

J.I.A. 119, 1, 147-148**PERMANENT HEALTH INSURANCE METHODOLOGY**

SEMINAR, 21 NOVEMBER 1991

THIS one-day seminar was organised by the Institute following the publication of *CMIR 12* in September 1991. The Report gave, for the first time, graduated results of U.K. experience of claims in payment based on the 1975-78 data obtained from contributing offices. A multiple-state model was developed in order to present all the results from the data obtained during that period. Considering the importance of this new model, the Institute felt there was a need for a full one-day seminar to discuss the Report. At 263 pages, *CMIR 12* is not light reading, so the main aim was to guide the readers through the various parts of the Report, and to highlight the salient points as well as the main results.

The Chairman of the day was Mr Robert Plumb, with 6 speakers from the PHI Sub-Committee. Over 100 delegates attended the seminar. The meeting was opened by Mr Alistair Neill, who congratulated the PHI Sub-Committee for producing an excellent Report which is of great benefit to all actuaries involved with the writing of this type of insurance. Following a brief talk by Mr Plumb on the aims and work of the CMI Bureau, Professor Howard Waters discussed the uses and the requirements of the model used to present the results. The model has three states, namely healthy, sick and dead. The movements between the different states were explained, with a simple comparison with modelling ordinary whole life assurance business. The multiple-state model used is inherently complex as it is graduated by taking into account every movement for each 1/156th of a year, and a life can theoretically fall sick, recover and become ill again in this short time period.

The second speaker was Professor David Wilkie, who discussed the results of the graduated model. Specimen figures and tables were published in the Report, and Professor Wilkie went through the more important results and how they were derived. Since many new symbols and notations were introduced in the Report, it was a great help in guiding the readers to understand how the various tables should be used.

Subsequently Professor Wilkie carried on to explain the 5-year select tables. Here, selection does not mean medical selection, but is a feature of the model which refers to an initial state of being healthy at the start of a projection. It was also explained how the two sets of ultimate rates were derived.

Mr Philip Bayliss then followed to consider the graduation of the claim recovery and mortality intensities, and the supporting investigations carried out in deciding the final graduations. Professor Waters returned to explain the graduation of the sickness inception intensities. One important feature of the model is that unreported short-term claims, which are assumed to terminate within 4 weeks after the end of their respective deferred periods, are included in

the inception intensity graduation. (For claims on a deferred one-week basis all are assumed to be reported.) Hence the inception rates published are higher than the actual claims experience. Users of the Report will need to decide for themselves whether they should exclude these unreported claims from the published rates.

The afternoon session commenced with Professor Wilkie comparing the inception and sickness rates from the model with those published in *CMIR 7*. Overall the results were similar. The new sickness rates take into account the actual durations for all periods of sickness, hence overcoming the inherent drawback of previous published Manchester Unity type sickness rates, where all durations are aggregated in 104/all.

Mr Graham Hockings followed to discuss the methods involved in calculating monetary functions, including claim annuities. He explained that these functions can also be approximated without deriving them through the model itself. The approximation produces results which are very close to the exact calculations, and is practical and easy to use. This is important, since most offices will not have the facility to build the full multiple-state model themselves.

Later, Mr Bayliss compared the results of other investigations with those produced by the multiple-state model. These included individual male experience in 1979-82, individual female experience 1975-78 and 1979-82, and group and unit cost experience 1975-78 and 1979-82 for males and females. Generally, individual inception rates had reduced for the period 1979-82, whilst termination rates had deteriorated with time; female experience was worse than males. Group experience however had continued to worsen.

Mr Eugene Hertzman, the last speaker of the day, talked about the way forward. He discussed the objectives of the new Report, which include premium rate calculation, comparison of reserves (including active and disabled life reserves) with offices' existing Manchester Unity reserves, and cash flow projections. Since only specimen results are published in *CMIR 12*, he sought the delegates' views on what data and tables the Bureau should publish. The aim is that offices should be able to adopt the inception/annuity approach in valuing PHI business without developing the full multi-state model themselves. All delegates would receive a questionnaire in due course enabling them to express their views.

The seminar, together with *CMIR 12* itself, have made an important step forward in the analysis of PHI experience. This will provide a valuable basis for future analyses, and all those involved in the Report and subsequent seminar are to be congratulated.

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