

Goodness-of-fit test in parametric mixed effects models based on the estimation of the error distribution

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Abstract

We address the problem of testing for a parametric function of fixed effects in mixed models. We propose a test based on the distance between two empirical error distribution functions, which are constructed from residuals calculated under the opposing hypotheses. The proposed test statistic has power against all alternatives, and its asymptotic distribution is derived. A simulation study shows that the test outperforms others in the literature. The test is applied to longitudinal data from an AIDS clinical trial and a growth study.