

coalition theory network newsletter

Issue No. 9-2008

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Editorial

by Sergio Currarini, Fondazione Eni Enrico Mattei and Ca' Foscari University of Venice

Dear All,

Year 2007 ended with the sudden and tragic passing away of Antoni Calvó Armengol. He will be missed as a friend and colleague by the whole scientific community and, in particular, by our group.

This year's edition of the CTN workshop was held in Venice, and confirmed the trend of growing interest witnessed in the previous editions. Because of the high number of good submissions, we had to organize parallel sessions, centred on specific research topics. My impression was that of a growing interest in social network analysis, and in particular on the issue of heterogeneity and of segregation/integration patterns. Indeed, this year's CTN workshop served very well its purpose to enhance communication and to bring together researchers that would seldom meet otherwise.

In 2008 we will have many more chances to get together and discuss our work. In April, Tilburg will host a short conference on advances in network formation theory; in late May, a conference will be held in Barcelona in memory of Antoni Calvó Armengol; the PET Seoul Conference, to be held in July, will host two sessions for CTN papers; the Game Theory Society Conference in Evanston, again in July, will host many contributions on coalitions and networks. We warmly invite you to stay tuned on the CTN web page for updates and for details on these and on other events.

I thank all of you who have come to Venice for their participation, and I wish all of us a serene and productive 2008.

Sergio Currarini

CALL FOR PAPERS

CTN Session at PET 08 Seoul

Seoul, Korea, June 27-29, 2008

→ <http://www.apet.org/>

The Coalition Theory Network will organise some sessions within the PET 08. CTN encourages the development and the circulation of new research on socio-economic networks and groups. This attains to different aspects of social and economic systems, including the management of international public goods, to the governance of economic unions, to the formation of industrial cartels and collaborations, to the patterns of racial integration in social networks, the endogenous evolution and structure of institutions, etc.

Submission of papers on these topics is open until **March, 15**.

Papers can be sent to: silvia.bertolin@feem.it or through the APET website www.apet.org.

ANNOUNCEMENT AND CALL FOR PAPERS

14th CTN Workshop

MATCHING, COALITIONS, NETWORKS, AND BEHAVIOR

Maastricht, The Netherlands, January 23-24, 2009

The Maastricht University CTN group (Department of Economics, UM-CTN webpage) will be organizing the 14th CTN Workshop in Maastricht, The Netherlands, on 23-24 January 2009. This workshop will present the state of the art of theoretical aspects in matching and coalition/network formation, behavioral foundations, and experimental validations.

Keynote speakers that have agreed to come so far are: Jacob Goeree (CalTech) and Matthew Jackson (Stanford University).

Local organizing committee (Department of Economics, Maastricht University): Rahmi Ilklic, Bettina Klaus, Arno Riedl, and Philipp Reiss.

Submissions of contributed papers are due by **November 15th** and the program will be announced on **December 15th**. Please send submissions to CTNworkshop2009@algec.unimaas.nl (Willeke Klein). Complete papers are preferred but abstracts are also welcome.

Papers will be selected by a committee consisting of representatives of the nodes of the Coalition Theory Network: Center for Operation Research and Econometrics (CORE) - Université Catholique de Louvain, Department of Economics - University of Warwick, Centre d'Économie de la Sorbonne (CES) - Université Paris 1, Fondazione Eni Enrico Mattei (FEEM), Center for the study of the Organisations and Decisions in Economics (CODE) - Universitat Autònoma de Barcelona, Groupement de Recherche en Economie Quantitative d'Aix-Marseille (GREQAM) - Université de Marseille, Department of Economics - Maastricht University, Vanderbilt University.

Further inquiries should be directed to Ms Willeke Klein (CTNworkshop2009@algec.unimaas.nl).

Scientific Report 13th CTN Workshop - Integration and Cooperation in Socio Economic Networks and Coalitions

Venice, Italy- 24th-25th January 2008

*by Sergio Currarini, Masako Ikefuji, Luca Marazzi,
and Alessandra Sgobbi, FEEM*

The broad topic of this year's workshop was "segregation, integration and cooperation in social and environmental networks". In this spirit, the invited talks focused on various aspects of social networks and on environmental cooperation issues.

Plenary Sessions

Fernando Vega Redondo's paper has dealt with networks as organizational structures. The problems faced here is the optimal rate of change of the organizational structure in response to a volatile environment. The paper provides a very stylized model by which the main trade offs between adaptability of the organization and its structural stability. In very simple terms, adaptability enhances the ability of organizational members to redirect their search for other complementary members in the organizations when the environment changes; stability enhances the performance of the organization by allowing it to exploit the accumulated knowledge. The idea of accumulation is formally introduced in the model by assuming that redrawn organizational links (the outcome of adaptability) take time before being usable to convey information. The results of the paper are quite stark and, in a sense, paradoxical. First, organizations should either be very rigid or very flexible, depending on the volatility of the environment. Second, and more surprisingly, flexible organizations are optimal in very stable environments, while rigid organizations should be adopted when the environment is very volatile.

Social networks, in the specific form of friendship networks, were the topic of **Yves Zenou's** invited talk. Zenou's paper focuses on some interesting patterns of intra- and inter-racial friendship formation. Agents draw utility from both direct and indirect friendships. The cost of having a friend depends on its homophilous attitude, so that the more homophilous one is, the more costly is for agents with different race to link to her. The paper shows that the pattern of oppositional identities (i.e. some blacks have most of their friends who are blacks while others have mainly white friends) tend not to emerge when the cost of linking within

groups is low, despite the existence of stable links across racial groups. In contrast, when linking costs are high, then oppositional identities are more likely to exist in equilibrium because once blacks connect to whites, they become more attractive and hence can form new links more easily with the other community. Finally, when the attractiveness to own race agents decreases with the number of other race friends one has, then oppositional identity becomes easier to occur, since the consequence of a cross-race link are even stronger in terms of attractiveness to own-race agents.

Rachel Kranton's paper looked at networks as structures of bilateral insurance arrangements. The paper is motivated by established empirical observations of incomplete (and therefore apparently inefficient) insurance at the village-level in rural communities. Kranton proposes a model of voluntary network formation, where links represent commitment to share income after some state of the world has realized (in short, insurance contracts). The main finding of the paper is that incomplete insurance at the village-level may occur as a result of strategic behaviour of families and individuals when cross-village insurance is allowed. In particular, those that cover risk across villages end up better off, while those that do not operate across village do not get full insurance within their village and are therefore worse off. The incentives that drive incomplete insurance are complex, but can be roughly summarised by saying that those who insure across village can cover against aggregate risk, and their benefit decreases when more individual in their own village are allowed to do it. For this reason, they do not form a link with such individuals and preclude full insurance.

Michael Finus' contribution turned the focus on international environmental cooperation. The problem addressed here is the regulation of high seas fisheries by means of regional fisheries management organizations (RFMO's). The cooperative problem is studied by means of a partition function game, whose partition function is derived using the classical Gordon-Schaefer bioeconomic model. The prospects of success of RFMO's is shown to be strictly related to the biological aspects of the problem, embodied in the specification of the equations of the Gordon-Schaefer bioeconomic model. In particular, it is shown that the possibilities of success increase when costs of harvesting become asymmetric – probably a direct effect of a shift of total costs on low cost members, coupled with an appropriate redistribution of profits.

Session 1: Commons

The first paper by **Hideo Konishi** studies the problem of public good contribution taking a political economy perspective, in a model where a lobby forms in order to influence the government in its provision of a public good. Industry protection is one possible example of such situations. Once the lobby has formed, it proposes a menu of possible contributions schemes, among which the government chooses, taking into account production costs. The main questions of the paper are which lobby would form in equilibrium, and what level of public good is produced. The model employs at the second stage the Coalition Proof Equilibrium concept, which deals with coordination problems and the typical multiplicity of equilibrium of menu-offer games. The main theoretical result employed here is the equivalence between the set of CPEa and the core of a derived cooperative game (Laussel and Le Breton (2001)). Once the CPEa of the second stage are identified with the free-riding proof core, the analysis of the dynamic game becomes standard. The most interesting result seems to be that in equilibrium lobbies are not necessarily formed by the agents with highest willingness to pay, nor are they consecutive in this respect. A more expected result is that public good contribution is inefficiently low.

The problem of public goods provision in the form of abatement of polluting emissions is the topic of **Henry Tulkens'** paper. Here, two strands of literature on coalition formation are put to a comparative test: the literature based on traditional cooperative game theory and, in particular, on the extension of the concept of core to game with externalities, and the literature based on the dominant group theory of industrial organization, employing a stability notion based on individual deviations (the internal and external stability notions). The paper proceeds by applying the two stability notions to the integrated assessment CWS model. The conclusion is that while the grand coalition is indeed stable in the "gamma-core" sense for appropriate transfers, none of the largest coalitions is stable in the internal-external stability sense. Smaller coalitions are instead stable in this second sense, provided appropriate transfers are permitted.

Session 2: R&D Networks

There is a growing body of literature exploring R&D collaborations between agents within a network theory perspective. Starting from the literature strand which examines networks of collaborations resulting from research projects,

the paper by **David Frachisse** focuses on R&D networks resulting from the EU Sixth Framework Programme for Research and Technological Development. The paper is an interesting contribution to assess one of the objectives of the 6th FP, namely to implement the European Research Area (ERA) initiative. One contention in the literature is that networks of collaboration may influence, for instance, competitions, technological diffusions, etc., and that network analysis can be an important tool to understand these forces. Comparing two different representations of the network emerging from collaboration in projects within the 6th FP, the authors conclude that network representation influences in important ways the results of network analysis. In particular, the authors show that the identification of the central nodes is sensitive to the chosen representation. Furthermore, the nodes forming the core of the network vary according to the representation.

Exploring R&D collaboration from a different perspective, **Vasileios Zikos** investigates bilateral incentives for network formation on R&D collaboration in a mixed oligopoly. Mixed oligopoly is a very common form of market in Europe and in the former Soviet Bloc countries, following the introduction of competition into traditional state monopolies. The aim of the paper is therefore to explore the role of public firms in influencing the structure of collaboration, looking at whether the presence of public firms affects the incentives to form collaboration. One of the key results of the literature is that investment in R&D will be below efficient levels due to a lack of full appropriability of the returns to R&D. In this paper, the authors explore in a more comprehensive manner incentives to cooperate using network theory. The main result of the paper is that the complete network – where all firms collaborate with all the others – is stable and efficient, and that state-owned firms may be used as a policy instrument to bridge the potential gap between individual and collective incentives for R&D collaboration. A future promising research direction is to empirically investigate the relationship between network architectures and the presence of state-owned firms.

Session 3: Segregation in social networks

This session was addressing one of the main issues on which the conference focused: segregation in social networks. The four contributions are examples of different angles from which the problem can be treated, that confirm a growing interest for the topic of heterogeneity in social networks.

The first paper by **Sergio Currarini** is a stylized model of friendship formation, applied to data on high school friendships in the U.S. The model aims to explain the observed patterns of friendship formation by means of an economics model, in which the incentives are generated by preferences on formed friendships and on their racial mix. Meetings are random, and agents decide how long to search for friends. In equilibrium, agents' decisions affect the proportion of various races in the matching pool, and these affect agent's decisions through preferences. Three observed trends are captured by the model: larger groups have more friends per capita; large groups have more same type friends and less different type friends per capita; all groups tend to be homophilous, with higher levels for middle sized groups. In order to match all three patterns, the model need ingredients of both racial bias in preferences and bias in the meeting process (such as race segregated clubs, academic tracking,...).

Similar issues are addressed in the paper by **Paolo Pin**, but with different methodology. The problem is again to distinguish between choice and opportunity in generating the observed behaviour in social networks where racial attributed may be important in determining the pattern of ties. The paper looks at two different dataset, concerning friendships in US high schools and marriages in the US. The idea is to estimate the contribution of choice and opportunity by looking at the behaviour of very small groups, for which it is possible to obtain an analytical expression of expected behaviour. The results are then generalized to all groups in a sort of inference argument. The authors reach two conclusions: choice is a main determinant of observed behaviour in marriages, while it is much less so in adolescent friendships.

Finally, social segregation is analyzed in its consequences for job market outcomes in the paper by Marco **Van der Leij**. Here, the author addresses the problem of how agents of different social groups (race or gender) choose to segregate as a result of educational, friendship and occupation choices. More precisely, the paper studies a model in which agents first choose a field of education, which grants access in a given occupational sector. Then agents form friendships, through which job contacts will be found. Then, agents look for a job and consume private goods. Equilibria with complete segregation are shown to exist, together with equilibria in which one groups segregates in the high productivity sector, and one groups mixes between good and bad sectors. The group in the good sector receives higher wages and has a lower unemployment rate.

In this same session, **Andrea Galeotti** presented a very interesting paper on information transmission in networks. This paper can be viewed as generalizing previous work on public good provision on networks to the case of an endogenous network structure. The paper can also be viewed as a theoretical treatment of the empirically relevant observation that in many social situations, information is acquired, processed and transmitted by a small set of agents, that act as a dense center of a core-periphery structure (the so called "law of the few"). Since these central agents do not appear different in terms of exogenous characteristics from the other agents, it could be guessed that the difference in their positions in the network may be due to strategic equilibrium behaviour. In the formal model of Galeotti, agents can either acquire information at some cost, or link to informed agents at a lower cost. In all strict Nash equilibria, it is shown that agents acquire the same aggregate amount of information. This, together with the observation that uninformed individuals will always link to informed one, and only to such agents, is shown to imply that all strict equilibria display the core-periphery structure described above.

Session 4: network games 1

The so called "Tragedy of The Commons" occurs when the individual users ignore the cost their activity imposes on the rest of the community. **Ilklic**'s paper studies a particular case of this phenomenon: if the sources and users are interconnected, the exploitation of each user from each source will depend on the structure of the connections and importantly on the centrality of the links connecting the source to the users. The author decomposes the network into regions: each region consumes only from its sources. The sources are distributed between regions, so that the less resourceful ones are assigned to the most possible number of sources. When players have concave valuations, these amounts depend on the whole network. The socially efficient outcomes are characterized.

In reality, impatient economic agents frequently form a network whose structure may delay information flow. In many industries, such as the car industry, big producers are at the centre of a large network of suppliers, which may be linked among themselves. **Kinateder** models delayed perfect monitoring by allocating players, that play an infinitely repeated discounted game, to a connected and undirected network. Usually, it is possible to sustain equilibria that do not arise in a one-shot game by repeating it. Under the

assumption of truth telling, the Folk Theorem extends to the delayed perfect monitoring model, that is, any feasible and strictly individually rational payoff vector can be supported by a sequential equilibrium strategy profile when the players are sufficiently patient. This paper contributes to the network literature, which so far emphasized the importance of the clustering coefficient for cooperation to be sustainable in a network.

A finitely repeated prisoner's dilemma game has a unique, defective Nash equilibrium. **Ule's** paper shows that, in contrast, cooperation can be achieved in a subgame-perfect Nash equilibrium of a finitely repeated prisoner's dilemma game when players can choose their partners. The author assumes that finitely repeated network dilemma games are played by rational players with perfect foresight and show that cooperation can be sustained in a subgame-perfect equilibrium through strategic linking behaviour. In this game to achieve cooperation it may be necessary that there is some competition for partners: either players are strictly constrained in the number of links, or linking is costly and the cost function is convex. Cooperation can be sustained solely via exclusion of defectors if the number of all players is substantially larger than the number of links that players can or are willing to support. Nonetheless, introducing endogenous network formation itself is not sufficient for cooperation, but assuming very weak constraints on the number of links or linking costs may be sufficient.

In a roommate market, a finite set of agents has to be partitioned into pairs (roommates) and singletons. Thus, for roommate markets coalition formation is restricted to coalitions of at most two agents, a matching can be interpreted as an extension of a so-called marriage market. In **Klaus'** paper it is shown that for any roommate market the set of stochastically stable matchings coincides with the set of absorbing matchings. While the core for a marriage market is always nonempty, the core of a roommate market can be empty. As a consequence, roommate markets can be considered an important benchmark for the development of solution concepts for matching, network and coalition formation models that may exhibit an empty core or set of stable matchings, network or coalition structures. The main result is a very strong structural result for roommate markets that cannot easily be extended to more general markets.

Session 5: International Environmental Agreements

Global environmental problem requires international agreements. Since costs and benefits from the agreement are different among countries and each country may have an incentive to free-ride, the stability of an international environmental agreement (IEA) has been tackled in substantial literature. While most studies on non-cooperative games and self-enforcing agreement use a static framework, **Michèle Breton**, Sbragia, and Zaccour develop a dynamic model to analyse how countries join environmental agreements based on a non-cooperative point of view. They study the formation and stability of IEAs when a stock externality is considered, and membership is allowed to change endogenously over time, which is a more realistic situation. Under the assumption that signatory countries punish non-signatory countries at a cost for both groups, they show that partial or full cooperation in a stable IEA can be obtained either by using the "stick", that is, increasing the punishment to non-signatories, or the "carrot", that is reducing, the cost of punishing for the signatories.

By introducing asymmetric countries, transfers between coalition members, and renegotiations of the agreement into an open membership cartel formation game, **Weikard** and Dellink show that there are options to stabilise successful international climate agreements (ICAs), in contrast to earlier findings that find only small stable coalitions consisting of no more than two or three players. To study the effects of optimally designed sharing rules in an empirical setting and to illustrate their impacts, they examine the stability of ICAs using the STACO model. They show that a well-designed transfer scheme increases the incentives to join the coalition, and is therefore able to stabilise larger coalitions.

Session 6: Multiple Memberships

This session presents a series of contribution to what seems to be a promising line of development of coalition theory, and actually lies at the border between coalition and network theory. The general idea is to consider general "covers" of a set of agents, allowing therefore agents to belong to more than one coalition at the same time. I feel personally obliged to remember some very early and unpublished work in this direction by our colleague Murat Sertel, who explored this issue in the context of cooperative games.

The first paper by **Alexei Savvateev** uses this new framework to further explore the issue of secession stable partitions, previously analyzed in a series of papers, some of which co-authored by Alexei. One important and “negative” result of such paper is that when agents are concerned about a public good to be produced in the country they belong to, and about the contribution to such production in terms of a private consumption good, then a stable *partition* may fail to exist, by this meaning a partition of the set of agents into countries such that no connected subset of agents would like to form a new country on their own. In the present paper, this result is shown to crucially depend on the assumption that membership in countries is exclusive. Once each country (or region) can be simultaneously part of several regions, then a stable structure is shown to exist under very general conditions.

The following paper by **Edith Elkind** addresses the related optic of overlapping coalition formation. Here, agents can belong to more than one coalition at the same time, and share a limited amount of resources among these. So, the idea of a partition is generalized accordingly by that of a cover. The paper takes a few first steps in this generalization of cooperative game theory to covers. First, a notion of “core” is defined, that accounts for the limited resources constraint. Then, the notion of convexity of the characteristic function is also extended to this new setting. Finally, it is shown that, as in the classical analysis, all convex games have a nonempty core (which maximizes social welfare).

Session 7: coalitions and groups

The concept of corewise stability and of von Neumann-Morgenstern stable set are myopic notions, since individual and coalition deviations cannot be countered by subsequent deviations. In her contribution, **Ana Mauleon** develops and characterises the notion of von Neumann-Morgenstern far-sightedly stable sets in one-to-one matching problems: a set of matchings is a von Neumann-Morgenstern far-sightedly stable set if and only if it is a singleton set and its element is a corewise stable matching. Thus, contrary to the von Neumann-Morgenstern (myopically) stable sets, von Neumann-Morgenstern far-sightedly stable sets cannot include matchings that are not corewise stable.

Challenging the prevailing focus of cooperative game theory with transferable utilities (TU), **Jingang Zhao** explores whether it is always rational to split the grand coalition’s payoff, or whether there are other sub-groupings or

sequence of sub-groupings which generates a higher payoff. Such exploration leads to the maximum of generated payoffs (m_{gp}) for coalitional TU games, which is used to establish a new theorem: the TU (transferable utility) core is empty if and only if the maximum of generated payoffs (m_{gp}) is greater than the grand coalition’s payoff $v(N)$, or if and only if it is irrational to split $v(N)$. The contributions provides important insights into some of the key questions of cooperative game theory, namely what payoffs to split, how to split the payoff, what coalitions to form, and how long each of the coalitions will be formed by rational players in coalitional TU games. Furthermore, similar results can be obtained for cooperative games with non-transferable utilities, even though, because of the generality of NTU games, some results are weaker than the corresponding TU results.

The paper of **Kempf** and von Thadden sets up a simple, generic framework for the analysis of strategic interactions among independent but interdependent players in order to account for the broad range of findings on the (ir)relevance of cooperation and commitment in the recent literature. The paper introduces two concepts: “coalition structure” and “commitment pattern”. The former is to characterize cooperative behaviour between particular groups of players, and the latter is to characterize a particular order of moves of players. They prove that games characterized by different commitment and cooperation schemes may admit the same equilibrium outcome if certain spillover effects vanish at the common solution of these games. Finally, they explain the driving forces behind seemingly contradictory results from a number of recent contributions on the nature of policy interactions both within monetary unions and among fully sovereign nations.

An interesting contribution links landscape theory, first developed by Axelrod and Bennett in 1993, can be useful to analyze a wide variety of aggregation problems, such as international alignments, social networks, social cleavages in democracies, etc. According to this theory the propensity of States to collaborate or conflict with each other and the frustration index as a measure of the distances with partners had been interestingly modelled in the alignment problem in World War II.

Michel Le Breton, Ortuño-Ortín, and Weber examine the explicit connection between landscape theory and the theory of games and extend the model to include a more comprehensive class of coalitional environments. They introduce a non binary set of policy options and pairwise hedonic heterogeneity and assume

that actors are impacted by the size of the coalition to which they belong. Using the theory of potential games, they show that a global maximum of the potential game is a Nash equilibrium, thus establishing a bridge between landscapes and potential games.

Session 8: Network Games

This last session presented recent models of games played on networks.

The paper by **Frédéric Deroïan** explores a related and complementary issue to the one studied in Gameotti's paper. Here, agents face incentives to produce information which non-excludable along the paths of the network. However, information efforts are strategic complements, as they generate synergies among agents. So, information is obtained from all agents in a connected components, with some decay. The paper obtains characterization results for the line network, for which it shows conditions under which central agents provide more effort.

The paper by **Christian Ghiglino** addresses the wide and mostly unexplored area of general equilibrium when agents' interaction is modelled as a network. Here, social interaction takes the form of consumption externalities among neighbours. Very interesting issues arise in such setting: how do prices and allocations depend on the network architecture? How does consumption and welfare depend on the position of an agent in the network? What changes can we expect when the network becomes denser? The paper answers these questions in a Cobb Douglas example with two goods, one of which is subject to these local consumption externalities. The very sharp result obtained here is that prices and allocations are related to a centrality measure of agents in an affine way. In particular, the relative price of the commodity with externalities is shown to increase with the aggregate centrality of the network, while individual consumption grows linearly with the centrality of an agent. So, as the network becomes more connected, the price increases, as does the consumption of the agents responsible of the new connections. The paper also shows that results may change when both goods are subject to externalities.

The paper by **Giacomo Pasini** also looks at markets where agents are embedded in a network. Here, buyers and sellers are linked, with each seller having information only on the number of potential buyers, and on the probability with which these buyers put this seller in competition with "k" other sellers, for each possible number of

rivals "k". So, sellers and buyers play a game of incomplete information. The paper shows that equilibrium in pure strategies might not exist, while symmetric equilibrium in mixed strategies always exists.

Finally the paper by **Bhaskar Dutta** addresses an old and unresolved issue in cooperative game theory. When externalities across coalitions are present, the traditional tools of cooperative game theory (the characteristic function) is not apt at representing payoff possibilities. The partition function solves the problem of representation, but leaves open the problem of applying the main classical solution concepts (the core, the Shapley Value, etc...) to situations with externalities. This paper develops a technique, based on Hart and Mas-Colell potential, to derive a value for such games. The approach is axiomatic. First it is shown that a simple axiom – "path independence" – is sufficient to generate a unique potential function for all games in partition function - This axioms only requires that the order in which players are removed to generate restrictions of a game does not matter. This is a notable results, since there is a number of different restrictions that are consistent with such axiom, but all these are shown to generate the same potential. Then, additional consistency axioms, of the type used to characterize the Shapley Value in games without externalities, are introduced to restrict the set of possible game restrictions which are consistent with path independence.

Article

Why to examine implications of endogenous network structures on coordination problems from an experimental point of view?

by Ingrid Rohde, Maastricht University

The investigation of institutional arrangements to overcome coordination problems is of vital interest in economics. Experiments have shown that in a variety of environments people fail to coordinate on surplus maximizing equilibria. Yet, outside the lab they seem to agree on rather efficient arrangements. The possibility to choose interaction partners is a natural feature of almost any interaction between human beings.

This feature is recognized by network formation theory. Four different cases have been examined which vary in the required consent and in the costs of linking. Irrespective of the type of consent needed, in case of costless link formation the stochastically stable state is the complete network where all play the risk dominant equilibrium, whereas if linking is sufficiently costly, the stochastically stable state is either the complete network and payoff dominant play or the empty network and risk dominant play. According to theory, the linking costs are thus the crucial factor for overcoming coordination failures.

However, theory neglects behavioral aspects, which may play a role, such as risk aversion and generalized preferences concerning equality and efficiency. Experiments will give important insights on the consequences of such behavioral aspects on the equilibrium play. Arno Riedl, Martin Strobel and I, conducted two experiments, which differed in the type of coordination game played. In the first experiment, subjects played a standard 2x2 coordination game, whereas in the second experiments participants faced the so-called minimum effort game.

In both experiments, we find a clear indication that the endogenous choice of interaction partners is a powerful force to achieve coordination on the welfare maximizing equilibrium irrespective of the type of consent needed or the linking costs. In comparison to the case where the network is predetermined to be a complete network, the frequency of play of payoff-dominant equilibria is

significantly higher. Moreover, in the cases with endogenous linking, the frequency of play of the payoff-dominant equilibrium is increasing over rounds whereas it decreases in the case with the exogenously given network structure. As a whole, the results are contradictory to the theory. Two findings are worth to investigate in more depth.

First of all, in the case of one-sided costly link formation, the network structures found are not complete networks as is predicted by the theory, but are rather small and unstable networks. This is due to the fact that the process of forming a link can now be considered as a coordination game in itself. The coordination problem arises from the question of who will pay for the links formed. Subjects are not able to resolve this coordination failure. As a result, the links that are formed are far less than the optimum amount. The impact of the additional coordination problem is evidenced by a decreasing network density over time.

The second result is found in the case of two-sided costless link formation. In this case, we observe certain behavior by a part of the population, which is neglected by the theory. These individuals are playing the payoff dominant action and are punishing the unwanted behavior of their opponents, which is playing the risk dominant action, by not proposing to form a link. Such a person, whom we define as an efficiency enforcer, is willing to sacrifice part of his payoffs to induce other players to play the efficient outcome.

Apparently the results we found are indeed caused by behavioral aspects, which are neglected by standard theory. These aspects are important in order to understand how institutional arrangements can help overcome coordination failures. Therefore it is necessary to conduct experiments, which explore the empirical implications of endogenous network structures.



New papers on coalition and network theory

FEEM & CTN Working Papers

87.07

Many-to-One Matching when Colleagues Matter

Pablo Revilla

98.07

Technology Spillovers and Stability of International Climate Coalitions

Miyuki Nagashima, Rob Dellink

100.07

The Computational Difficulty of Bribery in Qualitative Coalitional Games

Andrew Dowell, Michael Wooldridge, Peter Mcburney

101.07

A Stochastic Multiple Players Multi-Issues Bargaining Model for the Piave River Basin

Alessandra Sgobbi, Carlo Carraro

CES Working Papers

2007.69

Nash equilibrium existence for some discontinuous games

Philippe Bich

2007.78

Applications of a Generalized Ky Fan's Matching Theorem In Minimax and Variational Inequality

Pascal Gourdel, Hakim Hammami

2008.02

Power distribution and endogenous segregation

Catherine Bros

2008.10

Walras and dividends equilibrium with possibly satiated consumers

Nizar Allouch and Cuong Le Van

CORE Working Papers

2007-61

Dynamic recontracting processes with multiple indivisible goods

Olivier Bochet, Bettina Klaus and Markus Walz

2007-70

The mixed strategy Nash equilibrium of the television news scheduling game

Jean Gabszewicz, Didier Laussel and Michel Le Breton

2007-73

Thematic clubs and the supremacy of network externalities

Jean J. Gabszewicz and Joana Resende

2007-77

A fair solution to the compensation problem

Giacomo Valletta

2007-78

Hawks and doves in segmented markets: a formal approach to competitive aggressiveness*Claude D'Aspremont, Rodolphe Dos Santos Ferreira and Jacques Thepot*

2007-84

Dialogue or issue divergence in the political campaign?*Pablo Amoros and Socorro Puy*

2007-89

On the role of retaliation in trade agreements*Alberto Martin and Wouter Vergote*

2007-94

Shapley compensation scheme*Pierre Dehez*

2008-10

Data games. Sharing public goods with exclusion*Pierre Dehez and Daniela Tellone*

Maastricht University Working Papers

METEOR RM/07/030

The Role of Individual Intertemporal Transfers in Dynamic TU-Games*Caroline Berden*

METEOR RM/07/033

On Loss Aversion in Bimatrix Games*Bram Driesen, Andrés Perea, Hans Peters*

METEOR RM/07/034

Truth, trust, and sanctions: On institutional selection in sender-receiver games*Ronald Peeters, Marc Vorsatz, Markus Walzl*

METEOR RM/07/037

Judgment aggregation under constraints*Franz Dietrich, Christian List*

METEOR RM/07/039

A Note on Dasgupta, Hammond, and Maskin's (1979) Domain Richness Condition*Olivier Bochet, Bettina Klaus*

METEOR RM/07/040

Balancedness Conditions for Exact Games*Péter Csóka, P. Jean-Jacques Herings, László Á. Kóczy*

METEOR RM/07/041

Stable Allocations of Risk*Péter Csóka, P. Jean-Jacques Herings, László Á. Kóczy*

METEOR RM/07/044

One-dimensional Bargaining with Markov Recognition Probabilities*P. Jean-Jacques Herings, Arkadi Predtetchinski*

METEOR RM/07/045

One-dimensional bargaining with a general voting rule*Arkadi Predtetchinski*

METEOR RM/07/046

Competition and Resource Sensitivity in Marriage and Roommate Markets

Bettina Klaus

METEOR RM/07/048

In Bargaining We Trust

Rene Saran

METEOR RM/07/049

Bargaining with Behavioral Players: Strategic Deception and More Trade

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Edward Cartwright and Myrna Wooders

Forthcoming events

by Silvia Bertolin, FEEM

→ Royal Economic Society Conference 2008

Warwick, Coventry, United Kingdom, 17-19 March 2008

The 2008 Annual Conference of the Royal Economic Society will be held at the University of Warwick from Monday 17th to Wednesday 19th March, 2008. Keynote lectures will be given by: Susan Athey (Harvard), Ernst Fehr (Zurich), Hyun Song Shin (Princeton).

→ 4th International Meeting on Experimental and Behavioral Economics

Alicante, Spain, 27-29 March 2008

The Department of Economics at the University of Alicante, the Laboratory for Research in Experimental Economics (LINEEX) at the University of Valencia and the Instituto de Análisis Económico, a center of the Spanish Highest Council for Scientific Research, CSIC) jointly sponsor the Fourth International Meeting on Experimental and Behavioral Economics (IMEBE), organized by Jordi Brandts (IAE), Enrique Fatás (LINEEX and University of Valencia) and Giovanni Ponti (Universidad of Alicante). The IMEBE 2008 includes a limited number of special sessions by key researchers on the topic.

The invited speakers are Prof. Catherine C. Eckel (University of Texas at Dallas), Prof. Uri Gneezy (University of California, San Diego), Prof. Glenn W. Harrison (University of Central Florida), Prof. Klaus M. Schmidt (University of Munich), Prof. Jörgen Weibull (Stockholm School of Economics).

→ Workshop Networks and Games

Tilburg, The Netherlands, 10 April, 2008

During the last decade, a flourishing theoretical and empirical literature has focused on the role of networks in economics. Several factors make networks a particularly interesting area of study for game-theorists. An important theme is the interplay between network formation and strategic interactions on networks: agents form their links anticipating the interactions on the network once it is formed, and the fact that agents can form and break links at will shapes their behavior. Also, network formation games are rife with different types of externalities, for instance arising because agents want to improve their position, at a cost to others. Finally, allowing for incomplete information in the formation of networks or in strategic network interactions gives rise to a wealth of new insights. On the empirical side, the literature has focused on issues such as the detection and measurement of network effects in individual decisions and the identification of network relationships underlying observed patterns of behavior.

This workshop aims to bring together leading researchers working on networks, economics and game theory. There will be ample time for interactions and discussion.

→ Spring Meeting of Young Economists 2008

Lille, France, 17-19 April 2008

The 2008 Spring Meeting of Young Economists (SMYE) will be convened in Lille, France from April 17 to 19, 2008. It will be hosted by the Faculty of Law, Politics and Social Science (Lille 2 University of Health and Law). The conference is intended to give non-tenured young economists such as PhD students, Post-doctoral Researchers, and Assistant Professors, a chance to meet, present and discuss their work. The conference covers every area of economics and features a rich program for them to get together. The meeting aims to provide a European platform, nonetheless participation from all over the world is invited.

→ Conference on Environmental Governance and Democracy

New Haven, USA, from May 10-11, 2008

The Conference on Environmental Governance and Democracy will take place in the margins of the 16th Session of the United Nations Commission on Sustainable Development. The event brings together academic experts and practitioners from governments, inter-governmental organizations, civil society and the private sector. Participants will take stock of contemporary research and knowledge gaps at the intersection of institutions, public participation and environmental sustainability.

The objective of the Conference is to develop a research program and network to strengthen institutional approaches for effective and context-sensitive public participation in environmental governance. Discussions will cover various levels of environmental governance, including international, national, regional, local, and corporate governance.

→ Managing Complexity in A Distributed World

Bangalore, India, 27-31 May 2008

This forward looking theme envisions the growing importance of the design, optimisation, control, implementation and management of complex distributed systems such as ubiquitous and pervasive computing systems, distributed security and surveillance systems, content distribution networks, intelligent transportation systems, integrated hybrid power systems, ad hoc and cooperative multihop wireless networks, etc.

We expect this conference to serve as a forum for presenting current work in these and related areas from the points of view of electrical & electronics engineering, communication, and computing. The conference will be unique in that its sessions and tracks will be planned to promote inter-disciplinary interaction. In addition to technical sessions consisting of contributed papers, the conference will include invited and plenary talks, special sessions on inter-disciplinary areas, poster sessions, tutorials, and panel discussions.

→ 9th Symposium of Econometrics and Statistics

Izmir, Turkey. 28-30 May 2008

The use of econometrics has become a need in scientific research within developing sciences. Especially in economics and generally in all other disciplines, to make applications based on theories and to procure policies necessitates the test of these theories and examine their validity in the real world. Beginning from 1993, Econometrics and Statistics Symposium is being organized in every two years by econometrics departments of Turkish Universities aiming at to shed light to recent developments both in theory and applied studies in the world of econometrics and statistics.

The 9th Econometrics and Statistics Symposium, EISEMP9, aims to bring together academicians and professionals from various fields in econometrics and statistics to discuss and present their research findings on related areas. Theoretical and/or applied studies in the field of econometrics, statistics and operations research are mostly welcome. Beginning with econometrics, economics, and statistics departments, scientist and students from all departments of universities, and economists, econometricians and practitioners who are operational in business world and governmental institutions are invited to participate either with or without a presentation in the symposium.

→ Doctoral Workshop on „Dynamic Macroeconomics“

Strasbourg, France, 5-6. June 2008

The first 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; indeterminacy, sunspots and business cycles; search and matching models

Papers submission deadline: 1 April 2008.

→ What is the behavioral in behavioral economics?

Trento, Italy, 5-6 June 2008

Behavioral economics aims at increasing the realism of economic theory by incorporating psychological insights into economic models. However, behavioral economics does not call for a rejection of the neoclassical concepts of utility maximization, equilibrium, and efficiency but promotes an extension of the motivational scope of economic agents. Methodologically, it also promotes the integration of different kinds of evidence in the traditional toolbox of neoclassical economics.

In asking "What does behavioral mean in behavioral economics?" the workshop will provide an opportunity to take stock and critically reflect on the approaches and methods of behavioral analysis. The workshop aims at providing a forum for a constructive debate about recent developments in the behavioral approach to economic reasoning.

Although the focus of the workshop is primarily methodological, we welcome papers that use empirical data or formal theoretical models to illustrate or substantiate a general philosophical argument or thesis.

The workshop will include a keynote address by Werner Güth (Max Planck Institute of Economics, Jena).

Papers submission deadline: 30 April 2008.

→ 2008 Fifth Biennial Conference Of Hong Kong Economic Association

Chengdu, China, 10-12 June, 2008

The Hong Kong Economic Association is co-organizing the biennial event with the Southwestern University of Finance and Economics (SWUFE) in Chengdu.

Keynote speakers: Prof. James Mirrlees of the 1996 Nobel Laureate in Economic Sciences, Prof. Robert Barro of Harvard and Editor of QJE, Prof. Gregory Chow of Princeton, Prof. Justin Yifu Lin of Peking University, Prof. Andrea Prat of LSE and Managing Editor of Review of Economic Studies, Prof. Mark Rosenzweig of Yale and Editor-in-chief of Journal of Development Economics, Prof. Chris Taber of University of Wisconsin-Madison and Editor-in-chief of Journal of Labor Economics, and Harald F. Uhlig of University of Chicago and Co-Editor of Econometrica.

Papers and abstracts submission deadline: 26 March 2008.

→ Public Organisation

Bristol, United Kingdom, 11-12 June 2008

This conference is on Public Organisation, relating in a general sense to the supply of public services, and obviously echoing Industrial Organisation. In the conference, we aim to gather the world's leading scholars researching such issues and consolidate the idea of Public Organisation as a field. Part of the aim of the meeting is to connect research and researchers that might not otherwise seem related.

Confirmed speakers include: Tim Besley (LSE and Bank of England), Marty Gaynor (Heinz School, Carnegie Mellon University), Ian Jewitt (Nuffield College Oxford), Victor Lavy (Hebrew University, Jerusalem and Royal Holloway, University of London), Margaret Meyer (Nuffield College, Oxford and CEPR).

→ International Conference on Computer-Mediated Social Networking

Dunedin, New Zealand, 11-13 June 2008

This conference aims to explore issues in the context of social networking such as formation of online communities and how collaboration and cooperation can be achieved.

Applications that can benefit from models of social network structure include, social norm spreading, disease propagation, opinion dynamics, and collective knowledge construction. The network topologies play an important role in these applications. This conference will address the links between these topics. Additional topics of interest include: facilitating effective structure in a Social Network environment; agent-based simulation for studying the dynamic behaviour in on-line societies; issues and solutions in modelling virtual collaborative environments; integration of various communication tools such as Wikis, Blogs, Discussion Boards etc.

Conference on Networks in Political Science (NIPS)

Boston, USA, 13-14 June 2008

The study of networks has exploded over the last decade, both in the social and hard sciences. From sociology to biology, there has been a paradigm shift from a focus on the units of the system to the relationships among those units. Despite a tradition incorporating network ideas dating back at least 70 years, political science has been largely left out of this recent creative surge. This has begun to change, as witnessed, for example, by an exponential increase in network-related research presented at the major disciplinary conferences.

"Networks in Political Science" (NIPS) is aimed at all of the subdisciplines of political science. NIPS is supported by the National Science Foundation, and sponsored by the Program on Networked Governance at Harvard University.

→ XVII European Workshop on General Equilibrium

Salerno, Italy, 13-15 June 2008

The European Workshop on General Equilibrium allows participants to present and be informed of the latest developments in General Equilibrium Theory and its applications in other areas of economics, such as Public Economic Theory, Financial Markets, Game Theory, Economics of Information, Decision Theory, Contract Theory, Microeconomic Theory, Theory of Finance, Macroeconomic and Monetary Theory.

The workshop encourages young researchers to present their work, and senior theorists typically attend the workshop. Funds are available to cover speakers' accommodation expenses. Participation in the workshop is not limited to researchers based in Europe.

Papers presented in the Workshop are eligible for the special issue of the Journal of Mathematical Economics devoted to the Conferences on General Equilibrium.

Papers and abstracts submission deadline: 30 March 2008.

→ **2nd International Workshop on Computational and Financial Econometrics (CFE'08)**

Neuchatel, Switzerland, 19-21 June 2008

This workshop invites presentations that contain computational or financial econometric components. Papers containing strong computational statistical or econometric components or substantive data-analytic elements will be considered for publication in a special peer-reviewed, or regular, issue of the journal Computational Statistics & Data Analysis.

Papers and abstracts submission deadline: 30 March 2008.

→ **NETSCI 2008 - International Workshop & Conference on Network Science**

Norwich, UK, 23-27 June 2008

The next International Workshop and Conference on Network Science (NetSci'08) aims to bring together leading researchers, practitioners, and teachers in network science (including analysts, modelling experts, visualisation specialists, and others) to foster interdisciplinary communication and collaboration. The conference will focus on novel directions in networks research within the biological and environmental sciences, computer and information sciences, social sciences, finance and business. The Workshop part of the event (23-24 June) will offer a series of tutorials and lectures, introducing tools and basic results from a variety of research areas of major interest for the study of complex networks. It aims to present basic experimental and theoretical developments, as well as educate the research community on standard network databases, tools, and computational resources. The Conference part of the event (25-27 June) is dedicated to talks presenting the latest results in the field and their applications in various disciplines

→ **Stochastic Networks 2008**

Paris, France, 23-28 June 2008

Like its predecessors, the Paris Stochastic Networks Conference will emphasize new model structures and new mathematical problems that are motivated by contemporary developments. There will be 20 invited talks over a six-day period (Monday through Saturday), plus contributed poster sessions, with plenty of time in the interstices for informal discussion. Funding is anticipated from the US NSF to support attendance at the Conference by new researchers from US institutions. Deadline is April 5, 2008.

→ **14th International Conference on Computing in Economics and Finance**

Paris, France, 26-28 June 2008

Computational economics explores the intersection of economics and computation. These areas include agent-based computational modeling, computational econometrics and statistics, computational finance, computational modeling of dynamic macroeconomic systems, computational tools for the design of automated Internet markets, programming tools specifically designed for computational economics, and pedagogical tools for the teaching of computational economics. Some of these areas are unique to computational economics, while others extend traditional areas of economics to new areas through computational techniques.

→ **4th Spain, Italy, Netherlands Meeting on Game Theory - SING 4**

Wroclaw, Poland, 26-28 June 2008

The meeting is set out to attract specialists with different backgrounds and interests covering all aspects of Game Theory, its applications and its practice. Invited speakers: Stef Tijs (Tilburg University), Jesús Mario Bilbao Arrese (University of Seville), Gianfranco Gambarelli (University of Bergamo), Steven J. Brams (New York University).

Abstract submission deadline: April 18, 2008.

→ 13th International Symposium On Dynamic Games And Applications

Wroclaw, Poland, June 30 – July 3 2008

Modern game theory has evolved enormously since its inception in the 1920s by Borel and von Neumann. The branch of game theory known as dynamic games descended from the pioneering work on differential games by R. Isaacs, L.S. Pontryagin and his school and from seminal papers on extensive form games by Kuhn and on stochastic games by Shapley. Since these early developments, dynamic game theory has made a significant impact in such diverse disciplines as applied mathematics, economics, systems theory, engineering, operations research, biology, ecology and the environmental sciences. On the other hand, a great variety of mathematical methods from differential equations to stochastic processes has been applied to the formulation and solution of many different problems.

Extended abstracts and invited sessions' submission deadline: April 15, 2008

→ 13th African Econometric Society Conference

Pretoria, South Africa, 9-11 July 2008

The 2008 Conference of the African Econometric Society (AES) will be hosted by the School of Economic Sciences at the University of Pretoria. The conference will take place on the University of Pretoria campus July 9-11. Two excellent keynote speakers are scheduled to address the AES conference participants. Badi Baltagi is Professor of Economics at Syracuse University and associate editor of the Journal of Econometrics. Hashem Pesaran is Professor of Economics and Fellow of the Trinity College at the University of Cambridge.

Abstract submission deadline: April 4, 2008.

→ FEMES 2008 - Far Eastern Meeting of The Econometric Society

Singapore, 16-18 July 2008

The 2008 Far Eastern and South Asian Meeting of the Econometric Society (FEMES-SAMES 2008) will be hosted by the School of Economics of Singapore Management University in the central business district of Singapore. The program will consist of plenary, invited, and contributed sessions in all fields of economics.

Papers submission deadline: 31 March 2008.

→ 3rd International Symposium on Economic Theory, Policy and Applications

Athens, Greece, 4 – 7 August 2008

The Economics Research Unit of the Athens Institute for Education and Research (ATINER) will hold its 3rd International Symposium in Athens, Greece, August 4-7, 2008. Papers (in English) from all areas of Economics are welcome. Sessions will be organized along the lines of the Journal of Economic Literature Classification Index:

Abstracts submission deadline: 31st of March 2008. Papers submission deadline: 6th of July 2008

→ International Conference on Social Sciences

Izmir, Turkey, 21-24 August 2008

This is a conference for those, who are interested in presenting paper in all fields of social sciences. The conference topic areas especially focus on such disciplines as economics, business, corporate and public governance, political science, sociology etc.

The aim of the conference was to bring together a wide audience of academicians, policy makers and practitioners around clearly circumscribed topics, engage participants in fruitful debate, and facilitate mutual understanding. An additional goal of the conference is to provide a place for academicians and professionals with inter-disciplinary/ multi-disciplinary interests related to social sciences to meet and interact with members inside and outside their own particular disciplines.

→ Workshop on Markov Switching Times Series Models

Aix en Provence, France, 25-27 August 2008

This workshop hosted at the CEDERS aims at introducing Markov Switching Times Series Models to advanced Ph D students and professional economists. The topics to be covered include: Bayesian VARs,

Markov Switching VARs and Structural models with time varying parameters (browse our program). On each topic, the morning session will take the form of a formal presentation of the concepts used in the formulation and estimation of the econometric models. The afternoon sessions will consist of tutored implementation of the estimation procedures reviewed in the morning. Data and generic programs will be distributed and taught to the student so that they master the estimation of Markov Switching Time Series Models by the end of the workshop.

The workshop will be animated by Benoit Mojon, Christopher Sims, Daniel Waggoner and Tao Zha.

Papers submission deadline: 15 May 2008.

→ Visit the CTN Members' seminars web pages

CODE: <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/>



News, Publications and Job announcements

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

→ **Book:** Connections: An Introduction to the Economics of Networks
by Sanjeev Goyal, Princeton University Press, 2007

<http://press.princeton.edu/titles/8538.html>

Article: Burstiness and Memory in Complex Systems
by Kwang-Il Goh, Albert-Laszlo Barabasi, EPL (2008)

<http://arxiv.org/abs/physics/0610233>



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

<http://pareto.uab.es/code/>

Local coordinator:

Carmen Beviá - Associate Professor of Economics, Departament d'Economia i d'Història Econòmica, Universitat Autònoma de Barcelona
e-mail: carmen.bevia@uab.es

:: GREQAM

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

Local coordinator:

Frédéric Deroïan – Research Fellow, Université de la Méditerranée
e-mail: Frederic.Deroian@univmed.fr

:: CORE

<http://www.core.ucl.ac.be/>

Local coordinator:

Vincent Vannetelbosch - Professor, Université catholique de Louvain, Faculté des sciences économiques, sociales et politiques, Département des sciences économiques
e-mail: vannetelbosch@core.ucl.ac.be

:: UNIVERSITY OF MAASTRICHT– Department of Economics

<http://www.personeel.unimaas.nl/b.klaus/CTN.html>

Local coordinator:

Bettina Klaus - Assistant Professor of Economics, University of Maastricht
e-mail: b.klaus@algec.unimaas.nl

:: CES

<http://ces.univ-paris1.fr/>

Local coordinator:

Hubert Kempf - Professor of Economics, Université Paris-1 Panthéon-Sorbonne
e-mail: kempf@univ-paris1.fr

:: UNIVERSITY of WARWICK– Department of Economics

<http://www.warwick.ac.uk/economics/>

Local coordinator:

Bhaskar Dutta - Professor of Economics, University of Warwick
e-mail: B.Dutta@warwick.ac.uk

:: FEEM

<http://www.feem.it>

Local coordinator:

Carlo Carraro - Professor of Economics, Università Ca' Foscari di Venezia
e-mail: carlo.carraro@feem.it

:: VANDERBILT UNIVERSITY– Department of Economics

<http://sitemason.vanderbilt.edu/econ/>

Local coordinator:

Myrna Wooders - Professor of Economics, Vanderbilt University
e-mail: myrna.wooders@vanderbilt.edu