

Behavioural game theory

Pro-social preferences and strategic interactions

Instructor: Christophe Heintz

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By appt. (e-mail: christophe.heintz@gmail.com); or just pop in!

Type: CogSci research course, fall term, 2014

Level: Research course, 2 credits

Class: Thursdays 13:30 – 15:10

Hattyu u. 14, 4th floor, Students' room

Course description

What decisions do we take when they involve others' choices and welfare?

We will read and discuss papers about the psychological factors that underpin decision-making, focusing on decisions taken when interacting with others. We will see that these decisions depend on social preferences, which we will attempt to specify. The decisions taken when interacting with others also depend on how others are predicted to behave. We will investigate how these predictions are formed and their effects on decision-making.

The course will have three parts:

1. An introduction to decision theory and behavioural economics
2. Studies on other-regarding preferences
3. Studies on strategic decision making

Learning outcome

- Acquaintance with the problems and methods of behavioural economics, especially concerning
 - the study of pro-social motives
 - bounded rationality (biases and adaptive heuristics)
- Knowledge about how to model decision making in strategic situations.

At the end of the course, students should master a number of concepts and models used in decision sciences and game theory, such as 'preference', utility function, maximisation of expected utility, and Nash equilibrium. They will know about a number of findings in behavioural economics: the most famous biases, such as the 'sunk cost fallacy', and theories of social preferences, such as inequity aversion. Last but not least, they will become familiar with the experimental method used in behavioural economics.

Course requirements

- Two one-page essays: the essays will consist of an empirical hypothesis about motivation and/or cognition at work when taking a decision, and an experimental protocol (or the description of a computer simulation, or a mathematical model) meant to test the hypothesis.
60% of the final grade
- Some coursework: solving some exercises in decision and game theory.
20% of the final grade.
- Articles presentations and participation to the class. Students will be asked to write hands-out and stimulate discussion during two sessions with discussion format.
20% of the final grade.

Homework due: Exercises will be due the week after they are given. The first essay should be handed in before week 8, and the second essay should be handed in before week 12.

Online platform: For reason of convenience, the material of the course will be stored on my website (rather than the ceu e-learning site) at the URL:
<http://christophe.heintz.free.fr/bgt/>

COURSE SCHEDULE

Part 1: Issues in behavioural economics

1. Decision theory: a crash course

Goal: introduce the model of rational decision making, or homo economicus and specify the interest of the model for psychologists. We will review the following issues:

- The role of incentives and cost-benefit analysis
- Theory of revealed preferences: explicit goals, implicit motivations, or mere dispositions (evolutionary function)?
- Taking risks into account

Main readings:

p.15-33 from:

Levitt and Dubner (2005) *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything*. New York: William Morrow.

Chapter 1 of:

Frank, Robert H. (2008) *Microeconomics and Behavior*. McGraw-Hill.

To go further:

Any introductory textbook on micro-economics. Including:

Frank, Robert H. (2008) *Microeconomics and Behavior*. McGraw-Hill.

2. Some results in behavioural economics

Goal: Illustrate the work of behavioural economics with a set of examples showing “predictable irrationality” and ways to test and theorise such departures from rational choice.

- Ignorance of the base rate
- Conjunction fallacy
- Loss aversion (is not risk aversion)
- The attractiveness of “free”
- Sunk cost fallacy
- Hyperbolic discounting
- Crowding out: an intro to social preferences

Reading

Ariely, Dan (2008). *Predictably Irrational: The Hidden Forces that Shape Our Decisions*. New York: HarperCollins Publishers.

Part 2: Social preferences---an account of pro-social behaviour?

3. Models of social preferences: inequity aversion, social welfare, competition

Goal: introducing the standard methods for investigating pro-social preferences, and the main models specifying these preferences with utility functions.

Main reading

Charness G., Rabin M. (2002) Understanding social preferences with simple tests. *Quarterly Journal of Economics*, 117 (3), p. 817-869.

Supplementary readings:

Fehr E., Fischbacher U. (2002) Why social preferences matter - The impact of non-selfish motives on competition, cooperation and incentives. *The Economic Journal*, 112, p. 1-33

Engel, C. (2010) Dictator games: a meta-study. MPI Collective Goods Preprint No. 2010/07

First part of Guala, F. (2005) *The Methodology of Experimental Economics*, Cambridge University Press.

Camerer (2003) p. 43 to 101

4. Reciprocity

Main reading

E Fehr, U Fischbacher and S. Gächter (2002) Strong reciprocity, human cooperation, and the enforcement of social norms. *Human nature*, vol. 13, num. 1, pp. 1–25

Supplementary readings

Outcome vs. intention-based preferences

Falk A., Fehr E., Fischbacher u. (2008) Testing theories of fairness. Intentions matter. *Games and Economic Behavior*, 62, p. 287-303

McCabe K., Rigdon M., Smith V.L. (2003) Positive reciprocity and intentions in trust games. *Journal of Economic Behavior & Organization*, 52, p. 267-275.

Bolton, G. and Ockenfels, A. (2000) A theory of equity, reciprocity and competition. *American Economic Review*, vol. 90, p. 166—196.

Strong vs. weak reciprocity

E. Fehr, S. Gächter (2002) Altruistic punishment in humans. *Nature*, vol. 415, pp. 137—140

Guala, F. (2011) “Reciprocity: Weak or Strong? What Punishment Experiments Do (and Do Not) Demonstrate”, DEAS Working Paper 2010-23.BBS .

Evolutionary considerations

Fehr, E. & Henrich, J., (2003) Is Strong Reciprocity a Maladaptation. In *Genetic and Culture Evolution of Cooperation* edited by Peter Hammerstein. MIT Press.

Gintis, H. (2000) Strong reciprocity and human sociality. *Journal of Theoretical Biology*. Vo. 206, pp. 169--179.

5. Guilt aversion, aversion to disappointing

Main reading

Heintz, C., Celse, J., Giardini, F., Max, S. (2014) Facing others' expectations: those that we prefer to fulfil and those that we ignore. Working paper.

Supplementary readings

Dana, J., Cain, D. M., & Dawes, R. M. (2006). What you don't know won't hurt me: Costly (but quiet) exit in dictator games. *Organizational Behavior and Human Decision Processes*, 100, 193–201.

Dana, J., Weber, R. a., & Kuang, J. X. (2007). Exploiting moral wiggle room: experiments demonstrating an illusory preference for fairness. *Economic Theory*, 33(1), 67–80.

Ockenfels, A., & Werner, P. (2012). “Hiding behind a small cake” in a newspaper dictator game. *Journal of Economic Behavior & Organization*, 82(1), 82–85.

Vranceanu, R., Sutan, A., & Dubart, D. (2010). Trust and Financial Trades: Lessons from an Investment Game Where Reciprocators Can Hide Behind Probabilities. *Business*.

Broberg, T., Ellingsen, T., & Johannesson, M. (2007). Is generosity involuntary? *Economics Letters*, 94(1), 32–37.

To go further: models

Bénabou, R., & Tirole, J. (2005). Incentives and prosocial behavior. Retrieved from <http://www.nber.org/papers/w11535>

Bénabou, R., & Tirole, J. (2009). Intrinsic and Extrinsic Motivations. *The Review of Economic Studies*, 70(3), 489–520.

6. Eyes cues and other framing effects

Main readings

Haley K., Fessler D. (2005) Nobody's watching? Subtle cues affect generosity in an anonymous economic game, *Evolution and Human Behavior*, 26, p. 245-256.

Supplementary readings

On eye-cues

Fehr E., Schneider F. (2009) Eyes are on us, but nobody cares: Are eye cues relevant for strong reciprocity? *Proceedings of the Royal Society B: Biological Sciences*, 277(1686), p. 1315-1323

Ernest-Jones M., Nettle D., Bateson M. (2011) Effects of eye images on everyday cooperative behavior: a field experiment, *Evolution and Human Behavior*, 32, 172-178.

Bateson M., Nettle D., Roberts G. (2006) Cues of being watched enhance cooperation in a real world setting, *Biology Letters*, 2, p. 412-414

Shariff, A.F., & Norenzayan, A. (2007). God is watching you: Supernatural agent concepts increase prosocial behavior in an anonymous economic game. *Psychological Science*, 18, 803-809.

How much is due to framing?

Bardsley, N. (2007). Dictator game giving: altruism or artefact? *Experimental Economics*, 11(2), 122–133. Retrieved from <http://dx.doi.org/10.1007/s10683-007-9172-2>.

Burton-Chellew, Maxwell N., and Stuart A. West. "Prosocial preferences do not explain human cooperation in public-goods games." *Proceedings of the National Academy of Sciences* 110.1 (2013): 216-221.

7. Cultural variation and the construction of pro-social preferences

Main readings

Henrich et. Al. (2005) "Economic man" in cross-cultural perspective: Behavioral experiments in 15 small-scale societies. *BBS*.

Supplementary readings

Herrmann B., Thöni C., Gächter S. (2008) Antisocial punishment across societies, *Science*, 319(5868), p.1362-7.

S. Lamba, R. Mace (2011) Demography and ecology drive variation in cooperation across human populations. *Proceedings of the National Academy of Sciences* 108 (35) p. 14426-14430

Heintz, C. (2013). What can't be inferred from cross-cultural experimental games. *Current Anthropology*, 54(2), 165–166.

Heintz, C., & Bardsley, N. (2010). The implication of social cognition for experimental economics. *Mind & Society*, 9(2), 113–118. doi:10.1007/s11299-010-0082-1

Granovetter M (1985) Economic action and social structure: the problem of embeddedness. *Am J Sociol* 91(3):481–510

Part 3: Game theory and strategic interactions

8. Game theory: a crash course

Goal: as the name indicates, we'll try to acquire the main notions and techniques of game theory in just one session...

- Example of games
- Dominance-solvable games
- Mixed strategy
- Nash equilibria

Reading: any textbook in game theory. For instance:

Binmore, K. (2007). *Game Theory: A Very Short Introduction*. Art History. Oxford University Press.

9. Beliefs in social interactions

Main reading

Molnár, A., and C. Heintz (2014) Prior beliefs about others' social choices: People evaluate how prosocial others are and overestimate selfishness. Working paper.

Further readings

Chapter 6 of Camerer, C. F. (2003). Behavioral Game Theory: Experiments in Strategic Interaction (Roundtable Series in Behavioral Economics) (p. 584). Princeton University Press.

10. Eductive reasoning

Main reading

Sutan, A., & Willinger, M. (2009). Guessing with negative feedback: An experiment. *Journal of Economic Dynamics and Control*, 33(5), 1123–1133.

To go further

Nagel, R. (1995). Unraveling in guessing games: An experimental study. *The American Economic Review*, 85(5), 1313–1326.

Camerer, C., Ho, T., & Chong, J. (2004). A cognitive hierarchy model of games. *The Quarterly Journal of Economics*.

Ohtsubo, Y., & Rapoport, A. (2006). Depth of reasoning in strategic form games. *The Journal of Socio-Economics*.

11. How to coordinate: Shelling games

Main reading

Mehta, J., Starmer, C., & Sugden, R. (1994). The nature of salience: An experimental investigation of pure coordination games. *The American Economic Review*.

Further readings

Mehta, Judith, Starmer, C., & Sugden, R. (1994). Focal points in pure coordination games: An experimental investigation. *Theory and Decision*, 36(2), 163–185.

Bardsley, N., Mehta, J., Starmer, C., & Sugden, R. (2006). The nature of salience revisited: cognitive hierarchy theory versus team reasoning. *Economic Journal*.

Crawford, V. (2008). The power of focal points is limited: even minute payoff asymmetry may yield large coordination failures. *The American Economic Review*, 98(4), 1443–1458.

Janssen, M. (2001). Rationalizing focal points. *Theory and Decision*, 50, 119–148.

Sugden, R. (1995). A theory of focal points. *The Economic Journal*.

12. Group decision-making

Main reading

Hugo Mercier, Emmanuel Trouche, Hiroshi Yama, Christophe Heintz, Vittorio Girotto (2014) Experts and laymen grossly underestimate the benefits of argumentation. Submitted.

To go further

TBA