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Topic C. Actuarial Valuation Methods and Assumptions

Implementing a pension plan along with the age increase of the plan participants

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In general, in order for the actuary to communicate the contribution amount to the employer, and/or the employees, it is normal to refer to a percentage applied to the salaries of the plan participants. However, not all of the plan participants are in the same age groups; for some the future working life is expected to be short, while for others it is expected to be longer. As a consequence, a proportion of the pension benefit for the older members will be funded from the younger age groups. In this case there is an issue of fairness, in a funded plan, that needs to be addressed.

On the other hand, and according to the living standards of the individuals, some may wish to have the flexibility to buy either higher or lower portions of their benefits as they get older. This may be an option that may be worth examining. We have approached the above issue by introducing the pension accrual density function, $m(x)$, to the funding of defined benefit occupational pension schemes. We compare different approaches to the Normal Cost and Actuarial Liability from the viewpoint of the different accrual density functions. This leads to a discussion of which accrual density function should be chosen, and the criteria that should be used from choosing the most appropriate accrual function for the plan, taking into account the relationship between the level of the contribution rates and the age of the plan members.

Keywords: defined benefit pension plans; pension accrual density function; accrual function