of Public Economics, Vol. 39, No. 2 (July 1989), pp. 177–206. (Reprinted with permission of North-Holland Publishing Company).

Bayesian Modelling of Mortality Catastrophes, by Stuart A. Klugman (Drake University).

When a mortality catastrophe is at its beginning data is scarce and estimates of its consequences are likely to be unreliable. When performing financial calculations (e.g., reserve setting) it is necessary to account for variability due to both estimation error and the random insured event itself. In this paper a Bayesian approach and an example using AIDS data will be presented. *Insurance: Mathematics and Economics*, Vol. 8, No. 3 (November 1989), pp. 159–64. (Reprinted with permission of North-Holland Publishing Company).

Observations on the HIV Epidemic and Managing Uncertainty in Insurance, by David M. Holland (Munich American Reassurance Company, Atlanta, GA).

This paper reviews strategies for insurance company management in dealing with the human immunodeficiency virus (HIV) epidemic in light of imperfect information and analyzes data available on the epidemic to gain further insight. U.S. AIDS deaths are projected for the years 1986–2000 and log-normal and gamma distributions are fitted to the distribution of AIDS deaths by age. Crude population AIDS death rates are calculated for quinquennial ages and are compared with the corresponding projected population death rates without special provision for AIDS deaths. *Insurance: Mathematics and Economics*, Vol. 8, No. 3 (November 1989), pp. 211–32. (Reprinted with permission of the North-Holland Publishing Company).

A Martingale Approach to Premium Calculation Principles in an Arbitrage Free Market, by F. Delbaen (University of Brussels) and J. Haezendonck (University of Antwerp).

An arbitrage free model is used to study martingale equivalent probability distributions on the basic probability space of a compound Poisson process. It is shown how this new approach is related to premium calculation principles. *Insurance: Mathematics and Economics*, Vol. 8, No. 4 (December 1989), pp. 269–77. (Reprinted with permission of North-Holland Publishing Company).

Estimating 'Hedonic' Distributions Using Polynomials, by Richard J. Butler (Brigham Young University) and John D. Worrall (Rutgers University).

There are many instances in both private and public insurance when changes in the underlying claimant 'demography' will have far reaching impacts on prospective insurance costs. Changes in the age distribution of policy holders in life insurance may significantly affect the total fixed costs administering such policies (holding the total number of policies constant). Similarly, a change in the distribution of firm sizes will affect costs in unemployment

insurance if costs per payroll vary by firm size (say due to experience rating). Changing the severity of automobile claims may have a measurably smooth impact on legal fees. In all of these cases total costs are observed, but the distribution of those costs across claim types (the 'hedonic' distribution) is not. We present a general technique for inferring the 'hedonic' distribution in these cases using a variant of the Almon distributed-lag technique. To illustrate its usefulness, we employ it to infer the distribution of premiums across different risk classes of firms. In our example, there appears to be a uniform distribution of dividends across risk groups though firms with lower losses receive relatively more dividends. *Insurance: Mathematics and Economics*, Vol. 8, No. 4 (December 1989), pp. 303–08. (Reprinted with permission of North-Holland Publishing Company).

Delay in Claim Settlement, by P. Boogaert and J. Haezendonck (University of Antwerp).

In reality there is always a time going by between the moment a claim occurs and the moment of settlement (payment) of that claim. Therefore we introduce the settling delay and the liability process within the framework of an economical environment. We study the main mathematical properties of the liability process. Furthermore we consider some examples. *Insurance: Mathematics and Economics*, Vol. 8, No. 4 (December 1989), pp. 321–30. (Reprinted with permission of North-Holland Publishing Company).

Insurance-investment: Diffusion Analysis, by Dominique Page (I.A.E. Aix en Provence, France).

The cumulate income (free reserves) of an insurance company comes from technical and financial results. In this paper we study the variation of these free reserves in two different contexts. Firstly, as in the classical model of risk theory, we assume that the aggregate technical result is given by a process with stationary independent increments, and we describe that the instantaneous rate of return on investment is a Wiener process. Under these assumptions we give the stochastic differential equation of the free reserves. Afterwards, considering that there often exist two distinct decision centers: the technical and the financial departments, we give the free reserves processes perceived by each department. Secondly, we observe if for a portfolio analysis - in which the decision variables are the activities on the different types i of contract - the assumption of increments can be justified. *Insurance: Mathematics and Economics*, Vol. 8, No. 4 (December 1989), pp. 287–302. (Reprinted with permission of North-Holland Publishing Company).

RISK MANAGEMENT PROGRAMS

Optimality and the Government's Risk Management Programs, by Keith Willett (Oklahoma State University).