

A Semiparametric Network Formation Model with Multiple Linear Fixed Effects*

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Abstract

This paper analyzes a semiparametric model of network formation in the presence of multiple, unobserved, and agent-specific fixed effects. Given agents' observed attributes, the conditional distributions of these effects, as well as the disturbance terms associated with each linking decision are not parametrically specified. I give sufficient conditions for point identification of the coefficients on the observed covariates. This result relies on the existence of at least one continuous covariate with unbounded support. I provide partial identification results when all covariates have a bounded support. Specifically, I derive bounds for each component of the vector of parameters when all the covariates have a discrete support. I propose a semiparametric estimator for the vector of coefficients that is consistent and asymptotically normal as the number of individuals in the network increases. Monte Carlo experiments demonstrate that the estimator performs well in finite samples. Finally, in an empirical study, I analyze the determinants of a friendship network using the Add Health dataset.

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