

A Bayesian Hierarchical Model for Multi-population Mortality Forecasting

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Life insurers and pension managers need to model the future mortality experience of their policyholders. Data about their specific population may be limited or nonexistent, making parameter estimates based on only that data highly unstable. Using the mortality experience from a larger population (e.g. the country as a whole) exposes the insurer to basis risk because the policyholders are self-selected. We present a Bayesian hierarchical model which allows the insurer to properly incorporate covariates and protect against basis risk. In the interest of parsimony, we also perform a Gibbs variable selection to determine which covariates significantly contribute to the model fit.