

Bounded Rationality – Theory and Experiments (Bachelor + Master Seminar)

Bounded Rationality – Theory and Experiments (Master Seminar)

I. Topic Description

The term “bounded rationality” goes back to the social scientist and Nobel Prize winner Herbert Simon. It challenges the assumption of perfectly rational agents as often used in the neoclassical model of the *“homo economicus”*. Instead, decision makers are assumed to have limited information and computation capabilities, potentially leading to mistakes to their choices. Furthermore, agents can have certain biases in their judgements and the decision making process. As a consequence, they frequently fail to choose their very best/“utility maximizing” option and thus are violating standard economic theories of rational decision making like for example the “Expected Utility Theory” (EUT) introduced by von Neumann & Morgenstern.

In contrast to the Expected Utility Theory, which is considered a normative theory, models and theories of bounded rationality usually are more descriptive. One of the most prominent examples is “Prospect Theory” (PT), developed by the psychologists Kahneman & Tversky (1979). In this framework, decision makers are assumed to exhibit certain biases in their judgements and perceptions, such as a non-linear weighting of probabilities and a different experience of gains and losses (“losses loom larger than gains”). Furthermore, decision makers are assumed to evaluate options relative to a certain “reference point” instead of their final wealth consequences. As shown in a series of small experiments these patterns frequently lead to certain biases and inconsistencies according to the neoclassical theories of rational choices.

However, most behavioral economists would not judge this kind of behavior as “negative” or “irrational” per se. In some cases, the underlying mechanisms may even be superior from an evolutionary perspective (given that for many species avoiding losses was essential for survival and searching for the very best option can be very time and effort consuming). Arguing in this direction, psychologists like G. Gigerenzer conducted a lot of research about agents employing simple decision rules. These so called “heuristics” often lead to a decent, but maybe not the very best outcome.

The goal of the seminar is to introduce students to the basic concepts and theories dealing with “bounded rationality”. As main part, participants are supposed to form small research groups where they develop their own research question and a design for an experimental study to further explore a relevant aspect within the seminar’s topic.

II. Organizational and Procedural Details

In the seminar no topics will be handed out. Instead, students will use their own creative abilities to think of an interesting research question in the broad thematic field of bounded rationality. Based on this, you are supposed to design an experimental design for a lab or a field study, which is suited to test your hypothesis/answer your research question. (*Note: Carrying out the experiment itself is not part of the seminar.*)

Students will work in small groups of up to four persons, depending on the total number of participants. If the process of group formation is unsuccessful, participants can be assigned to a group (or in exceptional cases work as a single person on a topic).

The seminar starts with an **introductory (in-person) meeting on Tue, 18th April 2023 at 2pm (building 05.20, room 1C-01)**. The meeting is supposed to last for approx. 1-1,5h. Ideas for experiments or field studies will be presented in **blocked events on Mon, 5th June 2023**. Each presentation should last for approx. 20 minutes. Full attendance in all meetings is required for successful participation in the seminar. Seminar papers of 8 – 10 pages, as well as one individual abstract with 75 to 100 words, are to be handed in by the end of the semester.

Prior attendance of the courses “Economics and Behavior”, “Game Theory” and/or other seminars at the chair is recommended, but not required. For further questions, please contact Dr. Hannes Rau (hannes.rau@kit.edu)

III. Sources of Inspiration

- Barberis, N. (2013). Thirty years of prospect theory in economics: A review and assessment. *Journal of Economic Perspectives*, 27(1), 173-96.
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- Charness, G., & Fehr, E. (2015). From the lab to the real world. *Science*, 350(6260), 512-513.
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- Gigerenzer, G., & Selten, R. (Eds.). (2002). *Bounded rationality: The adaptive toolbox*. MIT press.
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- Kahneman, D. (2003). Maps of bounded rationality: Psychology for Behavioral Economics. *American Economic Review*, 93(5), 1449-1475.
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- Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2), 263–291.
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- Von Neumann, J., & Morgenstern, O. (1947). *Theory of Games and Economic Behavior*, 2nd rev.