600541 APPLIED BUSINESS ECONOMICS, 2021–22 TUTORIAL 7

If you wish to discuss the tutorial questions please come to my office hours.

1. (*Cabral* 13.2) Empirical evidence suggests that the probability of a household switching to a different brand of breakfast cereal is increasing in the advertising intensity of that brand. However, the effect of advertising is significantly lower for households that have previously tried that brand. What does this suggest about the nature of advertising expenditures (persuasion versus information)?

2. This question introduces a positive unit cost of production and adds a third valuation to the model of informative advertising from the last lecture. A monopoly sells a good for which an equal proportion (i.e. 1/3) of consumers has each of the valuations 6, 18 and 24. The unit cost of production is $0 \leqslant c < 24$. Consumers are risk-neutral so are willing to pay up to their expected valuation.

   (a) What is the expected valuation $\bar{v}$? Draw the demand curve when consumers are uninformed.

   (b) Assuming that the unit cost is less than the expected valuation, $c < \bar{v}$, what is the optimal price and profit when the consumers are uninformed? Indicate the maximized profit on your diagram from (a).

   (c) Now suppose consumers are perfectly informed. Draw the demand curve.

   (d) What is the optimal price and profit (as a function of c) when the monopoly's advertising completely informs consumers of their valuations?
   [*Hint*: There are three candidates for the profit-maximizing price. Calculate the profit at each price and compare the three profit expressions. The profit-maximizing price will depend on the level of c. If you are stuck, you might first experiment by trying plugging in a few numerical values of c.]

   (e) Should the monopoly perfectly inform or not inform at all? Explain mathematically, and intuitively.
   [*Hint*: There are two cases to consider, depending on the value of c.]

   (f) Can the monopoly do better by providing some sort of partial information? Explain intuitively. (If feeling adventurous, explain it mathematically too).
   [*Hint*: You will likely find answering this quite difficult. The type of partial information the monopoly might want to give to consumers is about whether or not their valuation exceeds some threshold. In particular the monopoly might inform each consumer whether their valuation v is such that $v \geqslant t$ or $v < t$. What threshold t would the monopoly choose? To answer this question, think about why it was optimal to provide no information when the unit cost was zero.]