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Simulated Minimum Distance Estimation of Dynamic Models with Errors-in-Variables

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Abstract

Empirical analysis often involves using inexact measures of the predictors suggested by economic theory. The bias created by the correlation between the mismeasured regressors and the error term motivates the need for instrumental variable estimation. This paper considers a class of estimators that can be used in dynamic models with measurement errors when external instruments may not be available or are weak. The idea is to exploit the relation between the parameters of the model and the least squares biases. In cases when the latter are not analytically tractable, a special algorithm is designed to simulate the model without completely specifying the processes that generate the latent predictors. The proposed estimators perform well in simulations of the autoregressive distributed lag model. The methodology is used to estimate the long-run risks model.

JEL Classification: C1, C3

Keywords: Measurement Error, Minimum Distance, Simulation Estimation, Dynamic Models.

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