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纵向数据半参数Beta回归模型的影响分析

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Influence Analysis for Semi-parametric Beta Regression Model with Longitudinal Data

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- 摘要
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摘要 本将随机效应当作是缺失数据, 基于Q函数和EM算法并利用P-样条拟合非参数部分, 得到了纵向数据半参数Beta回归模型估计方法. 基于数据删除模型, 我们得到了模型参数部分的广义Cook距离以及非参数部分的广义DFIT. 此外, 本文还研究了 在四种不同扰动情形下模型的局部影响分析, 得到了相应的影响矩阵. 最后, 我们通过两个数值实例验证了所得诊断统计量的有效性.

关键词： Beta 回归 纵向数据 半参数 影响分析 P-样条 EM 算法

Abstract： This paper present several case-deletion as well as local influence measures for assessing the influence of an observation for Semi-parametric Beta Regression Model with Longitudinal Data. The essential idea is to treat the latent random effects in the model as missing data and get the estimate algorithm by adding penalized spline to estimate the non-parameters. We generate generalized Cook distance and generalized DFIT for the parametric and nonparametric part respectively based case-deletion model by Q-function. Four different perturbation schemes are discussed. Two numeric examples are presented to illustrate the results.

Key words： Beta regression longitudinal data semi-parametric influence analysis P-spline EM algorithm

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