

Estimates of MM type for the multivariate linear model

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Abstract

We propose a class of robust estimates for multivariate linear models. Based on the approach of MM estimation (Yohai 1987, [27]), we estimate the regression coefficients and the covariance matrix of the errors simultaneously. These estimates have both high breakdown point and high asymptotic efficiency under Gaussian errors. We prove consistency and asymptotic normality assuming errors with an elliptical distribution. We describe an iterative algorithm for the numerical calculation of these estimates. The advantages of the proposed estimates over their competitors are demonstrated through both simulated and real data.

Keywords: Robust methods; MM-estimate; Multivariate linear model.