

Behavioral Economics G6493-001

Fall 2019

Columbia University

Instructor: Mark Dean

Background

The standard model of economic behavior describes a perfectly rational, self-interested utility maximizer with unlimited cognitive resources. In many cases, this provides a good approximation of the types of behavior that economists are interested in. However, over the past 30 years, experimental and behavioral economists have documented ways in which the standard model is not just wrong, but is wrong in ways that are important for economic outcomes. Understanding these behaviors, and their implications, is one of the most exciting areas of current economic inquiry.

Course Overview

The aim of this course is to introduce you to three key areas of Behavioral Economics:

- Bounded Rationality, which studies the way in which cognitive constraints and limitations can affect economic choice
- Temptation, which studies the behavior of economic agents who suffer from self-control problems due, for example, to addiction or impatience
- Context dependence, which studies the way in which decision makers assess the outcome of a choice by its contrast with a reference point or other context provided by the choice problem rather than intrinsic taste for the outcome itself.

This is not an exhaustive list of behavioral economic topics – for example due to time limits we will not cover models of fairness, reciprocity etc – collectively described as models of social preferences. Nor will we, in any great depth, be able to cover behavioral models of risk or uncertainty.

This course forms part of the Behavioral Economics field which will this year comprise of 3 courses. The other two are “Experimental Methods in Political Economy” which will be taught by Alessandra Casella in the Fall and “Perception and Choice” which will be taught by Mike Woodford in the spring. We have worked to try to make these courses complementary – Alessandra will focus more on strategic interactions and game theory, while Mike will focus on application.

For each of the topic areas covered by the course, we will begin by discussing the evidence that the standard economic model is missing something important. We will then study the various models that have been used to fit this evidence, and how they can be tested. Finally we will look at the application of behavioral models to economic situations in order to understand their implications beyond the narrow world of behavioral economics (typically you will read the papers for this last section on your own to present to the class – see below)

The course will draw on material from many areas related to behavioral economics. Experimental economics will provide us with much of the evidence that we discuss. Decision theory will allow us to understand the observable implications of behavioral models, and so how to test them. Psychology will provide a lot of insight and enormous amounts of data regarding human behavior. Neuroscience will provide an understanding of some of the biological processes which underlie economic choice.

The course has four main aims.

1. Teach you the technical skills necessary to understand and begin research in behavioral economics
2. Provide an overview of the experimental evidence related to bounded rationality, temptation, reference dependence, and give you the tools necessary to conduct experimental research into the validity of behavioral economic models
3. Describe the models that have been developed in these areas, and show how they can be applied to address broader economic problems
4. Give a guide to some of the open questions in the literature, where research may fruitfully undertaken

Assessment

Assessment for the course will be based on two elements

1. **Presentations:** Most weeks, every member of the class will be required to prepare a 15 minute presentation on an assigned paper. One person will be selected at random to give the presentation in class.
2. **Problem Sets:** There will be three problem sets during the class, one in the for each of the topics

Each of the problem sets and the classroom presentations will carry roughly equal weight.

Prerequisites

The course is primarily designed for graduate students who have taken the 1st year microeconomics sequence. It is also possible for others to take the course if they are keen, and have a decent technical background. However, such students take the course do so at their own risk.

Course Materials

By and large, the course will be based on academic papers (which are available online) and lecture notes (which I will make available). If you are particularly interested in certain aspects of the course then there are books you might like. The first is “Notes on the Theory of Choice” by David Kreps, which is a deceptively simple book that provides a fantastic introduction to classical decision theory. The second is “Elements of Information Theory” by Thomas Cover and Joy Thomas, which will be useful for those of

you interested in the literature on rational Inattention. A third is “Neuroeconomics, Decision Making and the Brain” by Paul Glimcher and Ernst Fehr (eds) which, as its name suggests, will be interesting to those of you who are more interested in the neuroeconomics side of things. There is an *enormous* behavioral economics tome out there – “Foundations of Behavioral Economic Analysis” by Sanjit Dhami, which is now being republished in 7 volumes (!). It is definitely thorough, but I don’t know too much more about it.

Administrative Details

The class will meet on Mondays between 10.10 and 12.00 in room 1102 in the International Affairs Building.

Office hours will be Tuesdays 10.00am- 12.00pm, though I will be available outside these times if you contact me in advance.

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Timetable

9th September: Lecture 1: Introduction.

Aims

- Say hello to each other!
- Crash course in representation theorems and utility maximization
- Introduction to bounded rationality
- Introduction to limited attention

Key readings

- “Notes on the Theory of Choice”, David Kreps, Chapter 1-3

Paper for presentation:

- Gabaix, X, "Behavioral Inattention" (2017), a chapter prepared for the Handbook of Behavioral Economics (edited by Douglas Bernheim, Stefano DellaVigna and David Laibson).

16th September: Lecture 2: Bounded Rationality 1: Inattention, Consideration Sets and Satisficing

Aims

- Study our first two models two models of limited attention: consideration sets and satisficing
- Describe the issues associated with testing these models, and the various solutions that have been proposed
- Describe the evidence and applications for these models

Key readings

- Manzini, Paola, and Marco Mariotti. "Stochastic choice and consideration sets." *Econometrica* 82.3 (2014): 1153-1176.
- Masatlioglu, Yusufcan, Daisuke Nakajima, and Erkut Y. Ozbay. "Revealed attention." *The American Economic Review* (2012): 2183-2205.
- Caplin, Andrew, Mark Dean, and Daniel Martin. "Search and satisficing." *The American Economic Review* (2011): 2899-2922
- Abaluck, Jason, and Abi Adams. What do consumers consider before they choose? Identification from asymmetric demand responses. No. w23566. National Bureau of Economic Research, 2017.

Paper for presentation:

- De Clippel, Geoffroy, Kfir Eliaz, and Kareen Rozen. "Competing for consumer inattention." *Journal of Political Economy* 122.6 (2014): 1203-1234.

23rd September: Lecture 3: Bounded Rationality 2: Rational Inattention 1

Aims

- Introduce the model of rational inattention as an important workhorse model for characterizing behavior when attention is limited
- Describe how to test a model of rational inattention when information costs are unknown
- Discuss the relevant experimental evidence

Key readings

- Caplin, Andrew, and Mark Dean. "Revealed preference, rational inattention, and costly information acquisition." *The American Economic Review* 105.7 (2015): 2183-2203.
- Oliveira, Henrique, et al. "Rationally inattentive preferences and hidden information costs." *Theoretical Economics* 12.2 (2017): 621-654.
- Chambers, Christopher and Liu, Ce and Rehbeck, John, Costly Information Acquisition (February 1, 2018). Available at SSRN: <https://ssrn.com/abstract=2951887> or <http://dx.doi.org/10.2139/ssrn.2951887>

Paper for presentation:

- Gabaix, Xavier. "A sparsity-based model of bounded rationality." *The Quarterly Journal of Economics* 129.4 (2014): 1661-1710.

30th September: Lecture 4: Bounded Rationality 3: Rational Inattention 2

Aims

- Introduce the concept of Shannon mutual information as a cost of information, which is extremely popular in the applied literature
- Discuss how to solve the rational inattention model with Shannon costs

Key readings

- Matejka, Filip, and Alisdair McKay. "Rational inattention to discrete choices: A new foundation for the multinomial logit model." *American Economic Review* 105.1 (2015): 272-98.
- Caplin, Andrew, Dean Mark and Leahy, John "Rationally Inattentive Behavior: Characterizing and Generalizing Shannon Entropy", Working Paper, 2017

- Caplin, Andrew, Mark Dean, and John Leahy. "Rational inattention, optimal consideration sets, and stochastic choice." *The Review of Economic Studies* 86.3 (2018): 1061-1094.
- Sims, Christopher A. "Implications of rational inattention." *Journal of monetary Economics* 50.3 (2003): 665-690
- Miao, Jianjun, Jieran Wu, and Eric Young. *Multivariate Rational Inattention*. working paper, Boston University, 2019.
- Steiner, Jakub, Colin Stewart, and Filip Matějka. "Rational Inattention Dynamics: Inertia and Delay in Decision-Making." *Econometrica* 85.2 (2017): 521-553.
- Zhong, Weijie. "Optimal dynamic information acquisition." (2017).

Paper for presentation:

- Stevens, Luminita. "Coarse Pricing Policies." (2019).

7th October: Lecture 5: Bounded Rationality 4: Tests and Applications

Aims

- Describe experimental tests of rational inattention and the Shannon model
- Describe applications of models of attention

Key readings

- Dean, Mark, and Nathaniel Neligh. *Experimental tests of rational inattention*. Working Paper, Columbia University, 2017.
- Bartoš, Vojtěch, et al. "Attention Discrimination: Theory and Field Experiments with Monitoring Information Acquisition." *American Economic Review* 106.6 (2016): 1437-1475.
- Mackowiak, Bartosz, Filip Matejka, and Mirko Wiederholt. "Rational Inattention: A Disciplined Behavioral Model.", working paper (2018).
- Handel, Benjamin, and Joshua Schwartzstein. "Frictions or Mental Gaps: What's Behind the Information We (Don't) Use and When Do We Care?." *Journal of Economic Perspectives* 32.1 (2018): 155-78.
- Taubinsky, Dmitry, and Alex Rees-Jones. "Attention variation and welfare: theory and evidence from a tax salience experiment." *The Review of Economic Studies* 85.4 (2017): 2462-2496.
- Gaglianone, Wagner Piazza, et al. "Incentive-driven inattention." (2019).
- Van Nieuwerburgh, Stijn, and Laura Veldkamp. "Information immobility and the home bias puzzle." *The Journal of Finance* 64.3 (2009): 1187-1215.
- Martin, Daniel. "Strategic pricing and rational inattention to quality." Available at SSRN 2393037 (2012).
- Koszegi, Botond, and Filip Matejka. "An attention-based theory of mental accounting." (2018).

Paper for presentation:

- Matějka, Filip, and Guido Tabellini. "Electoral competition with rationally inattentive voters." (2016).

14th October: Lecture 6: Temptation and Self Control 1: Introduction to Temptation and Self Control

Aims

- Describe why problems of temptation and self control are important for economics
- Describe two key modeling approaches – preference for commitment and time inconsistency
- Describe classic models of menu preferences and time preference

Key readings

- Moffitt, Terrie E., et al. "A gradient of childhood self-control predicts health, wealth, and public safety." *Proceedings of the National Academy of Sciences* 108.7 (2011): 2693-2698.
- Mani, Anandi, et al. "Poverty impedes cognitive function." *science* 341.6149 (2013): 976-980.

Paper for presentation:

- "Revisiting the marshmallow test: On the interpretation of replication results" Armin Falk, *Psychological science*

21st October: Lecture 7: Temptation and Self Control 2: Models of Commitment

Aims

- Describe the Gul-Pesendorfer model of temptation and self control as a model of commitment
- Describe alternatives and extensions
- Discuss relationship between commitment and flexibility

Key readings

- Lipman, Barton L., and Wolfgang Pesendorfer. *Temptation*. No. WP2010-021. Boston University-Department of Economics, 2010.
- Amador, Manuel, Iván Werning, and George-Marios Angeletos. "Commitment vs. flexibility." *Econometrica* 74.2 (2006): 365-396.

Paper for presentation:

- Galperti, Simone. "Commitment, flexibility, and optimal screening of time inconsistency." *Econometrica* 83.4 (2015): 1425-1465.

28th October: Lecture 8: Temptation and Self Control 3: Models of Time Inconsistency

Aims

- Describe models of quasi-hyperbolic discounting
- Describe applications

Key readings

- Laibson, David. "Golden eggs and hyperbolic discounting." *The Quarterly Journal of Economics* (1997): 443-477.
- Olea, José Luis Montiel, and Tomasz Strzalecki. "Axiomatization and measurement of quasi-hyperbolic discounting." *The Quarterly Journal of Economics* 129.3 (2014): 1449-1499.
- Harris, Christopher, and David Laibson. "Dynamic choices of hyperbolic consumers." *Econometrica* 69.4 (2001): 935-957.

Paper for presentation:

- Allcott, Hunt, Benjamin Lockwood, and Dmitry Taubinsky. *Regressive sin taxes, with an application to the optimal soda tax*. No. w25841. National Bureau of Economic Research, 2019.

11th November: Lecture 9: Temptation and Self Control 4: Evidence and Applications

Aims

- Describe the evidence for present bias, preference for commitment and the link between the two
- Provide more applications of the two model

Key readings

- Augenblick, Ned, Muriel Niederle, and Charles Sprenger. "Working Over Time: Dynamic Inconsistency in Real Effort Tasks*." *The Quarterly Journal of Economics* (2015): qjv020.
- Kaur, Supreet, Michael Kremer, and Sendhil Mullainathan. "Self-control at work." *Journal of Political Economy* 123.6 (2015): 1227-1277
- Toussaert, Séverine. "Eliciting Temptation and Self-Control Through Menu Choices: A Lab Experiment." *Econometrica* 86.3 (2018): 859-889.
- Carrera, Mariana, et al. *How are Preferences For Commitment Revealed?*. No. w26161. National Bureau of Economic Research, 2019.
- Angeletos, George-Marios, et al. "The hyperbolic consumption model: Calibration, simulation, and empirical evaluation." *Journal of Economic Perspectives* 15.3 (2001): 47-68.
- Bryan, Gharad, Dean Karlan, and Scott Nelson. "Commitment devices." *Annu. Rev. Econ.* 2.1 (2010): 671-698.
- Cohen, Jonathan D., et al. *Measuring time preferences*. No. w22455. National Bureau of Economic Research, 2016.
- O'Donoghue, Ted, and Matthew Rabin. "Present bias: Lessons learned and to be learned." *American Economic Review* 105.5 (2015): 273-79.

Paper for presentation:

- Eliaz, Kfir, and Ran Spiegler. "Contracting with diversely naive agents." *The Review of Economic Studies* 73.3 (2006): 689-714.

18th November: Lecture 10: Reference Dependence 1: Evidence for Reference Dependence

Aims

- Describe what it means for choice to be 'reference dependent', and why it violates the standard model
- Introduce evidence for the fact that behavior depends on a reference point

Key readings

- Kahneman, Daniel, Jack L. Knetsch, and Richard H. Thaler. "Anomalies: The endowment effect, loss aversion, and status quo bias." *The journal of economic perspectives* (1991): 193-206.
- Isoni, Andrea, Graham Loomes, and Robert Sugden. "The Willingness to Pay—Willingness to Accept Gap, the Endowment Effect, Subject Misconceptions, and Experimental Procedures for Eliciting Valuations: Comment." *American Economic Review* 101.2 (2011): 991-1011.
- Madrian, Brigitte C., and Dennis F. Shea. "The power of suggestion: Inertia in 401 (k) participation and savings behavior." No. w7682. National bureau of economic research, 2000.
- Chapman, Jonathan, et al. "Willingness-To-Pay and Willingness-To-Accept are Probably Less Correlated than You Think." No. 6492. CESifo Group Munich, 2017.

- Marzilli Ericson, Keith M., and Andreas Fuster. "The endowment effect." *Annu. Rev. Econ.* 6.1 (2014): 555-579.

Paper for presentation:

Blumenstock, Joshua, Michael Callen, and Tarek Ghani. "Why do defaults affect behavior? Experimental evidence from Afghanistan." *American Economic Review* 108.10 (2018): 2868-2901.

25th November: Lecture 11: Reference Dependence 2: Models of Reference Dependence

Aims

- Describe two of the most influential models of reference dependent behavior
 - Prospect Theory
 - The Koszegi Rabin Model
- Discuss the question of where reference points come from

Key readings

- Kőszegi, Botond, and Matthew Rabin. "A model of reference-dependent preferences." *The Quarterly Journal of Economics* (2006): 1133-1165.
- Tversky, Amos, and Daniel Kahneman. "Loss aversion in riskless choice: A reference-dependent model." *The quarterly journal of economics* 106.4 (1991): 1039-1061.
- Ok, Efe A., Pietro Ortoleva, and Gil Riella. "Revealed (p) reference theory." *American Economic Review* 105.1 (2015): 299-321.
- Masatlioglu, Yusufcan, and Collin Raymond. "A behavioral analysis of stochastic reference dependence." *American Economic Review* 106.9 (2016): 2760-82.

Paper for presentation:

- DellaVigna, Stefano, et al. "Reference-dependent job search: Evidence from Hungary." *The Quarterly Journal of Economics* 132.4 (2017): 1969-2018.

2nd December: Lecture 12: Reference Dependence 3: Evidence and Applications

Aims

- Look at the issue of where reference points come from
- Look at some applications

Key readings

- Crawford, Vincent P., and Juanjuan Meng. "New York City cab drivers' labor supply revisited: Reference-dependent preferences with rational-expectations targets for hours and income." *American Economic Review* 101.5 (2011): 1912-32.
- Anagol, Santosh, Vimal Balasubramaniam, and Tarun Ramadorai. "Endowment effects in the field: Evidence from India's IPO lotteries." *The Review of Economic Studies* 85.4 (2018): 1971-2004.
- Heffetz, Ori, and John A. List. "Is the endowment effect an expectations effect?." *Journal of the European Economic Association* 12.5 (2014): 1396-1422.

This version: 28nd August 2019

- Marzilli Ericson, Keith M., and Andreas Fuster. "Expectations as endowments: Evidence on reference-dependent preferences from exchange and valuation experiments." *The Quarterly Journal of Economics* 126.4 (2011): 1879-1907.

Paper for presentation:

- TBD

7th December: Lecture 13: Overflow

We will decide what to do when we get here. We may need the time to complete bits of the course we are not yet caught up with, otherwise we may explore a new topic. Neuroeconomics? Non-instrumental demand for information? Biases in statistical reasoning? Who knows!