

Written Exam at the Department of Economics summer 2018

Foundations of Behavioral Economics

Final Exam

June 11, 2018

(3-hour closed book exam)

Answers only in English.

This exam question consists of 5 pages in total

NB: If you fall ill during an examination at Peter Bangsvej, you must contact an invigilator in order to be registered as having fallen ill. In this connection, you must complete a form. Then you submit a blank exam paper and leave the examination. When you arrive home, you must contact your GP and submit a medical report to the Faculty of Social Sciences no later than seven (7) days from the date of the exam.

Be careful not to cheat at exams!

- You cheat at an exam, if during the exam, you:
- Make use of exam aids that are not allowed
- Communicate with or otherwise receive help from other people
- Copy other people's texts without making use of quotation marks and source referencing, so that it may appear to be your own text
- 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
- Or if you otherwise violate the rules that apply to the exam

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: 27%)

- a) During the course we discussed the model of belief-dependent (simple) guilt aversion. [Note: the label 'simple' refers to the first notion of guilt aversion discussed in Battigalli and Dufwenberg (2007), *Guilt in Games, American Economic Review, Papers & Proceedings*, 97, 170-76].

Please define and intuitively explain their notion of simple guilt aversion. How do they formalize their concept of 'guilt'?

- b) Consider the following two-player sequential prisoner's dilemma (the upper payoff refers to player 1 and the lower to player 2)

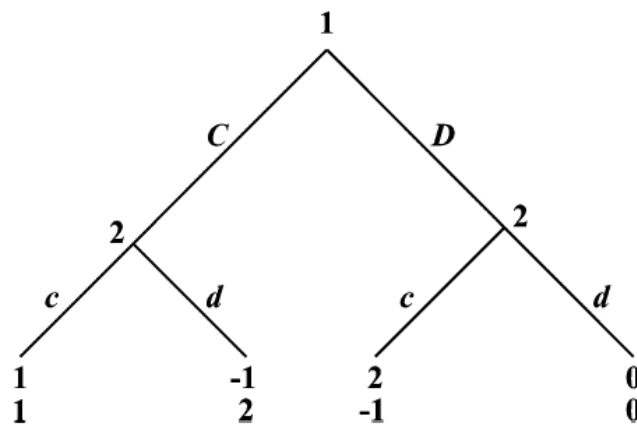


Fig. 2. Game Γ_2 —the sequential prisoners' dilemma.

- (b.1) Under what circumstances is (C,cd) an equilibrium if players are motivated by inequality aversion? Intuitively explain your result.

- (b.2) Furthermore, consider the model of belief-dependent reciprocity and assume that player 2's sensitivity to reciprocity is $0 < \gamma_2 < 0.5$, what is the unique sequential reciprocity equilibrium?

Question 2: (weight: 20%)

- a) What is the “endowment effect”?
- ↙ Please give a precise definition.
 - ↙ Illustrate the effect by briefly describing the classic experiment with which the effect was first established (sketch the design idea, the identification strategy, and the main finding of the experiment).
- b) Sketch graphically how the endowment effect can be explained with a Kahneman-Tversky value-function.
- c) How has the endowment effect typically been interpreted? How should the expected-utility model be modified according to this interpretation?
- d) What are potential implications if the interpretation from part c) is correct? Give an example of an important economic decision that might be affected.

Question 3: (weight: 33%)

Consider an agent who maximizes the following intertemporal utility function featuring quasi-hyperbolic discounting with discounting parameters $\beta, \delta \leq 1$

$$U_t = u_t + \beta \sum_{\tau=1}^{T-t} \delta^\tau u_{t+\tau}$$

e.g., in period $t=1$:

$$U_1 = u_1 + \beta(\delta u_2 + \delta^2 u_3)$$

The agent faces a task that he has to complete within any of the next three periods (i.e., at the latest in $t=3$). If he manages to complete the task in time, he receives a bonus of $B = 20$ in period $t=3$.

In order to complete the task, the agent has to exert costly effort *once* during the next three periods. The agent’s effort costs in the different periods are:

$$\begin{aligned} c_1 &= 3 && \text{if he completes the task in } t=1, \\ c_2 &= 4 && \text{if he completes the task in } t=2, \\ c_3 &= 6 && \text{if he completes the task in } t=3. \end{aligned}$$

Assume that the agent’s period utility u_t is simply the sum of any positive payments (e.g., the bonus) minus the costs incurred in a given period t .

- a) When does the agent complete the task if his discounting parameters are $\beta = 1, \delta=1$ (i.e., the agent is not present-biased)?

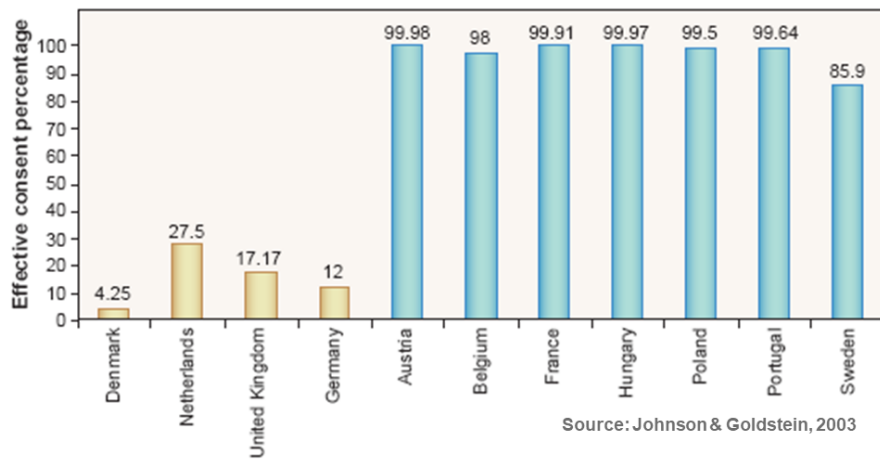
- b) When does the agent complete the task if he is present-biased and naive?
- ↙ Assume that his discounting parameters are $\beta=0.6$, $\delta=1$, and the agent's period- t "self" believes that all future selves will not be present-biased (i.e., $\hat{\beta} = 1$).
 - ↙ Does the agent actually stick to his work plan from period $t = 1$? Explain.
- c) When does the agent complete the task if he is present biased but fully sophisticated?
- ↙ Assume that the agent's discounting parameters are again $\beta=0.6$, $\delta=1$, but that in contrast to part b), the agent is fully aware of his future self-control problems (i.e., $\hat{\beta}=0.6$).
 - ↙ How does the agent's work plan in period $t = 1$ differ from the one of the naive agent from part b)? What is the intuition behind this result?
- d) Assume now that, in period $t=1$, the agent can set a deadline for himself to do the task in period $t=2$. The features of the deadline are as follows:
- ↙ If the agent imposes the deadline on himself and manages to complete the task in $t=2$, he still gets $B=20$ in period $t=3$.
 - ↙ If he does not complete the task by the deadline (i.e., in period 1 or 2), he can still finish the task in $t=3$, but then only receives a bonus of $B=15$ in period $t=3$.

Consider period $t=1$. Which of the three agents from parts a), b), and c) decides to impose the deadline on himself? Explain.

- ↙ Note: Assume that the agent does *not* make use of the deadline if he is indifferent between imposing and not imposing the deadline for himself.

Question 4: (weight: 20%)

Consider the following figure displaying effective consent rates to post-mortem organ donation across different European countries.



- What is the difference between the countries on the left vs. right side of the figure?
- Consider the different forms of non-standard preferences, non-standard beliefs, and non-standard decision making that we covered throughout the course and discuss (at least) three possible explanations for the observed differences in consent rates.
- For one of your candidate explanations from part b), propose an empirical test that could demonstrate that this explanation is indeed relevant.
- It is sometimes argued that generating a market system in which living donors can sell organs (e.g., kidneys) could help to overcome shortages for patients who need a transplantation. Most societies, however, consider such a system “morally repugnant”. What factors are commonly discussed as reasons for this repugnance?