Improved estimation in multiple linear regression model with measurement error and general constraint

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Abstract: When uncertain prior information is available for regression parameters in the multiple linear regression model, two restricted estimators are constructed in the multiple linear regression models with measurement errors in the predictors. Based on these restricted estimators, two sets of estimators which include the preliminary test estimator, the stein-type estimator and the positive rule stein type estimator, are constructed for both slopes and intercept. Their asymptotic properties, including the asymptotic distributional quadratic biases, the asymptotic distributional quadratic risks, are discussed. The performances based on the asymptotic distributional quadratic risks are compared among these estimators. Finally, a simulation study illustrates the finite sample performance of the proposed estimators.

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