Behavioral Economics

Mark Dean

Homework 5

Due Tuesday 4th April

PLEASE DO QUESTION 1 AND 2 ON SEPARATE SHEETS OF PAPER

Question 1 Consider a quasi-hyperbolic consumer who will live for three periods. In period 1 consumption is fixed at 1 (i.e. they cannot choose to consume more or less that this in period 1). In period 2 they will receive income x, while in period 3 they will receive income of \$10. The consumer in period 1 evaluates consumption according to the utility function

$$u(c_2) + u(c_3)$$

while in period 2 the consumer will make choices to maximize

$$u(c_2) + \beta u(c_3)$$

i.e. this is the $\beta - \delta$ model with $\delta = 1$. Assume that the consumer can borrow and save between period 2 and 3 at interest rate 0, and that $u(x) = \ln x$. Note that the consumer only gets to choose c_2 and c_3, not c_1 (this will make the maths a bit easier)

1. If the consumer in period 1 could commit to a level of c_2 and c_3, what would they choose (as a function of x and β)
2. If the choice of c_2 and c_3 is left to the consumer in period 2, what would they choose (as a function of x and β)
3. Assume $x = 30$ and $\beta = 0.5$. What would the consumer in period 1 choose to commit to (i.e. figure out $\bar{s}$ that the consumer in period 1 would choose to commit to saving

that amount in period 2)? How much would they pay for commitment? (i.e. what is the value of y such that the consumer in period 1 is indifferent between being receiving 30 in period 2 and being allowed to commit, or receiving y in period 2 and not being allowed to commit).

4. Now assume that with probability $1 - \varepsilon$ the consumer will receive \$30 in period 2, but with probability ε they will lose their job and only receive \$11 in that period (in both cases they receive \$10 in period 3) . Still assume that $\beta = 0.5$.

   (a) What is their utility if they receive \$30 and they have committed to $\bar{s}$?

   (b) What is their utility if they receive \$30 and have not committed?

   (c) What is their utility if they receive \$11 and they have committed to $\bar{s}$?

   (d) What is their utility if they receive \$11 and have not committed?

5. Use your answers to 4 to calculate $\bar{\varepsilon}$ such that, if the probability of losing their job is higher than $\bar{\varepsilon}$ then the consumer would prefer not to commit to $\bar{s}$.

Question 2 As a first stage towards your end of year project, come up with three ideas of areas that you might like to do research in. For each, write one paragraph that highlights a question that you would be interested in answering, and why you think it is interesting. These questions can come from any of the material that we have covered so far, or any of the topic areas that we are going to cover. You are welcome to work in groups of up to 3 on these ideas