

## Economics 119 Midterm, Fall 2004

Please answer all three questions.

QUESTION 1. (25 points) In the short survey I distributed in the first class, I asked half of you the following question:

Suppose I could give you a voucher for a free two-person dinner at a neighborhood Greek restaurant this weekend, or an identical voucher for a dinner at a fancy French restaurant. You can choose exactly one of them. Which one would you choose?

Of those who answered the question, 7 of 36 preferred the Greek restaurant. The other half of you I asked the following question:

Suppose I give you a voucher for a free two-person dinner at a neighborhood Greek restaurant, and an identical voucher for a dinner at a fancy French restaurant. You have to use one of the vouchers this weekend and the other next weekend. Which one would you use first?

Of those who answered the question, 31 of 39 preferred to go to the Greek restaurant first.

A.) Restricting yourself to concepts you have learned in this course, how can you explain the above pattern of findings? Elaborate in a few sentences.

B.) In the actual study on which these questions were based, some subjects were also asked the following type of question:

Suppose I could give you a voucher for a free two-person dinner at a fancy French restaurant this weekend, or an identical voucher valid for next weekend. You can choose exactly one of them. Which one would you choose?

Here, the majority preferred to have the dinner earlier. Is this consistent with your explanation in part A.)? (It does not necessarily have to be consistent for you to receive full credit for this part.) Explain.

QUESTION 2. (45 points) A consumer lives for four periods,  $t = 0, 1, 2, 3$ . In each of the periods, she can decide whether to “hit” or “not hit”. Hitting in a period  $t$  other than period 3 gives the consumer pleasure of 1 in period  $t$  and displeasure of 2 in period  $t + 1$ . Hitting in period 3 still gives the same pleasure in period 3, but—since this is the last period—there is no unpleasantness associated with it.

The consumer is a hyperbolic discounter; that is, self 0 maximizes the following discounted utility function:

$$u_0 + \beta\delta u_1 + \beta\delta^2 u_2 + \beta\delta^3 u_3.$$

Self 1 maximizes

$$u_1 + \beta\delta u_2 + \beta\delta^2 u_3,$$

and so on. Let  $\beta = 0.5$  and  $\delta = 0.9$ .

A.) Show that with no commitment technology available, the consumer decides to hit in every period.

B.) Show that *all* selves would be better off if hitting was banned (that is, if the consumer was prevented from hitting in every period).

C.) Suppose that the consumer is sophisticated, and self 0 has two choices: she can either ban the product starting immediately, or not ban it at all. Would she choose to ban it? Explain the intuition.

D.) Would a naive self 0 decide to have the product banned? Explain the intuition.

E.) **Extra credit:** Now suppose self 0 can decide not only whether to have the product banned, but also *when* the ban should start. Without any extra calculations, what do you think a sophisticated self 0 would choose?

QUESTION 3. (30 points) A decisionmaker has reference-dependent preferences over mugs and money of the type we introduced in class. In particular, her utility is defined over two dimensions, mugs (dimension 1) and money (dimension 2), with consumption utility  $u(c_1, c_2) = 3c_1 + c_2$ . Her gain-loss utility function  $v$  takes the form  $v(x) = x$  for  $x \geq 0$  and  $v(x) = 3x$  for  $x \leq 0$ . Normalize her current wealth to zero.

A.) Calculate the decisionmaker's buying price, the minimum price at which she is willing to buy the mug if she has not been given one (and that is her reference point).

B.) Suppose the decisionmaker has been given \$10, but has not yet incorporated this money into her reference point. That is, her reference point remains  $(r_1, r_2) = (0, 0)$ . Calculate her new buying price, the minimum price at which she is willing to buy the mug. Explain intuitively the difference between your answers to parts A.) and B.).