Jean-Robert Tyran
University of Vienna & Copenhagen

Master course at the
University of Copenhagen
Summer 2017

Behavioral and Experimental Economics

Behavioral economics attempts to make economics a more relevant and powerful science of human behavior by integrating insights from psychology and the social sciences into economics. Experimental economics adapts methods developed in the natural sciences to study economic behavior. Experiments are valuable in testing to what extent the integration of insights from other disciplines into economics is necessary and fruitful.

Behavioral and Experimental Economics is a vibrant field of research in economics and sheds new light on many old and important issues in economics. The field has received wide recognition in recent years, for example by the award of the Nobel Prize in Economics 2002 to Daniel Kahneman and Vernon Smith (the Nobel Prize winners Reinhard Selten 1994, Elinor Ostrom in 2009, and Alvin Roth 2012 have also importantly contributed to experimental economics; the winners George Akerlof 2001 and Robert Shiller 2013 have contributed to Behavioral Economics). The field is rapidly growing. This course can therefore not provide a comprehensive overview but concentrates on selected topics instead.

The course addresses the following questions:

- What are the advantages and limitations of experimental economics?
- How important are deviations from the assumptions of full rationality and strict self-interest in determining outcomes of economic interaction?

It is argued that identifying individual-level "anomalies" is not sufficient to demonstrate their economic and social importance. Instead, it must be analyzed how institutions mitigate and multiply these anomalies. A broad range of institutions, including markets, bargaining and voting is discussed.

Requirements: A sound knowledge of microeconomics and game theory is required.

Successful completion of this course earns students **7.5 ECTS** credits.

Grading: a) participation in experiments and analysis of experimental data is required for admission to final exam, b) 100% final exam (2 hours). The assessment language is English.

a) Participating in all demonstration experiments is an essential element of this course. However, you are not expected to prepare these experiments. You earn a "pass" grade if you are present (see schedule), are attentive and make "reasonable" choices during the experiment.
   Students are invited to work on assignments relating to the experiments. Students provide a rough analysis after each experimental session and answer specific questions concerning the experiment. Knowledge of the literature is not expected at this stage (we will talk about the experiments in the lecture). Maximum length of a paper: 4 pages text (not counting graphs, tables, see separate guidelines for more details). Students work in groups (of 2 or) 3. Papers are graded as "pass" or "fail" and *one "pass" paper is required* for admission to the final exam.

b) The final exam covers the content of the entire lecture (2 hours, closed book, English). Place and date of the exam to be announced.

Schedule

Lectures are held on weekdays **10:00-13:00** at CSS (lecture hall CSS 7-0-34), starting Monday, July 24. There are no lectures on days with experiments. Lecture notes will be posted briefly before each lecture. The lecture notes summarize selected papers and address issues raised in the assignments. The exam will follow the lecture notes in level and depth of the materials covered.

Experiments are held at the Laboratory for Experimental Economics CSS 05-0-34, 10:00-13:00. **Please show up on time**. You are not expected to prepare these experiments in any way.

The assignments (questions and the data to be analyzed), readings and other materials are posted on my webpage http://homepage.univie.ac.at/jean-robert.tyran/Teaching/CPH_Summer/home_lecture.htm. You are supposed to think about the issues and look at the data for yourself. There is no need to know the literature at this point. Please send your assignments as a pdf file to me (jean-robert.tyran@univie.ac.at). Mind the deadlines.

Deadlines for handing in assignments are marked in ***bolditalics***, dates for experiments in **bold** below.

Week 1

July 24	Introduction
July 25	Experiments I (location: Øster Farimagsgade 5, room 05-0-34)
	Hand in assignment 1 by ***July 28***, 10h, by e-mail to me
July 26	Introduction
July 27	Markets
July 28	Experiments II
	Hand in assignment 2 by ***August 2,*** 10h, by e-mail to me

Week 2

July 31	Loss aversion
August 1	Biases in probability judgments
August 2	Strategic complementarity and coordination
August 3	Money illusion
August 4	Experiments III
	Hand in assignment 3 by ***August 10,*** 10h, by e-mail to me

Week 3

August 7	Money illusion / Fairness
August 8	Fairness / Voting
August 9	Voting
August 10	Public Goods
August 11	Public Goods / Q&A time

August 15 Exam

Readings

Papers marked with * are required readings. These will be extensively discussed in the lectures and can be covered in the final exam *at the level discussed* in my lectures. You are expected to read these papers but not to understand them in all details (except those discussed in class). However, I expect you to understand all concepts mentioned in class even if I do not explain them (again) in detail. For example, if I discuss an experiment on competitive markets and mention the 1st theorem of welfare economics, I expect you to know what this theorem says.

Papers marked with (*) will be extensively discussed in the lecture but are unpublished papers, i.e. no materials beyond the lecture notes are available for exam preparation.

References marked with # are recommended reading. These references provide background information.

The remaining (non-marked) papers will only be mentioned or briefly discussed during the course (and are relevant for the exam only to the extent I discuss them) or may serve as "complementary reading" for those who want to delve more deeply into the literature.

Some readings will be made available at "Teaching Materials" on my homepage. Details will be provided in the first lecture.

Introduction

Bardsley, N., Cubitt, R. Loomes, G. Moffatt, P., Starmer, C. and Sugden, R. (2010): *Experimental Economics: Rethinking the Rules*. Princeton University Press: Princeton, NJ.

* Camerer, C.F. (2015): The Promise and Success of Lab-field Generalizability in Experimental Economics: A Critical Reply to Levitt and List. *Handbook of Experimental Economic Methodology*, Ch. 14: 249-295.

* Camerer, C.F. et al. (2016): Evaluating Replicability of Laboratory Experiments in Economics. *Science* 10.1126/science.aaf0918.

Dhami, S. (2016): *Foundations of Behavioral Economic Analysis*. Oxford University Press, Introduction: 1-65.

* Falk, A. and Heckman, J. (2009): Lab Experiments Are a Major Source of Knowledge in the Social Sciences. *Science* 326(5952): 535-8.

Friedman, M. (1953): *Essays in Positive Economics*. Univ. of Chicago Press: Chicago, Ill.

Kahneman, D. (2003): Maps of Bounded Rationality: Psychology for Behavioral Economics. *American Economic Review* 93(5): 1449-75.

Kahneman, D. (2011): *Thinking, Fast and Slow*. Farrar, Straus and Giroux, New York.

Levitt, S. and List, J.A. (2006): What Do Laboratory Experiments Measuring Social Preferences Reveal About the Real World? *Journal of Economic Perspectives* 21(2): 153-74.

Olken, B.A. (2015): Promises and Perils of Pre-analysis Plans. *Journal of Economic Perspectives* 29(3): 61-80.

Ortmann, A. and Hertwig, R. (2002): The Costs of Deception: Evidence from Psychology. *Experimental Economics* 5(2): 111-31.

* Rabin, M. (2013): An Approach to Incorporating Psychology into Economics. *American Economic Review* 103(3): 617-22.

Roth, A.E. (2002): The Economist as Engineer: Game Theory, Experimentation and Computation as Tools for Design in Economics. *Econometrica* 70(4): 1341-78.

Roth, A.E. (2015): Is Experimental Economics Living Up to Its Promise? *Handbook of Experimental Economic Methodology*. Oxford Univ. Press, Ch. 1: 13-40.

* Smith, V.L. (1982): Microeconomic Systems as an Experimental Science. *American Economic Review* 72(5): 923-55.

Smith, V.L. (2002): Method in Experiment: Rhetoric and Reality. *Experimental Economics* 5(2): 91-110.

Thaler, R.E. (2016): Behavioral Economics: Past, Present, and Future. *American Economic Review* 106(7): 1577-1600.

Tversky, A. and Kahneman, D. (1974): Judgment under Uncertainty: Heuristics and Biases. *Science* 185(4157): 1124-31.

Zizzo, D. (2010): Experimenter Demand Effects in Economic Experiments. *Experimental Economics* 13: 75-98.

Competitive Markets

Davis, D.D and Holt, C.A. (1993): Experimental Economics. Princeton Univ. Press: Princeton, N.J.: Ch. 3: Double Auction Markets: 125-72, Ch. 4: Posted Offer Markets: 173-239.

Deck, C.A. and Porter, D. (2013): Prediction Markets in the Laboratory. *Journal of Economic Surveys* 27(3): 589-603.

* Smith, V.L. (1962): An Experimental Study of Competitive Market Behavior. *Journal of Political Economy* 70(2): 111-137.

* Wolfers, J. and Zitzewitz, E. (2004): Prediction Markets. *Journal of Economic Perspectives* 18(2): 107-26.

Prospect Theory, Loss Aversion, WTA/WTP-Disparity

* Andersson, O., Holm, H.J., Tyran, J.-R. and Wengström, E. (2016): Deciding for Others Reduces Loss Aversion. *Management Science* 62(1): 29-36.

* De Martino, B., Kumaran, D., Seymour, B. and Dolan, R.J. (2006): Frames, Biases, and Rational Decision-Making in the Human Brain. *Science* 313: 684-7.

Doerrenberg, P., Duncan, D. and Loeffler, M. (2016): Asymmetric Labor-Supply Responses to Wage-Rate Changes: Evidence from a Field Experiment. ZEW working paper.

* Fellner, G. and Sutter, M. (2009): Causes, Consequences, and Cures of Myopic Loss Aversion – An Experimental Investigation. *Economic Journal* 119(April): 900-916.

* Fryer, R.G., Levitt, S.D., List, J. and Sadoff, S. (2012): Enhancing the Efficacy of Teacher Incentives through Loss Aversion: A Field Experiment. NBER Working paper 18237.

* Gneezy, U., Kapteyn, A. and Potters, J. (2003): Evaluation Periods and Asset Prices in a Market Experiment. *Journal of Finance* 58(2): 821-37.

* Gneezy, U. and Potters, J. (1997): An Experiment on Risk Taking and Evaluation Periods. *Quarterly Journal of Economics* 112(2): 631-45.

Kahneman, D. and Tversky, A. (1979): Prospect Theory: An Analysis of Decisions under Risk. *Econometrica* 47: 263-91.

Mayhew, B.W. and Vitalis, A. (2014): Myopic Loss Aversion and Market Experience. *Journal of Economic Behavior and Organization* 97: 113-125.

Biases in Probability Judgments

Bar-Eli, M., Avugos, S. und Raab, M. (2006): Twenty Years of "Hot Hand" Research: Review and Critique. *Psychology of Sport and Exercise* 7(6): 525-53.

* Croson, R. and Sundali, J. (2005): The Gambler's Fallacy and the Hot Hand: Empirical Data from Casinos. *Journal of Risk and Uncertainty* 30(3): 195-209.

Fehr, E. and Tyran, J.-R. (2005): Individual Irrationality and Aggregate Outcomes. *Journal of Economic Perspectives* 19(4): 43-66.

* Friedman, D. (1998): Monty Hall's Three Doors: Construction and Deconstruction of a Choice Anomaly. *American Economic Review* 88(4): 933-46.

* Ganguly, A., Kagel, J.H. and Moser, D. (2000): Do Asset Market Prices Reflect Traders' Judgment Biases? *Journal of Risk and Uncertainty* 20(3): 219-45.

Rabin, M. and Vayanos, D. (2010): The Gambler's and Hot-hand Fallacies: Theory and Applications. *Review of Economic Studies* 77(2): 730-78.

* Slembeck, T. and Tyran, J.-R. (2004): Do Institutions Promote Rationality? An Experimental Study of the Three-Door Anomaly. *Journal of Economic Behavior and Organization* 54(3): 337-50.

* Snowberg, E. and Wolfers, J. (2010): Explaining the Favorite–Long Shot Bias: Is it Risk-Love or Misperceptions? *Journal of Political Economy* 118(4): 723-46.

* Suetens, S., Jørgensen, C.B. and Tyran, J.-R. (2016): Predicting Lotto Numbers. *Journal of the European Economic Association* 14(3): 584-607.

Yari, G. and David, G. (2012): "Hot Hand" on Strike: Bowling Data Indicates Correlation to Recent Past Results, Not Causality. *PlosOne* 7(1): e30112.

Strategic Complementarity, Coordination and Expectations

Bosch-Domenech, A. Garcia-Montalvo, J. and Nagel, R. (2002): One, Two, (Three), Infinity…: Newspaper and Lab Beauty-Contest Experiments. *American Economic Review* 92(5): 1687-701.

Porter, D.P. and Smith, V.L. (2003): Stock Market Bubbles in the Laboratory. *Journal of Behavioral Finance* 4(1): 7-20.

* Smith, V.L., Suchanek, G. and Williams, A. (1988): Bubbles, Crashes and Endogenous Expectations in Experimental Spot Asset Markets. *Econometrica* 56(5): 1119-51.

(*) Tyran, J.-R. and Øvlisen, F. (2013): Making and Educated Guess. Unpublished working paper.

The Economics of Money illusion

Akerlof, G.A. (2002): Behavioral Macroeconomics and Macroeconomic Behavior. *American Economic Review* 92(3): 411-33.

Akerlof, G.A. and Shiller, R.J. (2009): *Animal Spirits*. Princeton Univ. Press: Princeton, N.J. (in particular Ch. 4: 41-50)

Brunnermeier, M. and Juillard, C. (2008): Money Illusion and Housing Frenzies. *Review of Financial Studies* 21(1): 135-80.

Cohen, R.B., Polk, C., and Vuolteenaho, T. (2005): Money Illusion in the Stock Market: The Modigliani–Cohn Hypothesis. *Quarterly Journal of Economics* 120: 639-68.

* Cooper, K., Schneider, H.S. and Waldman, M. (2016): Limited Rationality and the Strategic Environment: Further Theory and Experimental Evidence. Forthcoming *Games and Economic Behavior*.

Duffy, J. (2008): *Macroeconomics. A Survey of Experimental Research*. Working paper U Pittsburgh, March 2008. Forthcoming in *Handbook of Experimental Economics*, Vol. 2

* Fehr, E. and Tyran, J.-R. (2001): Does Money Illusion Matter? *American Economic Review* 91(5): 1239-62.

* Fehr, E. and Tyran, J.-R. (2007): Money Illusion and Coordination Failure. *Games and Economic Behavior* 58(2): 246-68.

* Fehr, E. and Tyran, J.-R. (2008): Limited Rationality and Strategic Interaction. The Impact of the Strategic Environment on Nominal Inertia. *Econometrica* 76(2): 353-94.

Fehr, E. and Tyran, J.-R. (2014): Does Money Illusion Matter?: Reply. *American Economic Review* 104: 1063-71.

Shafir, E., Diamond, P. and Tversky, A. (1997): Money Illusion. *Quarterly Journal of Economics* 112(2): 341-74.

Tyran, J.-R. (2007): Money Illusion and the Market. *Science* 314(5841): 1042-3.

Weber, B., Rangel, A, Wibral, M. and Falk, A. (2009): The Medial Prefrontal Cortex Exhibits Money Illusion. *Proceedings of the National Academy of Science* 106(13): 5025-8.

Fairness, Trust and Institutions

* Andersen, S., Ertaç, S., Gneezy, U., Hoffman, M. and List, J.A. (2011): Stakes Matter in Ultimatum Games. *American Economic Review* 101(5): 3427-39.

Bryan J.H. and Test, M.A. (1967): Models and Helping: Naturalistic Studies in Aiding Behavior. *Journal of Personality and Social Psychology* 6(4):400-7.

Camerer, C.F. (2003): *Behavioral Game Theory*. Princeton: Princeton Univ. Press: Chapter 2: Dictator, Ultimatum, and Trust Games: 43-117.

* Cameron, L. (1999): Raising the Stakes in the Ultimatum Game: Experimental Evidence from Indonesia. *Economic Inquiry* 37(1): 47-59.

* Cappelen, A.W., Moene, K.O., Sørensen, E.Ø. and Tungodden, B. (2013): Needs versus Entitlements – An International Fairness Experiment. *Journal of the European Economic Association* 11(3): 574-98.

* Cappelen, A.W., Nielsen, U., Tungodden, B. and Tyran, J.-R. (2013): Give and Take in Dictator Games. *Economics Letters* 118(2): 280-3.

Dhami, S. (2016): *Foundations of Behavioral Economic Analysis*. Oxford University Press, Ch. 5: Evidence on Human Sociality: 344-97.

* Engel, C. (2011): Dictator Games: A Meta-Study. *Experimental Economics* 14: 583-610.

* Fehr, E. and Falk, A. (1999): Wage Rigidity in a Competitive Incomplete Contract Market. *Journal of Political Economy* 107(1): 106-34.

* Fehr, E., Kirchler, E., Weichbold, A. and Gächter, S. (1998): When Social Norms Overpower Competition. Gift Exchange in Experimental Markets. *Journal of Labor Economics* 16(2): 324-51.

Fehr, E. and Schmidt, K. (1999): A Theory of Fairness, Competition, and Cooperation. *Quarterly Journal of Economics* 64(3): 817-68.

* Franzen, A. and Pointner, S. (2012): The External Validity of Giving in the Dictator Game. A Field Experiment Using the Misdirected Letter Technique. *Experimental Economics* 16: 155-69.

* Huck, S., Lünser, G. and Tyran, J.-R. (2012): Competition Fosters Trust. *Games and Economic Behavior* 76(1): 195-209.

Huck, S., Lünser, G. and Tyran, J.-R. (2016): Price Competition and Reputation in Markets for Experience Goods: An Experimental Study. *RAND Journal of Economics* 47(1): 99-117.

Prasnikar, V. and Roth, A.E. (1992): Considerations of Fairness and Strategy: Experimental Data from Sequential Games. *Quarterly Journal of Economics* 107(3): 865-88.

Issues in Public Economics and Collective Choice

* Höchtl, W., Sausgruber, R. and Tyran, J.-R. (2012): Inequality Aversion and Voting on Redistribution. *European Economic Review* 56(7): 1406-21.

* Mechtenberg, L. and Tyran, J.-R. (2016): Voter Motivation and the Quality of Democratic Choice. Working paper no. 16-13, University of Copenhagen.

* Morton, R., Piovesan, M. and Tyran, J.-R. (2012): The Dark Side of the Vote. An Experimental Examination of the Condorcet Jury Theorem. Harvard Business School Working Paper 13-017.

* Sausgruber, R. and Tyran, J.-R. (2011): Are We Taxing Ourselves? How Deliberation and Experience Shape Voting on Taxes. *Journal of Public Economics* 95: 164-76.

* Tyran, J.-R. and Sausgruber, R. (2006): A Little Fairness may Induce a Lot of Redistribution in Democracy. *European Economic Review* 50(2): 469-85.

Cooperation and the Provision of Public Goods

Chaudhuri, A. (2010): Sustaining Cooperation in Laboratory Public Goods Experiments: A Selective Survey of the Literature. *Experimental Economics* 14(1): 47-83.

* Fehr, E. and Gächter, S. (2000): Cooperation and Punishment in Public Goods Experiments. *American Economic Review* 90(4): 980-94.

Fehr, E. and Gächter, S. (2002): Altruistic Punishment in Humans. *Nature* 415: 137-40.

Fischbacher, U., Gächter, S. and Fehr, E. (2001): Are People Conditionally Cooperative? Evidence from a Public Goods Experiment. *Economics Letters* 71: 397-404.

* Gächter, S. and Schultz, J.F. (2016): Intrinsic Honesty and the Prevalence of Rule Violations across Societies. *Nature* 531: 496-499.

* Herrmann, B., Thöni, C. and Gächter, S. (2008): Antisocial Punishment Across Societies. *Science* 319: 1362-7.

Kamei, K., Putterman, L. and Tyran, J.-R. (2015): State or Nature? Formal vs. Informal Sanctioning in the Voluntary Provision of Public Goods. *Experimental Economics* 18(1): 38-65

* Keizer, K., Lindenberg, S. and Steg, L. (2008): The Spreading Disorder. *Science* 322: 1681-5.

* Markussen, T., Putterman, L. and Tyran, J.-R. (2014): Self-Organization for Collective Action: An Experimental Study of Voting on Sanction Regimes. *Review of Economic Studies* 81(1): 301-24.

Putterman, L., Tyran, J.-R. and Kamei, K. (2011): Public Goods and Voting on Formal Sanction Schemes. *Journal of Public Economics* 95(10): 1213-22.

* Reuben, E. and Tyran, J.-R. (2010): Everyone is a Winner. Promoting Cooperation through Non-Rival Intergroup Competition. *European Journal of Political Economy* 26: 25-35.

* Thöni, C., Tyran, J.-R. and Wengström, E. (2012): Microfoundations of Social Capital. *Journal of Public Economics* 96(8): 635-643.

* Tyran, J.-R. and Feld, L. (2006): Achieving Compliance when Legal Sanctions are Non-Deterrent. *Scandinavian Journal of Economics* 108(1): 135-56.