Department of Economics | UNIVERSITY OF BATH

Research Theme on ***Governance of Institutions and Systems***.

A Workshop on

Centralised vs Decentralised forms of social organization and public good provision

University of Bath, 30 January and 1 February 2019

Programme

Day 1: January 31

09:45 - 10:00 Welcome remarks

10:00 - 13:00 Morning session

Robertas Zubrickas	*Donation-Based Crowdfunding with Refund Bonuses*
Eyal Winter	*Raising Capital from Heterogeneous Investors*
Edward Cartwright	*Impulse balance theory and cooperation in binary threshold public good games*

13:00 - 14:30 Lunch break

14:30 - 17:30 Afternoon session

Ajit Mishra	*Corruption and red tape*
Alexander Matros	*Tax Evasion, Embezzlement and Public Good Provision*
Martin Hellwig	*Coalition-proof social choice in large populations with single-peaked preferences, with an application to public-good provision*

Day 2: February 1

10:00 - 13:00 Morning session

Laurent Lamy	*Optimal Allotment Design*
Karl Wärneryd	*Self-Allocation in Contests*
Subhasish Chowdhury	*'Born this Way'?: Prenatal Exposure to Testosterone May Determine Behavior in Competition and Conflict*

13:00 - 14:30 Lunch break

14:30 - 17:30 Afternoon session

Tilman Börgers	*Strategically Simple Mechanisms*
Tai-Wei Hu	*Game Theoretic Decidability and Undecidability*
Javier Rivas	*Cheap Talk with Costly State Verification*

Workshop ends

Speakers (A-Z) and Presentation Abstracts

Elnaz Bajoori

University of Bath

Equilibrium selection in interdependent value auctions

Abstract. In second-price auctions with interdependent values, bidders do not necessarily have dominant strategies. Moreover, such auctions may have many equilibria. In order to rule out the less intuitive equilibria, we define the notion of distributional strictly perfect equilibrium (DSPE) for Bayesian games with infinite type and action spaces. This equilibrium is robust against arbitrary small perturbations of strategies. We apply DSPE to a class of symmetric second-price auctions with interdependent values. We show that the efficient equilibrium defined by Milgrom and Weber (1985) is a DSPE, while a class of less intuitive, inefficient, equilibria introduced by Birulin (2003) is not.

Tilman Börgers

University of Michigan

Strategically Simple Mechanisms

Abstract. We define and investigate a property of mechanisms that we call "strategic simplicity," and that is meant to capture the idea that, in strategically simple mechanisms, strategic choices require limited strategic sophistication. We define a mechanism to be strategically simple if choices can be based on first-order beliefs about the other agents' preferences and first-order certainty about the other agents' rationality alone, and there is no need for agents to form higher-order beliefs, because such beliefs are irrelevant to the optimal strategies. All dominant strategy mechanisms are strategically simple. But many more mechanisms are strategically simple. In particular, strategically simple mechanisms may be more flexible than dominant strategy mechanisms in the bilateral trade problem and the voting problem.

Edward Cartwright

Leicester Castle Business School, De Montfort University

Subhasish Chowdhury

University of Bath

'Born this Way'?: Prenatal Exposure to Testosterone May Determine Behavior in Competition and Conflict

Abstract. Fetal exposure to sexual hormones (measured by the second-to-fourth-digit-ratio) have long lasting effects on human behavior. However, no experimental study documents such effect in competition or conflict. Unbeknownst to the subjects, we perform a controlled match of gender specific High-type (top tercile digit-ratio) and Low-type (bottom tercile) as opponents in a contest game. Low-type males expend higher effort, but do not earn more than High-types. Anybody matched with Low-type males earns less than while matched with High-types. All females exert more effort against High-types, and Low-types earn more. High joy-of-winning and high spitefulness for Low-types can partially explain these results.

Martin Hellwig

Director (em.), Max Planck Institute for Research on Collective Goods

Coalition-proof social choice in large populations with single-peaked preferences

Abstract. The analysis expands on Bierbrauer and Hellwig (2016), which considered finite populations, binary choice, and robust (ex post) coalition proofness. This paper considers large populations, a one-dimensional continuum of alternatives and, in one version, group-strategy-proof implementation, in another version, monotonic social choice functions and a condition of immunity to robust blocking, where "robustness" refers to the specification of beliefs in a Bayesian framework. In either version, we show that our requirements are satisfied if and only if there is a non-decreasing "threshold" mapping from alternatives to [0,1] such that a given alternative is implemented if and only if (slight imprecision here in dealing with cases where the threshold function is flat) in a vote on whether people want to move up or not, at the given alternative the threshold for moving up is not reached and at lower alternatives the threshold for moving up is reached. Such mechanisms are generalizations of Moulin's (1980) generalized median voter mechanisms.

Tai-Wei Hu

University of Bristol

Game Theoretic Decidability and Undecidability

Abstract. We study the possibility of prediction/decision making in a finite 2-person game with pure strategies, following the Nash-Johansen noncooperative solution theory. We adopt the infinite-regress logic EIR^2 (a fixed-point extension) of the epistemic logic KD^2 to capture individual decision making from the viewpoint of logical inference. In the logic EIR^2, prediction/decision making is described by the belief set $\Delta_i(g)$ for player i, where g specifies a game. Our results on prediction/decision making differ between solvable and unsolvable games. For the former, we show that player i can decide whether each of his strategies is a final decision or not. For the latter, we obtain undecidability, i.e., he can neither decide some strategy to be a possible decision nor disprove it. Thus, the theory (EIR^2, $\Delta_i(g)$) is incomplete in the sense of Gödel's incompleteness theorem for an unsolvable game g. This result is related to "self-referential", but its main source is a discord generated by interdependence of payoffs and independent prediction/decision making.

Laurent Lamy
Ecole Nationale des Ponts et Chaussées (ENPC)

Optimal Allotment Design

Abstract. A seller has one or multiple goods for sale that he may divide into lots of various sizes. We assume exogenous constraints on the set of feasible allotments, for example an upper bound on the size of any lot. We restrict attention to dominant strategy mechanisms in which (i) a buyer gets at most one lot, and (ii) the assignment of buyers to lots is efficient. We derive the optimal allotment given these constraints. We find that while it is always preferable to increase as much as possible the size of the largest lot, feasibility constraints may not bind for the other lots, the seller may prefer to homogenize the size of smaller lots and possibly increase the number of smaller lots in order to promote the competition (through scarcity) on the most attractive lots.

Alexander Matros

University of South Carolina and Lancaster University

Tax Evasion, Embezzlement and Public Good Provision

Abstract. This paper presents a model that links tax evasion, embezzlement, and the public good provision and suggests how they are interrelated. We characterize the conditions for three types of Nash equilibria: tax evasion, embezzlement, and efficient public good provision.

Javier Rivas

University of Bath

Cheap Talk with Costly State Verification

Abstract. We extend the standard cheap talk model by allowing the receiver to perform costly state verification. We show that all equilibria are in partitions but unlike in Crawford and Sobel (1982) the elements of the partitions need not be convex. Furthermore, the ability to verify or decreasing the cost of verification may reduce the welfare of the receiver. The threat of verification, and the incentive to avoid triggering it, can distort the communication of the sender.

Karl Wärneryd

Stockholm School of Economics

Self-Allocation in Contests

Abstract. We consider contestants who must choose exactly one contest, out of several, to participate in. We show that when the contest technology is of a certain type, or when the number of contestants is large, a self-allocation equilibrium, i.e., one where no contestant would wish to change his choice of contest, results in the allocation of players to contests that maximizes aggregate equilibrium effort. For a class of oligopoly models that are equivalent to contests, this implies output maximization.

Eyal Winter

Lancaster University and Hebrew University of Jerusalem

Raising Capital from Heterogeneous Investors

Abstract. A firm raises capital from multiple investors to fund a project. The project succeeds only if the capital raised exceeds a stochastic threshold, and the firm offers payments contingent on success. We study the firm's optimal unique-implementation scheme, namely the scheme that guarantees the firm the maximum payoff. This scheme pays investors differential net returns (per unit of capital) depending on the size of their investments. We show that if the distribution of the investment threshold is log-concave, larger investors receive higher net returns than smaller investors. Moreover, higher dispersion in investor size increases the firm's payoff. Our analysis highlights strategic risk as an important potential driver of inequality.

Robertas Zubrickas

University of Bath

Donation-Based Crowdfunding with Refund Bonuses

Abstract. We study donation-based crowdfunding for threshold public good provision. Our main focus is on an extension with refund bonuses aimed at resolving the problems of equilibrium coordination and free riding. In the case of insufficient contributions, contributors not only have their contributions refunded but they also receive refund bonuses proportional to their pledged contributions. Thus, refund bonuses encourage more contributions but ultimately enough is raised given sufficient preference for the public good and in equilibrium no bonuses need to be paid. We test the predicted effects of refund bonuses in an experiment using a laboratory-based crowdfunding platform that features most main aspects of real-life platforms. Our main empirical result is that refund bonuses substantially increase the rate of funding success when contributors can support multiple projects. Furthermore, our findings also demonstrate that refund bonuses lead to significant economic gains even after accounting for their costs.