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Lee-Carter mortality forecasting: a multi-country comparison of variants and extensions

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Abstract

We compare the short- to medium-term accuracy of five variants or extensions of the Lee-Carter method for mortality forecasting. These include the original Lee-Carter, the Lee-Miller and Booth-Maindonald-Smith variants, and the more flexible Hyndman-Ullah and De Jong-Tickle extensions. These methods are compared by applying them to sex-specific populations of 10 developed countries using data for 1986-2000 for evaluation. All variants and extensions are more accurate than the original Lee-Carter method for forecasting log death rates, by up to 61%. However, accuracy in log death rates does not necessarily translate into accuracy in life expectancy. There are no significant differences among the five methods in forecast accuracy for life expectancy.

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