Melo, Tatiane F. N.; Ferrari, Silvia L. P.; Patriota, Alexandre G. Improved estimation in a general multivariate elliptical model. (English) Zbl 1404.62061 Braz. J. Probab. Stat. 32, No. 1, 44-68 (2018).

Summary: The problem of reducing the bias of maximum likelihood estimator in a general multivariate elliptical regression model is considered. The model is very flexible and allows the mean vector and the dispersion matrix to have parameters in common. Many frequently used models are special cases of this general formulation, namely: errors-in-variables models, nonlinear mixed-effects models, heteroscedastic nonlinear models, among others. In any of these models, the vector of the errors may have any multivariate elliptical distribution. We obtain the second-order bias of the maximum likelihood estimator, a bias-corrected estimator, and a bias-reduced estimator. Simulation results indicate the effectiveness of the bias correction and bias reduction schemes.

MSC: 62H12 Estimation in multivariate analysis

Keywords: bias correction; bias reduction; elliptical model; maximum likelihood estimation; general parameterization

Software: Ox; R

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