

This thesis examines common methods for calculating insurance reserves in non-life insurance, including the traditional chain ladder method (CL) and the Bornhuetter-Ferguson method (BF), as well as stochastic methods such as Generalized Linear Models (GLM) and Generalized Linear Mixed Models (GLMM). Through comparisons of these methods, we find that stochastic methods are more effective in capturing random fluctuations in the data. To validate these conclusions, we apply these models to real insurance data and analyze the results. The findings of this study provide important guidance and references for reserve estimation in the insurance industry.