Distribution Free Methods for Longitudinal Survey Data Models

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Abstract: This paper investigates distribution free statistical methods with computational support for longitudinal survey data. Inference procedures for mixed effects models parameters are evaluated considering alternative longitudinal covariance structures. Estimation methods that consider the sampling design and those which ignore are compared through a simulation study and the behaviour of estimators that are based on fitting functions is evaluated. Maximum likelihood, pseudo maximum likelihood and distribution free generalized least squares point estimators are considered. The performance of the estimators is also evaluated considering different scenarios where data are generated from various probability distributions, including both symmetrical and asymmetrical ones.