

THOMAS MACK (1997): *Schadenversicherungsmathematik*. Sonderausgabe von Heft 28 der Schriftenreihe Angewandte Versicherungsmathematik der Deutschen Gesellschaft für Versicherungsmathematik e.V. Verlag Versicherungswirtschaft e.V. Karlsruhe, 1997. IISN 0178-8116, ISBN 3-88487-582-5.

The more I was reading in this book the more I got interested in it and at the same time I found it was a pity that it is not written in English because there is no doubt a great number of potential readers not mastering the German language sufficiently. So let's hope that it will soon be translated into English.

Thomas Mack's present book on actuarial sciences in Non-Life insurance is subdivided into the four main parts

Part 1 Basics

Part 2 Pricing

Part 3 Reserving

Part 4 Risksharing

In the first part both the classical individual and collective model of risk theory are dealt with, complemented by a third approach where the portfolio is assumed to consist of a number of subportfolios in which each risk has the same claims degree distribution. In the same first chapter there is already a section on pricing where the author proposes the so-called covariance principle, i.e., the total security loading is distributed onto the individual risks proportionally to the covariance between the claims potential of that risk and the one of the entire portfolio. Furthermore there is an interesting part discussing the practically important fact that a company can still underwrite a certain share of a risk even if the total premium for it is less than what according to the company's standard would be required as a technical minimum.

In the second part on pricing there is at the beginning an extensive discussion on how to define more or less homogenous-risk categories as a basis for the construction of a tariff. Several statistical procedures are proposed for this like cluster analysis, maximum likelihood and minimum square procedures as well as some parametric approaches. Next comes credibility theory, experience rating and the construction of bonus malus systems followed by a small section on the truncation of large individual claims that distort the normal claims statistics.

Part three on claims reserves is visibly the chapter where the author could draw most from his vast practical experience. Among many other things also a credibility approach for assessing claims reserves is discussed here. But basically this chapter deals with three different statistical procedures, namely two non-parametric ones (one additive and the other multiplicative) and a parametric approach which is called "cross-classified". Although most of this chapter is very much practically oriented (last but not least, I think, because of the proposed separations "claims frequency/severity" on one hand and "IBNR/IBNER" on the other), there is this theorem on page 279 which is of remarkable theoretical interest and which would read in English:

“The maximum likelihood estimator for the claims reserve within the cross-classified Poisson model with positive increments is identical with the chain ladder reserve.”

The last chapter is on risksharing, i.e., on coinsurance, reinsurance and retrocession and right at the beginning the important distinction between proportional and non-proportional risksharing is made. The chapter closes with some general observations on risk management and solvency.

I found reading in this book refreshing because of many original thoughts and approaches which are not commonly known and I would just like to express my hope again that it should be translated into English soon.

ERWIN STRAUB