NOTES ON OTHER ACTUARIAL JOURNALS


AUSTRALASIA

Transactions of the Actuarial Society of Australasia, 9, 1954, 1955, 1956

PALMER, G. B. Presidential address, pp. 1–16.
LEVEY, R. B. Some thoughts on the reserve to be held for lapsed policies, pp. 67–73.
POLLARD, A. H. Presidential address, pp. 75–92.
RYAN, P. J. Life office profit, pp. 113–25.
CHATTEN, S. J. R. Presidential address, pp. 151–64.
YOUNG, F. J. Retirement benefit schemes, pp. 175–91.

AUSTRIA

Statistische Vierteljahresschrift, 1956

We welcome the opportunity of including notes on those articles in this Journal which are of actuarial interest.

SCHMETTERER, L. Die Risikotheorie in der Versicherungsmathematik, Parts I and II, pp. 1–15 and 47–63. Part I examines from the point of view of both the classical and collective theories the problem of determining the constant safety factor to be added to the net premium in order to bring the probability of ruin to the acceptable level, and also studies (from the point of view of the collective theory) the question of the probability of ruin during an infinite time interval. Part II fills in some mathematical gaps left in Part I, continues the investigation into the probability of ruin during an infinite time interval and extends it to a finite interval, and concludes with remarks about further generalizations, such as variable safety factors and distributions varying with time.
WOLFF, K. H. *Das Theorem von de Finetti für mehrere Ausscheideursachen*, pp. 70–9. The Theorem of de Finetti states that if $X$ is a random variable representing the profit on an insurance and the contingency loading $\beta$ is chosen so that

$$E[e^{-rX}] = 1,$$

where $r$ is a parameter, then the probability of ruin on the assumption of initial capital $K \leq e^{-\tau}$. This is extended to the case of $n$ different insurances, both on the classical and collective theories, the dependence of $\beta$ on the relative magnitudes of the sums insured is studied and finally an approximate formula for $\beta$ is obtained.

BELGIUM

We welcome this Journal.

*Annales de Sciences Actuarielles*

1, 1951

Dussart, R. *Recherche des taux divers au décès et à l'invalidité.*

Creeft, F. *De. Qu'est-ce que Benelux?*

Jadot, P. *Note sur le calcul mécanisé de la participation aux bénéfices.*

2, 1952

Beumier, A. *Note sur la méthode d'itération de Newton*, pp. 1–36.


3, 1956


Lamine, T. *Note au sujet de la prime unique d'une assurance pour la vie entière*, pp. 31–51.


Dory, É. *Sur quelques problèmes provoqués par l'importance croissante prise par les mathématiques dans les programmes universitaires de sciences expérimentales*, pp. 69–89.

Beumier, A. *Valeurs de réduction et de rachat en assurance sur la vie*, pp. 91–152.

FRANCE

*Bulletin Trimestriel de l'Institut des Actuaires Français*, 68, 1957

Notes on other Actuarial Journals

ROSSMANN, M. J. Le redressement économique, pp. 175–81. France's monetary difficulties are ascribed to: (a) Salary increases not matched by additional production. (b) An ineffective rate of discount, resulting in speculation against the currency. (c) Export of necessities at unremunerative prices due to the subsidization of exporters. Remedies advocated include a cutting of government expenditure even to the point of partial repudiation of outstanding debts, and a free exchange rate for the franc combined with a balanced trade position.

Bulletin de l’Association des Actuaires Diplomés de l’Institut de Science Financière et d’Assurances, 1957

EYRAUD, H. Mathématiques fiscales, pp. 1–7.

The use of correlation methods in the selection of insurance agents.

MALECOT, G. Les processus stochastiques et la théorie du risque, pp. 27–34.


GERMANY

Blätter der Deutschen Gesellschaft für Versicherungsmathematik, 3, 1957


ZWINGGI, E. Zur Prämien- und Deckungskapitalberechnung bei erhöhter Sterblichkeit, pp. 141–5. Derives approximate formulae for continuous premiums and reserves in the case of lives subject to extra risk of the types \( \mu'_x = (1 + \gamma) \mu_x \) and \( \mu_x = \gamma + \mu_x \).

RICHTER, H. Parameterfreie Abschätzung und Realisierung von Erwartungswerten, pp. 147–62. The problem of finding the best estimate of the expected value of a function of a random variable, given the expected values of certain other functions and the range of the variable. An example is given of estimating \( \Pr\{x > m\} \) given the mean and variance of \( x \), with \( x \geq 0 \), \( m > 0 \).

RUFENER, E. Sterbegesetze, für welche gewisse Lidstonesche Näherungen exakt erfüllt sind, pp. 163–70. A consideration of mortality laws for which

\[
\frac{1}{a_{x_1x_2\ldots x_m:m}} = \frac{1}{m} \sum_{y=1}^{m} \frac{1}{a_{x_1x_2\ldots x_m:y}} \\
\text{both for } n \text{ finite and in the whole-life case.}
\]


Knoch, H. G. Versicherungsmathematische Funktionen als rationale Funktionen der Sterbenswahrscheinlichkeiten, pp. 183–95. By expressing \( A_{x+k:n-k} \) and \( a_{x+k:n-k} \) as linear functions of \( q_{x+t} \), the partial differential coefficients with respect to \( q_{x+t} \) of various monetary functions are found, and these results applied to study the effect of varying mortality.
MULLER, N. *Ein praktisches Verfahren der Bestandsentwicklung einer Personengesamtheit unter genauer Berücksichtigung des Neuzugangs*, pp. 197–220. The construction of formulae to give, at various epochs in the future, reserves and numbers of people in the various classes for a pension fund paying retirement, invalid and widows' pensions. Tables and graphs are given to illustrate the procedure, based on German pension tables with interest at 3½%.

MAYER, H. *Die Beitragsfestsetzung nach Tarifwechsel in der privaten Krankenversicherung*, pp. 221–39. A consideration of the problems arising and the formulae to be used when changing the basis of calculation of sickness insurance, with numerical tables based on German experience with interest at 3½%.

BASTEN, R. *Wörterbuch für elektronische Rechenautomaten*, pp. 268–306. German-English and English-German dictionaries of terms applying to electronic computers, as comprehensive as the British Standard glossary except for the outmoded cathode-ray storage devices. Some insurance terms are also included.


BOEHM, C. *Die Bereinigung eines Versicherungsbestandes als Sonderfall des Mischprozesses*, pp. 323–52. Different methods of updating policy files with electronic data processing machines are analysed, and flow charts designed.

HEUBECK, G. *Zu den Grundlagen der Rentenreform in der Bundesrepublik Deutschland*, pp. 353–65. In Western Germany, the state pension payable to any person is related to his average earnings while insured and to the average earnings of all insured persons shortly before his retirement. The scheme is financed on the principle of assessmentism. The Federal Ministry of Labour has estimated that in 1986 the requirements of the scheme will amount to 21% of gross earnings; the author estimates the correct proportion to be 29%.


**HOLLAND**

*Het Verzekerings Archief (Actuarieel Bijvoegsel), 34, 1957*

CAMPAGNE, C. and DRIEBERGEN, C. *Das Solvabilitätskriterium in der Schadenversicherung*, pp. 43–65. The probability $\delta(u)$ of ruin at some time for a business with initial capital $u$ is calculated, and also the probability $\delta_n(u)$ of ruin during the $n$th year. It is suggested that the values of $u$ for which

$$\delta_1(u) = p_1 \quad \text{and} \quad \sum_{r=1}^{n} \delta_r(u) = p_2$$

provide an interval which enables solvency to be assessed, the choice of $p_1$, $p_2$ and $n$ being at discretion.
Notes on other Actuarial Journals


VAN KLINKEN, J. Some remarks on the method of least squares and linear regression, pp. 73–7. If \( E(y_i) = ax_i + b \) the method of least squares gives maximum likelihood estimates of \( a \) and \( b \) if the \( y_i \) are normally distributed with equal standard deviations; this condition is not usually satisfied. If the \( y_i \) follow a Poisson distribution, however, maximum likelihood estimates of \( a \) and \( b \) are given approximately by the equations

\[
\sum_i (y_i - ax_i - b) x_i/y_i = 0,
\]

\[
\sum_i (y_i - ax_i - b)/y_i = 0.
\]

LAUMANS, B. A. M. Valuation by groups for policies not involving life-contingencies with premium refund in event of prior death, pp. 78–86.

SOFOSEA, T. Leonhard Euler (1707–1783) und seine Schriften über die Versicherung, pp. 87–104.

SCANDINAVIA

Skandinavisk Aktuariebladskrift, 39, 1956

GRENANDER, U. On the theory of mortality measurement, Part II, pp. 125–53. Continuing the investigation into mortality measurement with moderate sample sizes (see J.I.A. 84, 103) this paper examines the question of estimating \( l_x \) without assuming an underlying formula and with the modifications possible if some a priori assumptions are made about the form of the curve, and concludes with a numerical example.

GJEDDEBAEK, N. F. Contribution to the study of grouped observations II. Loss of information caused by grouping of normally distributed observations, pp. 154–9. The loss of information is measured by the asymptotic efficiencies of the maximum likelihood estimates of mean and s.d. for equidistant coarse grouping of a normal distribution, with examination of the effect of the position of the mean with respect to the grouping and of the covariation of the estimates of mean and s.d. For Part I see J.I.A. 76, 170.

ESSEEN, C. G. A moment inequality with an application to the central limit theorem, pp. 160–70. An upper asymptotic limit to the difference between the distribution function of the mean of \( n \) random variables having the same distribution and the normal distribution function.

GURLAND, J. An inequality satisfied by the gamma function, pp. 171–2. If

\[ \alpha + \lambda > 0, \lambda > 0, \quad (\alpha \neq 0 \text{ and } \alpha \neq 1) \]

then

\[
\frac{\Gamma^\alpha (\lambda + \alpha)}{\Gamma (\lambda) \Gamma (\lambda + 2\alpha)} < \frac{\lambda}{\alpha^2 + \lambda}.
\]
HAGSTROEM, K. G. Can life assurance—and especially pension schemes—be built on variable premiums? And can inflation risk be covered? pp. 173–97. An investigation into the mathematics of pension schemes in which the employer gives a guarantee of minimum interest (which has the effect of a variable premium), the effect of inflation being that of a change in interest rates. Equity investment is advocated to offset the effects of inflation on the fund.

MATTSSON, P. New bases for non-cancellable sickness insurance in Sweden, pp. 198–215. The adoption of these new bases coincided with the extension of benefit to cover not only total disablement but also partial disablement not less than 50%. The experience on which the bases rest (which included premium waiver data) was therefore not strictly applicable. Examples of the data and the formulae used for calculating the premiums are given.

BARTON, D. E. Neyman's $\psi_k^2$ test of goodness of fit when the null hypothesis is composite, pp. 216–45. Neyman's $\psi_k^2$ test is a 'smooth' test of goodness of fit based on standardized Legendre polynomials. The present paper considers the modifications necessary when the null hypothesis contains unknown parameters, which have to be estimated from the data, and when the data are grouped in order to save labour in calculation.

SWITZERLAND

Mitteilungen der Vereinigung schweizerischer Versicherungsmathematiker, 57, 1957

NOLFI, P. Hinweise auf die Ergebnisse und Bedeutung der Spieltheorie, pp. 129–44.

AMMETER, H. Die Ermittlung der Risikogewinne im Versicherungswesen auf risikotoheoretischer Grundlage, pp. 145–200. The amount to be transferred to a contingencies reserve, after the experience in any year is known, and the residual risk-profit on the year's working are discussed in the light of risk theory. This supplements the author's paper for the XVth International Congress (Transactions, 1, 507–21) where the present paper is apparently foreshadowed under a different title.

ZWINGGI, E. Approximative Berechnung der Prämienrückerstattung bei erhöhter Sterblichkeit, pp. 201–3.

RUFENER, E. Über eine Bilineardarstellung der Barwerte temporärer Verbindungsenten, pp. 205–20. The author's earlier paper on temporary annuities (see J.I.A. 82, 264) is extended to cover temporary annuities on joint lives. The general equation

$$\bar{a}_{x_1x_2...x_m} = \sum_{h=1}^{k} A_h(t) \varphi_h (x_1x_2...x_m)$$

implies that $l_a$ is a linear combination of exponential functions in $x$ with coefficients which are constant or polynomials in $x$.

Einsatz elektronischer Rechenmaschinen im Versicherungsbetrieb, pp. 221–328.
UNITED STATES AND CANADA

Transactions of the Society of Actuaries, 9, 1957

STERNHELL, C. M. The new Standard Ordinary mortality table (with discussion), pp. 1–43. The graduated 1950 4 (essentially 'medical') ultimate-after-five-years experience of 15 of the 16 largest North American offices is called Table X_{18}. The mortality table now under consideration as a valuation standard is known as Table X_{17} and consists of Table 18's $q_x$ loaded by 15% at ages 52–93 and by various constants at ages below 52.

CONOLLY, C. H. The effect of varying interest rates (with discussion), pp. 135–47.


DAVIS, M. E. The current position of the American actuary (Presidential address), pp. 317–33.


On pp. 302–7 will be found an interesting report of the nine-member Committee on Professional Conduct.

1956 Reports of Mortality and Morbidity Experience.

Besides the usual revisions of earlier studies this number contains a useful review of mortality trends on medical and non-medical issues since 1939, and a special study of 'early retirement' pensioner mortality under group annuity contracts of 17 of the largest companies.