

In a recent paper the author has given an overview of several methods to determine the mortality rates. The author discussed some mathematical and some graduation methods. In this article the author discusses the application of some of these methods and their results using Belgian mortality data. (Author)

Keywords: *Mortality Tables, Belgium, Graduation Methods.*

M21: GRADUATION

072044 (M21, M20)

Graduation and generalised linear models: an overview.

Renshaw A.E., City University, London, *Actuarial Research Paper No. 73, 1995.*

This paper contains an overview of graduation by mathematical formula from the standpoint of generalised linear modelling. It seeks both to indicate where this approach coincides with current U.K. actuarial practice in this field and to indicate possible extensions to existing U.K. practice. (Author)

Keywords: *Graduation, Generalised Linear Models.*

072045 (M21)

On the graduation of 'amounts'.

Renshaw A.E., Hatzopoulos P., City University, London, *Actuarial Research Paper No. 71, 1995.*

The provision of graduated mortality rates, for the U.K. pensioners experience, based on the so-called 'amounts' data sets is addressed. Specifically a methodology is investigated, building on the existing methods practiced by the CMI Bureau, which takes a more detailed account of the underlying structure of the data involved. The method is applied to the U.K. pensioners experience and recent mortality trends in this experience revealed. (Authors)

Keywords: *Graduation, Pensioners, Mortality, Trends.*

M30: PREMIUM, PREMIUM PRINCIPLES, ORDERING OF RISKS

072046 (M30)

Nonparametric estimation of the risk premium in case of the standard deviation principle.

Webb M., Hamburg, *Blätter der Deutschen Gesellschaft für Versicherungsmathematik, Band XXII, Heft 1, 1995, pp. 13-16.*

The risk premium derived from the standard deviation principle is widely used. In general, the premium must be calculated empirically by means of observed claim sizes. Bias, variance, asymptotic distribution and the rate of convergence of a consistent nonparametric estimator of the premium are examined.

(Author)

Keywords: *Estimation, Risk Premium, Standard Deviation Principle.*

072047 (M30, B10)

The impact of medical progress on the rating of substandard risks illustrated using renal failure.

Mattar K., Köln, *Blätter der Deutschen Gesellschaft für Versicherungsmathematik, Band XXII, Heft 1, 1995, pp. 127-133.*

Due to the introduction of new medications the survival rates of patients on renal replacement therapy improved significantly. The extent of these improvement is shown based on recent empirical data. The assumptions and results of an earlier publication concerning the calculation of life insurance premiums for this substandard risk are compared to the new figures. (Author)

Keywords: *Life Insurance, Medical Progress.*

072048 (M30, M31)

Premium rating by geographic area using spatial models.

Boskov M., Verrall R.J., The City University, London, *Astin Bulletin, Vol. 24, No. 1, 1994, pp. 131-143.*

This paper gives a method for premium rating by postcode area. The method is based on spatial models in a Bayesian framework and uses the Gibbs sampler for estimation. A summary of the theory of Bayesian spatial methods is given and the data which was analyzed by TAYLOR (1989) is reanalyzed. An indication is given of the wide range of models within this class which would be suitable for insurance data. The aim of the paper is to introduce the models and to show how they can be utilized in an insurance setting. (Authors)

Keywords: *Gibbs Sampler, Postcodes, Premium Rating, Spatial Statistics.*

072049 (M30, E30)

Customer-based rating.

Dengsoe C., Larsen C., Danish Financial Supervisory Authority, Denmark, Economic Insurance Co. Ltd., United Kingdom, *XXIV Astin Colloquium, Vol. 1, 1993, pp. 43-55.*