

On Some Properties of Estimation Methods in a Dynamic Panel Structural Equation

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abstract

We investigate the finite sample and asymptotic properties of several estimation methods (Within-Group, GMM and LIML) for a panel autoregressive structural equation model with random effects when both T and N are large. When we use the forward filtering to a structural model as Alvarez and Arellano (2003), both the WG and GMM estimators are significantly biased when both T and N go to infinity while T/N is different from zero. The LIML (limited information maximum likelihood) estimator has consistency and the asymptotic normality when T/N converges to a constant as both T and N go to infinity. Its asymptotic distribution has some bias and covariance which depends on the limiting behavior of T/N .

Keywords : Dynamic Panel Model, Simultaneous Equation, Within-Group Estimator, GMM, LIML (limited information maximum likelihood), Many Orthogonal Conditions.

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