

POSTERIOR PROBABILITY IN THE ANALYSIS OF HOSPITAL DEPENDENT SPATIAL VARIATION OF HEALTH CARE SUPPLY

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Our investigations aim to explain regional variation in health care supply by a new methodological approach. Routine hospital data are used for analyses. Since age and gender standardized hospitalisation ratios of clinical interventions show high spatial variation between Austrian districts (N=121), this is an important problem for health care planning, in Austria and worldwide. A generalized linear model for observed count data is assumed with a Poisson error distribution and a logarithmic link function. A fully hierarchical Bayesian smoothing model is applied. Spatial structured dependencies between neighbours are found, but unstructured spatial heterogeneity is still high. Clustering methods to detect clusters of elevated risk, using a reversible jump MCMC algorithm, do not give satisfying results. For these reasons, the importance of the availability of hospitals is investigated. A gravity model assuming districts as origins and hospitals as destinations fails since sample sizes are too small. Thus, a new modelling approach for the availability of hospitals is introduced. An adequate distance function for alpine regions is defined. The model intends to get a proper posterior distribution and reliable results in practice. Mainly discussed is the use of suitable priors, also if they are not proper. The advantage of this approach is that it does not average across hospitals, but considers their catchment areas and controls for variation.