Exam information

UNIVERSITY OF OSLO

DEPARTMENT OF ECONOMICS

This is some important information about the written exam in ECON4260. Please read this carefully before you start answering the exam.

Exam in: ECON4260 – Behavioral Economics
Date of exam: Wednesday, November 22, 2017
Time for exam: 14.30 – 17.30

The problem set:
The exam consists of nine problems, which are divided into several parts. You can scroll back and forth in the problem set. The percentage weights on each problem are indicated. Start by reading through the whole exam, and make sure that you allocate time to answering problems you find easy. You can get a good grade even if there are parts of problems that you do not have time to solve.

Scantron:
It is very important that you make sure to allocate time to fill in the headings (the code for each problem, candidate number, course code, date etc.) on the sheets that you will use to add to your answer. You will find the code for each problem under the problem text.

If you need help, do not hesitate to ask the exm supervisor.

Access:
You will not have access to your exam right after submission. The reason is that the sheets with equations and graphs must be scanned in to your exam. You will get access to your exam within two days.

Resources allowed:
No written or printed resources – or calculator – is allowed (except if you have been granted use of a dictionary from the Faculty of Social Sciences).

Points:
In multiple choice problem, where you can only choose *one* option, you get points for correct answers and no points for incorrect ones. In problems where you can choose *several* options you get positive points for correct ones and negative for incorrect ones. Total score on a subproblem will never be negative.

Grading:
The grades given: A-F, with A as the best and E as the weakest passing grade. F is fail.

Grades are given: December 12, 2017

1

Problem 1 (6%)

We observe that many people buy tickets in lotteries where the expected earning is less than the price of the ticket. What may explain this kind of behavior?

Select an alternative:

- Probability weights
- Rabin's Theorem
- Risk Aversion
- Loss Aversion

Maximum marks: 6

2 Problem 2 (6%)

Rabin's Theorem shows a surprising implication of Expected Utility Theory. A person is risk averse in small gambles if he turns down a lottery with positive expected value but where possible gains and losses are small. (Like a lottery with equal probability of winning 200 kroner or losing 100 kroner). Rabin shows that a person that is risk averse in small gambles must be extremely risk averse in larger gambles. What assumptions are crucial for Rabin's argument? (Note that in this question there may be more than one correct answer.)

Select one or more alternatives:

- He assumes that the person turns down the small gamble irrespective of wealth.
- Subjects don't watch when the lottery is played out.
- He assumes small gambles are repeated many times.
- He assumes that utility depends on wealth+earning in the lottery.

Maximum marks: 6

3 Problem 3 (8%)

Anne's behavior is consistent with Prospect theory, but without probability weighing. She has a value function equal to

$$v(x) = \begin{cases} x & \text{if } x \geq 0 \\ 2.2x & \text{if } x < 0 \end{cases}$$

What is her value of a prospect (lottery) where she gains 200 kroner og loses 100 kroner with equal probability?

: .

Maximum marks: 8

4 Problem 4 (counts 9%)

Consider throughout this problem an individual that is indifferent between 20 units of consumption now and 30 units of consumption one period from now.

Assume first that the individual is also indifferent between 20 units of consumption now and 40 units of consumption two periods from now. Is this evidence consistent with

Select one or more alternatives:

- Exponential discounting
- Hyperbolic discounting (e.g. (β, δ)-model with $\beta < 1$)
- None of the other alternatives

Assume instead that the individual is also indifferent between 20 units of consumption now and 45 units of consumption two periods from now. Is this evidence consistent with

Select one or more alternatives

- Exponential discounting
- Hyperbolic discounting (e.g. (β, δ)-preferences with $\beta < 1$)
- None of the other alternatives

Assume instead that the individual is also indifferent between 20 units of consumption now and 50 units of consumption two periods from now. Is this evidence consistent with

Select one or more alternatives

- Exponential discounting
- Hyperbolic discounting (e.g. (β, δ)-preferences with $\beta < 1$)
- None of the other alternatives

Maximum marks: 9

5 Problem 5 (counts 6%)

Consider three types: standard exponential discounters, naive hyperbolic discounters, and sophisticated hyperbolic discounters.

Please consider the statements below, and select those that are true:

- Plans made in period t correspond to the future behavior that standard exponential discounters desire in period t.
- Plans made in period t correspond to the future behavior that naive hyperbolic discounters desire in period t.
- Plans made in period t correspond to the future behavior that sophisticated hyperbolic discounters desire in period t.
- Standard exponential discounters sometimes deviate from their plans, although no new information has been revealed.
- Naive hyperbolic discounters sometimes deviate from their plans, although no new information has been revealed.
- Sophisticated hyperbolic discounters sometimes deviate from their plans, although no new information has been revealed.

Maximum marks: 6

6 Problem 6 (counts 10%)

Assume for this problem that the decision-maker is quasi-hyperbolic discounter with $\beta = \frac{1}{2}$ and $\delta = 1$, and that the decision-maker values rewards and costs linearly.

Suppose there is a burdensome activity that the decision-maker must complete in one of the next 5 periods. If the task is completed in period t, then the cost is c_t, where $(c_1, c_2, c_3, c_4, c_5) = (5, 8, 14, 20, 30)$. There is no reward.

When does a naive decision-maker plan to do the task, when planning in a prior period 0?

- Period 1
- Period 2
- Period 3
- Period 4
- Period 5

When does a naive decision-maker plan to do the task, when planning in period 1?

- Period 1
- Period 2
- Period 3
- Period 4
- Period 5

When does a naive decision-maker plan to do the task, when planning in period 2, provided that the task has not already been completed?

- Period 2
- Period 3
- Period 4
- Period 5

When does a naive decision-maker plan to do the task, when planning in period 3, provided that the task has not already been completed?

- Period 3
- Period 4
- Period 5

When does a naive decision-maker plan to do the task, when planning in period 4, provided that the task has not already been completed?

- Period 4
- Period 5

When does a sophisticated decision-maker plan to do the task, when planning in a prior period 0?

- Period 1
- Period 2
- Period 3
- Period 4
- Period 5

When does a sophisticated decision-maker plan to do the task, when planning in period 1?

- Period 1
- Period 2
- Period 3
- Period 4
- Period 5

When does a sophisticated decision-maker plan to do the task, when planning in period 2, provided that the task has not already been completed?

- Period 2
- Period 3
- Period 4
- Period 5

When does a sophisticated decision-maker plan to do the task, when planning in period 3, provided that the task has not already been completed?

- Period 3
- Period 4
- Period 5

When does a sophisticated decision-maker plan to do the task, when planning in period 4, provided that the task has not already been completed?

- Period 4
- Period 5

Maximum marks: 10

7 Problem 7 (counts 10%)

Assume for this problem that the decision-maker is quasi-hyperbolic discounter with $\beta = \frac{1}{2}$ and $\delta = 1$, and that the decision-maker values rewards and costs linearly.

Suppose there is a pleasurable activity that the decision-maker gets to complete on one of the next 5 periods. If the task is completed in period t, then the reward is v_t, where $(v_1, v_2, v_3, v_4, v_5) = (5, 8, 14, 20, 30)$. There is no cost.

When does a naive decision-maker plan to do the task, when planning in a prior period 0?

- Period 1
- Period 2
- Period 3
- Period 4
- Period 5

When does a naive decision-maker plan to do the task, when planning in period 1?

- Period 1
- Period 2
- Period 3
- Period 4
- Period 5

When does a naive decision-maker plan to do the task, when planning in period 2, provided that the task has not already been completed?

- Period 2
- Period 3
- Period 4
- Period 5

When does a naive decision-maker plan to do the task, when planning in period 3, provided that the task has not already been completed?

- Period 3
- Period 4
- Period 5

When does a naive decision-maker plan to do the task, when planning in period 4, provided that the task has not already been completed?

- Period 4
- Period 5

When does a sophisticated decision-maker plan to do the task, when planning in a prior period 0?

- Period 1
- Period 2
- Period 3
- Period 4
- Period 5

When does a sophisticated decision-maker plan to do the task, when planning in period 1?

- Period 1
- Period 2
- Period 3
- Period 4
- Period 5

When does a sophisticated decision-maker plan to do the task, when planning in period 2, provided that the task has not already been completed?

- Period 2
- Period 3
- Period 4
- Period 5

When does a sophisticated decision-maker plan to do the task, when planning in period 3, provided that the task has not already been completed?

- Period 3
- Period 4
- Period 5

When does a sophisticated decision-maker plan to do the task, when planning in period 4, provided that the task has not already been completed?

- Period 4
- Period 5

Maximum marks: 10

8 # Problem 8 (counts 35%)

Consider the following binary version of the two-person ultimatum game:

The Proposer receives 100 NOK. The Proposer's task is to suggest how to split the 100 NOK between herself and the other player, the Responder. The only alternatives available to the Proposer are the following: either an 80-20 split, or a 20-80 split. The Responder knows this. The game is played anonymously, and is one-shot.

Problem 8 a) (counts 5%) If both players have narrowly self-interested preferences, and this is common knowledge, how would you expect each player to behave? Why?

Fill in your answer here

Format

Words: 0

Maximum marks: 5

9 **Problem 8 b)** (counts 10%)

In the two-player inequality aversion model of Fehr and Schmidt (1999), the preferences of player *i* can be specified as follows:

$U_i = x_i - \beta_i(x_i - x_j)$ if $x_i > x_j$

$U_i = x_i - \alpha_i(x_j - x_i)$ if $x_i \leq x_j$

where $i \neq j, \beta_i \leq \alpha_i, 0 \leq \beta_i < 1.$

Assume now that the Responder in the binary ultimatum game described in 8a) has inequality averse preferences according to the model of Fehr and Schmidt (1999), with α=2 and β=0.1. What would you expect to be the Responder's strategy in this game?

Fill in your answer here

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Words: 0

Maximum marks: 10

10 **Problem 8 c)** (counts 10%)

Assume now that the Proposer in the binary ultimatum game described in 8a) also has inequality averse preferences according to the model of Fehr and Schmidt (1999), with α=2 and β=0.1. (See problem 8 b).) The Proposer knows that the Responder has similar preferences. What would you expect to be the Proposer's strategy in this game? What is your prediction of the two players' earnings in this game?

Fill in your answer here

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Words: 0

Maximum marks: 10

11 **Problem 8 d)** (counts 10%).

In lab experiments, researchers have found that when the Proposer can only choose between a 20-80 percent split and an 80-20 percent split in a binary ultimatum game, more than 70 percent of Responders accept an offer of 20 percent. Is this in line with your predictions in 8b) above? Can you think of another assumption about players' preferences (apart from narrow self-interest and the Fehr & Schmidt inequality aversion model) that you think might plausibly explain Responder behavior in binary ultimatum games? Discuss. (Verbal discussion is sufficient; you do not have to demonstrate the predictions of an alternative model formally.)

Fill in your answer here

Format

Words: 0

Maximum marks: 10

12 Problem 9 (10%)

Many subjects prefer a lottery where they win 3000 kroner with certainty over a lottery winning 4000 kroner with 80% probability. At the same time they prefer a lottery winning 4000 kroner with 20% probability over winning 3000 kroner with 25% probability. (In all these lotteries, the payment if not winning, is zero.)

a) Explain why this is inconsistent with expected utility theory.

b) Explain why this is not inconsistent with prospect theory.

Fill in your answer here

Format

Words: 0

Maximum marks: 10