Behavioral Economics. Problem Set 2. Part A.

Due Week 6, Friday, in class, 4.40pm. Each hour delayed means a penalty of 2% of the Problem Set grade.

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1. (1 point) Consider the fourfold pattern seen in class provided by Kahneman and Tversky. Provide one example not seen in class that explains behavior in the upper right quadrant (large probability of a big loss)

2. (1 point) Consider the fourfold pattern seen in class provided by Kahneman and Tversky. Provide one example not seen in class that explains behavior in the lower right quadrant (small probability of a large loss)

3. Refer to Chapter 11 in "Misbehaving" (posted in Canvas, week 5). Summarize in your own words the three different predictions given by Keynes, Friedman and Modigliani regarding how much an individual is expected to consume if a person is suddenly given one extra $1,000. (3 points). What is the point Richard Thaler is trying to make by providing these examples? (3 points)

4. What is a commitment strategy, in the context of time preferences and present-biased individuals? (2 points). Provide one example of a commitment device not seen in class, or in the assigned readings. (2 points)

5. In the model of planners and doers of Richard Thaler (Chapter 12 in "Misbehaving"), who is the principal and who is the agent? (1 point).

6. Briefly describe what legal change in Israel was key to shift investments into stocks (2 points)

7. (Bonus). In one of the readings discussed so far, one scholar is mentioned for having written an entire scientific piece using words of only one syllable (except for one word). Can you remember who that was? (1 point)

8. (5 points)

   Suppose Homer Simpson is considering the following 2 gambles, and chooses (a):

   (a) Win $1M with 99% chances (nothing otherwise)

   (b) Win $2M with 97% chances, $1M with 1% chances (nothing otherwise)

   When presented with the following two, he chooses (b).

   (a) Win $2M with 49% chances, $1M with 1% chances, and $5 with 40% chances (nothing otherwise)

(b) Win \$1M with 51% chances and \$5 with 40% chances (nothing otherwise)

Is his choice rational under expected utility theory? Show your answer in detail, and argue.

9. (5 points)

   Suppose Lisa Simpson is considering the following 2 gambles, and chooses (a):

   (a) Win \$1M for sure

   (b) Win \$1M with 89% chances, nothing with 1% chances, and \$5M with 10% chances

   When presented with the following two, she chooses (b).

   (a) Win \$1M with 11% chances and \$0 with 89% chances.

   (b) Win \$5M with 10% chances and \$0 with 90% chances.

   Is her choice rational under expected utility theory? Show your answer in detail, and argue.

10. (2 points) Consider an individual whose utility function is given by $u(x) = x$. Call him Jesse James. Suppose Jesse is presented with the following gamble:

    The first time heads appears, the game ends and Jesse wins. Flip a coin and get \$2 if heads comes after the first coin toss. Get \$4 if heads appears on the second toss. Get \$8 if heads appears on the third toss. Get \$16 if heads appears on the fourth toss. And so on.

    How much should Jesse be willing to pay in order to play this game? (i.e., what is the maximum amount he should be willing to pay).

11. Suppose Xiu Ting has to choose consumption today and consumption tomorrow c_0, c_1 in order to maximize her utility function $u(c_0, c_1) = Ac_0 + \beta Ac_1$, where A is a constant, $A > 0$, and $0 < \beta < 1$ is her discount factor. Her budget constraint is given by $c_0 + c_1 = \omega$. That is, she has a limited amount of wealth that she has to distribute among both periods. What amounts of c_1 and c_0 will she choose in order to maximize her utility? (2 points) Does she consume more in time 0 or in time 1? (1 point) What is the intuition behind her choice? (1 point) (Hint: doing a graph may help)

    Now suppose her utility function is given by $u(c_0, c_1) = \sqrt{c_0} + \beta A\sqrt{c_1}$. Everything else remains the same. What amounts of c_1 and c_0 will she choose in order to maximize her utility? (2 points) Does she consume more in time 0 or in time 1? (1 point) What is the intuition behind her choice? (1 point)

12. (Practice problem: some solutions provided next page). Suppose Miguel has an unlimited budget constraint. He has to choose how much of good b to consume. b provides utility today, but disutility tomorrow. More precisely,

(1) $$U(b) = log(b) - \beta b^2, \text{ where } 0 < \beta < 1$$

What is the optimal quantity of b Miguel should consume?

What good could b be? Provide a precise example

What happens if we increase β? Will his consumption of b increase or decrease? Explain the intuition.

Solution to question (12)[1]

[1] $b^* = \frac{1}{\sqrt{2\beta}}$, so as $\beta \uparrow$, $b^* \downarrow$. This is because he gets more patient, so today he realises that the disutility tomorrow becomes more salient $\Rightarrow$ he wants to consume less.