

EC428/528: Problem Set 4

Due by class time on Wednesday, June 1st

Professor Jonathan M.V. Davis

May 23, 2022

In this homework, we will practice working with the intertemporal utility maximization model from class. We will also think about a couple applications of behavioral economics.

Ground Rules

- May work in groups of up to 5 (e-mail me if you need help finding a group).
- Only submit one assignment per group.
- Homework can be typed or (legibly) handwritten.
- Homework can be submitted in class or via Canvas.
- I will only answer e-mailed questions if sent by Tuesday, May 3rd.
- Late assignments will be penalized 25 percent per 24 hours.

1 Fehr-Schmidt Inequity Preferences (100 points)

In class, we discussed the Ultimatum Game. The rules of the game are as follows.

1. Proposer given \$X.
 2. Proposer chooses how much to share with Responder (assume this can only be in dollar increments).
 3. Responder accepts or rejects.
1. Assume the proposer and responder only care about money. Describe the responder's *best response function*, e.g. how the responder will respond to every possible offer. (25 points)
 2. Given the responder's best response function, what should the proposer do? (25 points)

Suppose now that the proposer and responder have the following utility function that accounts for social comparisons:

$$U_P = X_P - \varepsilon \text{Max}[0, X_R - X_P] - \gamma \text{Max}[0, X_P - X_R].$$

Note that $\text{max}[0, X_R - X_P] = 0$ if the proposer receives more than the receiver but equals $X_P - X_R$ if the receiver receives more than the propoers.

Analogously, the receiver's utility function is given by:

$$U_R = X_R - \varepsilon \text{Max}[0, X_P - X_R] - \gamma \text{Max}[0, X_R - X_P].$$

3. Assume γ and ε are positive parameters. What do each of these parameters capture about social preferences? (25 points)
4. Suppose the proposer is given \$48. Describe the responder's best response function and the proposer's best move given this strategy if $\varepsilon = \frac{3}{4}$ and $\gamma = \frac{1}{6}$? (25 points)