

# Niccolò Lomys

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## Placement Officer

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## Education

**University of Mannheim**, Department of Economics  
*Ph.D. in Economics*, Expected Completion Date: Summer 2018

**Yale University**, Department of Economics  
*Visiting Assistant in Research*, August 2015–July 2016

**Barcelona GSE – Universitat Pompeu Fabra**, Department of Economics and Business  
*M.Sc. in Economics*, July 2012

**Università di Firenze**, Department of Statistics  
*M.Sc. in Statistics*, October 2011 (summa cum laude)

**Università di Firenze**, Department of Economics  
*B.A. in Business Economics*, April 2009 (summa cum laude)

## Short Research Visits

**University of Bonn**, Department of Economics (*Host*: Prof. Sven Rady), November 2017

## Research Interests

*Primary*: Microeconomic Theory, Information Economics

*Secondary*: Economics of Networks, Industrial Organization, Organizational Economics

## Teaching Interests

Microeconomics, Game Theory, Economics of Networks, Mathematics for Economics, Probability and Statistics

## Working Papers

1. “Learning while Trading: Experimentation and Coasean Dynamics” (*Job Market Paper*)
2. “Sequential Collective Search in Networks”

## Work in Progress

3. “Dynamic Foundations for Static Empirical Models of Strategic Interaction” (with Lorenzo Magnolfi and Camilla Roncoroni)
4. “Relational Learning Dynamics” (with Martin Peitz and Emanuele Tarantino)
5. “Competitive Experimentation with Heterogeneous Learning Modes” (with Francesco Paolo Conteduca)

## Teaching

### University of Mannheim — Teaching Assistant

Microeconomics A (*Bachelor in Economics*), Spring 2018

E 703: Advanced Econometrics I (*Ph.D. in Economics*), Fall 2016

E 700: Mathematics for Economists (*Ph.D. in Economics and Ph.D. in Business*), Fall 2013 and Fall 2014

BE 511: Business Economics II (*Master in Management*), Spring 2014

### Yale University — Teaching Fellow

ECON 121: Intermediate Microeconomics (*Bachelor in Economics*), Spring 2016

ECON 115: Introductory Microeconomics (*Bachelor in Economics*), Fall 2015

## Research Talks

### Seminars

2017: University of Bonn

Toulouse School of Economics

### Conference, Workshop, and Summer School Presentations

2017: EWMES 2017, Econometric Society European Winter Meeting, Barcelona (scheduled)

EARIE 2017, Annual Meeting of the European Association for Research in Industrial Economics, Maastricht

Summer School of the Econometric Society, Seoul

Petralia Workshop at Ortygia Business School, Siracusa

Bonn-Mannheim Economics Ph.D. Workshop, Mannheim

MaCCI IO Day, Mannheim

Annual Conference on Network Science and Economics, WUSTL, St. Louis

ENTER Jamboree, UCL, London

2016: UECE Lisbon Meetings in Game Theory and Applications, Lisbon

ESEM 2016, European Meeting of the Econometric Society, Geneva

GAMES 2016, World Congress of the Game Theory Society, Maastricht

## Summer Schools

The 5th Summer School of the Econometric Society, Seoul, Summer 2017

The 26th Jerusalem School in Economic Theory: Dynamic Games, Summer 2015

RES–York Summer School on Game Theory, Summer 2013

## Awards and Fellowships

Fontana Foundation Fellowship, 2012–2014 and 2017–2018

Villa Favard Award for the best GPA in master courses, School of Economics, Università di Firenze

## Miscellaneous

*Citizenship:* Italian

*Languages:* Italian (native), English (fluent), French (advanced intermediate)

## References

### Prof. Volker Nocke

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### Prof. Emanuele Tarantino

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### Prof. Martin Peitz

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### Prof. Thomas Tröger

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## Abstracts

### Learning while Trading: Experimentation and Coasean Dynamics (*Job Market Paper*)

I study a dynamic bilateral bargaining problem with incomplete information where better outside opportunities may arrive during negotiations. Gains from trade are uncertain. In a good-match market environment, outside opportunities are not available. In a bad-match market environment, superior outside opportunities stochastically arrive for either or both parties. The two parties begin their negotiations with the same belief on the type of the market environment. As arrivals are public information, learning about the market environment is common. One party, the seller, makes price offers at every instant to the other party, the buyer. The seller has no commitment power and the buyer is privately informed about his own valuation. This gives rise to rich bargaining dynamics. In equilibrium, there is either an initial period with no trade or trade starts with a burst. Afterwards, the seller screens out buyers one by one as uncertainty about the market environment unravels. Delay is always present, but it is inefficient only if valuations are interdependent. Whether prices increase or decrease over time depends on which party has a higher option value of learning. The seller exercises market power. In particular, when the seller can clear the market in finite time at a positive price, prices are higher than the competitive price. However, market power need not be at odds with efficiency. Applications include durable-good monopoly without commitment, wage bargaining in markets for skilled workers, and takeover negotiations.

### Sequential Collective Search in Networks

I study social learning in networks where rational agents act in sequence, observe the choices of their connections, and acquire private information via costly sequential search. The information structure of the model precludes information aggregation via martingale convergence arguments. I characterize perfect Bayesian equilibria of the model by linking individual search policies to the probability that agents select the best action. If (and only if) search costs are not bounded away from zero, an improvement principle holds although the inferential challenge significantly differs from that of the standard model with exogenous signals. I use this principle to show that asymptotic learning obtains in well-connected networks where information paths are identifiable. When search costs are bounded away from zero, even the weaker notion of maximal learning fails, except in ad hoc network topologies. Networks where agents observe (possibly correlated) random numbers of immediate predecessors share many equilibrium properties with the complete network, including the rate of convergence and the probability of wrong herds. Transparency of past histories has short-run (but not long-run) implications for welfare and efficiency. The simple policy intervention of letting agents observe the relative fraction of previous choices reduces inefficiencies and welfare losses.

### **Dynamic Foundations for Static Empirical Models of Strategic Interaction** (with Lorenzo Magnolfi and Camilla Roncoroni)

We propose the use of Bayes correlated equilibrium (BCE) as a restriction on cross-sectional outcomes when data are interpreted as the long-run result of a history of game plays. Agents interact repeatedly in a game of incomplete information, but the econometrician only observes a snapshot of this activity. We remain agnostic on the details of the process and only impose a minimal behavioral assumption describing an optimality condition for the long-term outcome of agents' interaction. In particular, we assume that play satisfies a property of "asymptotic no-regret" (ANR). This condition is weaker than the no-ex post regret property of pure-strategy Nash equilibria. It only requires that the time average of the counterfactual increase in past payoffs, had different actions been played, becomes approximately zero in the long run. A large class of well-known dynamics has the ANR property. Since we do not fully specify what the behavior of agents is or what they do to play according to this minimal requirement, we depart from the current literature on empirical dynamic games that typically imposes the Markov perfect (or related) solution concept. We show that, under the ANR assumption, it is possible to partially identify the structural parameters of agents' payoff functions. We establish our result in two steps. First, we prove that the time average of play that satisfies ANR converges to the set of  $\varepsilon$ -BCE of the underlying static game. To do so, we extend to incomplete information environments prior results on dynamic foundations for equilibrium play in static games of complete information. Second, we show how to use the limiting model to obtain consistent estimates of the parameters of interest.

### **Relational Learning Dynamics** (with Martin Peitz and Emanuele Tarantino)

We study how self-enforcing repeated relationships between a principal and multiple competing agents form and evolve over time in the presence of learning. The principal combines transfers (compensation) and non-monetary tools (replacement threat) to motivate the agents to engage in costly experimentation with innovative activities. Agents know whether innovation opportunities are available in each period, whereas the principal does not. Monitoring is imperfect (and public), but agents' strategies are private. Successful experimentation reduces the information asymmetry and parties become better able to specify the details of their cooperation in a relational contract. We characterize optimal incentive provision in two distinct market configurations: a deep market, with many agents, and a narrow market, where only two agents are available. Applications include managerial compensation and CEO rotation in innovative industries, and moral hazard problems in political economy.

### **Competitive Experimentation with Heterogeneous Learning Modes** (with Francesco Paolo Conteduca)

We study a continuous-time game of competitive experimentation in the exponential bandit framework. Two firms engage in a winner-takes-all race on two research lines. The first line is ex ante more profitable but risky: a discovery either delivers a positive lump-sum payoff or is a dead end; the return from the second line is certain but smaller. Research activities and dead ends are private information. Breakthroughs are public. The two firms differ in their ability to conduct innovative research: one firm does not learn from its own experimentation unless it observes an outcome; the other continuously revises its belief about the type of the risky line, the direction of the update depending on which outcome arrives with the highest intensity. Shutting down learning from own experimentation for both firms, the model is a version of Akcigit and Liu (2016). Two types of inefficiency arise in equilibrium. A dead-end inefficiency occurs when one firm discovers a dead end and switches silently to the safe line while the opponent does not, generating wasteful research. An information-externality inefficiency occurs when one firm switches too early to the safe line; indeed, without making a discovery or observing a breakthrough from the rival as time goes by, the firm becomes increasingly pessimistic about the profitability of the risky line. Asymmetric learning modes strongly affect the strategic interaction. In equilibrium, firms learn about the type of the risky line from two sources: their own research on the line (active learning), and from not observing a success from their competitor on either line (passive learning). When good outcomes arrive at a higher intensity than dead ends, active and passive learning reinforce each other, exacerbating the information-externality inefficiency and inducing both firms to abandon too early the risky project. If dead ends arrive at a higher intensity than good outcomes, active and passive learning push in opposite directions. In this case, if dead ends arrive sufficiently faster than good outcomes, the information-externality inefficiency disappears. In the intermediate cases, both inefficiencies arise, but the information externality is less severe. Our results highlight how standard industrial policies (e.g., taxes, R&D subsidies, and IP protection) may have adversarial effects instead of reducing the inefficiencies they target. In addition, we contribute to the theoretical literature on strategic experimentation by analyzing the role of heterogeneous learning modes on equilibrium outcomes.