

Experimental economics: Documenting social preferences and cognitive biases

Instructor: Christophe Heintz

Office Hours:

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Type: CogSci research course, fall term, 2018
Level: Research course, 2 credits
Class: Wednesdays 3:30 pm – 5:10 pm
October 6th u., 7. First floor; room 103.

Course description

In this course, we will read and discuss papers about the psychological factors that underpin decision-making, focusing on decisions taken when interacting with others.

The course will have three parts:

1. An introduction to decision theory and behavioural economics

Behavioral game theory is a subfield of behavioral economics, in which behavior is analyzed in terms of the costs and benefits it brings about. We will dedicate the first sessions to explaining the framework and its key notions, such as 'bounded rationality' and 'cognitive biases'.

2. Studies on cognitive biases

We will review the experimental literature documenting some of the most important cognitive biases: decoy effect, sunk cost effect, ambiguity aversion.

3. Studies on other-regarding preferences and strategic decision making

We will then look at choices in strategic contexts: that's where game theory is relevant, because the benefits of the choices made also depend on what others' choose. We will see that these decisions depend on social preferences, which we will attempt to specify. Also, 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.

Learning outcome

- Acquaintance with the problems and methods of experimental economics, especially concerning
 - the study of pro-social motives
 - bounded rationality (biases and adaptive heuristics)
- Knowledge about the psychological bases of economic behaviour

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, they will become familiar with the experimental method used in experimental and 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.
50% of the final grade
- Some coursework: solving some exercises in decision and game theory.
20% of the final grade.
- Articles presentations: students will be asked to write hands-out and stimulate discussion during two sessions with discussion format.
20% of the final grade.
- Participation to the class: students are expected to actively engage with the questions raised in the course, challenge or defend the psychological theories presented in the readings, question the methodology, etc.
10% of the final grade.

Homework due: Exercises will be due the week after they are given. The two one-page essays should be handed in before week 12.

COURSE SCHEDULE

Part 1: Intro to the method and theoretical framework of experimental 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 key 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”
- Hyperbolic discounting
- Crowding out: an intro to social preferences

Main reading

Chapter 3 of:

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

To go further

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

Part 2: The psychological bases of ‘cognitive biases’

3. Sunk cost fallacy: theories and experiments

Main reading

Staw, B. M. (1981). The escalation of commitment to a course of action. *Academy of management Review*, 6(4), 577-587.

To go further

Arkes, Hal R. (1985) and Catherine Blumer. "The psychology of sunk cost." *Organizational behavior and human decision processes* 35.1 : 124-140.

Heath, C. (1995). Escalation and de-escalation of commitment in response to sunk costs: The role of budgeting in mental accounting. *Organizational Behavior and Human Decision Processes*, 62(1), 38-54.

Friedman, D., Pommerenke, K., Lukose, R., Milam, G., & Huberman, B. A. (2007). Searching for the sunk cost fallacy. *Experimental Economics*, 10(1), 79-104.

Olivola, C. Y. (2018). The interpersonal sunk-cost effect. *Psychological science*, 29(7), 1072-1083.

Sweis, B. M., Abram, S. V., Schmidt, B. J., Seeland, K. D., MacDonald, A. W., Thomas, M. J., & Redish, A. D. (2018). Sensitivity to "sunk costs" in mice, rats, and humans. *Science*, 361(6398), 178-181.

4. Decoy effect

Main reading

Ariely D, Wallsten TS. 1995 Seeking subjective dominance in multidimensional space: An explanation of the asymmetric dominance effect. *Organ. Behav. Hum. Decis. Process.* 63, 223–232. (doi:10.1006/obhd.1995.1075)

To go further

Lea AM, Ryan MJ. 2015 Irrationality in mate choice revealed by túngara frogs. *Science* (80-.). 349, 964–966. (doi:10.1126/science.aab2012)

Trimmer, P. C. (2013). Optimal behaviour can violate the principle of regularity. *Proceedings of the Royal Society of London B: Biological Sciences*, 280(1763), 20130858.

5. Attitude towards risk and ambiguity aversion

Main reading

Rode, C., Cosmides, L., Hell, W., & Tooby, J. (1999). When and why do people avoid unknown probabilities in decisions under uncertainty? Testing some predictions from optimal foraging theory. *Cognition*, 72(3), 269-304.

To go further

Fox, C. R., & Tversky, A. (1995). Ambiguity aversion and comparative ignorance. *The quarterly journal of economics*, 585-603.

Ghirardato, P., & Marinacci, M. (2002). Ambiguity made precise: A comparative foundation. *Journal of Economic Theory*, 102(2), 251-289.

Part 3: Social preferences and strategic choices

6. 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:

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

7. The evolution of prosociality

Goal: introducing the problem of cooperation, from an evolutionary perspective. Specifying the ultimate causes and proximate mechanisms of prosocial choices, including Strong 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.

8. Aversion to disappointing

Goal: introducing the idea of mind-directed preferences and their consequences on social behaviour.

Main reading

Heintz, C., Celse, J., Giardini, F., & Data, S. M. (2015). Facing expectations: Those that we prefer to fulfil and those that we disregard. *Judgment and Decision Making*, 10(5), 442.

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.

9. Attitudes towards social norms

Main readings

Bicchieri, C., & Muldoon, R. (2011). Social norms. *Stanford Encyclopedia of Philosophy*.

Available: <https://seop.illc.uva.nl/entries/social-norms/>

Supplementary readings

Chapter 1 and 2: Bicchieri, C. (2005). *The grammar of society: The nature and dynamics of social norms*. Cambridge University Press.

Heintz, C., Karabegovic, M., & Molnar, A. (2016). The co-evolution of honesty and strategic vigilance. *Frontiers in psychology*, 7.

10. 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.

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*.

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

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*.

12. Group decision-making or a topic to the choice of the students

Main reading

Mercier, H., Trouche, E., Yama, H., Heintz, C., & Girotto, V. (2015). Experts and laymen grossly underestimate the benefits of argumentation for reasoning. *Thinking & Reasoning*, 21(3), 341-355.

Mercier, Hugo. "The argumentative theory: Predictions and empirical evidence." *Trends in cognitive sciences* 20.9 (2016): 689-700.

Bang, D., & Frith, C. D. (2017). Making better decisions in groups. *Royal Society Open Science*, 4(8), 170193.