Unequal Spacing in Dynamic Panel Data: Identification and Estimation

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PRELIMINARY

Comments and suggestions are appreciated.

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Abstract

This paper provides conditions under which parameters of fixed-effect dynamic models are identified with unequally spaced panel data. Under predeterminedness, weak stationarity, and empirically testable rank conditions, AR(1) parameters are identified if $\tau, \tau+1, \Delta t+\tau, \Delta t+\tau+1 \in \mathcal{T}$ holds for some $\tau \geqslant 0$ and $\Delta t > 0$, where $\mathcal{T}$ is the set of all the time gaps. This result extends to models with multiple covariates, higher-order autoregressions, time-varying trends, and partially linear models. For the NLS Original Cohorts: Older Men, personal interviews took place in 1966, 67, and 69, and the above condition is satisfied with $\mathcal{T} = \{0, 1, 2, 3\}$, i.e., $(\tau, \Delta t) = (0, 2)$. Applying our method to this data set, we obtain estimates of the AR(1) parameter for earning dynamics ranging from .34 to .59.

Keywords: dynamic panel data, unequal spacing

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