On forecasting mortality using the Lee-Carter model

Dorina Lazar

Babes Bolyai-University, Faculty of Economic Science
Teodor Mihali No. 58-60, 3400 Cluj-Napoca, Romania
E-mail: dorina_2@email.ro

In this paper we add some remarks regarding forecasting mortality rates using Lee-Carter model. We have choosen to restrict our study for those people aged 60 and over, the mortality of this segment of population beeing important in pricing the immediate life annuity.

The model is estimated using the approach proposed by authors, based on singular value decomposition, and also like a state space model. Moreover, it is interesting to examine whether the series $\ln(m_{xt})$ and k_t are cointegrated. If these two time series are cointegrated, the equation from Lee-Carter model beeing the cointegration relation, then it is necessary to capture both short run and long run effects through an error correction model.

Numerical results are obtained on the basis of mortality rates for romanian female population, during 1970-2002 period.

Keywords: mortality; forecasting; Lee-Carter model; space-state models; cointegration.

References

1. Bresson G., Pirotte A. (1995), *Econometrie des series temporalles*, PUF.
2. Gourieroux C., Monfort A. (1990), *Series temporalles et modeles dynamiques,* Economica, Paris.
3. Lee R.D., Carter L. (1992), Modelling and forecasting the time series of US mortality, *Journal of the American Statistical Association*, Vol. 87, 659-671.