Behavioral Economics G6493-001
Spring 2015
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
- Reference Dependence, which studies the way in which people assess the outcome of a choice by its contrast with a reference point rather than intrinsic taste for the outcome itself.

This is not an exhaustive list of behavioral economic topics, and the course is designed to be complimentary to others at Columbia. Social preferences (for example fairness and reciprocity) will be covered by Alessandra Casella’s course (G6492) in Spring 2016. (My and Alessanda’s courses form this year’s field sequence in Behavioral Economics.) Pietro Ortoleva’s course (G6219), scheduled for 2016/2017 will cover behavioral models of choice under risk and uncertainty, as well as non-Bayesian learning. Mike Woodford’s course (G6220), also scheduled for 2016/17, will discuss macroeconomic applications of the models of bounded rationality I introduce in this course.

For each of the three 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 approaches that have been used to fit this evidence, and how these models can be tested. Finally we will look at the application of behavioral models to economic situations in order to understand their implications.

The course will draw on materiel 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. Neuroeconomics 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 and reference dependent preferences, 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 have been applied more widely in the economics literature
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:** Approximately every other week, 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. **Exams:** There will be three take home exams (or problem sets) during the class, one in the for each of the topics

Each of the exams 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. However, 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). There are a few books that you may find useful. 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.
Administrative Details
The class will meet on Wednesdays between 2.10 and 4.00 in 1102 in the international affairs building.

Office hours will be Mondays 4.00pm-6.00pm, though I will be available outside these times if you contact me in advance.

My contact details are as follow:
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Telephone: 212 854 3669
Email: mark.dean@columbia.edu
Website: TBD (lecture notes will be posted here)

Timetable
Following an introductory lecture, the course will be split into three sections: Bounded rationality, temptation and self control, and reference dependence. As is typical for second year topics courses, the materiel is constantly evolving, so the following plan may change over the course of the semester, as will the reading list. The latest version of the plan will be uploaded to the course website.

9th September. Lecture 1: Introduction. As well as getting to know each other, we will have a refresher course on the behavioral implications of utility maximization. This will be handy because we will make use of some of the techniques later on. We will also discuss some of the classic failures of utility maximization which will motivate the section of the course on bounded rationality.

- **Key reading(s):** Unlike many other lectures in the course, this lecture will quickly cover material from a number of different papers, so there is no key readings as such. However, two excellent sources covering revealed preference and the testing of utility maximization are
  - “Notes on the Theory of Choice”, David Kreps, Chapter 1-3

- **Class presentation (to be prepared for the following week)**

- **Background Reading**
16th September. Lecture 2: Bounded Rationality 1 - Consideration Sets. It has long been believed by marketers and retailers that people do not seriously consider all the possible alternatives when making a choice. Instead they form a 'consideration set' of alternatives from which they choose. In this lecture we will consider some of the recent models of consideration set formation that have appeared in the economics literature

- **Key reading (s):**

- **Class presentation (to be prepared for the following week)**

- **Background Reading**
23rd September Lecture 3: Bounded Rationality 2: Rational Inattention (1). In this lecture we begin to study the class of ‘rational inattention’ models that have been used to try to understand the informational choices of cognitively constrained agents. To start with, we consider the case in which information costs are not known, but instead have to be inferred from choice

- **Key reading(s):**

- **Class presentation (to be prepared for the following week)**

- **Background Reading**

30th September (Though this lecture may have to be moved) Lecture 4: Bounded Rationality 2: Rational Inattention (2). We continue our discussion of models of rational inattention by considering the popular special case in which the cost of information are based on the concept of Shannon Mutual Information

- **Key reading(s):**


Class presentation (to be prepared for the following week)


Background Reading


7th October Lecture 5: Bounded Rationality 4: Attention and weighting in multi-dimensional problems.

In this lecture we will cover a set of models which aim to understand how people focus their attention on particular aspects, or dimensions of a choice problem, and how this can affect choice

Key reading (s):


Class presentation (to be prepared for the following week)


Background Reading


14th October) Lecture 6: Bounded Rationality 5: Drift Diffusion Models. An extremely influential approach within psychology and neuroscience is to model the process of information acquisition as a sequence of signals received the decision maker until their beliefs cross a threshold, at which point a decision is made. In this class we discuss the evidence for such “drift diffusion” models

- Key reading (s):
- Class presentation (to be prepared for the following week)
  - None
- Background Reading

21<sup>st</sup> October (though this lecture may have to be moved) Lecture 7: Temptation and Self Control 1: An introduction to modelling temptation and self control. In this opening lecture we will discuss the intuitive evidence that there are temptation and self control problems are widespread, and the approaches that have been taken to modeling such behavior

- **Key reading (s):**
- **Class presentation (to be prepared for the following week)**
  - None
- **Background Reading**

28<sup>th</sup> October Lecture 8: Temptation and Self Control 2: Models of Commitment: In this second lecture we will discuss in more detail models in which temptation leads to a preference for commitment, or a desire for smaller choice sets.

- **Key reading (s):**
- **Class presentation (to be prepared for the following week)**
- **Background Reading**
  - Galperti, Simone. "Commitment, Flexibility, and Optimal Screening of Time Inconsistency." Available at SSRN 2565171 (2012).
4th November: Lecture 9: Temptation and Self Control 3: Models of Non-Exponential Discounting. This lecture covers the relationship between temptation and non-exponential discounting, particular ‘present bias’.

- **Key reading(s):**

- **Class presentation (to be prepared for the following week)**

- **Background Reading**

11th November: Lecture 10: Temptation and Self Control 4: Evidence Here we will look at the evidence for preference for commitment, present bias, and the link between the two

- **Key reading(s):**

- **Class presentation (to be prepared for the following week)**
  - None

- **Background Reading**


Dean, Mark, and Anja Sautmann. "Credit constraints and the measurement of time preferences." Available at SSRN 2423951 (2014).


18th November: Lecture 11: Reference Dependence 1: Evidence for Reference Dependent Preferences

We start by examining some of the classic experimental results which demonstrate the need for models of reference dependence

- **Key reading (s):**

- **Class presentation (to be prepared for the following week)**

- **Background Reading**
Covering classic models of reference dependent behavior.

- Key reading(s):
  - Class presentation (to be prepared for the following week)

- Background Reading
Exploring the ways in which limited attention can bring about reference dependent behavior

- **Key reading(s):**

- **Class presentation (to be prepared for the following week)**
  - None

- **Background Reading**
  - Dean, Mark, Ozgur Kibris, and Yusufcan Masatlioglu. "Limited Attention and Status Quo Bias." Available at SSRN 2519242 (2014).

9th December: Lecture 14: Reference Dependence 4: Reference dependence in the Brain.

- **Key reading(s):**

- **Class presentation (to be prepared for the following week)**
  - None

- **Background Reading**