Comparing stationary space-time covariance functions for fitting dynamic life tables

F. Martínez-Ruiz[1], J. Mateu[2], F. Montes[1] and E. Porcu[2]

[1] Department of Statistics and O.R., Universitat de Valencia, E-46100 Burjassot, Spain
[2] Department of Mathematics, Universitat Jaume I, Campus Riu Sec, E-12071 Castellón, Spain

Abstract: Dynamic life tables arise as an alternative to the standard (static) life tables with the aim of incorporating the evolution of mortality over time. These tables can be considered as a two-way table on a grid equally spaced in either the vertical (age) or horizontal (year) direction, and the data can be decomposed into a deterministic large-scale variation (trend) plus a stochastic small-scale variation (residuals). In this context, spatio-temporal methods can be used for fitting and predicting the dynamic mortality.
Our contribution consists of applying four different covariance functions for fitting and predicting mortality in Spain during the period 1980-2005, and comparing the results obtained with each of them.

Keywords: Covariance functions; Dynamic life tables; Space-time processes.