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Title: Likelihood Specification and Inference in Discrete Simultaneous Equation Models

Abstract:

This article studies the formulation of the likelihood function for

simultaneous equation models for discrete data. The approach rests on casting

the required distribution as the invariant distribution of a suitably defined

Markov chain. The derivation resolves puzzling paradoxes highlighted in

earlier work, shows that such models are theoretically coherent, and offers

simple and intuitive linkages to the better understood analysis of continuous

outcomes. Furthermore, the paper develops efficient estimation methods for

analyzing this class of models and establishes a set of new identification

restrictions distinct from those in the existing literature. The new

methodology is employed in three applications involving simultaneous equation

models of (i) the interactions between health and wealth, (ii) female labor

supply and family financial stability, and (iii) bank behavior during the

Great Depression involving bank propensity to engage in aggressive lending

and seek assistance from the lender of last resort.