfolio under study may be of significance.

Objective: Present one or more general techniques for quantifying error in actuarial evaluations in property insurance and show how it is put to work. Stay clear of the Bayesian approach.

Material: Sections 2,4,5 in “Historical estimation and error”.

Main points: The presentation (45) minutes can't be exhaustive as the topic is too wide to include everything. The main weight may be placed on the bootstrap, but that is not mandatory, and other angles are also possible. Evaluations of both premia and solvency capital should be covered along with analyses under variations of the limits of responsibility. There should be one example with little and one with much historical data, and the presentation should carefully include a discussion of how the model for the losses is found. Possible historical materials to lean on are the Danish fire data (more than 2000 industrial fires) and the Belgian fire data (around 50). Both can be downloaded from the [stk4520](#) home page for 2012.