

PROJECTION AND DESCRIPTION OF MORTALITY RATES BASED ON AUTOREGRESSIVE AGE-PERIOD-COHORT MODELS

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In this analysis we have estimated projected mortality rates of different diseases by means of the bayesian approach to age-period-cohort (APC) models. These models allow to summarize information related to disease rates with the aim of assessing the effect of these three factors on the rates. In order to smooth effects on each scale on time, Gaussian autoregressive prior models in the forward direction were proposed by Breslow and Clayton and later by Berzuini and Clayton and Bray. We denote these models by APC1. In APC1 models it was assumed that second differences are independent normal covariates. Trends corresponding to age, period and birth cohort were smoothed using second degree autorregressive smoothing (non-parametric smoothing with autoregressive error component). An alternative approach has been described by Bashir and Estève. They modelled the full age-period-cohort model based on APC1 but adding a constraint on the second order differences related only with the age parameters. We have denoted this model as APC2. We have compared projected rates of both APC1 and APC2 models with those of an another APC model with only age constraints (APC3). Alternative methods of projection will be discussed.