

Loss reserving with random selection

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This paper presents a random selection method with the Monte Carlo simulation technique in the estimation of loss reserves. The future loss development factors are randomly selected from a weighted empirical distribution of observed loss-development factors. This nonparametric approach provides an estimate of the distribution of total loss reserve. By assigning proper weights, the mean of this distribution is statistically equivalent to the result from the traditional Chain-Ladder method. The variance of total loss reserve can also be approximated through this approach. In general, the proposed method is very flexible and can be easily extended to many circumstances, including the Bornheutter-Ferguson (BF) method (Bornheutter and Ferguson, 1972). The results are further enhanced by implementing the simulation scheme with smoothing techniques.