

Robust Inference in Generalized Linear Models

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Abstract

The weighted likelihood approach is used to perform robust inference on the parameters in a generalized linear models. We distinguish the case of replicated observations of the dependent variable for each combination of the explanatory variables, common in the design of experiment framework, and the case of one observation for each combination of the explanatory variables, very common in observational studies. We provide some theoretical results on the behavior of the introduced estimators and we evaluate their performance by Monte Carlo experiment. A non exhaustive comparison with the methods already presented in the literature is presented. Illustration of the proposed methods in R is provided by examples on real datasets.

Keywords: Generalized linear models, Outliers in GLM, Residual adjustment function, Robust estimation, Weighted likelihood.

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