structures following the demise of the market tariff which had been in force for many years.

Having set out what is generally covered by a commercial fire insurance policy, the perspective of the underwriter is discussed. A typical rating structure of one office is described and areas in which other offices use different approaches are noted. The paper then indicates methods by which rating revisions can be carried out.

A section giving the actuarial perspective shows that underwriters and actuaries view the same problem in different ways. The interdependency between rating factors and the extent to which each factor contributes to the true differentiation between risk is often not well understood. Use of experience rating within commercial fire insurance is another area where it might be thought the actuary could usefully contribute. Other issues such as rating excesses, credibility theory and the impact of investment income are also discussed. The paper argues for a joint approach between underwriters and actuaries to the statistical problems of fire insurance.

The use of computerized fire underwriting systems for the setting of rates is briefly described. Experimentation with the use of expert systems for the same purpose is also discussed.

The last three sections of the paper leave the subject of premium rating to concentrate on reinsurance, claims and statistics. Reinsurance is a complex issue for fire insurance; the different aspects of the subject covered are the type of reinsurance used, the level of retentions, catastrophe protection, security and coinsurance. There is a brief consideration of the settlement, reserving and distribution by size of claims, before the final section of the paper which considers statistics. Perhaps the first thing that any actuary will have to do before becoming usefully involved in the subject of fire insurance is to collect some appropriate statistics in an area where good statistics are often not easily available. The availability, collection and analysis of statistics is a prerequisite to applying some of the techniques described earlier in the paper.

DETERMINATION OF THE CONTRIBUTION RATE TO MONEY PURCHASE ARRANGEMENTS

BY DAVID CARR with help from GARY SIMMONS

(Synopsis of a paper presented to the Society on 15 March 1988)

THE paper explored money purchase scheme design, in particular the effect on design of money purchase contracting out.

Simple scheme designs were explored and were found to result in some very

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peculiar distributions of benefits. More complex scheme designs could overcome this feature, but the complexity itself became a serious drawback.

The main conclusions reached in the paper were:

(i) Offering merely to pay a uniform contribution rate to a Contracted Out Money Purchase plan might be perceived as grossly unfair. Older employees, particularly late entrants, can do very badly from such arrangements. Younger employees can do very well. Women tend to fare worse than men.

(ii) Trying to even out the incidence of benefits from a money purchase arrangement could result in a complex and/or costly scheme. Also, attempts to target benefits through a money purchase route might well fail: targets could be missed in practice.

(iii) Aiming for the same target benefits in a money purchase arrangement as in a conventional final salary scheme may cost considerably more in the money purchase case. This is because a true money purchase arrangement gives better benefits to early leavers than the typical final salary scheme.

(iv) In the new legislative environment, the best money purchase scheme for employees will offer a choice between contracting out or not. Young employees should contract out. Employees closer to retirement should not.

Similarly, the best pensions strategy for individuals providing for themselves through personal pensions would be to contract out while young and to contract back in closer to state pension age.

(v) There are considerable dangers to the employee and the tax-payer in the new pensions arrangements.

(vi) To the individual, the danger is that inappropriate scheme design or the wrong decision on contracting out can lead to a costly pension scheme producing only very poor benefits in particular cases.

(vii) To the tax-payer, the danger is that employers and employees are being encouraged to select against the state.

This selection against the state works against two of the aims of the government:

To reduce to cost of providing State Pensions.

To reduce the extent to which people rely on State Pensions.

The costs of providing SERPS benefits is increased if an over-generous rebate is claimed by young employees, who then contract back in when the cost of providing their SERPS pension rises above the rebate in later years.

Reliance on SERPS pensions will not be removed either, because of the contracting-back-in phenomenon. It is even conceivable that the proportion of employees contracted out may fall because of the new legislation. Firms that previously contracted out all their employees may now prefer instead to contract out only their young employees.

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