Written Exam at the Department of Economics summer 2020

Foundations of Behavioral Economics

Final Exam

11 June 2020

(3-hour open book exam)

Answers only in English.

The paper must be uploaded as <u>one PDF document</u>. The PDF document must be named with exam number only (e.g. '127.pdf') and uploaded to Digital Exam.

This exam question consists of 5 pages in total

This exam has been changed from a written Peter Bangsvej exam to a take-home exam with helping aids. Please read the following text carefully in order to avoid exam cheating.

Be careful not to cheat at exams!
You cheat at an exam, if you during the exam:

- Copy other people's texts without making use of quotation marks and source referencing, so that it may appear to be your own text. This also applies to text from old grading instructions.
- Make your exam answers available for other students to use during the exam
- Communicate with or otherwise receive help from other people
- Use the ideas or thoughts of others without making use of source referencing, so it may appear to be your own idea or your thoughts
- Use parts of a paper/exam answer that you have submitted before and received a passed grade for without making use of source referencing (self plagiarism)

You can read more about the rules on exam cheating on the study information pages in KUnet and in the common part of the curriculum section 4.12.

Exam cheating is always sanctioned with a warning and dispelling from the exam. In most cases, the student is also expelled from the university for one semester.

The exam consists of 4 questions with several subquestions. In order to get the best possible grade, you must answer all questions. Please note that, because of differences in the workload needed to answer the questions, different questions have different weights. When answering mathematical questions, you can use the calculator function on your computer. However, your responses must clearly and comprehensively reflect all steps your analysis. When answering non-technical questions, your answers can be short and concise (e.g., using bullet points), but your arguments must be explained sufficiently.

Good Luck!

Question 1 *(weight = 30%)*

Consider a consumer who is characterized by a Koszegi/Rabin utility function with the following properties

- $u(c|r) = m(c) + \mu(c|r)$

- with material utility $m(c)=c$

- and two-piece linear gain-loss utility
$$\mu(\cdot) = \begin{cases} (c_i - r_i) & \text{if} \quad c_i \geq r_i \\ \lambda(c_i - r_i) & \text{if} \quad c_i < r_i \end{cases}$$

    where $\lambda > 1$

The consumer faces a situation in which he will lose $ 100 with probability 50%. Alternatively, he can buy an insurance policy that fully insures him against the potential loss (choice *"I"*). The cost of the insurance policy is $ 55.

a) How is the consumer's reference point *r* determined according to the Koszegi/Rabin model?
   - Explain the assumptions of what determines the reference point in the Koszegi/Rabin model.
   - Discuss how they differ from other (earlier) approaches to model reference-dependent preferences and loss aversion.
   - Illustrate the difference using the insurance example from above.

b) What is the consumer's expected utility if he buys the insurance (choice *"I"*) and also expected to buy it? I.e., what is *EU(I|I)?*

c) Under which conditions is "buying the insurance" (and expecting to buy it) a personal equilibrium?
   - *Hint: build on your result from Part b) and check under which conditions EU(I|I)≥ EU(NI|I)*

d) Under which conditions is "not buying" the insurance (choice *"NI"*) and expecting not to buy a personal equilibrium?

e) What is the preferred personal equilibrium?

Question 2: *(weight = 20%)*

a) Consider the following figure taken from Madrian and Shea (2001). What is depicted in the graph? Explain, in particular, the key difference between the "NEW" and "OLD" group.
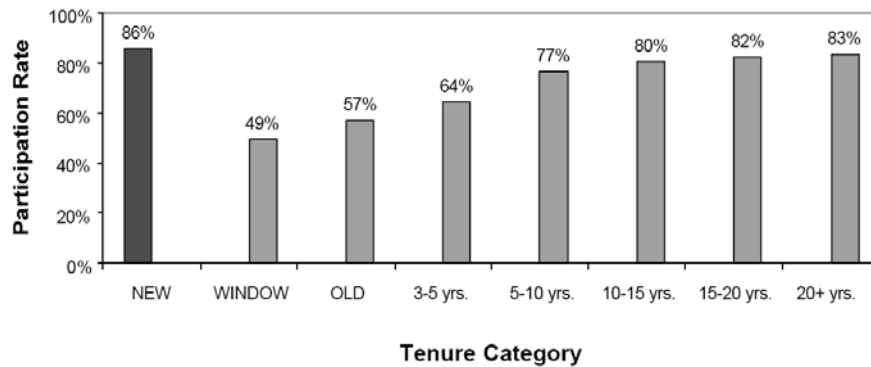
b) Is the behavior depicted in the figure consistent with exponential discounting? Explain which details of the empirical findings and the decision environment make you confident that exponential discounting cannot account for the findings.

c) Provide another example in which default specifications have been shown to systematically affect people's decisions. How was the influence of defaults empirically tested in your example?

d) What could be potential "behavioral" explanations for the default effects in your example from Part c) and in the example depicted in the figure above? Explain.

Question 3: *(weight = 20%)*

Research in Behavioral Economics has frequently documented systematic differences in individuals' preferences or behavior.

a) Give an example in which systematic heterogeneity in preferences or behavior has been observed. Please also discuss the most relevant factors / individual characteristics that are associated with the described behavioral differences in your example.

b) What are the key challenges in understanding heterogeneity in behavior? Discuss, in particular, which difficulties commonly arise in measuring and interpreting empirical relationships between people's behavior and potential sources of heterogeneity in behavior.

c) Why is it important to document heterogeneity in behavior or preferences? Reply by describing a theoretical or empirical insight that can only be obtained if one acknowledges heterogeneity across individuals or groups.

Question 4: *(weight = 30%)*

Consider the two-player game below. Both players have two actions. The numbers connected with the terminal histories are monetary payoffs. The upper number in the bracket is the material payoff of player 1, the lower number is the payoff of player 2.
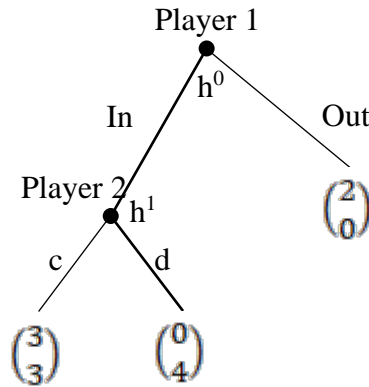
a) *Inequity Aversion:* Assume players are motivated by Fehr & Schmidt (1999) inequity aversion. For which α and β for both players is (In,c) an equilibrium? Explain the intuition for these results in words as well.

b) *Guilt aversion:* Assume now that player 2 is motivated by belief-dependent guilt aversion. Under which condition does player 2 choose c instead of d? Explain the intuition in words as well.

c) *Reciprocity:* Assume that players 1 and 2 are motivated by Dufwenberg and Kirchsteiger (2004)'s belief-dependent reciprocity.

   c.1) Define player 2's belief about the kindness of player 1 towards player 2 in history h^1. Explain the intuition in words as well.

   c.2) For which sensitivities of reciprocity Y_1, Y_2 is (In,c) a sequential reciprocity equilibrium? Explain the intuition in words as well.

d) Beside Dufwenberg and Kirchsteiger (2004)'s concept of belief-dependent sequential reciprocity we have also talked about another mechanism triggering reciprocal reactions. Explain the key difference between Dufwenberg and Kirchsteiger (2004)'s reciprocal mechanism and the second reciprocal mechanism we have discussed in the course. Furthermore, please explain the experimental set-up Sebald and Walzl (2014) used to identify this additional reciprocal mechanism. How did they identify this mechanism?