“Identification of Nonseparable Models with Repeated Cross Sections”

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Abstract
This paper studies the identification of nonseparable models with continuous, endogenous regressors using repeated cross sections. We seek in particular to understand to what extent repeated cross sections, which constitute an intermediate situation between pure cross sections and panel data, may be used to address the endogeneity issue. We show that two assumptions on the effect of time, namely a weak stationarity condition on the error terms and time variation in the distribution of endogenous regressors, can be very effective for that purpose. Several treatment effects are point identified without any functional form assumption, while bounds can be obtained for some others. This result can be seen as an extension of the difference-in-differences idea to continuous treatments, but without the need for additive time effects nor exogenously defined control groups. We propose two extrapolation strategies to extend this result: using monotonicity of the error term or imposing linear, correlated random coefficient models. Finally, we apply our result to the effect of mother's age on birth weight.