Universitat Pompeu Fabra Barcelona

Topics in Economic Theory I:

Behavioral Decision Theory-Part I

2020-2021 Academic Year
Master of Research in Economics, Finance and Management

1. Description of the subject

- Topics in Economic Theory I
- Total credits: 3 ECTS

Code: 32074
Workload: 75 hours
Term: 1st

- Type of subject: Optative
- Department of Economics and Business
- Teaching team: Jose Apesteguia

2. Teaching guide

Introduction

[This class can be taken individually, or it can be taken as part of the microeconomic theory track or the behavioral economics and decision making track. More information on these tracks is provided below, in section 3.]

The traditional models of decision-making in economics are being seriously revised, in light of recent developments in psychology, behavioral economics and the neurosciences. In this course we cover some of the key theoretical developments in modeling non-standard decision-making.

This class is designed both for students with a theoretical, empirical and experimental inclination towards the understanding of individual decision-making, and for students with an interest in applying behavioral decision-making models to various economic settings.

This course is supposed to be taken together with the course *Topics in Economic Theory II: Behavioral Decision Theory-Part II*, taught by Larbi Alaoui.

The Contents section below gives a short intro to each one of the four blocks that compose this course, and lists a number of key papers in the literature. In addition to the papers listed below, I will make available in the course Box folder the key recent papers in the field. These are the very last papers, the ones that are currently being presented in the relevant forums, and represent the state of the art in the field.

Teaching Methodology and Assessment

The teaching methodology will consist in lectures, class discussions, and presentations of recent key papers.

Students will select a paper to be presented in class, either from the reading list below or from the papers posted in the course Box folder.

The core of the evaluation will be based on one research project for Parts I and II of the Topics in Economic Theory courses, to be presented at the end of the course and turned in. The research project should consist of an original idea that could potentially be converted into a research paper. The content can be theoretical, empirical, or experimental, or a combination of these approaches. Each student must meet with both Larbi and me during the term for approval of the chosen topic. Students can turn in the paper during the second term (specifically, on January 30th), but they can ask for additional time if they require an extension to delve deeper into the topic.

Class participation is also an important component of the course, and is highly valued.

Contents

1. Review of the classical foundations for decision-making under certainty and uncertainty. We begin with a very brief review of the seminal model of decision-making under certainty. We will discuss the

setting, the behavioral assumptions and main rationalizability result. Students not familiar with the foundations of the standard model should consult the references below.

Readings:
Chambers, C. and F. Echenique. Revealed Preference Theory, Cambridge University Press 2016.

Kreps, D. Notes on the Theory of Choice, Underground Classics in Economics 1988.

Mas-Colell, A., M. Whinston and J. Green, Microeconomic Theory. Oxford University Press, Oxford 1995. Chapter 1, 2 and 3.

Rubinstein, A. Lecture Notes in Microeconomic Theory. Princeton NJ: Princeton University Press 2006. Lectures 1-6.

2. Bounded Rationality. The focus of this section is on the revealed preference theory of bounded rationality. We will present some of the most influential boundedly rational models, and discuss the implications of bounded rationality for welfare analysis and the measurement of rationality.

Main readings:
Bernheim, B.D. and A. Rangel (2009), "Beyond Revealed Preference: Choice-Theoretic Foundations for Behavioral Welfare Economics" Quarterly Journal of Economics, 124:51-104.

Manzini, P. and M. Mariotti (2007), "Sequentially Rationalizable Choice," American Economic Review, 97:1824-1839.

Masatlioglu, Y., D. Nakajima and E.Y. Ozbay (2012), "Revealed Attention," American Economic Review, 102:2183-2205.

Echenique, F, S. Lee, and M. Shum (2011), "The Money Pump as a Measure of Revealed Preference Violations," Journal of Political Economy, 119:1201-1223.

Others:
Ahn D., R. Iijima, Y. Le Yaouanq and T. Sarver (2019), "Behavioral Characterizations of Naivete for Time-Inconsistent Preferences," Review of Economic Studies, 86(6):2319-2355.

Apesteguia, J and M.A. Ballester (2015), "A Measure of Rationality and Welfare," Journal of Political Economy, 123(6):1278-1310.

Benkert, J-M and N. Netzer (2018), "Informational Requirements of Nudging," Journal of Political Economy, 126(6):2323-2355.

Bordalo, P., N. Gennaioli and A. Schleifer (2020), "Memory, Attention and Choice," Quarterly Journal of Economics, forthcoming.

Caplin, A. and M. Dean (2011), "Search, Choice and Revealed Preference" Theoretical Economics, 6: 19-48.

Caplin, A., M. Dean and D. Martin (2011), "Search and Satisficing," American Economic Review, 7: 2899-2922

Chakraborty, A., Y. Halevy and K. Saito (2020), “The Relation between Behavior under Risk and Over Time,” American Economic Review: Insights, 2(1):1-16.

Choi, S., S. Kariv, W. Muller, and D. Silverman (2014), ``Who Is (More) Rational?'' American Economic Review, 104(6), 1518-1550.

Dean, M. and D. Martin (2015), “Measuring Rationality with the Minimum Cost of Revealed Preference Violations," Review of Economics and Statistics, 98(3)524-534.

Dean, M. and P. Ortoleva (2019), “The empirical relationship between nonstandard economic behaviors,” Proceedings of the National Academy of Sciences, 116(33): 16262—16267.

Gabaix X. (2019), “Behavioral Inattention,” In: Handbook of Behavioral Economics, ed. by D Bernheim, S DellaVigna and D Laibson. Vol. 2. pp. 261-343.

Halevy, Y., D. Persitz and L. Zrill (2018), “Parametric Recoverability of Preferences,” Journal of Political Economy, forthcoming.

Kim, H.B., S. Choi, B. Kim and C. Pop-Eleches (2018). “The Role of Education Interventions in Improving Economic Rationality.” Science, 362:83–86.

Köszegi, B. and F. Matějka (2020), “Choice Simplification: A Theory of Mental Budgeting and Naive Diversification”. Quarterly Journal of Economics (2020), 135(2), pp. 1153-1207

Nishimura, H. (2018), “The transitive core: Inference of welfare from nontransitive preference relations.” Theoretical Economics, 13(2):579-606.

Rubinstein, A. and Y. Salant (2012), “Eliciting Welfare Preferences from Behavioral Datasets”, Review of Economic Studies, 79(1): 375-387.

Salant, Y. and A. Rubinstein (2008), “(A,f): Choice with Frames,“ Review of Economic Studies, 75: 1287-1296.

Weinrabe A., H. Chung , A. Tymula, J. Tranand and I. Hickie (2020), “Economic Rationality in Young People with Emerging Mood Disorder,” Journal of Neuroscience, Economics, and Psychology, forthcoming.

3. Reference-dependence behavior. In this section we adopt a more applied approach, and will focus on what has arguably been the most influential contributions of the bounded rationality and behavioral economics literatures: reference-dependent behavior. We will lay down the basics of the reference-dependent models and emphasize their applications to a number of settings, including finance, labor, insurance, etc.

Main readings:

Kahneman, D., and A. Tversky (1979), “Prospect Theory: An Analysis of Decision Under Risk”, Econometrica, 47: 263-291.

Masatlioglu, Y. and E. Ok (2005), "Rational Choice with Status Quo Bias," Journal of Economic Theory, 121, No. 1, 1-29.

Köszegi, B. and M. Rabin (2006), "A Model of Reference-Dependent Preferences", Quarterly Journal of Economics, 121: 1133-1165.

Wakker, P. (2010), "*Prospect Theory: For Risk and Ambiguity*," Cambridge University Press.

Dhami, S. (2016), "*The Foundations of Behavioral Economic Analysis*," Oxford University Press.

Others:

Abdellaoui, M., A. Baillon, L. Placido and P.P. Wakker (2011), "The Rich Domain of Uncertainty: Source Functions and Their Experimental Implementation," American Economic Review 101:695-723.

Abeler, J., A. Falk, L. Goette, and D. Huffman (2011), "Reference Points and Effort Provision." American Economic Review, 101: 470-492.

Barberis, N.C. (2018), "Psychology-based Models of Asset Prices and Trading Volume," In Bernheim, D., DellaVigna, S., Laibson, D., Eds., Handbook of Behavioral Economics.

Bernheim, B.D and C. Sprenger (2020), "On the Empirical Validity of Cumulative Prospect Theory: Experimental Evidence of Rank-Independent Probability Weighting", Econometrica, forthcoming.

Gneezy, U., J.A. List, and G. Wu (2006), "The Uncertainty Effect: When a Risky Prospect Is Valued Less Than Its Worst Possible Outcome," The Quarterly Journal of Economics, 121(4):1283– 1309.

Gonzalez, R., and G. Wu (1999), "On the Shape of the Probability Weighting Function," Cognitive Psychology, 38:129-166.

Imas, A. (2016), "Realization Effect: Risk-Taking After Realized versus Paper Outcomes," American Economic Review, 106(8):2086-2109.

Masatlioglu, Y., and C. Raymond (2016), "A Behavioral Analysis of Stochastic Reference Dependence," American Economic Review, 106(9):2760-2782.

O'Donoghue, T. and C. Sprenger (2018), "Reference-Dependent Preferences" Handbook of Behavioral Economics: Applications and Foundations, 2018, Volume 1, 1-77.

Ok, E., P. Ortoleva and G. Riella (2015), "Revealed (P)Reference Theory," American Economic Review, 105(1):299-321.

Prelec, D. (1998), "The Probability Weighting Function," Econometrica, 66(3):497-527.

Sagi, J. (2006), "Anchored preference relations," Journal of Economic Theory, 130: 283–295.

Sarver, T. (2012), "Optimal Reference Points and Anticipation" Discussion Paper, Center for Mathematical Studies in Economics and Management Science 1566, mimeo.

4. Stochastic Choice. There is renewed interest in understanding choice as the outcome of some random process. Stochastic choice models allow the treatment of choice variability in a stylized way,

which ultimately facilitates the introduction of certain behavioral considerations. We will review the classical contributions in psychology and economics. We will then introduce the new developments in the area. In addition, we will establish some connections between stochastic choice and micro-econometrics.

Main readings:

Block, H.D. and J. Marschak (1960), "Random Orderings and Stochastic Theories of Response," in I. Olkin et al, eds., Contributions to Probability and Statistics: Essays in Honor of Harold Hotelling, 97--132. Standford: Standford University Press.

Luce, R. D. (1959), "Individual Choice Behavior; a theoretical analysis." Wiley: New York. Provider: John Wiley & Sons, Ltd.

Strzalecki, T. (2019), "Lectures on Stochastic Choice", mimeo.

Others:

Agranov, M. and P. Ortoleva (2017), "Stochastic Choice and Preferences for Randomization,'' Journal of Political Economy, 125(1):40–68.

Alós-Ferrer C., E. Fehr and N. Netzer (2020), "Time Will Tell: Recovering Preferences when Choices Are Noisy," mimeo.

Ahn, D. and T. Sarver (2013), "Preference for Flexibility and Random Choice," Econometrica, 81(1):341-361.

Apesteguia, J and M.A. Ballester (2018), "Monotone Stochastic Choice Models: The Case of Risk and Time Preferences", Journal of Political Economy, 126(1):74-106.

Apesteguia, J and M.A. Ballester (2020), "Separating Predicted Randomness from Residual Behavior," Journal of the European Economic Association, forthcoming.

Apesteguia, J, M.A. Ballester and J. Lu (2017), "Single-Crossing Random Utility Models," Econometrica, 85(2):661-674.

Barseghyan, L., F. Molinari, T. O'Donoghue and J.C. Teitelbaum (2019), "Estimating Risk Preferences in the Field," Journal of Economic Literature, 56(2):501-564.

Busemeyer, J. R. and J. T. Townsend (1993), "Decision Field Theory: A Dynamic-Cognitive Approach to Decision Making in an Uncertain Environment," Psychological Review, 100.3:432– 459.

Caplin, A. and M. Dean (2015), "Revealed Preference, Rational Inattention, and Costly Information Acquisition," American Economic Review, 105(7):2183-2203.

Cattaneo M.D., X. Ma, Y. Masatlioglu and E. Suleymanov (2020), "A Random Attention Model," Journal of Political Economy, 128(7):2796-2836.

Cerreia-Vioglio, S., D. Dillenberger, P. Ortoleva and G. Riella (2019), "Deliberately Stochastic," American Economic Review, 109(7):2425-2445.

Dardanoni V., P. Manzini, M. Mariotti and Tyson CJ (2020), “Inferring cognitive heterogeneity from aggregate choices,” Econometrica, 88:1269-1296.

DellaVigna, S. (2018), "Structural Behavioral Economics", Handbook of Behavioral Economics, Volume 1 (eds. Doug Bernheim, Stefano DellaVigna, and David Laibson), Elsevier.

Dickhaut, J., A. Rustichini V. Smith (2009), " A neuroeconomic theory of the decision process," Proceedings of the National Academy of Sciences, 106 (52) 22145-22150.

Frick, M., R. Iijima, and T. Strzalecki (2019), “Dynamic Random Utility,” Econometrica, 87(6):1941-2002.

Fudenberg, D. and T. Strzalecki (2015), “Dynamic Logit with Choice Aversion,” Econometrica, 83 (2): 651–691.

Gul, F. and W. Pesendorfer (2006), “Random Expected Utility,'” Econometrica, 74: 121-146.

Gul, F., P. Natenzon and W. Pesendorfer (2014), ”Random Choice as Behavioral Optimization,’’ Econometrica, 82: 1873-1912.

Loomes, G. and R. Sugden (1995), ”Incorporating a Stochastic Element Into Decision Theories,“ European Economic Review, 39:641-648.

Manzini, P. and M. Mariotti (2014), ”Stochastic Choice and Consideration Sets,“ Econometrica, 82: 1153-1176.

Matejka, F. and A. McKay (2015), “Rational Inattention to Discrete Choices: A New Foundation for the Multinomial Logit Model,” American Economic Review, 105(1): 272-98.

Mattsson, L-G and J.W. Weibull (2002), “Probabilistic choice and procedurally bounded rationality,” Games and Economic Behavior, 41:61-78.

McFadden, D. (2001), “Economic Choices,” American Economic Review, 91: 351-378.

McKelvey, R., and T. Palfrey (1995), “Quantal Response Equilibria for Normal Form Games,” Games and Economic Behavior, 10: 638.

Natenzon, P. (2019). “Random Choice and Learning,” Journal of Political Economy, 127(1):419-457.

Tversky, A. (1972), “Elimination By Aspects: A Theory of Choice,” Psychological Review, 79: 281–299.

Webb, Ryan (2019). “The (Neural) Dynamics of Stochastic Choice,” Management Science, 65(1):230-255.

Win Khaw, M., Z. Li and M. Woodford (2020) “Cognitive Imprecision and Small-Stakes Risk Aversion,” Review of Economic Studies, forthcoming.

Woodford, M. (2014), “Stochastic Choice: An Optimizing Neuroeconomic Model,” AER Papers and Proceedings.

3. Tracks

Microeconomics track

Fall term (September – December)

- Topics in Economic Theory: Behavioral Decision Theory (I and II, taught by Larbi Alaoui and Jose Apesteguia).

Winter term (January – March)

- Topics in Economic Theory III: Labor Markets (taught by Jan Eeckout).
- Readings in Economic Theory (taught by Alex Frug).

Spring term (April – June)

- Industrial Organization (taught by Sandro Shelegia, Christian Michel and Rosa Ferrer).
- Environmental Economics: Climate Change (taught by Humberto Llavador).

Behavioral economics and decision making track

Fall term (September – December)

- Topics in Economic Theory: Behavioral Decision Theory (I and II, taught by Larbi Alaoui and Jose Apesteguia).

Winter term (January – March)

- Behavioral Decision Making I: Attention, Experience and Influence (taught by Gaël Le Mens and Mikhail Spektor)

Spring term (April – June)

- Behavioral Decision Making II: The Psychology of Economics Decisions (taught by Daniel Navarro-Martinez).
- Experimental Economics (taught by Rosemarie Nagel).