Seeber, G. U. H.

Overdispersed exponential regression models. (English) Zbl 0936.62084

Comput. Stat. 12, No. 2, 209-218 (1997).

This paper presents an approach to modify generalized linear models to regression models with stochastic components defined by two-parameter exponential family distributions. These exponential regression models allow direct likelihood inference with respect to parameters in the model including the dispersion parameter. This makes this class useful in situations where the data show unexpected patterns of variation including overdispersion and underdispersion. This is in contrast to generalized linear models where the scale parameter is usually regarded as nuisance parameter and not estimated by maximum likelihood. Exponential regression models can be fitted with the help of the iteratively re-weighted least squares algorithm and permit complete likelihood analysis.

Reviewer: M.P.Moklyachuk (Kyïv)

MSC:

62J12 Generalized linear models (logistic models)
65C60 Computational problems in statistics (MSC2010)
62G08 Nonparametric regression and quantile regression

Keywords:

overdispersion; underdispersion; likelihood inference; least squares algorithm