

Econometrics of networks

Syllabus

Yann Bramoullé

Course's objective

The objective of this course is to provide an overview of two related, fast-growing fields of research - the empirical analysis of network data and the econometrics of network models - and to present selected topics of current research.

Outline

Lecture 1: An overview of the econometrics of peer effects in networks

Linear-in-means model of peer effects in networks. Microfoundations. The reflection problem. Correlated effects and various strategies to address it. Random peers. Random shocks. Binary outcomes.

Lecture 2: An overview of the econometrics of network formation

Dyadic models. Dyadic models with individual fixed effects. Econometric models of strategic network formation. Joint models of network formation and peer effects in networks.

Lecture 3: Friendship networks and social diversity at school

Institutional background on a large-scale French desegregation program in middle schools. Econometrics of treatment impact on homophily. Econometric approaches to address censoring in network formation.

Lecture 4: The perils of pairwise regression of peer effects

Pairwise regression of peer effects. Discussion of the applied literature using this design. Analysis of identification and inference.

References

Lectures 1 and 2

Bramoullé, Y., Djebbari, H. and B. Fortin. "Peer effects in networks: a survey", *Annual Review of Economics*, 2020, 12: 603-629.

Carrell S., Sacerdote B. and J. West. "From natural variation to optimal policy? The importance of endogenous peer group formation", *Econometrica*, 2013, 81:855–82.

Graham, B. "Network data", Chapter 2 in *Handbook of Econometrics* 7A (S. Durlauf, L. Hansen, J. Heckman & R. Matzkin, Eds.), 2020, 111-218.

Lecture 3

Chetty, R., Jackson, M. and coauthors. "Social Capital I: measurement and association with economic mobility", *Nature*, 2022, 608: 108-121.

Azmat, G., Bramoullé, Y., Grenet, J., Houndetoungan, A., Huillery, E. and Y. Souidi. "Friendship networks and social diversity at school: evidence from a French desegregation program.", *research project*.

Lecture 4

Bayer, P., Ross, S. and G. Topa. "Place of work and place of residence: informal hiring networks and labor market outcomes", *Journal of Political Economy*, 2008, 116: 1150-1196.

Harmon, N., Fisman, R. and E. Kamenica. "Peer effects in legislative voting", *American Economic Journal: Applied Economics*, 2019, 11: 156-180.

Algan, Y., Davit, N., Do, Q.A., Le Chapelain A. and Y. Zenou. "Friendship and political opinions", *American Economic Review*, 2026, 116: 2202-2241.

Bramoullé, Y. and Z. Wang. "The perils of pairwise regressions of peer effects", *research project*.

Grading

Students will be graded on the basis of a short essay: either a referee report on a paper of the literature, or a research project related to networks.