Behavioral Pset 1

Dylan Baker

October 2024

1 Problem 2

1.1 Question 2.1

We can get a loss aversion parameter by asking about preferences over lotteries with possible loss or gain versus sure thing degenerate lotteries. Loss aversion would appear as accepting a sure thing below the expected value of the lottery if the lottery has a possible loss. Estimating risk aversion could involve a similar set of operations, but with lotteries that don't involve a possible loss.

1.2 Question 2.2

It depends on what values they're incrementing by flat dollar amounts over. If it's incrementing by a flat dollar from $x.99$ to $(x+y).99$ each time, where $x, y \in \mathbb{N}$, then this could be taking advantage of left-digit bias. If they increment by a flat dollar amount that isn't moving around a $x.99$ setup, then it's less clear but could be related to reducing menu costs or adhering to industry norms. Alternatively (and maybe less convincingly), you could imagine a strange form of left-digit bias committed by the firm themselves in which, *the firm*, facing the need to increase prices, doesn't feel like they're raising prices if it goes up by a leading 0, e.g., a 0.99 increase, but does if it goes up by a leading 1, e.g., a 1.00 increase. Thus, it's the minimum increase at which the firm feels like they're raising prices as needed.

1.3 Question 2.3

Rational inattention corresponds to the idea that an agent is not dedicating attention to a matter, because the attention required to assess the matter is not worth the expected benefit of the assessment. Irrational inattention is less rooted in a probabilistic assessment of expected costs and benefits of assessment and more rooted in cognitive biases. How we might distinguish between the two seems like it would vary significantly by context. In general, one could imagine varying the expected payoff change associated with undergoing the assessment and seeing if the agent's behavior changes (as would be expected for rational inattention and not under irrational inattention, all else equal) or varying something related to the relevant cognitive bias, holding the expected payoff change and cost of assessment constant, and seeing if the agent's behavior changes (as would be expected for irrational inattention and not under rational inattention).

2 Problem 3

2.0.1 Question 3.1.1

$$u'(C_t) = \delta f'(K_t)\, u'(C_{t+1})$$

2.0.2 Question 3.1.2

In this case,

$$u'(C_t) = C_t^{-\sigma}$$

Thus,

$$u'(C_t) = \delta f'(K_t)\, u'(C_{t+1})$$

becomes

$$\begin{aligned} & C_t^{-\sigma} = \delta f'(K_t)\, C_{t+1}^{-\sigma} \\ \Leftrightarrow & \frac{C_{t+1}}{C_t} = (0.95 f'(K_t))^{\frac{1}{\sigma}} \\ \Leftrightarrow & \frac{C_{t+1} - C_t}{C_t} = (0.95 f'(K_t))^{\frac{1}{\sigma}} - 1 \end{aligned}$$

The growth rate of consumption increases with the rate of return on capital investment. A higher rate of return on capital investment incentivizes delaying consumption.

2.0.3 Question 3.1.3

$$\begin{aligned} \frac{C_{t+1} - C_t}{C_t} =& (0.95 f'(K_t))^{\frac{1}{\sigma}} - 1 \\ =& ((0.95)(1.75))^{\frac{1}{2}} - 1 \\ \approx& 0.289 \end{aligned}$$

The implied growth rate of consumption is above.

It seems high.

2.1 Question 3.1.4

Poverty traps could plausibly explain low investment in contexts where the production function is S-shaped and individuals get stuck in a low level of capital, but this doesn't explain underinvestment amid facing a high rate of return. "Lumpy" investments and credit constraints could contribute to explaining underinvestment amid high returns. This explanation would rely on an inability to save, invest in more liquid assets to build towards the large investment, or borrow/access other financial instruments.