

Assessing Longevity Risk with Generalized Linear Array Models

by

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Longevity risk is becoming more important in the current economic environment; if mortality improvements are larger than expected, profits erode in the annuity business and in defined benefit pension schemes. The Lee-Carter model, although a popular model for mortality rates by age and calendar year, has been critiqued for its inflexibility. A recently proposed alternative is to smooth the mortality surface with a generalized linear array model (GLAM), allowing for an additive surface of shocks.

We compare the GLAM and Lee-Carter models by fitting them to Swedish mortality data. Lee-Carter mortality predictions are calculated, and a time series method for GLAM prediction is developed. The predicted mortality rates and associated uncertainties are calculated and compared.