On comparison of stochastic reserving methods

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A non-life insurance company has to set up a fund to enable the company to meet and administer its contractual obligations to policyholders. There are several methods to predict or estimate the future reserves. Chain Ladder method is the most widely applied claim reserving method, but the method gives us no information about the variability of the estimation. We consider certain stochastic reserve estimation methods in the basis of generalized linear models to estimate the likely variability in the outcome. In addition, as the models are usually based on different assumptions, then in case the assumptions are not fulfilled, we also use the bootstrap method to approach the problem.

In claims reserving, the data is usually assumed to be independent, but not identically distributed since the means and also the variances depend on covariates. Therefore it is common to bootstrap residuals, rather than the data themselves, since the residuals are approximately independent and identically distributed or can be made so. Different possibilities that can be used before applying the bootstrap method to the data will be discussed. We consider several stochastic reserving models along with the bootstrap method with different types of residuals to carry out a practical implementation using real-life insurance data to estimate reserves and their prediction errors.

References

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