

Auxiliary Mixture Sampling for Age-Period-Cohort Models

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A frequently used method to describe and predict time series of disease counts are age-period-cohort (APC) models. The mortality or incidence rates are thereby assumed to arise from a Poisson distribution with mean changing across age groups, periods and birth cohorts. Additional adjustments for overdispersion are commonplace. In this talk, we will present a Bayesian framework based on Gaussian Markov random fields to estimate APC models and to make predictions for future rates. We suggest a Markov chain Monte Carlo auxiliary mixture sampler (Frühwirth-Schnatter and Wagner, 2006) that draws from standard distributions only and uses efficient algorithms to block update all unknown parameters.

References

Frühwirth-Schnatter, S. and Wagner, H. (2006). Auxiliary mixture sampling for parameter-driven models of time series of counts with applications to state space modelling, *Biometrika* **93**: 827–841.