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Education

Ph.D. 2014 Rice University, Economics

Advisor: Prof. Hervé Moulin

Thesis Title: Essays in cooperative stability (*successfully defended on February 26*)

M.A. 2011 Rice University, Economics

M.Sc. 2006 İstanbul Bilgi University, Economics

B.A. 2004 Boğaziçi University, Economics

Fields of Interest

Microeconomic theory, cooperative game theory, mechanism design, fair division, social choice theory and matching theory

Publications and Revise & Resubmits

Arrovian impossibilities in aggregating preferences over non-resolute outcomes (with Remzi Sanver), *Social Choice and Welfare*, 2008, 30 (3), 495-506.

On the alternating use of "unanimity" and "surjectivity" in the Gibbard-Satterthwaite Theorem (with Remzi Sanver), *Economics Letters*, 2007, 96 (1), 140-143.

Strongly stable and responsive cost sharing solutions for minimum cost spanning problems, *International Journal of Game Theory*, R&R, 2014.

Working Papers

Absence-proofness: A new cooperative stability concept (*Job Market Paper*)

Population monotonicity in fair division of multiple indivisible goods

Work in Progress

Egalitarianism in minimum cost spanning tree problems (with Barış Esmerok)

Constrained Random Assignment

Teaching Experience*Instructor (all in İstanbul Bilgi University)*

Summer 2013	Intermediate microeconomics II
Summer 2013	Intermediate microeconomics I
Summer 2012	Introduction to microeconomics

*Teaching Assistant**Rice University*

Spring 2013	Econ 301	Microeconomics II
Fall 2012	Econ 201	Microeconomics I
Spring 2012	Econ 484	Public goods
Fall 2011	Econ 201	Microeconomics I
Spring 2011	Econ 301	Microeconomics II
Spring 2010	Econ 508	Advanced microeconomics II
Fall 2009	Econ 370	Microeconomic theory
Spring 2009	Econ 445	Managerial economics
Fall 2008	Econ 477	Mathematical economics
Spring 2008	Econ 355	Financial markets
Fall 2007	Econ 451	Labor economics

Bilgi University

Spring 2006	Econ 102	Introduction to macroeconomics
Fall 2005	Econ 101	Introduction to microeconomics

Other Professional Activities*Presentations*

International Workshop on Game Theory and Economic Applications of the Game Theory Society, São Paulo, Brazil, 2014 (*scheduled*)

Georgia Institute of Technology, Economics Seminar, Atlanta, GA, USA, 2014

Game Theory Society Meeting, İstanbul, Turkey, 2012.

The Eighth International Meeting of the Society for Social Choice and Welfare, İstanbul, Turkey, 2006.

Public Choice Society Meeting, New Orleans, LA, USA, 2006.

Referee Work

Theory and Decision

Administrative Tasks

Assistant to the Economics Department Coordinator at Rice University (*2011-2013*)

Additional Training

International Workshop on Game Theory and Economic Applications of the Game Theory Society, São Paulo, Brazil, 2014 (*scheduled*)

Fellowships and Grants

FAPESP accommodation and travel grant, São Paulo School of Advanced Sciences in Game Theory and Applications, São Paulo, Brazil, 2014

Graduate Fellowships, Rice University, 2006-2013

Graduate Fellowship, Istanbul Bilgi University, 2004-2006

References

Hervé Moulin, *Donald J Robertson Chair of Economics*
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Summary of research

Cooperative Stability: Cooperative game theory, assignment, fair division

Absence-proofness: A new cooperative stability concept

We introduce a new cooperative stability concept, *absence-proofness* (AP). Absence-proofness implies core stability where both properties naturally apply. In fair division problems, where core has no bite, AP imposes core-like participation constraints on solutions. In both fair division problems and TU games, well-known *population-monotonicity* (PM) property implies AP. Although solutions that are AP but not PM exist for very specific problems, our work suggests that these properties have very close formal implications. In exchange economies with private endowments we provide many negative results. Particularly, the Walrasian allocation rule is manipulable.

Population monotonicity in fair division of multiple indivisible goods

We consider the fair division of a set of indivisible items where each agent can get more than one good and monetary transfers are allowed. For the problems with three or more goods, population monotonicity is incompatible with efficiency except for very specific Cartesian product preference domains. For the 2-goods case, we show that the Shapley solution and the constrained egalitarian solution is PM on the subadditive preference domain. We also define hybrid solutions that are PM on the full domain. Among them, the hybrid Shapley solution is PM. We are still working on the characterization of this solution.

Cost Sharing

Strongly stable and responsive cost sharing solutions for minimum cost spanning tree problems

On the cost sharing solutions to a minimum cost sharing problem, we define a strong stability property absence-proofness that implies stand alone core stability. We show that the well-known Bird and Dutta Kar solutions fail this property as well as all non-separable solutions while all population monotonic solutions are strongly stable. We also propose a family of strongly stable solutions that are easy to compute and more responsive than the well-known Folk solution to the asymmetries in the cost data.

Egalitarianism in minimum cost spanning tree problems (with Barış Esmerok)

We ask for equitable allocations in cost sharing of a spanning tree with minimal cost applying two criteria: Lorenz domination and Rawlsian (leximin) domination. We give a simple algorithm to calculate the constrained egalitarian solution (Dutta-Ray solution) which yields both the Lorenz and the leximin dominant allocation within the irreducible core of the associated cost sharing game.

Outline of the further research is as follows: Characterize the solution stated above, find an algorithm to calculate the leximin dominant allocation in the standard stand alone core (not the irreducible core), and axiomatically compare these two solutions.

Matching

Constraint random assignment

Inspired by the compulsory assignment of medical fellows to the rural hospitals in Turkey, we study the random assignment where agents can only submit a restricted list of

preferences. It is shown that no strategy-proof and efficient mechanism exists in this setting. Outline and the main questions of this work are as follows: Define ordinal and cardinal efficiency, fairness and alternative incentive compatibility properties in this restricted environment. Define the current mechanism, Turkish fellow placement (*TFP*), used in Turkey and discuss its deficiencies. Compare the existing mechanisms in the literature in terms of vulnerability to manipulation by misrepresenting preferences.

With an additional experimental study we also aim to propose an overhaul of the most prominent random assignment mechanisms (random priority, probabilistic serial and *TFP*) when we impose a maximal length of the submitted preference lists. We want to pinpoint the characteristics of the fellows that lead them to strategize under different mechanisms, and then use these characteristics to compare the mechanisms in terms of inefficiencies resulting from strategic moves.

Social Choice

Arrovian impossibilities in aggregating preferences over non-resolute outcomes

Let A be a set of alternatives whose power set is \mathcal{A} . Elements of \mathcal{A} are interpreted as non-resolute outcomes. We consider the aggregation of preference profiles over \mathcal{A} into a (social) preference over \mathcal{A} . In case individuals are allowed to have any complete and transitive preference over \mathcal{A} , the Arrovian impossibility naturally applies. However, the Arrovian impossibility prevails, even when the set of admissible preferences over \mathcal{A} is severely restricted. In fact, we identify a mild “regularity” condition which ensures the dictatorship of a domain. Regularity is compatible with almost all standard extension axioms of the literature. Thus, we interpret our results as the strong prevalence of Arrow’s impossibility theorem in aggregating preferences over non-resolute outcomes.

On the alternating use of “unanimity” and “surjectivity” in the Gibbard-Satterthwaite Theorem

Surjectivity and unanimity can be equivalently used to state the Gibbard-Satterthwaite Theorem. On the other hand, over restricted domains, replacing surjectivity with unanimity makes a stronger statement.