

**Bargaining and Cooperation in Strategic Form Games**

*Sergiu Hart, Hebrew University of Jerusalem, Andreu Mas-Colell, Universitat Pompeu Fabra and Barcelona Graduate School of Economics*

In this paper we view bargaining and cooperation as an interaction superimposed on a game in strategic form. A multistage bargaining procedure for  $N$  players, the “proposer commitment” procedure, is presented. It is inspired by Nash’s two-player variable-threat model; a key feature is the commitment to “threats.” We establish links to classical cooperative game theory solutions, such as the Shapley value in the transferable utility case. However, we show that even in standard pure exchange economies the traditional coalitional function may not be adequate when utilities are not transferable.

**Delinquent Networks**

*Coralio Ballester, Universidad de Alicante, Antoni Calvo-Armengol, ICREA, Universitat Autònoma de Barcelona, and Yves Zenou, Stockholm University and Research Institute of Industrial Economics*

Delinquents are embedded in a network of relationships. Each delinquent decides in a non-cooperative way how much delinquency effort he will exert. We characterize the Nash equilibrium and derive an optimal enforcement policy, called the key-player policy. We then extend our characterization of optimal single player network removal to optimal group removal, the key group. We also characterize and derive a policy that targets links rather than players. Finally, we endogenize the network connecting delinquents by allowing players to join the labor market instead of committing delinquent offenses. The key-player policy turns out to be much more complex since it depends on wages and on the structure of the network.

**Peer Pressure**

*Antoni Calvo-Armengol, Universitat Autònoma de Barcelona, and Matthew O. Jackson, Stanford University and Santa Fe Institute*

We present a model where agents care about their neighbors’ actions and can pressure them to take certain actions. Exerting pressure is costly for the exerting agent and it can impact the pressured agents by either lowering the cost of taking the action (which we call “positive pressure”) or else by raising the cost of not taking the action (which we call “negative pressure”). We show that when actions are strategic complements, agents with lower costs for taking an action pressure agents with higher costs, and that positive pressure can improve societal welfare. More generally, we detail who gains and who loses from peer pressure, and identify some circumstances under which pressure results in fully (Pareto) optimal outcomes as well as circumstances where it does not. We also point out differences between positive and negative pressure.

**Keeping up with the Neighbors: Social Interaction in a Market Economy**

*Christian Ghiglino, University of Essex and Sanjeev Goyal, University of Cambridge*

We consider a world in which individuals have private endowments and trade in markets while their utility is negatively affected by the consumption of their neighbors. Our interest is in understanding how the social structure of comparisons, taken together with the familiar fundamentals of the economy (endowments, technology, and preferences), shapes equilibrium prices, allocations, and welfare. We show that equilibrium prices and consumption are a function of a single network statistic: centrality. An individual’s “centrality” is given by the weighted sum of paths of different lengths to all others in a social network. In particular, prices are proportional to the sum of centralities, and an individual’s consumption depends on how central she is relative to others in the network. Inequalities in wealth and connections reinforce each other in markets: a transfer of resources from less to more central agents raises prices. As segregated communities become integrated, the poor lose while the rich gain in utility!

### **What Do We Expect From Our Friends?**

*Stephen Leider, University of Michigan, Markus M. Möbius, Harvard University and National Bureau of Economic Research, Tanya Rosenblat, Iowa State University and Federal Reserve Bank of Boston, and Quoc-Anh Do, Singapore Management University*

We conduct a field experiment in a large real-world social network to examine how subjects expect to be treated by their friends and by strangers who make allocation decisions in modified dictator games. While recipients' beliefs accurately account for the extent to which friends will choose more generous allocations than strangers (i.e. directed altruism), recipients are not able to anticipate individual differences in the baseline altruism of allocators (measured by giving to an unnamed recipient, which is predictive of generosity towards named recipients). Recipients who are direct friends with the allocator, or even recipients with many common friends, are no more accurate in recognizing intrinsically altruistic allocators. Recipient beliefs are significantly less accurate than the predictions of an econometrician who knows the allocator's demographic characteristics and social distance, suggesting recipients do not have information on unobservable characteristics of the allocator.

### **Aspirations, Segregation and Occupational Choice**

*Dilip Mookherjee, Boston University, Stefan Napel, Universität Bayreuth, and Debraj Ray, New York University and Instituto de Análisis Económico*

This paper examines the steady states of an overlapping generations economy with a given distribution of household locations over a one-dimensional interval. Parents decide whether or not to educate their children. Educational decisions are affected by location: there are local complementarities in investment incentives stemming from aspirations formation, learning spillovers or local public goods. At the same time, economy-wide wages endogenously adjust to bring factor supplies into line with demand. The model therefore combines local social interaction with global market interaction. The paper studies steady-state configurations of skill acquisition, both with and without segregation, and the model is used to compare macroeconomic and welfare properties of segregated and unsegregated steady states.

### **Peer Effects and Peer Avoidance: The Diffusion of Behavior in Coevolving Networks**

*Constanza Fosco, Universidad Carlos III de Madrid, Matteo Marsili, Abdus Salam International Centre for Theoretical Physics, and Fernando Vega-Redondo, European University Institute and Instituto Valenciano de Investigaciones Económicas*

We study the long-run emergence of behavioral patterns in dynamic complex networks. Individuals can display two kinds of behavior: G "good" or B "bad". We assume that the exposure of a G agent to bad behavior on the part of peers/neighbors triggers her own switch to B behavior, but only temporarily. We model the implications of such peer effects as an epidemic process in the standard SIS (Susceptible-Infected-Susceptible) framework. The key novelty of our model is that, unlike in the received literature, the network is taken to change over time within the same time scale as behavior. Specifically, we posit that links connecting two G agents last longer, reflecting the idea that B agents tend to be avoided. The main concern of the paper is to understand the extent to which such biased network turnover may play a significant role in supporting G behavior in a social system. And indeed we find that network coevolution has nontrivial and interesting effects on long-run behavior. This yields fresh insights on the role of (endogenous) peer pressure on the diffusion of (a)social behavior and also has some bearing on the traditional study of disease epidemics.

### **Matching and Network Effects**

*Marcel Fatchamps, University of Oxford, Sanjeev Goyal, University of Cambridge, and Marco J. van der Leij, University of Cambridge and University of Alicante*

The matching of individuals in teams is a key element in the functioning of an economy. The network of social ties can potentially transmit important information on abilities and reputations and also help mitigate matching frictions by facilitating interactions among 'screened' individuals. We conjecture that the probability of two individuals forming a team is falling in the distance between the two individuals in the network of existing social ties. The objective of this paper is to empirically test this conjecture. We examine the formation of coauthor relations among economists over a twenty-year period. Our principal finding is that a new collaboration emerges faster among two researchers if they are "closer" in the existing coauthor network among economists. This proximity effect on collaboration is strong: being at a network distance of 2 instead of 3, for instance, raises the probability of initiating a collaboration by 27%.

### **Adoption Curves and Social Interactions**

*William A. Brock, University of Wisconsin at Madison and Steven N. Durlauf, University of Wisconsin at Madison*

This paper considers the observational implications of social influences on adoption decisions for an environment of perfect foresight adopters. We argue that social influences can produce two observable effects: (1) discontinuities in unconditional adoption curves and (2) pattern reversals in conditional adoption curves, in which earlier adoption is found for one group of actors versus another when fundamentals suggest the reverse ordering should occur; in turn the presence of either of these features can, under weak assumptions, be interpreted as evidence of social influences. As such, these properties are robust implications of social effects.