

Informational Content of Factor Structures in Simultaneous Discrete Response Models

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Abstract

In this paper we consider the identification and estimation of a treatment effect model where the treatment status and the outcome are both binary. In the absence of restrictive large-support type assumptions on the distribution of the covariates, these models are generally only partially identified, and inference can be fragile even if these support conditions hold. We show that imposing a linear factor structure on the unobservables makes it possible to point-identify the parameters of interest, including the coefficient associated with the endogenous regressor in the outcome equation, under weaker conditions. In particular, we show that an exclusion restriction, requiring an explanatory variable in the outcome equation to be excluded from the treatment equation, is no longer necessary for identification. Furthermore, we show that support conditions on the included covariates in the outcome equation can also be substantially weakened. Finally, we propose an estimation procedure for this model that, by standard regularity conditions, yields root- n consistent and asymptotically normal estimators.

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