

Course Goals and content

The goal of the course is to gain a thorough understanding of the analysis of economic networks. We will discuss theoretical concepts such as the measurement and mathematical characterization of networks but also practical issues such as the storage, organization and visualization of network data. Moreover, we will envisage what networks imply for effects analysis in economic models. Also for the latter, the course will cover theoretical aspects and practical (implementation) issues.

Lecturer



Prof. Peter Egger is professor of economics at ETH Zurich (egger@kof.ethz.ch). His research focus is on applied and theoretical panel econometrics (time-invariant variables, long- and short-run estimates, spatial econometrics), applied and theoretical international and regional economics (outsourcing, multinational firms, trade volumes; economic integration, new economic geography), industrial organization and multinational firms.

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Organization of the lecture

Day 1: Introduction to economic networks (Jackson Ch. 1); Representation and measurement of networks in general (Jackson Ch. 2 and empirical implementation/examples)

Day 2: Representation and measurement of networks continued (Jackson Ch. 2 and empirical implementation/examples); Managing and visualizing network data (Robinson, Webber, Efrém and empirical examples)

Day 3: Managing and visualizing network data (Robinson, Webber, Efrém and empirical examples); Random networks and network formation (Jackson parts of Ch. 4-6)

Day 4: Effects of networks in cross-sections of data (Kelejian and Prucha, 1999, and STATA implementations); Effects of multiplex networks (Badinger and Egger, 2011, and STATA implementations); Network effects in structural systems of equations (Drukker, Egger, and Prucha, 2018, and STATA implementation)

Day 5: Effects of endogenous networks; Network effects in panel data (Badinger and Egger, 2015)

Class participation (10 %); referee report (take-home exam, 90 %). Participants taking this course for credit must attend all lectures and complete the take-home exam.

Bibliography

Networks in general

- Jackson, Matthew O., 2008. Social and Economic Networks. Princeton University Press.
- Robinson, Ian, Jim Webber, and Emil Efrém, Graph Databases, 2nd edition. Free online book

Network effects

- Badinger, Harald and Peter H. Egger, 2011. Estimation of Heteroskedastic SARAR(R,S) Models. Papers in Regional Science 90(1), 213-235.

Badinger, Harald and Peter H. Egger, 2015. Fixed Effects and Random Effects Estimation of Higher-Order Spatial Autoregressive Models with Spatial Autoregressive and Heteroskedastic Disturbances. Spatial Economic Analysis 10(1), 11-35.

- Drukker, David, Peter H. Egger, and Ingmar R. Prucha, 2018. Simultaneous Equations Models with Higher Order Spatial or Social Network Interactions. Unpublished manuscript.
- Kelejian, Harry H. and Ingmar R. Prucha 1999. A Generalized Moments Estimator for the Autoregressive Parameter in a Spatial Model. International Economic Review 40, 509-533

Organization

The course is intended for PhD students. A limited number of people with relevant professional or academic interest may be also admitted.

Lecture hours: 25 ECTS : 4

Timetable and Registration

The course takes place from Monday to Friday from 9.30 to 12.00 and from 13.30 to 16.00 in the Anna Nussbaum at the World Trade Institute, University of Bern, Hallerstrasse 6, 3012 Bern.

This is an intensive course. Please try to complete (some) of the readings already before the course-week starts

Tuition fee: 500 CHF.

Tuition waivers available

Available course outlines and reading material can be found under the course listing on the Doctoral Programme webpage.

<https://www.wti.org/education/doctoral-programme/#open-71871-phd-summer-school-2019>

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