

Mortality Forecasting at Advanced Ages - Applying the Lee-Carter Model to an Economic Panel

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Abstract

This paper complements the existing literature by examining the forecasting ability of the Lee-Carter model for advanced ages on a new type of data. We exploit the fact that we have access to annual register data for an entire population above the age of 60 for the time period 1981-2005. Besides age and gender we account for marital status and geographical location in mortality forecasting. Furthermore, we evaluate the sensitivity of the calibration period using aggregated gender specific mortality data from the Human Mortality Database for the time period 1900-2005. This is done for all ages from 0-100 years as well as advanced age from 60-100 years. We show that the choice of fitting period has a significant effect on the mortality forecasts, with strong effects on gender specific forecasts. Most importantly because more sophisticated data have been developed for this analysis we are able to show that even when individuals share the same age and gender status, heterogeneity in mortality rates by marital status remain. Compared to singles we find favourable improvements in life expectancy for married individuals. Furthermore, we demonstrate that significant differences in life expectancies appear across regions. This offers further insight into the understanding of which factors are driving the improvements in life expectancy. Even though focus is on the Danish mortality experience, the analysis conducted in this paper also applies to other industrialized countries, where findings are likely to be similar.