

部分线性混合效应模型中方差分量的稳健估计

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摘要 部分线性混合效应模型中方差分量是我们感兴趣的参数, 文献中已经给出许多估计方法. 但是其中很多方法都可以归结为广义估计方程方法(GEE), 如: 最大似然估计(MLE), 约束最大似然估计(REMLE)等, 而GEE方法对异常点很敏感. 本文提出一组关于部分线性混合效应模型(PLMM)中均值和方差分量的稳健估计方程, 对均值和方差分量同时进行稳健估计; 并进行了随机模拟考察所提出稳健估计的有效性, 最后通过两个实例, 说明了所提方法的可行性.

关键词 [回归样条, 方差分量, 混合模型, 部分线性模型, 稳健性.](#)

分类号

Robust Estimation of the Variance Components in Semiparametric Linear Mixed Model

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Abstract For a partial linear mixed model, we usually focus on the estimation of the variance components, and a lot of methods can be applied. However, many of these methods, such as maximum likelihood method and restricted maximum likelihood method, can be included in the framework of generalized estimating equation (GEE). As well known, the GEE method is sensitive to outliers. So, an alternative set of robust GEEs for both mean components and correlation parameters are proposed for the partial linear mixed model for longitudinal data in this paper. Some simulations are conducted to evaluate the performance of the proposed estimators. In the end, the method is illustrated with analysis of two real data sets.

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