Class Exercise (Learning from new information)

October 11, 2019

1. Jessica is an office secretary who uses Microsoft Excel for completing a lot of her daily office tasks, but she knows she can be more efficient in Excel if she participated in an online training course that lasts about 4 hours. The online training costs money, which gives her disutility - say, -10 utils. But she also knows that the future benefit for every subsequent day after attending the course will increase her efficiency, giving her an additional 2 utils worth of benefit everyday for the rest of her life. Jessica has a $\beta - \delta$ utility over time of $U(u_0, u_1, u_2, ...) = u_0 + \beta(\delta u_1 + \delta^2 u_2 + ...)$. Time 0 represents the current period, time 1 the next period, etc. Normalize the utility of each period in which Jessica has not attended the training program to $u_t = 0$.

a. If Jessica were a naive with $\beta = 0.5$ and $\delta = 0.95$, would she rather complete the training program in the current period, the next period, or never?

b. If Jessica were a sophisticate with $\beta = 0.5$ and $\delta = 0.95$, what would she do?

2. A company that operates 100 fitness centers throughout the southern US has found that about 2,000 new customers come to the gym in early January. A survey of these new customers has found that 85% plan to attend the fitness center regularly for the long term. However, only 10% of these new customers continue attending after the first month. Currently, the company charges customers $2 for each visit, paid by cash or credit card at the desk prior to entry. The CEO of the company wants to increase revenue by encouraging long-term participation.

A. Design a new pricing plan to nudge new customers into long-term participation while substantially increasing revenue. Explain the economic psychology that makes your new pricing plan likely to be successful.

B. Design a natural experiment to test the effectiveness of your new pricing plan.

C. Now, consider a customer who wants to go the gym regularly but finds herself skipping many days - sometimes even weeks. Can you suggest a pricing plan that will nudge her to go to the gym more often than not?

3. Ellsberg (1961) suggested another box in which there are 90 balls. You know that 30 of the balls are red and the other 60 are some mix of black and yellow. One ball will be randomly drawn from the box. Would you prefer to 'bet the ball is red' or 'bet the ball is black'? Would you prefer to 'bet the ball is red or yellow' or 'bet the ball is black or yellow'? Were your choices consistent with subjective expected utility maximization?

4. Why might someone who is ambiguity averse delay making a decision? How does this relate to procrastination because of a present bias?

5. There are no experiments to test for confirmatory bias in economic behavior. Design one. And then do one to test for the law of small numbers.