Statistical Inférence for Distortion Risk Measures

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Abstract: The distortion parameter reflects the amount of loading in insurance premiums. A specific value of a given premium determines a value of the distortion parameter, which depends on the underlying lors distribution. Estimating the parameter, therefore, becomes a statistical inferential problem, which has been initiated by Jones and Zitikis [Insurance: Mathematics and Economics, 41, 279-297, 20071 in the case of the distortion premium and tackled within the framework of the central limit theorem. Heavy-tailed losses do not fall into this framework as they rely on the extreme-value theory. In this paper, we concentrate on a special but important distortion premium, called the proportional-hazards premium, and propose an estimator for its distortion parameter in the case of heavy-tailed losses. We derive an asymptotic distribution of the estimator, construct a practically implementable confidence interval for the distortion parameter, and illustrate the performance of the interval in a simulation study.

Link : http://pinguim.uma.pt/Investigacao/Ccm/icsaa11/page7/page7.html