The limited information maximum likelihood approach to dynamic panel structural equation models

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Abstract We develop the panel-limited information maximum likelihood approach for estimating dynamic panel structural equation models. When there are dynamic effects and endogenous variables with individual effects at the same time, the LIML method for the filtered data does give not only a consistent estimator and asymptotic normality, but also attains the asymptotic bound when the number of orthogonal conditions is large. Our formulation includes Alvarez and Arellano (Econometrica 71:1121–1159, 2003), Blundell and Bond (Econ Rev 19-3:321–340, 2000) and other linear dynamic panel models as special cases.

Keywords Dynamic panel structural equation · LIML · Many orthogonal conditions · Forward and backward filters · Optimality