Abstract

   In this paper we consider the estimation of a dynamic panel autoregressive (AR) process of possibly infinite order in the presence of individual effects. We utilize the sieve AR approximation with its lag order increasing with the sample size. We establish the consistency and asymptotic normality of the standard dynamic panel data estimators, including the fixed effects estimator, the generalized methods of moments estimator and Hayakawa's instrumental variables estimator, using double asymptotics under which both the cross-sectional sample size and the length of time series tend to infinity. We also propose a bias-corrected fixed effects estimator based on the asymptotic result. Monte Carlo simulations demonstrate that the estimators perform well and the asymptotic approximation is useful. As an illustration, proposed methods are applied to dynamic panel estimation of the law of one price deviations among US cities.

Key Words: Autoregressive Sieve Estimation; Bias Correction; Double Asymptotics; Fixed Effects Estimator; GMM; Instrumental Variables Estimator.

JEL Classification: C13; C23; C26.