Time-invariant Regressors under Fixed Effects: Identification via a Proxy Variable

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Abstract

Identification of a coefficient associated with a time-invariant regressor (TIR) often relies on the assumption that the TIR is uncorrelated with the unobserved heterogeneity across panel units. We derive an estimator which avoids the random-effects assumption by employing a proxy for the unobserved heterogeneity thus extending the existing results on proxy variables from the cross-sectional literature. In addition, we quantify the sensitivity of the estimates to potential violations of the random-effects assumption when no proxy is available. The utility of this approach is illustrated on the problem of implausibly high distance elasticity produced by gravity models of international trade.

Key words: Identification; Model specification; Omitted variable bias; Panel data; Variable addition

JEL Classification: C01, C18, C33