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Simultaneous treatment of unspecified heteroskedastic model error distribution and mismeasured covariates for restricted moment models

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Abstract

We develop consistent and efficient estimation of parameters in general regression models with mismeasured covariates. We assume the model error and covariate distributions are unspecified, and the measurement error distribution is a general parametric distribution with unknown variance-covariance. We construct root-n consistent, asymptotically normal and locally efficient estimators using the semiparametric efficient score. We do not estimate any unknown distribution or model error heteroskedasticity. Instead, we form the estimator under possibly incorrect working distribution models for the model error, error-prone covariate, or both. Empirical results demonstrate robustness to different incorrect working models in homoscedastic and heteroskedastic models with error-prone covariates.

Some Key Words: Influence function; Linear operator; Measurement error; Nuisance tangent space; Restricted moment model

Short title: Regression with Error

JEL Classification: C1

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