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CALENDAR

Departmental Seminar Matteo Barigozzi (University of Bologna) "FNETS: Factor-adjusted Network Estimation and Forecasting for High-dimensional Time Series"	**Mon, May 16** 16:00 - 17:30 H 26
IOS Seminar Lisa Kahn (University of Rochester and IZA) "Trade and Race"	**Tue, May 17** 17:00 - 18:30 cancelled
Lunch Seminar Daniel Schnurr (University of Passau) "Competing with Artificial Intelligence in Digital Markets: The Impact of Learning Algorithms and Continuous Time"	**Wed, May 18** 12:00 - 13:00 H 26

Departmental Seminar

Matteo Barigozzi (University of Bologna)

"FNETS: Factor-adjusted Network Estimation and Forecasting for High-dimensional Time Series"

Joint Work with H. Cho and D. Owens

We propose FNETS, a methodology for network estimation and forecasting of high-dimensional time series exhibiting strong serial- and cross-sectional correlations. We operate under a factor-adjusted vector autoregressive (VAR) model where, after controlling for common factors accounting for pervasive co-movements of the variables, the remaining idiosyncratic dependence between the variables is modelled by a sparse VAR process. Network estimation of FNETS consists of three steps: (i) factor-adjustment via dynamic principal component analysis, (ii) estimation of the parameters of the latent VAR process by means of L1-regularised Yule-Walker estimators, and (iii) estimation of partial correlation and long-run partial correlation matrices. In doing so, we learn three networks underpinning the latent VAR process, namely a directed network representing the Granger causal linkages between the variables, an undirected one embedding their contemporaneous relationships and finally, an undirected network that summarises both lead-lag and contemporaneous linkages. In addition, FNETS provides a suite of methods for separately forecasting the factor-driven and the VAR processes. Under general conditions permitting heavy tails and weak factors, we derive the consistency of FNETS in both network estimation and forecasting. Simulation studies and real data applications confirm the good performance of FNETS.

Info:
in person

IOS Seminar

Lisa Kahn (University of Rochester and IZA)

"Trade and Race"

This paper examines how the labor market effects of import competition from China vary by race. Even though the relationship between import competition and manufacturing employment is similar for black and white workers who are exposed to competition from China, because black workers are less likely than white workers to live in areas or work in industries facing import competition, the overall effect of import competition on manufacturing employment is smaller for black workers. Moreover, black workers experienced greater relative gains in non-manufacturing employment as a result of increased imports from China.

Info:
cancelled

Lunch Seminar

Daniel Schnurr (University of Passau)

"Competing with Artificial Intelligence in Digital Markets: The Impact of Learning Algorithms and Continuous Time"

Joint Work with N. Horstmann and J. Krämer

In digital markets business decisions are increasingly taken by artificial intelligence (AI). Especially in e-commerce a growing share of retailers uses AI-driven pricing algorithms. However, policymakers have raised concerns about anti-competitive algorithmic collusion that could allow firms to soften competition. In this study, we investigate algorithmic collusion under different market conditions, scrutinize whether continuous time in itself facilitates tacit collusion and finally compare market outcomes for human and artificial intelligence. To this end, we first conduct an agent-based simulation with computer agents that employ reinforcement learning algorithms to automate their price setting in oligopoly markets. Second, we conduct a laboratory oligopoly experiment with human participants and compare market outcomes in discrete and continuous time. Our findings indicate that algorithmic collusion emerges across oligopoly markets with Bertrand and Cournot competition. Algorithmic agents achieve close to or more profitable market outcomes than the average outcome with humans for some market structures. However, agents do not consistently outperform humans. Moreover, we find no evidence that continuous time facilitates tacit collusion over discrete time. These findings have important policy implications for the regulation of AI-driven digital markets.

Info:
in person

PRESENTATIONS

Andreas Roider presented his paper "Management and Performance in the Public Sector: Evidence from German Municipalities" (joint with F. Englmaier, G. Mühlheusser and N. Wallmeier) at the "Colloquium in Honor of Prof. Dr. Urs Schweizer" at the University of Bonn on May 6.