

Testing of Heteroscedasticity in Semiparametric Mixed Models

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Abstract

It is of considerable interest to test for heteroscedasticity in statistical studies. In this talk, we investigate such a problem under the framework of a semiparametric mixed model. A score test is proposed for the hypothesis that all the variance components are zero. We establish the asymptotic property of the test, and examine its performance in a simulation study. The test is illustrated with the analysis of a longitudinal study of measurements of serum creatinine.

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KEY WORDS: Heteroscedasticity; Random effects; Score test; Semiparametric mixed models; Smoothing spline