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JOB MARKET PAPER

Estimating Dynamic Heterogeneous Panels with Interactive Fixed Effects and Weak Cross-Section Dependence, 2020

This paper generalizes the existing theory on dynamic cross-section heterogeneous coefficient panels with interactive fixed effects to allow for weak cross-section (and serially) dependent errors. We derive the limiting distribution for cross-section heterogeneous coefficients under $\frac{\sqrt{T}}{N} \rightarrow c$, $0 \leq c < \infty$ asymptotics (where N and T are the number of cross-sections and time periods respectively). At this convergence rate, we observe a bias in the coefficient estimate associated with the idiosyncratic error's weak cross-section dependence. We provide sufficient conditions so that the bias and the covariance matrix of the limiting distribution can be consistently estimated. Our theoretical findings are accompanied by extensive Monte Carlo experiments demonstrating the superior finite sample performance of our estimation method over other competing techniques when the idiosyncratic error is weakly cross-section dependent. Finally, we investigate the long-run effect public debt has on economic growth for 103 countries as an application of the method.

WORKING PAPER

Macro Panel Models with Diffusion Index Multilevel Effects, Estimated with a Fixed Number of Countries, 2020

This paper presents a novel approach to estimation and inference in panel data models with observed regressors, and an unobserved multilevel factor structure when the number of countries sampled is small. We assume the unobserved multilevel factor structure comprises a set of global and country-specific factors correlated to our dependent variable and potentially our regressors of interest. We extract the multilevel factors from a large number of potential predictors of each country's observables. By consistently estimating the factor space, we can control for the unobserved factors' confounding influence, which provides the basis for what we call the diffusion index multilevel effects (DIME) estimate. Joint asymptotic normality of the DIME estimate is established. This theory provides the basis for the only reliable test for whether two or more countries are exhibiting grouped behaviour (have equal coefficients) in the presence of the confounders described when the number of countries sampled is small.