

Topics in Game Theory

Joana Pais

Logistics

Time. Tuesdays, 17:00–19:00

Location. TBA

Overview

Description. This course is a reading seminar on some topics in game theory, namely the theory (and practice) of matching and market design. In the first few weeks we will introduce the field, in subsequent weeks we will discuss recent papers alongside their classical antecedents. Most papers under consideration will be theoretical, although some empirical (mostly experimental) work will be discussed.

Requirements. Evaluation will be based upon class participation and discussion. Each student will be responsible for leading several discussion sessions.

Course Outline (1 hour lectures)

Lecture 1: Chapter 1 of Roth and Sotomayor (henceforth, RS).

Lecture 2: Chapter 2 of RS.

Lecture 3: Chapter 3 of RS.

Lecture 4: Chapter 4 of RS.

Lecture 5: Chapter 4 (contd.) of RS.

Lecture 6: Chapter 5 of RS.

Lecture 7: Chapter 8 of RS.

Lectures 8 - 9: Experiments on matching

Lectures 10 -12: Market design (Food supply, organ donation, auctions, school choice, Internet markets, refugees and immigration,...)

References

Matching – General References

Alvin E. Roth and Marilda Sotomayor. Two-Sided Matching: A Study in Game-Theoretic Modeling and Analysis, volume 18 of Econometric Society Monographs. Cambridge University Press, 1990.

Royal Swedish Academy of Sciences. Scientific background: Stable allocations and the practice of market design, 2012.

Tayfun Sonmez and M. Utku Unver. Matching, allocation, and exchange of discrete re- sources. Handbook of Social Economics, 1:781–852, 2009.

Market Design – General References

Scott Duke Kominers, Alexander Teytelboym, and Vincent P. Crawford. An invitation to market design. *Oxford Review of Economic Policy*, forthcoming.

Alvin E. Roth. The art of designing markets. *Harvard Business Review*, 85:118–126, 2007.

Alvin E. Roth. What have we learned from market design? In Nir Vulkan, Alvin E. Roth, and Zvika Neeman, editors, *The Handbook of Market Design*, pages 7–50. Oxford University Press, 2013.

Alvin E. Roth. *Who Gets What – And Why: The New Economics of Matchmaking and Market Design*. Houghton Mifflin Harcourt, 2015.

Market Design – Particular Topics

Food Supply:

Canice Prendergast. The allocation of food to food banks. Booth School of Business Working Paper, 2017.

School Choice:

Yan Chen and Onur Kesten. Chinese college admissions and school choice reforms: Theory and experiments. Tepper School of Business Working Paper, 2014.

Michel Balinski and Tayfun Sonmez. A tale of two mechanisms: Student placement. *Journal of Economic Theory*, 84:73–94, 1999.

Atila Abdulkadiroglu and Tayfun Sonmez. School choice: A mechanism design approach. *American Economic Review*, 93:729–747, 2003.

Atila Abdulkadiroglu, Parag A. Pathak, and Alvin E. Roth. Strategyproofness versus efficiency in matching with indifference: Redesigning the NYC high school match. *American Economic Review*, 99:1954–1978, 2009.

Onur Kesten. School choice with consent. *Quarterly Journal of Economics*, 125:1297–1348, 2010.

Fuhito Kojima. School choice: Impossibilities for affirmative action. *Games and Economic Behavior*, 75:685–693, 2012.

Isa Emin Hafalir, M. Bumin Yenmez, and Muhammed Ali Yildirim. Effective affirmative action in school choice. *Theoretical Economics*, 8:325–363, 2013.

Parag A. Pathak and Peng Shi. How well do structural demand models work? Counter-factual predictions in school choice. MIT Working Paper, 2017.

Internet Markets

Andrey Fradkin. Search, matching, and the role of digital marketplace design in enabling trade: Evidence from Airbnb. MIT Working Paper, 2017.

Spectrum Auctions

Kevin Leyton-Brown, Paul Milgrom, and Ilya Segal. Economics and computer science of a radio spectrum reallocation. *Proceedings of the National Academy of Sciences*, 114:7202–7209, 2017.

FCC Staff. The broadcast television spectrum incentive auction: Innovation in policy to ignite innovation for consumers and business, 2013.

Scott Duke Kominers. To improve wireless networks, auction the airwaves. *Bloomberg View*, July 24, 2017.

Paul Milgrom. *Discovering Prices: Auction Design in Markets with Complex Constraints*. Columbia University Press, 2017.

Paul Klemperer. Using and abusing auction theory. In Nir Vulkan, Alvin E. Roth, and Zvika Neeman, editors, *The Handbook of Market Design*, pages 62–89. Oxford University Press, 2013.

Refugees and Immigrants

Andersson, T. and L. Ehlers (2017), “Assigning Refugees to Landlords in Sweden: Stable Maximum Matchings” Lund University WP18.

Delacretaz, D., Kominers, S. D., and A. Teytelboym (2016), “Refugee Resettlement” <http://www.t8el.com/jmp.pdf>

Jones, W. and A. Teytelboym (2016), “The Local Refugee Match”.

Jones, W. and A. Teytelboym (2016), “The Refugee Match”.

Jones, W. and A. Teytelboym (2016), “Matching Systems for Refugee Resettlement”.

Moraga, J. F.-H. and H. Rapoport (2014), “Tradable Immigration Quotas” *Journal of Public Economics* 115: 94–108.