

Problem 1

a) (Counts 10%) Briefly discuss the key elements of prospect theory and discuss how prospect theory differs from expected utility theory with asset integration. Discuss, in particular, the role of the reference point.

b) (Counts 5%) Explain what we mean by the endowment effect and discuss how this relates to prospect theory and the idea of a reference point.

Several researchers have conducted experiments to explore the endowment effect, with varying results. Some studies do find a strong endowment effect while there is no endowment effect in other studies. Whether or not studies find an endowment effect seems to depend on experimental procedures. Examples of such experimental procedures are: In one study subjects got extensive training in how to sell their item, in other studies no training was provided. In another study some subjects first conducted a round where they had to trade an item (or lose it), while other subjects did not conduct such a round.

c) (Counts 15%) Discuss to what extent expectation-based reference points can explain why the different experimental procedures mentioned above gives different results.

Exam in ECON4260, Fall 2020

Problem 2 (Time inconsistency and self-control problems)

Weight: 30% (with equal weight = 5% on each subproblem)

Consider a society consisting of infinitely-lived individuals. Each individual has a per-period discount rate δ equal to 0.8. In addition, the individual discounts all future periods by an additional factor β equal to 0.5. Assume that some people are naïve and some people are sophisticated when making decisions with such (β, δ) -preferences.

All individuals are offered freely a vaccination that protects against an illness in all subsequent periods. The vaccination has an immediate cost for the individual (in terms effort and disutility) equal to 10. The vaccination yields a health benefit equal to 10 in each subsequent period. The immediate cost and future benefits are in terms of von Neumann-Morgenstern utility, so that individuals make decisions under risk by maximizing the expected sum of discounted utilities. (For the calculations below, note that $1 + \delta + \delta^2 + \dots + \delta^t + \dots = \frac{1}{1-\delta} = \frac{1}{1-0.8} = 5$.)

In subproblems (a)–(e) the vaccination is offered in all periods 1, 2, 3, ..., t , ...

- (a) In any period t , if not vaccinated before, what is the net benefit (defined as the difference between the present value of the future benefits of vaccination minus the present value of the cost when vaccinated), as evaluated in period t , of being vaccinated in period t ? In any period t , if not vaccinated before, what is the net benefit, as evaluated in period t , of being vaccinated in period $t+1$? In any period t , if not vaccinated before, what is the net benefit, as evaluated in period t , of being vaccinated in the later periods $t+2$ or $t+3$?
- (b) In any period t , if not vaccinated before, when do the naïve individuals plan to be vaccinated? When will the naïve individuals be vaccinated?
- (c) Show that the sophisticated individuals are indeed sophisticated if they, in any period t , choose to be vaccinated with probability equal to 0.5 if not vaccinated before.
- (d) The government decides to provide a possibility for the individuals to sign up for the vaccine in a prior period 0. Signing up is voluntary, it has an immediate cost of 1, and it makes it compulsory to be vaccinated in period 1. How will the naïve and sophisticated individuals react to the possibility of signing up in period 0? (Assume that the sophisticated individuals will behave as in subproblem (c) if they do not sign up.) What are the welfare effects of the government's intervention?
- (e) The government decides instead to make it compulsory for everybody to be vaccinated in period 1. However, any individual can in the prior period 0 obtain an exception at an immediate cost of 1. If the individual obtains the exception, then they are back to the situation in subproblems (b) and (c). How will the naïve and sophisticated individuals react to the possibility of obtaining an exception in period 0? (Assume that the sophisticated individuals will behave as in subproblem (c) if they obtain an exception.) What are the welfare effects of the government's intervention in this case?

For the final subproblem (f), assume that the vaccination is offered only in the odd-numbered periods 1, 3, 5, 7, ...

- (f) In any period t , if not vaccinated before, when do the naïve and sophisticated individuals plan to be vaccinated? When will the naïve and sophisticated individuals be vaccinated?

Problem 3

a) (Counts 2%) What is an ultimatum game?

Consider a one-shot, two-player ultimatum game with full anonymity. Assume that proposals must be made in whole kr (i.e., 1 kr is the smallest strictly positive offer).

b) (Counts 3%) If the amount at stake is 100 kr, both players are self-interested, and this is common knowledge, what outcome would you expect? Why?

c) (Counts 2%) If the amount at stake is 10000 kr, both players are self-interested, and this is common knowledge, what outcome would you expect? Why?

d) (Counts 15%) Assume that the amount at stake is 100 kr. Both players $i = 1, 2$ have inequality averse preferences according to the model of Fehr & Schmidt (1999) with $\alpha_i = 3$ and $\beta_i = 0.2$, and this is common knowledge. How many kr would you expect the proposer to offer to the responder? Why?

e) (Counts 3%) Assume that the amount at stake is 10000 kr. Both players $i = 1, 2$ have inequality averse preferences according to the model of Fehr & Schmidt (1999) with $\alpha_i = 3$ and $\beta_i = 0.2$, and this is common knowledge. How many kr would you expect the proposer to offer to the responder? Why?

Let $\{p, r\}$ mean that the proposer proposes p kr to herself and r kr to the responder. Consider now the following binary version of a one-shot, two-player ultimatum game with full anonymity:

The amount at stake is 100kr. There are two experimental treatments, A and B, but in each of them, the proposer has only two alternatives.

In experimental treatment A, the proposer can either propose $\{90, 10\}$ or $\{50, 50\}$.

In experimental treatment B, the proposer can either propose $\{90, 10\}$ or $\{99, 1\}$.

Consider first the responders who received the proposal $\{90, 10\}$ in experimental treatment A. Assume that you know that z % of these responders rejected the proposal.

Consider now, in f), g) and h) below, the responders who received the proposal $\{90, 10\}$ in experimental treatment B.

f) (Counts 3%) Would you expect the percentage rejecting of these respondents to be lower than, equal to, or higher than z , if responders in both treatments have inequality averse preferences according to the model of Fehr & Schmidt (1999)? Why? Discuss.

g) (Counts 3%) Would you expect the percentage rejecting of these respondents to be lower than, equal to, or higher than z , if responders in both treatments have reciprocal preferences? Why? Discuss.

h) (Counts 9%) Would you expect the percentage rejecting of these respondents to be lower than, equal to, or higher than z , if responders in both treatments have preferences as specified below? Why? Discuss.

Individual i 's utility U_i is given by

$$U_i = x_i + S_i,$$

where x_i is i 's monetary payoff and S_i is i 's self-image. The individual suffers a loss of self-image if she is faced with unfair behavior by others without punishing it. Self-image is determined by

$S_i = 0$ if i faces only kind behavior by others (no threat to self-image)

$S_i = 0$ if i faces mean behavior by others and punishes the behavior

$S_i = -20$ if i faces mean behavior by others and does not punish the behavior.