Inference in multivariate regression models with measurement error

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Abstract

Multivariate regression models are helpful in many fields. However, independent variables (covariates or predictors) could be measured with error. That implies the necessity of considering a new kind of model called *Multivariate Regression Models with Measurement Error* (MRMME). This work aims to carry out a statistical analysis of these models. We include estimation as well as hypothesis testing and model assessment. We consider the Normal distribution assumption and also the Generalized Hyperbolic distribution. For the estimation process in MRMMEs, we propose to use the Maximum Likelihood methodology and the EM algorithm. We illustrate the methodology by comparing the obtained results with the one when the measurement error is ignored.