coalition theory network Jalir

newsletter

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Editorial

by Rahmi İlkılıç, Maastricht University

Dear All,

This year the CTN workshop was held in Maastricht University. The growing interest in the event was manifested as an increase in both the participants and the presentations. There were three parallel sessions and we regretfully had to reject several high quality submissions. The main themes of the workshop were Matching, Coalitions, Networks and Behavior. The state-of-the-art presentations were exemplified by the behavioral and experimental studies which analyze social networks. We would like to thanks all the presenters, discussants and participants. We are especially grateful to our invited speakers Jacob Goeree. Matthew Jackson and Alvin Roth.

We would like to remind the PET Conference which will be held in June in Galway, Ireland. The event will host two sessions for CTN papers. Following the conference there will be a PET Workshop in Lyon, France, on Public Economics: Behavioral and Experimental Approaches. Also FEEM will host the international workshop on Coalitions for Climate Change in June in Venice. The Conference in Economic Design will take place in Maastricht University in June.

The 2010 CTN Workshop will be held in June by GREQAM, in Marseille. A more detailed announcement of the event will be made available in due time. We warmly invite you to stay tuned on the CTN web page for updates. We are looking forward to meet you in these and other events.

Rahmi İlkılıç

CTN Announcements

CTN SESSIONS AT PET 09 GALWAY

Galway, Ireland, June 18-20, 2009

http://www.feem-web.it/ctn/22 pet 2009.php

The Association for Public Economic Theory will hold its tenth international meeting at the National University of Ireland, Galway, on June 18-20 2009. As with previous PET conferences, papers in all aspects of public economics and related areas will be presented (see www.apet.org for more information). Keynote speakers will be:

Ehud Kalai (Northwestern University)

Hubert Kempf (Banque de France)

Andreu Mas-Colell (Universitat Pompeu Fabra)

The Coalition Theory Network will organise some sessions within the PET 09. CTN encourages the development and the circulation of new research on coalition theory and group formation. Straightforward application of such theories is important in both economical and political areas, such as the study of international negotiations, the analysis of coalition formation in parliaments and the cabinet formation, the cartel stability in various industries and finally, group formation in various sociological environments.

Papers can be posted at http://www.accessecon.com/pubs/PET09/.

The deadline for submissions is March 25, 2009.

JPET SPECIAL ISSUE ON CTN TOPICS

http://www.feem-web.it/ctn/events/09 Maastricht/ctn14j.htm

The 14th Annual Meeting of the Coalition Theory Network was held at Maastricht on January 23-24, 2009. A special issue of Journal of Public Economic Theory focusing on the topics of the conference is being edited by Francis Bloch (Ecole Polytechnique), Jean-Jacques Herings, and Bettina Klaus (University of Maastricht).

Submissions to the special issue can be made on the JPET website at www.jpet.net.

It is not necessary to have participated in the conference to submit a paper to the special issue.

The deadline for submissions is April 30, 2009.

COALITIONS FOR CLIMATE COOPERATION. A GAME-THEORETIC ANALYSIS OF POST 2012 CLIMATE POLICY

Venice, Italy, June 15 - 16, 2009

→ http://www.iccgov.org/events-1 CONF 2009-02.htm#Background

The International Workshop on Coalitions for Climate Cooperation. A Game-Theoretic Analysis of Post 2012 Climate Policy, organised by the International Center for Climate Governance (ICCG) in cooperation with ETH Zürich, will be held in Venice, on June 15 - 16, 2009, and will take place in the magnificent scenario of the Fondazione Giorgio Cini. Planned topics:

- i. Analysis of basic participation incentives (marginal abatement costs and damages) in this a future decades
- ii. Main lessons for future climate negotiations coming from game-theoretic models.
- iii. Static and dynamic analysis of coalition formation (possibly accounting for other factors affecting interactions among players such as trade, finance, terrorism, technology, ...).
- iv. Insights for the design of future climate agreements from existing numerical climate economy models.

Both theoretical and applied analysis and model improvements will be presented to shed light on the incentive structure behind climate negotiations and on the features of a possible future climate agreement.

PET 09 WORKSHOP ON BEHAVIOURAL AND EXPERIMENTAL APPROACHES TO PUBLIC ECONOMICS

Lyon, France, June 22-24, 2009

http://www.accessecon.com/pubs/PETLyon09/

The PET09 Workshop will be held in Lyon, France, on 22-24 June 2009. invited Speakers will be: John List (University of Chicago) and Charles Plott (Caltech).

Papers can be posted at http://www.accessecon.com/pubs/PETLyon09/.

Submission of papers on these topics is open until, March 30, 2009.

CALVÓ-ARMENGOL INTERNATIONAL PRIZE IN ECONOMICS

→ http://research.barcelonagse.eu/Calvo-Armengol-Prize.html

In May 2008, the Calvó-Armengol International Prize was set up to honor the memory of GSE Affiliated Professor and ICREA-UAB Professor Antoni Calvó-Armengol, a beloved member of the GSE community and highly esteemed researcher who passed away unexpectedly in November 2007 at the age of 37.

The prize endeavours to become one of the most prestigious prizes recognizing young economists and social scientists. It will be awarded bi-annually to a top researcher in economics or social sciences younger than 40 years old for his or her contribution to the theory and comprehension of the mechanisms of social interaction.

The prize is funded by the Government of Andorra - Toni's home country -, the Fundació Crèdit Andorrà, and the Barcelona GSE. It will be coordinated by GSE Affiliated Professor Montse Farell (UAB), and the recipient will be chosen by a committee headed by GSE Scientific Council Member Matthew O. Jackson (Stanford University). The prize will include an international workshop, organized by the recipient, as well as an associated "Calvó-Armengol Lecture", to be delivered by the recipient in Barcelona.

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Recent Events

14th Coalition Theory Network Workshop: Maching, Coalition Networks and Behavior

Maastricht, The Netherlands, January 23-24, 2009

http://www.feem-web.it/ctn/events/09_Maastricht/ctn14i.htm

Articles presented

Alessandro Tavoni, FEEM and Rahmi Ilkiliç, Maastricht University

PLENARY SESSION 1

Jacob Goeree

Network Experiments

Jacob Goeree presented results from an experiment on giving among agents embedded in a friendship network, which was run at a girls-only private U.S. high school in Pasadena, California. The study involved students of different ethnic backgrounds who were asked to play a sequence of dictator games with their peers; the experimental data on dictator giving was combined with data collected on friendship networks and individual characteristics. Previous studies had investigated the role of homophily in networks from a theoretical standpoint, but this is one of few experiments dealing with it, and very

neat results are found. More specifically, Goeree showed that dictator giving is primarily explained by social distance, defined as the length of the shortest path connecting a dictator and recipient in their network of friends. Moreover, significant homophilous behavior was traced among the girls, meaning that students tend to connect to others similar to them (in terms of ethnicity), as well as revealing a strong preference for cliques (connecting to those that are already close).

Antonio Nicolo

Feasibility constraints and protective behavior in efficient kidney exchange

Antonio Nicolò's contribution nicely enriches the growing literature on mechanism design aimed at

increasing the performance of (or propose new systems for creating markets for) exchange. The field, pioneered by Alvin Roth, has both theoretical and very practical challenges that, if solved, can save many human lives. Nicolò shows that the challenges of organizing larger than pairwise exchanges among donors can be daunting and might prove to be harder in practice than under Roth's more restrictive assumptions. In particular, under Antonio's assumption of heterogeneous preferences over the set of compatible kidneys, the efficiency gains of making possible cycles larger than pairwise exchanges can be overcome by the impossibility of eliciting truthful information from patients. In practical terms, given that having six operating rooms and six surgical teams available at the same time (condition required to have 3-feasibility), this work puts some doubts on the economic advantage of these investments for the healthcare service.¶

Paolo Pin

Optimizing public goods in networks

Paolo Pin's paper represents a theoretical contribution to the design of an implementable mechanism aimed at reaching an optimal equilibrium in the best shot game. The latter can be considered a special public good provision game, where every agent decides whether to exert or not a fixed costly effort that is beneficial for herself but also for her neighbors, yielding the typical situation of conflicting incentives and temptation to free ride on the effort of others. In order to clarify the context, Paolo introduced some potential applications: in particular, given the low costs of shifting between strategies and repeated interaction implied by the proposed mechanism, he referred to the case of a firm encouraging people to share cars in order to minimize parking places. In this setting, the employee's actions would be to either take the car to work or to opt out of driving if a friend of her gives her a lift. The main question is: will a social planner be able to build a mechanism that would incentivize the agents to move towards an optimal state that minimizes the number of agents exerting the costly effort? The answer is only theoretical but positive: at the limit of infinite time such a mechanism exists, and it will lead to the optimal state with probability one.¶

Harold Houba

<u>Discrete sets of alternatives and costless</u> <u>delay in negotiations</u>

Bloch and Diamantoudi apply a coalitional bargaining model to a class of hedonic games capturing two-sided markets and network problems. They consider pure stationary strategies and no discounting. For the roommate

problem they report nonexistence of stationary subgame perfect equilibria (SSPE).

This paper addresses several methodological issues:1. Can we apply the one-stage deviation principle, which is valid under continuity at infinity, in the absence of discounting? 2. Can we apply the familiar recursive equations of dynamic programming under no discounting? 3. Can we establish existence of SSPE in mixed strategies? 4. What do mixed strategies yield for the roommate problem?

These issues are studied in a bargaining model with discrete set of alternatives in which the negotiations end after the first coalition forms.

Gilles Grandjean

Strongly rational sets for normal-form games

Curb sets [Basu and Weibull, Econ. Letters 36] (1991), 141-146] are product sets of pure strategies containing all individual best-responses against beliefs restricted to the recommendations to the remaining players. Prep sets [Voorneveld, Games Econ. Behav. 48 (2004), 403-414] only require that the product sets contain at least one best response to such beliefs. While the concepts of curb and prep sets are set-theoretic coarsenings of the notion of Nash equilibrium, we introduce the concepts of strong curb sets and prep sets which are set-theoretic coarsenings of the notion of strong Nash equilibrium. We require the set to be immune not only against individual deviations, but also against group deviations. We show that every game has at least one minimal strong curb (prep) set. Minimal strong curb (prep) sets are compared with strong Nash equilibria, coalition-proof Nash equilibria and the set of coalitionally rationalizable strategies. Finally, we provide a dynamic learning process leading the players to playing strategies from a minimal strong curb set.

Carlo Martini

Deliberation in networked groups

How do groups reach a collective decision? One option is to apply some voting scheme and aggregate the individual judgments. By doing so, the group reaches a compromise as not everybody agreed with the compromise. A compromise is accepted by individual voters insofar as a decision must be made, but, individually, they may still believe that the judgment they originally submitted is the right one. This procedure is rather unusual for small and medium sized groups. Here, the various group members deliberate and change their judgments in the light of the judgments of others. Studying the deliberation process has attracted a lot of interest in the recent literature in philosophy and the social sciences (Aaken et. al. 2004). At the same time, in the past decade the study of social networks has been an area of

extensive study in the social sciences (Jackson 2008). The aim of this paper is to bring the two strands of research together. More specifically, the authors make deliberation models more realistic by taking into account dependencies between the various group members.

Cagatay Kayi

Allocation rules on networks

Given geographical or infrastructure constraints, it is important to understand how scarce resources should be allocated. An example where such network constraints are essential is water resources. We depict the water distribution infrastructure as a network between sources and cities which are linked by rivers and pipelines. In a stylized model, we assume that sources are only connected to cities and cities are only connected to sources. We define the proportional rule, the constrained equal awards and the constrained egual losses rules and give algorithms how to calculate these allocation rules. The objective is to identify allocation rules that are well-behaved from the normative and strategic viewpoints. In addition to efficiency, we look for distributional fairness. We also give axiomatic characterizations of before mentioned rules.

Guillaume Haeringer

<u>Constrained school choice: An experimental study</u>

The literature on school choice assumes that families can submit a preference list over all the schools they want to be assigned to. However, in many real-life instances families are only allowed to submit a list containing a limited number of schools.

Subjects' incentives are drastically affected, as more individuals manipulate their preferences. Including a safety school in the constrained list explains most manipulations. Competitiveness across schools play an important role. Constraining choices increases segregation and affects the stability and efficiency of the final allocation. Remarkably, the constraint reduces significantly the proportion of subjects playing a dominated strategy.

Ahmet Alkan

On matchability when preferences are restricted to shortlists

Centralized university student matching institutions, in Turkey, China and many other countries, operate essentially as in the Gale Shapley college admissions model: Students submit their orderings for university seats they have in mind, universities order students based on their scores in national exams and secondary

school grade point averages, a stable matching is computed and enforced.

A particular criticism directed at this practice is that, not having the opportunity for any close look at individual students beyond what their scores reveal, university orderings disregard much in fact relevant information, leading deterioration in pre-university education. remedial institution is two-stage shortlist matching, whereby in the first stage students and university seats are each matched with a shortlist of, say k; candidates. utilizing a stable multipartner matching procedure but with the coarse university orderings based on scores. In the second stage, universities and students are allowed to take a closer look at their potential mates in the shortlists and submit orderings subsequently. A stable that assigns each student to at most matching one university is then computed and enforced. The present paper offers an exploration on the matchability of participants in this setting, namely the likelihood that will assign a student to a university that was in her shortlist at the conclusion of the first stage.

Alessandro Tavoni

Incorporating fairness motives into the impulse balance equilibrium

Alessandro Tavoni's work represents a gametheoretic effort aimed at advancing stationary equilibrium concepts in agreement with empirical evidence from experiments played by a population of players. One key premise of his proposed work is that substantial evidence has accumulated in recent empirical works on the limited ability of the Nash equilibrium to rationalize observed behavior in many classes of games played by experimental subjects. This realization has led to several attempts aimed at finding tractable equilibrium concepts which perform better empirically. Alessandro's paper is concerned with advancing two new, empirically sound, concepts: equitydriven impulse balance equilibrium (EIBE) and equity-driven quantal response eauilibrium (EQRE): both introduce a distributive reference point to the corresponding established stationary concepts known as impulse balance equilibrium (IBE) and guantal response equilibrium (QRE). The proposed introduction of considerations to stationary concepts accords well with experimental data, as reflected by the data presented on the explanatory power of the models which, starting with the most successful in terms of fit to the experimental data, ranked as follows: EQRE, IBE, EIBE, QRE and Nash equilibrium.

Friederike Mengel

Cooperation through imitation and exclusion in networks

Friederike Mengel's effort dealt with modeling the coevolution of interaction structures and action choices in Prisoners' Dilemma games. This is done by endogenizing the network formation by allowing, loosely speaking, some assortative structuring of the population (players decide who to form links with). A further distinctive modeling choice is that agents display the same degree of limited rationality in their linking and action decisions. That is, cooperators and defectors use the same decision rules and display the same degree of rationality in both decisions, by imitating successful behavior (as opposed to best reply behavior). In terms of the theoretical results, Mengel has shown that coexistence of defectors and cooperators is stochastically stable. In particular, two scenarios arise, namely full separation and marginalization. In the former, where agents hold some information beyond their interaction radius, defectors and cooperators are found in two segregated components. Conversely, in the marginalization scenario, where agents only hold information about their first-order neighbors only (with whom they interact), networks in stochastically stable states have a center of cooperators and a periphery of defectors.

Rahmi Ilkilic

<u>Cournot competition on a network of markets and firms</u>

The paper analyzes a situation where firms and markets form a network. Firms can only sell to the markets to which they are connected to. The competition in each market is a la Cournot. Markets have linear inverse demand functions and firms have concave quadratic costs. We show that there exists a unique Cournot equilibrium. Each firms' quantity decisions are determined by the network structure and we provide a formula which expresses the quantities in terms of a network centrality measure.

Itay Fainmesser

Community structure and market outcomes

This paper suggests a framework for the analysis of repeated games in buyer-seller networks. We characterize the future values of connections and the effective discount factors that sellers use in interactions with different buyers. These values are important for the ability to cooperate and maintain trust between buyers and sellers in environments with asymmetric information and moral hazard. To sustain high links, values, networks need to be balanced with respect to the degree distributions of buvers and sellers. Even so, there are limits on the number of connections in the network if cooperation and trust are to be sustained. We explore the effects of globalization and show that segregation helps to sustain cooperation; in the lack of geographic constraints,

segregation along other dimensions can rise. This is consistent with labor market phenomena, as well as with more general observations as homophily and clubs. Applications include labor markets and the credit industry.

Vincent Buskens

Social motives in networks formation: An experiment

Vincent Buskens presented the results of an experiment aimed at investigating whether people show preferences that involve the outcomes of others during network formation. In the paper, van Dolder and Buskens have found supporting evidence for the importance played by social motives in shaping networks, for the settings they compared in the experiment. This evidence, while not always unilateral in terms of the interpretation. is an important step in moving beyond the classical literature on network formation, which typically assumes that people create and remove relations as to maximize their outcome in the network. In particular, the author pointed out that it is mostly neglected that people might also care about the outcomes of others when creating and removing links.

Arno Riedl

<u>Directed generosity in social and economic</u> <u>networks</u>

Arno Riedl's presentation on the paper "Directed generosity in social and economic networks", nicely matches the work presented by Jacob Goeree, since it also shows that social networks affect (and are affected by) giving behavior. In particular, the main result of the experiment he presented is that networks matter for giving behavior and that, in turn, network effects depend on the content of networks. Such conclusions were reached by asking whether the network structure and network embeddedness can account for the variation observed in individual generosity, and if the influence of network structure and position is invariant across networks of different social and economic contents. Other findings concerning observable individual characteristics are that, after controlling for network effects, only gender has explanatory power. Moreover the authors found that, in contrast to many other studies, women are less generous than men, especially when the recipient is male. An additional interesting final result is that certain individual characteristics are important determinants of link formation in all elicited observable networks. suggesting that characteristics might indirectly affect giving behavior via the network effects.

Ryo Kawasaki

<u>Dynamics</u>, <u>stability</u>, <u>and foresight in the</u> Shapley-Scarf housing market

While most of the literature starting with Shapley and Scarf (1974) have considered a static exchange economy with indivisibilities, this paper studies the dynamics of such an economy. We find that both the dynamics generated by competitive equilibrium and the one generated by weakly dominance relation, converge to a set of allocations we define as strictly stable, which we can show to exist.

Moreover, we show that even when only pairwise exchanges between two traders are allowed, the strictly stable allocations are attained eventually if traders are sufficiently farsighted.

Markus Walzl

Farsighted stability for roommate markets

With a simple bi-choice graph technique we show that a matching for a roommate market indirectly dominates another matching if and only if no blocking pair of the former is matched in the latter. Using this characterization of indirect domination, investigate farsighted von Neumann-Morgenstern stable sets. We show that a Neumann-Morgenstern singleton is von farsightedly stable if and only if the matching is stable. We also provide other results that give insights on the structure of farsighted von Neumann-Morgenstern stable sets.

Luca Merlino

Endogenous job contact networks

We use the UK Quarterly Labour Force Survey to document the presence of: one, a positive correlation between unemployment rate and the proportion of job seekers who use social networks to find jobs-network use-, and, two, a nonmonotone relation between unemployment rate and the proportion of job seekers who found jobs through friends or relatives{network productivity. This second relation is positive for low levels of unemployment rate, while it becomes negative for high levels of unemployment rate. Existing models of social networks and labor market generally assume that social networks are exogenous. This a negative correlation assumption implies between unemployment rate and network productivity. We develop a model where social networks are used to collect job offers, but workers decide strategically how much to invest in their network. We show that equilibrium job contact networks are dense and more productive in transmitting information when labor market turnover is moderate, while they are less productive and segmented into clusters for either high or low turnover. The equilibrium response of job contact networks to changes in labor market conditions is sufficient to generate the empirical patterns which we document for the UK.

Adrien Vigier

<u>Globalization</u>, <u>education</u>, <u>and the topology of</u> social networks

The paper suggests a possible framework to analyze the impact of changes to the economic and social environment on the topology of networks formed. Economic (costs) and social (norms) constraints bind individuals in their ability to create ties with others. When global phenomena affect these constraints, the overall shapes of resulting networks naturally alter.

PLENARY SESSION 2

Matthew Jackson

<u>How Homophily Affects Communication in</u> Networks

Matthew Jackson's plenary presentation was based on his joint work with Banjamin Golub on the effects of homophily in communication networks. Homophily – the tendency of individuals to associate with those similar to themselves – is a well documented aspect of social networks. Homophily can be observed along racial, generational, ethnic, professional, religious or behavioral lines. The paper studies the impact of homophily on the diffusion of information, the formation of consensus, or other forms of social learning and communication.

The main results show that whether or not homophily has an impact depends on the communication process. In particular, processes based on shortest paths are unaffected by homophily, while averaging processes and walks are affected and can be random substantially slowed down by homophily. The intuition behind these results is that homophily does not affect the average distance between nodes in a network if connectivity is held constant, but it does affect the relative numbers of paths between various pairs of agents. Thus, even though there may be fewer paths between agents of different types, the average shortest path length between them does not change substantially with homophily. So processes in which information must simply traverse a shortest path have essentially the same behavior as homophily changes. In contrast, processes based on weighted averaging or random walks are slowed substantially down as homophily increases. This is because even though the average path length is unchanged, there are relatively fewer paths between agents of different types as homophily increases. This means that nodes are more influenced by others of their own type, which reinforces global heterogeneity in beliefs or behaviors and slows down convergence to a steady state.

Hubert Kempf

Risk sharing and endogenous group formation

We study the complete segmentation of society into "risk-insuring groups".

- We assume that agents precommit (as in Townsend). That is, individuals cannot deviate and leave their coalition after the realization of shocks.
- We study the impact of the variance schedule on segmentation and the management of risk when individuals are free to form coalitions.
- We characterize and discuss the optimal partition of society into "risk-managing coalitions".
- We discuss the empirical implications of this partitioning of society.

Marc Kilgour

Kingmakers and leaders in coalition formation

Assume that players strictly rank each other as coalition partners. We propose a procedure whereby they "fall back" on their preferences, internally compatible, or coherent, vieldina majority coalition(s), which we call fallback coalitions. If there is more than one fallback coalition, the players common to them, or kingmakers, determine which fallback coalition will form. The players(s) who are the first to be acceptable to all other members of a fallback coalition are the leader(s) of that coalition. The effects of different preference assumptions particularly, different kinds of singlepeakednessand of player weights on the number of coherent coalitions, their connectedness, and which players become kingmakers and leaders are investigated. The fallback procedure may be used (i) empirically to identify kingmakers and leaders or (ii) normatively to select them.

Elena Molis

<u>How rational agents are when they look for a partner: Experimental results</u>

Elena Molis presented the results of an experiment aimed at studying the decentralized decision-making of agents in roommate markets. The objective is that of forming a finite sequence of (myopic) blocking pairs to a stable matching. Elena described the problem as a repeated roommate market one, and analyzed convergence outcomes of this process under different information scenarios. The main results of the experiment are as follows: firstly, the vast majority of agents behave as theory predicts under different levels of information, although a small proportion of agents make decisions which make them get worse respect to the current matching, especially when agents know others' preferences, which affects the stability. Secondly, Elena showed that agents do not always seek to maximize their payoffs, but in an effort to obtain a

new partner to improve on their status quo, they can end up with one that is not the best available match.

• Ingrid Rohde

Choosing interaction partners induces maximum effort in the minimum effort game

Ingrid Rohde presented experimental work on the impact of endogenous interaction choice on behavior and welfare in the minimum effort game. In one treatment of the experiment, subjects were asked to play the minimum effort game within their chosen neighborhood, which is determined by two sided costless link formation. In the other treatment, the minimum effort game was played with all group members. The first result she showed is that the choice of interaction partners leads to unanimous coordination on the payoff dominant equilibrium. Both the average and minimum effort levels are significantly higher in the former treatment (involving the chosen neighborhood) and quickly approached the maximum effort. Moreover, effort levels increased over time, (whereas they decrease in the treatment involving all group members). Another relevant finding was that, when given the option, subjects costly excluded players who chose the minimum effort, thereby creating an incentive for these players to increase their effort. At the same time. Ingrid showed that subjects understood that from an efficiency point of view, it is most beneficial to interact with all other group members. In fact, in the assortative treatment, welfare even approached the optimal level (all subjects interact with each other and coordinate on the maximum effort level).

Edoardo Gallo

<u>Small world networks with segregation</u> <u>patterns and brokers</u>

Many social networks have the following five properties: (i) a short average distance between any two individuals; (ii) a high clustering coefficient; (iii) segregation patterns; the presence of (iv) brokers and (v) hubs. (i) and (ii) are the definition of a small world network. This paper develops a strategic network formation model where agents have heterogeneous knowledge of the network: cognizant agents know the whole network. while ignorant ones are less knowledgeable. For a broad range of parameters, all pairwise Nash (PN) networks have properties (i)-(iv). There are some PN networks with one hub. Cognizant agents have higher betweenness centrality: they are the brokers who connect different parts of the network. Ignorant agents cause the emergence of segregation patterns. The results are robust to varying the number of cognizant agents and to increasing the knowledge level of ignorant ones.

Dotan Persitz

Power in the heterogeneous connections model: The emergence of core-periphery networks

The heterogeneous connections model is a generalization of the homogeneous connections model of Jackson and Wolinsky (1996) in which the intrinsic value of each connection is set by a discrete, positive and symmetric function that depends solely on the types of the two end agents. Core periphery networks are defined as networks in which the agents' set can be partitioned into two subsets, one in which the members are completely connected among themselves and the other where there are no internal links. A two-type society is defined as "power based" if both types of agents prefer to connect to one of the types over the other, controlling for path length.

An exhaustive analysis shows that core periphery networks, in which the "preferred" types are in the core and the "rejected" types are in the periphery, are crucial in the "power based" society. In particular, if the linking costs are not too low and not too high, at least one such network is pairwise stable. Moreover, in many cases these networks are the unique pairwise stable networks and in all cases they are the unique strongly efficient networks. The set of efficient networks often differs from the set of pairwise stable networks, hence a discussion on this issue is developed. These results suggest heterogeneity accompanied by "power based" linking preferences as a natural explanation for many core-periphery structures observed in real life social networks.

Berno Buechel

Under-connected and over-connected networks

Since the seminal contribution of Jackson & Wolinsky 1996 [A Strategic Model of Social and Economic Networks, JET 71, 44-74] it has been widely acknowledged that the formation of social networks exhibits a general conflict between individual strategic behavior and collective outcome. What has not been systematically are the sources of inefficiency. We approach this gap by analyzing the role of positive and negative externalities of link formation. We find general results that relate situations of positive externalities with stable networks that cannot be "too dense" in a well-defined sense, while situations with negative externalities, tend to induce "too dense" networks.

Robin Cowan

Fits and misfits: patent races on innovation networks

This paper presents an economic model of R&D network formation through the creation of strategic alliances. Firms are randomly endowed with knowledge elements. They base their alliance decisions purely on the "technological fit" of potential partners, ignoring social capital considerations and indirect benefits on the network. This is sufficient to generate equilibrium networks with the small world properties of observed alliance networks, namely short pairwise distances and local clustering.

The equilibrium networks are more clustered than "comparable" random graphs, while they have similar characteristic path length. Two extreme regimes of competition are examined, to show that while the competition has a quantitative effect on the equilibrium networks (density is lower with stronger competition), the small world features of the equilibrium networks are preserved.

Thayer Morrill

The roommates problem revisited

One of the oldest but least understood matching problems is Gale and Shapley's (1962) "roommates problem": is there a stable way to assign 2N students into N roommate pairs? Unlike classic marriage problem or college admissions problem, there need not exist a stable solution to the roommates problem. However, the traditional notion of stability ignores the key physical constraint that roommates require a room, and it is therefore too restrictive. Recognition of the scarcity of rooms motivates replacing stability with Pareto optimality as the relevant solution concept. The main contributions of this paper are to completely characterize the set of Pareto improvements of any assignment and to provide an efficient algorithm for finding a Pareto improvement starting from any status quo. In this way, the paper reframes a classic matching problem, which previously had no general to become both solvable solution. economically more meaningful.

Avner Shaked

Finding a match in a shrinking population

A population consists of various types of individuals differing in their contribution to their partner.

Individuals meet at random, observe the type of the other and decide whether to form a pair. The population shrinks because pairs leave and individuals die. The paper studies this model of nonstationary search and characterizes the decision of each type as a function of time.

Laszlo Koczy

Stationary quasi-perfect equilibrium partitions constitute the recursive core

We study coalition formation games with externalities and fixed payoff division. Numerous cooperative and noncooperative models have been proposed to solve such games. We introduce a noncooperative sequential coalition formation game and study the stationary quasi-equilibria of this game: equilibria, where subgame perfecness is not required in some irrelevant subgames. Using this concept we link the cooperative and non-cooperative literature showing that the recursive core coincides with the stationary quasi-perfect equilibria of the sequential coalition formation game.

Ana Mauleon

Connections among farsighted agents

We study the stability and efficiency of social and economic networks when players are farsighted. In particular, we examine whether the networks formed by farsighted players are different from those formed by myopic players. We adopt Herings, Mauleon and Vannetelbosch's (Games and Economic Behavior, forthcoming) notion of pairwise farsightedly stable set. We first investigate in some classical models of social and economic networks whether the pairwise farsightedly stable sets of networks coincide with the set of pairwise (myopically) stable networks and the set of strongly efficient networks. We then provide some primitive conditions on value functions and allocation rules so that the set of strongly efficient networks is the unique pairwise farsightedly stable set. Under the componentwise egalitarian allocation rule, the set of strongly efficient networks and the set of pairwise (myopically) stable networks that are immune to coalitional deviations are the unique pairwise farsightedly stable set if and only if the value function is top convex.

Jeanne Hagenbach

Strategic communication networks

In this paper, we consider situations in which individuals want to choose an action close to others' actions as well as close to a payoff relevant state of nature with the ideal proximity to the common state varying across the agents. Before this coordination game with heterogeneous preferences is played, cheap а communication stage is offered to players who decide to whom they reveal the private information they hold about the state. The strategic information transmission taking place in the communication stage is characterized by a strategic communication network. We provide a direct link between players' preferences and the strategic communication network emerging at equilibrium, depending on the strength of the coordination motive and the prior information structure. Equilibrium strategic communication networks are characterized in a very tractable way and compared in term of efficiency. In general, a maximal strategic communication network may not exist and communication networks cannot be ordered in the sense of Pareto.

However, expected social welfare always increases when the communication network expands.

Strategic information transmission can be improved when group or public communication is allowed, and/or when information is certifiable.

• Frank Page

Emergent network dynamics and strategic social interactions

In all social and economic interactions, individuals or coalitions choose not only with whom to interact but how to interact, and over time both the structure (the with whom) and the strategy (the how) of interactions change. Our objectives here are to model the structure and strategy of interactions prevailing at any point in time as a directed network and to address the following open question in the theory of social and economic network formation: given the rules of network formation, the preferences of individuals over networks, the strategic behavior of coalitions in forming networks, and the trembles of nature. what network dynamics are likely to emergence and persist. Our main contributions are (i) to formulate the problem of network formation as a dynamic, stochastic game, (ii) to show that this possesses stationary game а correlated equilibrium (in coalitional network formation strategies), and (iii) to show that, together with the trembles of nature, this stationary correlated equilibrium determines a network dynamic which respects the rules of network formation and the preferences of individuals. Moreover, we show that this emergent network dynamic possesses a nonempty set of ergodic measures and generates a finite, disjoint collection of nonempty subsets of networks, each constituting a basin of attraction. The results we obtain here for endogenous network dynamics and stochastic basins of attraction are the dynamic analogs of our earlier results on endogenous network formation and strategic basins of attraction in static, abstract games of network formation (Page and Wooders, 2008).

Alexey Kushnir

Matching markets with signals

A costless signaling mechanism has been proposed as a device to improve welfare in decentralized two-sided matching markets. An example of such an environment is a matching market of new economic Ph.D. candidates (students) applying to economic departments (programs) for faculty positions. We study a

decentralized market game of incomplete information and show that costless signaling is actually harmful for some matching markets. Specifically, if agents have almost aligned preferences, signaling lessens the total number of matches and the welfare of programs, as well as it affects ambiguously the welfare of students. These results run contrary to previous studies and the belief, that costless signaling facilitates match formation.

Alexander Westkamp

Breaking ties in school choice: Specialized schools and walk-zones

study school choice problems indifferences in priority orders and provide necessary and sufficient conditions for the existence of a strategy proof and student optimal matching, or constrained mechanism. As a first step, we analyze the case in which no school can admit more than one applicant, and schools are either specialized, i.e., have a strict priority ranking of all applicants. or non-specialized, i.e., all applicants have equal priority. We show that a strategy-proof and constrained efficient mechanism exists if and only if there are no unsolvable four-way ties. The proof of existence is constructive and uses a deferred acceptance algorithm with preference based tiebreaking. The characterization result is then extended to general school choice environments and we discuss the relation to previous works by Ergin (Econometrica, 2002), Erdil and Ergin (American Economic Review, 2008), and Roth et al (American Economic Review, forthcoming). In the second part of the paper, we study the case where a student's priority for a school is, among potentially some other factors, determined by whether she lives in the walk-zone of the school or not. For such environments, we show that our tie-breaking procedure can sometimes be used to strategy-proofness and constrained efficiency if participants' preferences for a school are correlated with their distance from it.

Markus Kinateder

Team formation in a network

Two project leaders (or entrepreneurs) in a network, which captures social relations, recruit

players in a strategic, competitive and time-limited process. Each team has an optimal size depending on the project's quality. This is a random variable with a commonly known distribution. Only the corresponding project leader observes its realization. Any decision is only observed by the involved agents. A pure strategy Sequential Equilibrium is selected under certain conditions. An agent's expected payoff is related to his position in the network, though no measure in the literature captures this relation. Hence, a way to identify the most central player(s) is proposed. Due to the network's geography, inefficient unemployment may arise in equilibrium.

Marco van der Leij

Bounded rationality and incomplete information in network games

Most theoretical analyses of network games have been plagued by complexity and weak predictive power. We argue that this can be attributed to two common assumptions: complete information on the network structure and perfect rationality. In this paper we relax both assumptions, that is, we assume that agents have only local information on their network and/or are boundedly rational. We show that the implications are similar, in that in both cases the agents only take their local network structure into account. We then present an experiment, in which we analyze the bounded rationality of real agents in the network game of Ballester, Calvo-Armengol [Econometrica 74(5), 1403-1417 (2006)]. We show that participants do not choose the Bonacich-Nash strategy, but instead they take on average only into account the neighborhood up to distance 2.

PLENARY SESSION 3

Alvin Roth
 Kidney Exchange

Unfortunately Alvin Roth had a small accident at the beginning of the workshop and could not give his presentation. You can have a look at his blog on kidney exchange at:

http://marketdesigner.blogspot.com/2009/03/advances-in-kidney-exchange-in-new.html

Article

Shifting from Global Production Networks to Global Innovation Networks: Impacts and Interactions with EU strategies.

by Alireza Naghavi and Maria Comune, FEEM

INGINEUS, a research project sponsored by the 7th Framework Programme (FP7) of the EU Commission (Cooperation, Socio Economic Sciences ad the Humanities, 2009-2011) and coordinated by FEEM, has been launched this year and it will last until December 2011.

Policy Challenge

The new research project will reflect upon the most relevant dynamics of Global Innovation Networks (GINs), their threats and opportunities in view of the international dimension of the Lisbon strategy; to further discuss their implications for the next 10-15 years.

It aims to analyze the policy-related institutional aspects that affect the features and development of GINs between Europe and some of the most important emerging economies in the world (notably Brazil, China, India, and South Africa); to derive specific innovation policy options for the EU, its member states, and for the latecomer countries studied.

The Concept

In setting its objectives, the project has firstly brought together researchers from EU countries (Italy, Denmark, Germany, Estonia, Sweden, Norway and United Kingdom) and from Brazil, China, India, and South Africa.

Concentrated on the evolution of global production networks into global innovation networks and its impact on knowledge-intensive activities in the European Union, the project moves beyond traditional studies of the global location of productive activities. It focuses on a much more recent trend: the global location of innovation or knowledge intensive activities.

As this global shift refers to the main factor underlying competitiveness, growth performance and employment in the globalized learning economy, i.e. knowledge (Archibugi and Lundvall, 2001; Lundvall and Borras, 1999), it would have even greater implications for the European Union than the well-known relocation of production to other geographical areas. Similar to global production networks (GPNs), the

Similar to global production networks (GPNs), the project conceptualises global innovation networks

(GINs) as a function of changing strategies of multinational firms, primarily from developed but increasingly also from advanced developing economies.

Differently from GPNs, evolving local learning and innovation capabilities are a hallmark of GINs. In fact, there are parts of the developing world that are rapidly attracting knowledge intensive activities, questioning the future competitiveness of firms, industries and regions in the EU.

Although the dynamics of these networks have implications for growth and development both in Europe and in its partner countries, these implications are not yet well understood. It is clear, however, that they go to the heart of the Lisbon Agenda of harnessing the knowledge economy for increased global competitiveness. The internationalisation of knowledge intensive activities is both a challenge and an opportunity - a challenge because the geographical expansion of knowledge activities leads to more competition for highly skilled labour and other strategic resources, and an opportunity in that European firms and institutions can position themselves such that they simultaneously exploit knowledge assets generated elsewhere while continuing to attract mobile knowledge assets to Europe. Preparing for the challenges while responding to the opportunities requires an innovation policy that goes beyond the narrow concerns of the EU and the European Research Area (ERA) and that also reflects the aspirations of the world's most dynamic developing countries which are making great strides in capturing larger shares of global innovation networks. This is why the project culminates in an assessment of the Impact of Networks, Globalisation, and their INteraction with EU Strategies (INGINEUS).

Impacts

INGINEUS aims firstly to address the impact of globalisation and the effect of the rapid growth of some of the largest emerging economies on the competitiveness and strategies of European Union firms, industries and regions.

Focused on the evolution of Global Production Networks (GPN) to Global Innovation Networks, the research project includes the role and strategies of enterprises, university research centres, governments or formal and informal institutions in a cross-country and intersectoral way.

It does so by contributing to an in-depth understanding of a complex challenge confronting Europe and its partners, namely how the expansion – geographic and otherwise – of the knowledge economy affects competitiveness, growth, and development. Not least, It gears to elaborate policy options to inform strategic thinking about how best to steer this process in a globally beneficial way.

The formation of global innovation networks does carry the possibility of conflict between the EU and its partners in the South. Conflicts might emerge over brain drain, de-skilling, job losses, and so forth, regardless of the global welfare benefits likely to result from the off-shoring of R&D and innovation activities. Understanding properly what drives these processes in the short and in the medium term, and who is likely to benefit from them is therefore important.

INGINEUS will thus not just explain the determinants of GINs, but also raise the question of cui bono, including how public policy might deal with the negative consequences certain economic actors are likely to suffer. This understanding will afford the EU with the opportunity to enter into a dialogue, in bi- or multilateral forums, with its partners in the South. Enlightened leadership in this intricate policy domain could conceivably help the EU to be accepted as a global leader in issues whose solution requires cooperative solutions because their consequences underline the strategic interdependence of especially the economies in world markets.

Consequently, it has been decided to analyse the matter in a comparative fashion both across Europe, and between Europe and the rapidly evolving new competitors in the global knowledge economy, namely the advanced developing countries such as the four that participate in this study: Brazil, South-Africa, China and India.

Progress beyond state of art

The project pushes the research frontier on the impact of globalisation on Europe's research and innovation systems beyond the state-of-the-art by taking a novel approach in five dimensions. INGINEUS research-team sustains only a dynamic, global, multi sectoral and multi method analysis, can truly explain

how, when, where and under what conditions GPNs are more likely to evolve into GINs. This is the approach chosen to analyse the ability of existing policies to respond to the needs, challenges and opportunities emerging from the dynamics of GINs and to suggest a set of adequate policy proposals for the EU and for the national policy levels.

Objectives

The final objective of INGINEUS is to derive specific and adequate policy recommendations aimed at improving institutional frameworks in both the EU and emerging economies.

To reach such goal, the research project has set several intermediate objectives. The first objective is to understand the transition of production networks to knowledge and innovation networks. This is involving both an analysis of trends at national and regional level of the extent and scope of the global shift of innovation activities and the micro-level determinants of choices of MNCs - between retaining vertical control over knowledge-based activities as opposed to creating or participating in networks in which these activities are fragmented. In parallel, the capacity of emerging countries to accumulate and use knowledge and capabilities that allow them to participate in global innovation networks will be addressed. The focus is in particular on of human resources role technological capabilities on the one hand and the relationship between subsidiaries of MNCs, local firms and universities on the other hand. The intention here is to shed light on the microeconomic and systemic dimensions of technological learning and upgrading and globalisation.

The third objective of INGINEUS is to assess the dynamic impact of offshoring of knowledge intensive activities in firms and evaluate the long-run costs and benefits of emerging global innovation networks in a range of industries (differentiated by research intensity and the drivers of technical change), and how their gains are being distributed between European and emerging economies' industries and regions.

All these achievements will contribute to analyse the institutional frameworks in Europe and in emerging economies that are relevant for the creation and anchorage of global innovation networks in national and regional systems.

The derived policy recommendation should lead both EU and its partners to enhance and make most efficient use of knowledge resources to finally achieve competitiveness in the global economy.

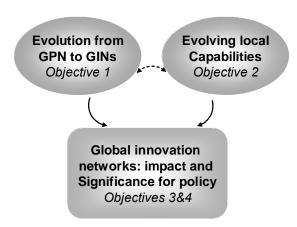


Figure 1: INGINEUS main building blocks

Methodology

The whole INGINEUS research project is shared in nine work packages whose link to each objective is shown in the figure below.

Methodologically, the project combines the analysis of existing datasets with the collection of new data through a survey and in-depth case studies when data is not available or not comparable across countries or regions. This dimension of comparability is extremely important in this project. We aim at comparing the same industries in different geographical locations so as be able to draw some conclusions on the global fragmentation of knowledge intensive activities by type of industry.

In terms of industrial coverage, while the macroeconomic analysis will cover all industrial sectors for which data is available, the micro and meso analysis of the project will mainly focus on three industries, namely agroprocessing, ICT and automotive.

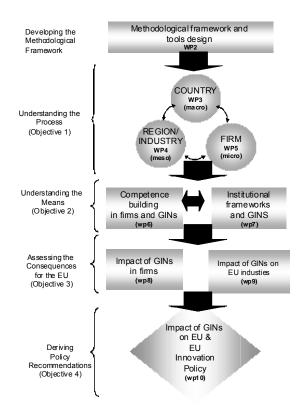


Figure 2: Overall view of the project

The global and interdisciplinary approach of the project is reflected by the research-team itself: economists, economic geographers, political scientists, education specialists, management experts and sociologists undertake together research in EU countries (Italy, Sweden, Denmark, Germany, Norway, United Kingdom and Estonia) and in a selection of emerging economies such as China, India, Brazil and South Africa.

For updates, information on the researchproject and consortium details, please visit the website: www.ingineus.eu or write to info@ingineus.eu.

New Papers on Coalition and Network Theory

FEEM & CTN Working Papers

81.08

<u>Sexual Orientation and Household Decision Making. Same-Sex Couples' Balance of Power and Labor Supply Choices</u>

Sonia Oreffice

98.08

Computational Complexity in Additive Hedonic Games

Dinko Dimitrov, Shao-Chin Sung

CES Working Papers

2008.66

A model of influence in a social network

Michel Grabisch and Agnieszka Rusinowska

2008.76

A coalition formation value for games in partition function form

Michel Grabisch, Yukihiko Funaki

2008.77

The core of games on distributive lattices: how to share benefits in a hierarchy

Michel Grabisch, Lijue Xie

2008.78

Measuring influence in command games

Michel Grabisch, Agnieszka Rusinowska

2008.79

k-balanced games and capacities

Pedro Miranda, Michel Grabisch

2008.80

Influence functions, followers and command games

Michel Grabisch, Agnieszka Rusinowska

2008.102

On the uniqueness of local equilibria

Jean-Marc Bonnisseau and Orntangar Nguenamadji

2009.05

Strategic Communication Networks

Jeanne Hagenbach, Frédéric Koessler

2009.11

Centralizing Information in Networks

Jeanne Hagenbach

CORE Working Papers

2009/12

On tax competition, public goods provision and jurisdictions' size

Patrice Pieretti and Skerdilajda Zanaj

2009/10

Environmental negotiations as dynamic games: Why so selfish?

Raouf Boucekkine, Jacek B. Krawczyk and Thomas Vallee

2009/5

Regularity and stability of equilibria in an overlapping generations model with exogenous growth

Jean-François Mertens and Anna Rubinchik

2009/3

The principal's dilemma

Dunia Lopez-Pintado and Juan D. Moreno-Ternero

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Characterizations of Pareto-efficient, fair, and strategy-proof allocation rules in queueing problems

Cagatay Kayi and Eve Ramaekers

2008/80

Public goods' attractiveness and migrations

Jean J. Gabszewicz, Salome Gvetadze, Didier Laussel and Patrice Pieretti

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Intergenerational equity and the discount rate for cost-benefit analysis

Jean-François Mertens and Anna Rubinchik

2008/75

The taxation of capital returns in overlapping generations economies without financial assets

Julio Davila

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On Gale and Shapley 'College admissions and stability of marriage'

Jean J. Gabszewicz, Filomena Garcia, Joana Pais and Joana Resende

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Contractually stable networks

Jean-François Caulier, Ana Mauleon and Vincent Vannetelbosch

2008/65

Generalized time-invariant overtaking

Geir B. Asheim, Claude D'Aspremont and Kuntal Banerjee

2008/63

A tight bound on the throughput of queueing networks with blocking

Jean-Sébastien Tancrez, Philippe Chevalier and Pierre Semal

2008/61

The impact of the unilateral EU commitment on the stability of international climate agreements

Thierry Brechet, Johan Eyckmans, François Gerard, Philippe Marbaix, Henry Tulkens and Jean-Pascal Van Ypersele

2008/50

Successive oligopolies and decreasing returns

Jean J. Gabszewicz and Skerdilajda Zanaj

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Learning benevolent leadership in a heterogenous agents economy

J. Arifovic, H. Dawid, C. Deissenberg, O. Kostyshyna, '

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Protecting minorities in large binary elections. A test of storable votes using field data

A. Casella, S. Ehrenberg, A. Gelman, J. Shen,

2008-59

Storable votes and agenda order control theory and experiments

A. Casella

Maastricht University (METEOR) Working Papers

RM/08/022

Incentives and informal networks

Constanza Fosco, Friederike Mengel

RM/08/024

Elite Capture, Political Voice and Exclusion from Aid: An Experimental Study

Ben D'Exelle, Arno Riedl

RM/08/026

The Average Tree Solution for Cooperative Games with Communication Structure

P. Jean-Jacques Herings, Gerard van der Laan, Dolf Talman, Zaifu Yang

RM/08/028

Stationary quasi-perfect equilibrium partitions constitute the recursive core

László Á. Kóczy

RM/08/31

A Noncooperative Approach to Bankruptcy Problems with an Endogenous Estate

Emin Karagozoglu

RM/08/032

<u>Distributive Concerns in the Bankruptcy Problem with an Endogenous Estate</u>

Emin Karagozoglu

RM/08/038

Non-cooperative solutions for claims problems

Murat Atlamaz, Caroline Berden, Hans Peters, Dries Vermeulen

RM/08/039

Consistency and the sequential equal contributions rule for airport problems

Youngsub Chun, Çağatay Kayı, Chun-Hsien Yeh

RM/08/040

An Impossibility in Sequencing Problems

Çağatay Kayı, Eve Ramaekers

RM/08/041

Subgame-Perfection in Stochastic Games with Perfect Information and Recursive Payoffs

János Flesch, Jeroen Kuipers, Gijs Schoenmakers, Koos Vrieze

RM/08/053

Learning by (limited) forward looking players

Friederike Mengel

RM/09/001

Alternating offers bargaining with loss aversion

Bram Driesen, Andrés Perea, Hans Peters

RM/09/005

Immaterial rewards and sanctions in a voluntary contribution experiment

Ronald Peeters, Marc Vorsatz

RM/09/007

An Experiment on Learning in a Multiple Games Environment

Veronika Grimm, Friederike Mengel

RM/09/010

Awareness in Repeated Games

Friederike Mengel, Elias Tsakas, Alexander Vostroknutov

University of Warwick Working Papers

WP 866

Noncooperative Oligopoly in Markets with a Continuum of Traders

Francesca Busetto, Giulio Codognato, and Sayantan Ghosal

WP 880

Trust-Based Mechanisms for Robust and Efficient Task Allocation In the Presence of Execution Uncertainty Rajdeep K Dash, Andrea Giovannucci, Nicholas R. Jennings, Claudio Mezzetti, Sarvapali D. Ramchurn, Juan A. Rodriguez-Aguilar

Vanderbilt University Working Papers

08-W11

Anonymous Price Taking Equilibrium in Tiebout Economies with a Continuum of Agents; Existence and Characterization

Nizar Allouch, John P. Conley, and Myrna Wooders

08-W12

Strategic Nonlinear Income Tax Competition with Perfect Labor Mobility

Craig Brett and John A. Weymark

08-W14

Behavioral Properties of Correlated Equilibrium; Social Group Structures with Conformity and Stereotyping Edward Cartwright and Myrna Wooders

08-W20

Competition over Standards and Taxes

Valesca Groenert, Myrna Wooders, and Ben Zissimos

09-W02

Is the WTO's Article XXIV Bad?

Monika Mrazova, David Vines, and Ben Zissimos

Forthcoming events

→ APESA 2009 Conference on Experimental and Behavioral Economics

Haifa, Israel, 25-29 March 2009

The Economic Science Association (ESA), founded in 1986, is a professional organization devoted to economics as an observational science, using controlled experiments to learn about economic behavior. The 2009 Asia Pacific meeting of the Economic Science Association (APESA09), focusing on behavioral and experimental economics marks the formal establishment of ESA's Asia Pacific Chapter in June 2008. Invited speakers:

- Asher Koriat: The Role of Heuristics and Attributions in Affecting Metacognitive Judgments and their Accuracy.
- Uri Gneezy: Name-Your-Own-Price: On Fairness in Markets
- Shyam Sunder: Value of Fiat Money in Laboratory Experiments Foundations of Experimental Macroeconomics
- Peter Wakker: Making the Rich Domain of Ambiguity

→ 5th International Meeting on Experimental and Behavioral Economics

Granada, Spain, 2-4 April 2009

The Granada Lab of Behavioral Economics(GLOBE) and the Department of Economics at the University of Granada, the Laboratory for Research in Experimental Economics (LINEEX) at the University of Valencia and the Research Chair Antoni Serra Ramoneda (UAB – Caixa Catalunya) jointly sponsor the Fifth International Meeting on Experimental and Behavioral Economics (IMEBE). The IMEBE 2009 includes a limited number of special sessions by key researchers on the topic.

The invited speakers are Prof. Alberto Bisin (NYU), Prof.Peter Bossaerts (Caltech), Prof.Charles Holt (Virginia U), Prof. Muriel Niederle (Stanford U.), Prof. Aldo Rustichini (Cambridge U. and Minnesota).

→ ECOFI Conference in statistics econometrics

Lausanne, Switzerland, 6-8 April 2009

ECOFI is a research forum for the exchange of research results on the theory and practice of economics and finance. ECOFI expects to contribute to scientific contacts and cooperation among scholars and professionals from all over the world in statistics, econometrics, economics and finance. Conference topics: Statistics theory, Econometrics theory, applied statistics, applied econometrics, applied economics, applied finance.

→ Workshop "New Topics in Game Theory"

Seville, Spain, 1-2, April 2009

The workshop is organized by Universidad Pablo de Olavide and Universidad de Sevilla. The academic program will consist of a series of plenary sessions, together with poster sessions for which the contributions of the participants will be considered.

→ International Conference on Applied Economics and Time series Econometrics

IBS Hyderabad, INDIA, India, 17-18 April 2009

The theme of the conference is dedicated to recent developments in theoretical and empirical analysis of applied economics and time series econometric analysis. Theoretical analysis supported by data and applied contributions are invited. The ICAETE 2009 will be the gathering place for academics and professionals from related fields from all over the world. The main goal of the ICAETE 2009 is to provide an opportunity for academics and professionals from a variety of fields to meet and exchange ideas and expertise. An additional goal of the ICAETE is to provide a place for academics and professionals with inter-disciplinary interests related to diversified field of economics and time series Time series Econometrics to interact with members within and outside their own particular disciplines. The selected papers will be published in the ICFAI Journal of Applied Economics or other relevant ICFAI Journals / Edited books (for details visit. http://www.iupindia.org/ijae.asp).

→ Voluntary Approaches to Environmental Protection

Santa Barbara, USA, 24-25 April 2009

Voluntary approaches have become an increasingly important instrument of environmental policy. While international environmental agreements have always been based on voluntary participation, an increasing number of domestic policies are as well. The expansion of markets for environmentally friendly goods and services also exemplify voluntary action that can either complement or substitute more conventional approaches to environmental policy. Along with these trends has come a surge of academic interest in the study of voluntary approaches to environmental protection. The purpose of this workshop is to assemble leading scholars working in related areas in order to further the understanding of incentives for participation in voluntary programs and of the effectiveness of the approach for meeting policy objectives. The workshop will be oriented towards an economics perspective, and we invite participants from a variety of fields, including, but not limited to, environmental, international, industrial organization, behavioral, and public economics. The workshop is intended to address voluntary approaches broadly, including voluntary actions by individual firms/individuals, coordinated voluntary action, voluntary agreements between government regulators and agents, and international agreements among countries.

→ <u>GameNets 2009 - International Conference on Game Theory for Networks</u> Istanbul, Turkey, 20-22 May 2009

Game theory provides a formal mathematical framework to study complex interactions among interdependent rational players. For more than half a century, game theory has led to revolutionary developments in economics, and has also found important applications in politics, sociology, psychology, engineering, and transportation. Recently, there has been a surge in research activities that employ game theory to model and analyze the performance of various networks, such as communication networks, computer networks, social networks, biological networks, molecular networks, and neural networks. There already exist several successful examples where game theory provides deeper understanding of complex network dynamics and leads to better design of efficient, scalable, and robust networks. Still, there remain many interesting open research problems yet to be identified and explored, and many issues to be addressed. Moreover, studies of different networks heretofore have largely been performed independently, although in many cases it is apparent that they share many similarities in terms of problem structures and the technical challenges they offer. This conference will bring together researchers who apply game theory to analyze, design, and assess the performance of networks.

→ 8th workshop «Spatial Econometrics and Statistics»

Besançon, France, 1-2 June 2009

The 8th edition of the Spatial Econometrics and Statistics Workshop is organized in Besançon by the CRESE (Centre de Recherches sur les Stratégies Economiques) at the Université de Franche-Comté (France). The aim of the workshop is to bring together economists, econometricians, statisticians, and geographers to discuss the state—of—the—art and future challenges as well as opportunities in the fields of spatial econometrics and statistics. This workshop also aims at reinforcing and encouraging exchanges between senior and junior researchers involved in spatial statistics and econometrics. Theoretical and applied studies with methodological advances in spatial econometrics/statistics are welcome.

→ 2nd Maastricht Behavioral & Experimental Economics Symposium (M-BEES 2009)

Maastricht, Netherlands, 5 June 2009

Deadline for paper submissions: 03. April 2009

The Economics Department (AE1) of Maastricht University hosts the 2nd Maastricht Behavioral and Experimental Economics Symposium (M-BEES) on June 5. The broad topic of the Symposium is Theory and Experiments and centers around the question if and how economic experiments can inform economic theory and vice versa. The Symposium takes place on a single day and closes with a social dinner. There are two invited keynote speakers opening and closing the program with contributed sessions in between. Keynote Speakers: Armin Falk (University of Bonn); Drew Fudenberg (Harvard University).

→ Dynamics, Economic Growth, and International Trade (DEGIT XIV)

Los Angeles ,United States, 5-6 June 2009

Economists working in this field are invited to submit a paper or an abstract for presentation at the UCLA conference. Papers focusing on general equilibrium growth and models of large trading economies are welcome. The roles of global and regional trade patterns, foreign direct investment, innovations, financial stability and international governance are of particular interest. Contributions on other specialized topics, such as agricultural integration, food security, natural resource economics and environmental issues are also welcome. Papers containing both empirical and theoretical issues will be considered. Keynote speakers in DEGIT XIV, Los Angeles (2009) include: Edward E. Leamer, Anderson School of Management, UCLA; Keith E. Maskus, Institute of Behavioral Sciences, University of Colorado at Boulder.

→ <u>Doctoral Workshop on Dynamic Macroeconomics</u>

Konstanz, Germany, 5-6 June 2009

Deadline for paper submissions: 1 April 2009

The second Doctoral Workshop on "Dynamic Macroeconomics" aims to offer a stimulating environment where PhD students and young researchers can exchange ideas about their work with experienced researchers. We welcome contributions from all areas of dynamic macroeconomics. Topics of interest include in particular:

- Dynamic stochastic general equilibrium models
- Indeterminacy, sunspots and business cycles
- Search and matching models

We prefer the submission of full draft papers, but are willing to consider extended abstracts. Please submit papers or abstracts in pdf format to Jutta Obenland (<u>i.obenland@unikonstanz.de</u>)..

→ European Workshop on General Equilibrium Theory XVIII edition in honor of Andreu Mas-Colell

Barcelona, Spain, 5-7 June, 2009

The XVIII European Workshop on General Equilibrium Theory (EWGET09) is organized by the Departament d'Economia i Empresa, Universitat Pompeu Fabra, with support of the Departament d' Economia I Historia Economica de Barcelona, and of the Institut d'Analisi Economica, CSIC. There will be two plenary lectures. The 4th Debreu Lecture will be given by Professor Roy Radner and Professor Egbert Dierker will deliver the Economic Theory Lecture.

EWGET09 encourages young researchers to present their work. Funds are available to cover speakers' accommodation expenses. Participation in the workshop is not limited to researchers based in Europe. As in the previous European conferences, the Journal of Mathematical Economics is inviting the participants presenting a paper at the workshop to submit their paper to the Conference Special Issue that will be published by the Journal. Submitted papers will follow the same refereeing process as the regular papers submitted to the Journal. The Journal of Mathematical Economics will also prepare a Special Issue in honor of Andreu Mas-Colell. This Special Issue will welcome papers presented at the Barcelona Workshop as well as other papers from people who were not able to attend the workshop and are working in the field of interest of Andreu Mas-Colell. Papers will be treated like regular papers submitted to the Journal.

→ Twelfth Annual Conference on Global Economic Analysis

Santiago, Chile, 10-12 June 2009

The goal of the conference is to promote the exchange of ideas among economists conducting quantitative analysis of global economic issues. Particular emphasis will be placed on applied general equilibrium methods, data, and application. Related theoretical and applied work is also welcome. A global network of individuals and institutions conducting economy-wide analysis of trade, resource, and environmental policy issues has emerged. Thousands of these researchers now use a common data base supplied by the Global Trade Analysis Project (GTAP). Participants are given an opportunity to present their work, interact with other professionals in the field, and learn about the most recent developments in global economic analysis. The themes of the Twelfth Annual Conference are: Trade for an inclusive world: Multilateral and Bilateral Agreements; Terms of trade shocks and food crisis; Climate Change, Energy and Environment; Poverty, Income Distribution and Development, towards the Millennium Development Goals; Geography of trade: Sub-national assessments.

→ <u>Coalitions for Climate Cooperation. A Game-Theoretic Analysis of Post 2012 Climate Policy</u> Venice, Italy, 15-16 June 2009

The goal of keeping climate change to manageable levels cannot be achieved by a single country. Global action and cooperation are necessary, yet some countries, in both the developed and developing world, have been reluctant to adopt binding emission reduction commitments. Limited participation in climate change policy agreements vitiates the effectiveness of actions taken by countries implementing emission reductions, and it magnifies the global costs of climate stabilization. Starting from the current debate on the design of mechanisms to enhance participation in climate control cooperative efforts, this workshop aims to bring a broad audience of selected international researchers working in this field, albeit from different perspectives. A diversity of viewpoints will promote the exchange of recent research and may lead to concrete policy proposals, as well as opportunities for subsequent collaboration.

The workshop topics are:

- i. Analysis of basic participation incentives (marginal abatement costs and damages) in this a future decades (possibly accounting for technical change and spillovers)
- ii. Main lessons for future climate negotiations coming from game-theoretic models.
- iii. Static and dynamic analysis of coalition formation (possibly accounting for other factors affecting interactions among players such as trade, finance, terrorism, technology, ...).
- iv. Insights for the design of future climate agreements from existing numerical climate economy models.

→ 8th Journées Louis-André Gérard-Varet

Marseille, France, 15-16 June 2009

This conference aims at encouraging production and diffusion of high quality research in Public Economics, with a special emphasis toward results which clearly contribute to shed light on various aspects of "real world" public decision making. In this sense, this conference is in the spirit of the project of developing the Institut d'Economie Publique (IDEP) to which Louis-André Gérard-Varet devoted the last years of his life. The Journées Louis-André Gérard-Varet are open to all fields of public economics, both applied and theoretical. The program will include three invited lectures which will be given this year by:

- Eric Maskin, Nobel Prize, Institute for Advanced Studies, School of Social Sciences, Princeton University,
- Pierre Pestieau, Université de Liège & CORE,
- Barry Weingast, Department of Political Science, Stanford University.

→ 7th Triple Helix Conference on "University-Industry-Government Relations"

Glasgow, Scotland, United Kingdom, 17-19 June 2009 Deadline for paper/poster submissions: 17 April 2009

The theme for Triple Helix VII - "The role of Triple Helix in the Global Agenda of Innovation, Competitiveness and Sustainability" - reflects the interaction between academia, the private and the public sector. The Conference will provide a platform for: show-casing best-practice; exploring new models for knowledge transfer and exchange; analysing the complex roles of universities in regional and national development; appraising the success of the third mission of universities; and visioning the future of triple helix alliances in the context of the global agenda for sustainable development.

Keynote Speakers: Henry Etzkowitz (Business School , Newcastle University, England, UK), Loet Leydesdorff (Amsterdam School of Communications Research, The Netherlands).

→ EconAnadolu 2009: Anadolu International Conference in Economics

Eskisehir, Turkey, 17-19 June 2009

Deadline for abstract submissions: 20 March 2009

Anadolu University Faculty of Economics and Administrative Sciences (FEAS), The Department of Economics is organizing its first International Conference in Economics. The Conference program includes plenary sessions, panels, and presentations of contributed papers.

The conference is open to all line of theoretical and empirical research in economics and aims at bringing together scholars from all over the World for exchange of ideas, discussion of recent results within theoretical and applied economics research, and creating a research network for future joint collaborations. Registration deadline to the conference is 01 May 2009.

→ Econometrics, Time Series Analysis and Systems Theory - In Honor of M. Deistler

Vienna, Austria, 18-20 June 2009

The purpose of this conference is to celebrate Manfred Deistler's scientific achievements over a lifetime devoted to academic research and teaching at the occasion of his retirement from the University of Technology Vienna. The conference will consist of a series of invited and contributed presentations. The scope of the program is intended to cover the wide range of Manfred Deistler's scientific activities. Therefore this invitation is posted to people from the econometric, time series analysis and system theory scientific communities. We hope that the conference will serve as an opportunity for a fruitful exchange of ideas. The invited speakers are: Brian D.O. Anderson (Australian National University), Laurent Baratchart (INRIA Sophia Antipolis), A. Ronald Gallant (Duke University), Michel Gevers (Université Catholique de Louvain), Marco Lippi (University of Rome – La Sapienza), Ingmar Prucha (University of Maryland), Peter M. Robinson (London School of Economics), and Jan Willems (Katholieke Universiteit Leuven).

→ Industrial Organization: Theory, Empirics and Experiments

Lecce, Italy, 19-20 June 2009

The conference topics are available online. Keynote speakers that have agreed to deliver the key-note lectures:

- Chaim Fershtman, Tel-Aviv University
- Jean Gabszewicz, Université Catholique de Louvain
- Steffen Huck, University College London

→ Conference on Economic Design (SED 2009)

Maastricht, Netherlands, 22-24 June 2009

The biannual conference of the Society for Economic Design in its first odd year rotation will be held in Maastricht, The Netherlands, from June 22 to June 24, 2009, with the support of Maastricht University. The keynote speakers are: Claude D'Aspremont (CORE, Université catholique de Louvain), Arunava Sen (Indian Statistical Institute).

→ Third International Conference on Game Theory and Management (GTM2009)

St.-Petersburg, Russia, 24-26 June 2009

The International Conference will offer the participants the opportunity to attend the presentations on a wide range of game-theoretic models, both theory and management applications. The topics include: Game Theory and Management; Dynamic games; Stochastic games; Network games; Evolutionary games; Cooperative games. Applications of games in fields such as: strategic management, industrial organization, marketing, operations management, public management, financial management, human resource, energy and resource management and others.

Plenary lectures by:

- Pierre Bernhard, University of Nice-Sofia Antipolis, INRIA (France)
- Reinhard Selten, Bonn University (Germany)
- Dmitriy A. Novikov, Institute of Control Sciences, RAS (Russia)
- Myrna Wooders, Vanderbilt University (USA)

Conference on the Formation and the Evolution of Social and Economic Networks

Paris, France, 25-27 June 2009

Deadline for paper submissions: 25 March 2009

Many scholars have acknowledged that social connections affect individual (and thus collective) performances in many contexts (e.g. personal networks in labour markets, knowledge and innovation networks, buyer-sellers market networks, informal networks within organizations and regional networks). Beyond the great variety of such social networks, common tools have been developed for measuring and analysing them. During the last decade especially, an enormous amount of attention has indeed been dedicated to the systematic analysis of social networks and much still need to be done on the measures and on the structural properties of social and economic networks. The attention also focuses now much on the principles that govern the evolution of these networks as a mean to explain how these networks came to be formed. The various theoretical models developed in different disciplines should now be fruitfully compared especially in their capacity to explain social networks formation and evolution. The joint improvement of existing theoretical models and of empirical methods for testing network

dynamics is particularly needed. The conference is opened to scholars concerned with this issue in the fields of Economics of Innovation and Technology, Sociology, Management Strategy, Theoretical Economics, and Theoretical Physics.

→ Workshop Networking Games and Management (NGM2009)

Petrozavodsk, Russia, 28-30 June 2009

The workshop will be organized just after The Third International Conference on Game Theory and Management (GTM2009). The aim is to discuss latest developments in the fields of networking games and management. The Program of the Workshop will concentrate on (but not restricted to) the following topics: networking games and management, optimal routing, price of anarchy, auctions, negotiations, learning and adaptive games, etc. Working languages are English and Russian.

→ Fifth Spain Italy Netherlands Meeting on Game Theory (SING 5)

Amsterdam, The Netherlands, 1-3 July 2009 Deadline for abstract submissions: April 13, 2009

SING5 is the fifth in the series of successful Spain-Italy-Netherlands Meetings on Game Theory and the second one to be held in The Netherlands. This meeting is jointly organized by VU University Amsterdam (VU), University of Amsterdam (UvA), Centrum Wiskunde & Informatica (CWI), and the Tinbergen Institute (TI). The meeting is set out to attract specialists with different backgrounds and interests covering all aspects of Game Theory, its applications, and its practice.

→ Seventh International ISDG Workshop

Djerba, Tunisia, 1-3 July 2009

Deadline for abstract submissions: April 1, 2009

The Seventh Workshop continues the official biennial workshop odd-year series of the International Society of Dynamic Games (ISDG) following the Workshops of Sils-Maria (Switzerland, 1997), Ischia (Italy, 1999), Cargese (Corsica/France, 2001), Goslar (Germany, 2003), Segovia (Spain, 2005) and Rabat (Morocco, 2007). ISDG organizes an international symposium every even year since 1984.

Society for Economic Dynamics (SED) Annual Meeting

Istanbul, Turkey), 2 - 4 July 2009

The conference will treat topics concerning the sources of macroeconomic fluctuations. Topics of interest include but are not limited to (1) the role of anticipated shocks; (2) informational sources of business fluctuations; (3) the importance of neutral versus sector-specific shocks; (4) volatility shocks and the business cycle. (5) monetary sources of business-cycle fluctuations; and (6) the econometric identification and estimation of business-cycle shocks.

Plenary Speakers: Matthew Jackson, Timothy Kehoe, Christopher Sims.

→ TARK XII - Twelfth conference on Theoretical Aspects of Rationality and Knowledge

Stanford, USA, 6-8 July 2009

The mission of the TARK conferences is to bring together researchers from a wide variety of fields, including Artificial Intelligence, Cryptography, Distributed Computing, Economics and Game Theory, Linguistics, Philosophy, and Psychology, in order to further our understanding of interdisciplinary issues involving reasoning about rationality and knowledge. Topics of interest include, but are not limited to, semantic models for knowledge, belief, and uncertainty, bounded rationality and resource-bounded reasoning, commonsense epistemic reasoning, epistemic logic, knowledge and action, applications of reasoning about knowledge and other mental states, belief revision, and foundations of multi-agent systems.

→ Recent Developments in Macroeconomics

Mannheim, Germany, 7-8 July 2009

Deadline for paper submissions: 1 April 2009

The Centre for European Economic Research (ZEW) and the University of Mannheim are jointly organizing a conference on "Recent Developments in Macroeconomics" and welcome the submission of theoretical as

well as empirical papers with a special focus on time series econometrics, business cycles, growth, labour markets, fiscal policy and monetary policy. Submission of papers in other areas is encouraged as well. Keynote Speakers:

- Prof. Michael Burda, PhD (Humboldt Universität zu Berlin)
- Prof. Dr. Helmut Lütkepohl (European University Institute, Florence)
- Prof. Harald Uhlig, PhD (University of Chicago)

→ IAREP-SABE2009 Economic psychology and behavioral economics

Halifax, NS, Canada, 7-11 July 2009

Behavioral economics and economic psychology are influenced by research in economics, psychology, sociology, biology, neuroscience, institutions as well as being informed by traditional empirical studies and evidence derived from experimental economics and surveys, interviews, and simulations. The IAREP-SABE joint conference aims at providing voice to economists, psychologists and other academics across the disciplinary divide to rigorously discuss and debate their latest research in all relevant topics relating to behavioral economics and economic psychology.

→ 3rd World Conference of the Spatial Econometrics Association

Barcelona, Spain, 8-10 July 2009

The 3rd World Conference of the Spatial Econometrics Association has the objective to bring together economists, econometricians and regional scientists to discuss the present achievements and future challenges and opportunities. After a peer review process, a special issue of Economic Modelling will be published with a selection of the best papers presented at the conference.

Key-note speakers: James LeSage (Texas State University), Henry G. Overman (London School of Economics).

Public Policy, Externalities, Growth (PGPPE 09 Workshop)

Graz, Austria, 8-12 July 2009

Deadline for paper submissions: 15 April 2009

Why are some countries richer than other countries (by so much)? In recent decades, the impact of differences in public policy and institutional design on development and growth has become better understood. Less well understood is the impact of externalities on growth, and optimal design of public policy in response to externalities. Education, health and social security, R&D, network industries, and environmental issues are only some of the many important areas where externalities abound and matter for economic growth. The annual thematic workshop, planned by the PGPPE programme, is aimed at broadening the important discussion on the relations between optimal policy designs, externalities, public goods, and growth. All papers broadly related to economic growth and growth-inducing public policy in the presence of externalities and public goods are welcome. Topics of interest include, but are not limited to the following: effects of externalities on behaviour, intertemporal aspects of growth-inducing public policy in the presence of externalities, normative aspects of public policy design and growth.

Forthcoming schools

→ 5th Ruhr Graduate Summer School - Introduction to CGE Modeling with GAMS / MPSGE Essen, Germany, 23-27 March 2009

→ EcoMod Modeling School on General Equilibrium Modeling

Washington DC, United States 23-28 March 2009

Practical CGE Modelling Course

in Warsaw, Poland, 11-15 May 2009

→ 2009 ECORE Summer School: Market Evolution and Public Decision

Brussels, Belgium, 9-12 June 2009

→ <u>13th ZEI International Summer School: Heterogeneity in Macroeconomics</u> Bonn, Germany, 21-30 June 2009

→ 6th NIPE Summer School: Empirical Strategies by Joshua Angrist

Braga, Portugal, 29 June - 2 July 2009

→ Kiel Institute Summer School On Economic Policy

Kiel, Germany, 29 June - 3 July 2009

→ Time Series Modelling and Analysis

London, United Kingdom, 1-3 July 2009

→ CESIFO Venice Summer Institute 2009: Behavioural Public Economics

Venice, Italy, 8-9 July 2009

→ CESIFO Venice Summer Institute 2009: Heterogeneous Firms In International Trade

Venice, Italy, 10-11 July 2009

→ Summer Institute 2009 on Bounded Rationality in Psychology and Economics

Berlin, Germany, 15-22 July 2009

→ Summer school on "Limited Cognition, Strategic Thinking and Learning in Games"

Bonn, Germany, 20-31 July 2009

→ 4th Advanced Summer School in Economics and Econometrics on Behavioural Finance

Crete, Greece, 2-9 August 2009

→ Visit the CTN Members' seminars web pages

CORE: http://idea.uab.es/code/workshops.htm
CORE: http://www.uclouvain.be/en-43617.html
CES: http://ces.univ-paris1.fr/seminaires ces.htm

FEEM: http://www.feem.it/Feem/Pub/Seminars/default.htm

Greqam: http://greqam.univ-mrs.fr/seminars.php

Maastricht: http://www.fdewb.unimaas.nl/meteor-seminar-et

Vanderbilt: http://www.vanderbilt.edu/econ/seminars-research.htm
Warwick: http://www2.warwick.ac.uk/fac/soc/economics/forums/

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News, publications and job announcements

→ Visit the CTN website "Job announcements" page at http://www.feem-web.it/ctn/80 job.php

→ Book: Social and Economic Networks, forthcoming from Princeton University Press

by Matthew Jackson

http://press.princeton.edu/titles/8767.html

About CTN

The Coalition Theory Network (CTN - http://www.feem-web.it/ctn/) is an association of eight high level scientific institutions, aimed at the advancement and the diffusion of research in the area of coalition formation. The six current members are:

- Center for Operation Research and Econometrics (CORE) Université Catholique de Louvain, Belgium
- Department of Economics University of Warwick, UK
- Centre d'Économie de la Sorbonne (CES) Université Paris 1, France
- Fondazione Eni Enrico Mattei (FEEM), Italy
- Center for the study of the Organisations and Decisions in Economics (CODE) Universitat Autònoma de Barcelona, Spain
- Groupement de Recherche en Economie Quantitative d'Aix-Marseille (GREQAM) Université de Marseille, France
- Department of Economics Universiteit Maastricht, The Netherlands
- Department of Economics Vanderbilt University, USA

Members contacts:

:: CODE

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:: FEEM

http://www.feem.it

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GREQAM

http://gregam.univ-mrs.fr/

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:: UNIVERSITY of WARWICK- Department of **Economics**

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