

A study in reserving using individual claims features

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Abstract

In this thesis claims reserving within non-life insurance has been studied using the individual claims specific features. The data used for the analysis comes from "the individual claims simulation machine", see [5] where individual insurance claims are generated containing claim specific information such as the insured's age, the type of claim and the injured body part. The claims are generated for four different lines of business, and over twelve accident years.

The generated claims are then used to study two different reserving methods based on neural networks utilizing the individual claims information to calculate the reserves. The first model is the individual claims reserving model by Gabrielli [4], and the second one is an extension to the Chain Ladder model proposed by Wütrich [15]. The two models are then evaluated and compared to the standard Chain Ladder method.

The study of the two models showed equal or better performance than the standard Chain Ladder model for some of the lines of business when looking at the total reserve amounts, but the Chain Ladder was overall the best performing model in that regard but lacks the amount of information that can be obtained through the neural network models. Comparing the two neural network models, the neural network extension to the Chain Ladder model showed to better capture the structure of the claims by more accurately calculating the claim costs for each individual claim feature. However, the accuracy of the total reserves were equal for the two models.

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