

# Problem Set 2 – Deviations from Utility Maximization

Econ 4310

Due: 11:59pm, 10/1/2025

Please turn in a single copy of the problem set on Canvas. Each of you must independently write your own solutions to the homework. You should feel free to discuss the questions with each other, with me, or with our graduate AIs. However, the work you produce must, in the end, represent your own thoughts and understanding of the problems. In particular, it would not be appropriate to study someone else's answer to a problem and reproduce it as your own.

1. (10 points) **Compromise & Dominance effects.** Imagine you are deciding which gas station to go to. You only care about two dimensions: price of gas & distance to the station. Gas station A costs \$3.63 per gallon and is 10 miles away. Gas station B costs \$4.01 per gallon, but is only 2 miles away. With the addition of each of the following stations, identify whether the compromise effect, dominance effect, or neither would apply to change consumers' choices. Then, identify whether gas station A or B would be more likely to be visited with the addition of this choice. (You may assume you have enough gas to get to any of these options.)
  - (a) Gas station C costs \$3.23 per gallon and is 14 miles away.
  - (b) Gas station D costs \$4.14 per gallon and is a short block away.
  - (c) Gas station E costs \$4.14 per gallon and is 3 miles away.
  - (d) Gas station F costs \$3.76 per gallon and is 8 miles away.
  - (e) Gas station G costs \$3.85 per gallon and is 5 miles away.
2. (10 points) **Choice Overload.** Answer the following questions about the short report *Buying Behavior as a Function of Parametric Variation of Number of Choices* (Shah & Wolford, 2007). This can be found on the files/readings page of Canvas.
  - (a) Do the findings in this study appear to violate any established choice axioms? If yes, which ones and why?
  - (b) Evaluate the experimental methods used in the study. Identify at least one strength and one weakness, and briefly describe one way you would improve the design.
3. (9 points) **Reference Dependence.** As discussed in class, the endowment, default, status quo, and sunk cost effect are related forms of reference dependence. For each of the following

examples: (i) Identify and explain which type of reference-dependent effect is illustrated. (ii) explain if the example is a *bias* or if it could be aligned with rational decision making. If you are unsure, explain what other data you would need to make that assessment.

- (a) Switching phone suppliers is often seen as a simple way to save money as companies like AT&T, Verizon, etc. often provide long-lasting deals to new customers. Yet, despite this, 82% of Americans say they are ‘not at all likely’ to change carriers (Shriber, 2023).
  - (b) Dave consistently finds himself subscribed to many brands’ marketing campaigns because when he checks online, the box of “subscribe to hear updates!” is pre-checked.
  - (c) “American homeowners overestimate the value of their homes by 1.3% on average.” (Dreesen & Damen, 2022)
4. (9 points) **Endowment effect.** Suppose a decision maker has the opportunity to buy a single unit of some good. Her willingness to pay (WTP; i.e., her reservation value of the good), can be elicited in an incentive compatible manner (e.g., a second price auction). Suppose her WTP is \$100. Now suppose the same decision maker is in possession of the good. Her willingness to accept (WTA; i.e., her reservation price for selling the good—or the lowest price she would accept to sell the good), can also be elicited in an incentive compatible way.
- (a) Suppose the decision maker is a standard rational agent. What is her WTA?
  - (b) Suppose her actual elicited WTA is \$110. Can this decision maker be a standard rational agent, if ownership of the good conveys no information on its quality? Why or why not?
  - (c) Provide a brief intuition for why, in your opinion, the endowment effect is commonly observed. What kind of goods would be more prone to this behavior?
5. (12 points) **Endowment effect - Class Data.** Refer to the data from Lab Session 1 on Canvas (posted with the assignment) and answer the following questions:
- (a) What is the mean WTP? What is the mean WTA? Is there a statistically significant difference between these two measures? Include results from a regression, t-test, or another appropriate statistical analysis. You may use any statistical software you are comfortable with.
  - (b) Do you notice any trends in the data over time?
  - (c) Your class was the first in this dataset not to replicate the endowment effect. Why do you think this might be? Are there any modifications you would make to the experiment to increase the likelihood of replicating the effect?