Erratum

Formula in section 3.14 of CMI Working Paper 62 on Mortality Experience

Background

After the publication of Working Paper 62 in May 2012, it came to light that the formula for the confidence interval for the amounts weighted 100A/Es was misstated, although the calculations themselves were correct. The Committee apologises for this error and has taken the opportunity to improve the notation which will be used in future working papers.

Amounts weighted 100A/Es confidence interval calculations

The notation used in Working Paper 62 could have led to some confusion. Where the formula for amounts weighted confidence intervals should have referred to expected deaths E_i, it referred to the exposure that life i contributes Exp_i.

The formulae used for estimating 95% confidence intervals for amounts weighted 100A/Es in Working Paper 62 (section 3.14) was as follows:

$$Standard\ Deviation = \sqrt{\frac{A}{E} \times \frac{\sum \pi_i{}^2 Exp_i}{(\sum \pi_i Exp_i)^2}} \times 100$$

Where π_i is the pension amount for life i and Exp_i is the exposure that life i contributes.

This formula has now been updated for use in future working papers replacing Exp_i with E_i to clarify the calculation as follows:

$$Standard\ Deviation,\ \ \sigma' = \sqrt{\{\mu' \times \sum \pi_i^2 E_i \div (\sum \pi_i E_i)^2\}} \times 100$$

$$where\ \ \mu' = \sum \pi_i D_i \div \sum \pi_i E_i$$

and D_i are actual deaths and E_i are expected deaths according to the comparator table

and π_i is the pension amount for life i.

The CMI would like to remind users that the calculations themselves are correct and that this update serves only to clarify the calculation method used for the 95% confidence intervals for the amounts weighted 100A/Es.

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