Ryan Tierney

Department of Economics

University of Rochester

Harkness Hall

Rochester, NY 14627, USA.

Phone: (585) 747-9833

E-mail: `ryanetierney@gmail.com`

Homepage: `http://www.econ.rochester.edu/tierney`

Citizenship: USA

Education

Ph.D. in Economics, University of Rochester, 2015 (expected)

M.A. in Economics, University of Rochester, 2011

M.A. in Economics, National Taiwan University, 2009

B.A. in Economics, Brown University, 2005

Research Fields

Market design, resource allocation, discrete economies.

Working Papers

"Managing Multiple Commons: Strategy-proofness and Min-price Walras," 2014 (Job market paper).

"Dense Manipulability of Efficient Exchange Rules," 2014.

"Strategy-proof Exchange and Simple Communication," 2012.

Work in Progress

"Strategy-proofness and Asymptotic Efficiency," 2014.

"The Role of Social Interactions in the Indian General Elections," 2014 with Umair Khalil and Sulagna Mookerjee.

Conference Presentations

24th International Conference on Game Theory, Stony Brook, July 2013

Social Choice and Welfare Conference, Boston College, June 2014

International Workshop of the Game Theory Society, University of Sao Paulo, July 2014

Teaching Experience

Instructor for Graduate Level Courses:

  Math Review, August 2012 and 2013

Instructor for Undergraduate Level Courses:

  Intermediate Microeconomics, Summer 2012.

Economic Statistics, Summer 2013.

Teaching Assistant for Undergraduate Level Courses:

Principles of Economics, Spring 2012, Fall 2013.

Behavioral Economics, Spring 2013.

Professional Service

Referee for: *Journal of Economic Theory*, *Review of Economic Design*, *Mathematical Social Sciences*

Fellowships, Scholarships, and Awards

Wallis Fellowship, Wallis Institute of Political Economy, Fall 2012-Spring 2013

Graduate Fellowship and Tuition Scholarship, University of Rochester, 2009-2014

Taiwan Scholarship, Ministry of Education, Taiwan, 2007-2009

Computer Skills

MATLAB, Stata

Languages

English (native), Mandarin Chinese (fluent and literate)

References

Professor William Thomson (advisor)

Department of Economics

University of Rochester

Harkness Hall

Rochester, NY 14627, USA.

Phone: (585) 275-2236

Email: wth2@mail.rochester.edu

Professor Srihari Govindan

Department of Economics

University of Rochester

Harkness Hall

Rochester, NY 14627, USA.

Phone: (585) 275-7214

Email: s.govindan@rochester.edu

Professor Paulo Barelli

Department of Economics

University of Rochester

Harkness Hall

Rochester, NY 14627, USA.

Phone: (585) 275-8075

Email: paulo.barelli@rochester.edu

Last updated: November 2014

Managing Multiple Commons: Strategy-proofness and Min-price Walras

(Job Market Paper)

There are several locations, each of which is endowed with a resource that is specific to that location. Examples include coastal fisheries, oil fields, etc. Each agent will go to a single location and harvest some of the resource there. Several agents may go to each location. Selling the commons for money is not desirable, either because agents have equal right to use the resources or because control of the commons would give unacceptable market power to its owner. Thus we will assign harvesting rights based on preferences alone, though the model can be extended to accommodate private endowments of money. We find the best allocation rule in the class of rules that are weakly pairwise strategy-proof, anonymous, and that satisfy a weak continuity property. The rule is defined via a simulated price equilibrium, wherein agents buy their desired resource with tokens distributed by the social planner. Equilibria of this form are not unique as full distribution of the resources is not required. However, equilibrium price vectors form a lower semilattice and thus there is a unique minimal price vector. The equilibria associated with the minimal price vector are called min-price Walrasian equilibria. These equilibria form an essentially single-valued correspondence, and this correspondence is the rule we characterize.

Dense Manipulability of Efficient Exchange Rules

We study a classical model. There are two divisible goods. Each agent has an endowment of the goods and continuous, monotone, convex preferences over bundles. Agents may benefit from trade. An exchange rule is a mapping that, for each profile of preferences, calculates for each agent a trade that he finds acceptable, given his preferences. Material balance is preserved: the sum of these trade vectors is the zero vector. It is known that no strategy-proof exchange rule always yields Pareto efficient outcomes. Strategy-proofness, however, is quite strong. We may instead ask the opposite question: if we insist upon Pareto efficiency, how frequently will the exchange rule fail to be strategy-proof? Unfortunately, we find a dense subset of a large open set on which any efficient exchange rule fails to be strategy-proof.

Strategy-proof Exchange and Simple Communication

Revelation mechanisms are impossible to execute on large preference domains. This is certainly true of the classical domain, the space of monotone and strictly convex preferences over finite-dimensional Euclidean space. Thus, any plausible game-form defined on this domain must

encode preferences into a simpler language. Clearly the outcome function of such a game-form can be sensitive only to information that can be communicated in the language. Thus we may study outcome functions directly and the richness of the message space they require. We study the outcome functions for classical exchange economies (requiring budget balance) that need at most a finite-dimensional message space. Such a function we call simple. We find that all strategy-proof, individually rational, anonymous, simple, non-exclusionary and continuous outcome functions are fixed-price mechanisms: Each such outcome function has, as a parameter, a price vector. This vector cannot vary with preferences. If any reallocation of the goods takes place, it is confined to the price hyperplane.