Econometrics of networks
Syllabus

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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.

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: Peer effects in networks and binary outcomes

Basic facts on the econometrics of binary outcomes. Binary outcomes and interactions: classical approaches under complete and incomplete information. Models of linear interactions and binary outcomes: statistical and microeconomic foundations.

Lecture 4: Measurement error and peer effects in networks

Basic facts on classical measurement error, attenuation bias. Expansion bias in peer effect estimates. Impact of the network structure. Identification results, GMM and IVs.

References

<u>Lectures 1 and 2</u>

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.

De Giorgi G., Frederiksen A. and L. Pistaferri. "Consumption network effects". *Review of Economic Studies*, 2020, 87:130–63.

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

<u>Lecture 3</u>

De Paula, A. "Econometric analysis of games with multiple equilibria", *Annual Review of Economics,* 2013, 5(1): 107-131.

Bramoullé, Y. and V. Boucher. "Binary outcomes and linear interactions", *CEPR working paper*, 2020.

<u>Lecture 4</u>

Bramoullé, Y. and S. Maes. "Measurement error and peer effects in networks", *CEPR working paper,* 2024.

Grading

Students will be graded on the basis of a critical report they have to write on a paper of the literature.