

Title: Large claims modeling

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Abstract: This thesis discusses a statistical modeling approach based on the extreme value theory to describe the behaviour of large claims of an insurance portfolio. We focus on threshold models which analyze exceedances of a high threshold. This approach has gained in popularity in recent years, as compared with the much older methods based directly on the extreme value distributions. The method is illustrated using the group medical claims database recorded over the periods 1997, 1998 and 1999 maintained by the Society of Actuaries. We aim to demonstrate that the proposed model outperforms classical parametric distributions and thus enables to estimate high quantiles or the probable maximum loss more precisely.

Keywords: threshold models, generalized Pareto distribution, large claims.