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Department of Economics
Economics 201
Fall 2022

Homework #2 (due by 9:00pm on Monday, September 19)

*Please submit your answers to this homework through the Assignment link at Blackboard. **No credit will be given for answers submitted in class or emailed to the professor, regardless of the excuse.** This includes unique excuses like the police confiscated my computer right before I was going to submit it, excuses like “I lost my Internet”, etc. Please note that all submissions are final, again – regardless of the excuse (which includes “I accidentally hit the submit button”). Note that Blackboard allows you to save your answers, but you must hit the “Save and Submit” button to submit your answers. If you are unfamiliar with Blackboard, then it would be a good idea to visit the class page at Blackboard and check out the homework assignments as they are posted.*

Please note that when Blackboard grades homework answers, more specifically – answers to the fill-in-the-blank questions – your answer must match exactly with the answer that Blackboard is looking for. Below, you'll find some instructions on how to properly format these answers. Reading this section is strongly recommended.

Homework Questions 4, 8, 9 and 10

Formatting matters with the answers in these questions. For this reason, **understand that your answer can be technically correct but graded as wrong because you didn't follow the directions provided below.** Given that formatting is considered part of your answer, a wrongly formatted answer is still a wrong answer.

Please note the following comments regarding formatting below.

(i) Your answer in question 4 (only) may be expressed as a fraction (reduced to its simplest form) or as a decimal rounded to the nearest tenth. Do not write your answer as a compound fraction or mixed number. E.g., if your answer in question 4 is $\frac{6}{4}$, then you should reduce that answer to $\frac{3}{2}$ or write it as 1.5, but do not write your answer as $\frac{6}{4}$ or $1 \frac{1}{2}$.

(ii) Your answer in questions #8a, 8b and 9 should be expressed as a decimal rounded to the nearest tenth. There are reminders within the homework after each of these questions.

(iii) Your answer in question 10a should be expressed as a whole number. If you do get a fractional answer, round that answer to the nearest one unit. E.g., if your answer is 25.1, then record your answer as 25.

(iv) Your answer in question 10b may be expressed in terms of dollars. E.g., if your answer is 100, then record your answer as \$100 or 100, but not \$100.00 or 100.0.

Homework #2 Questions

1. Consider the Metro Louisville area market for gasoline (e.g. gasoline sold in different areas of Louisville or Jefferson County). Assume that this market consists of many demanders and suppliers within the city of Louisville. Note that consumers can also purchase gasoline in other areas, e.g. Oldham County, instead of purchasing their gasoline in what we consider Metro Louisville. Assume as well that gasoline is a normal good.

You must identify how different events affect the gasoline market in Louisville by matching each event (listed under “Events” below) to the item which represents the most likely item on the list of effects on the market for Louisville gasoline.

Events (Question Items):

- a. Just prior to Summer, we observe significant increases in consumer income within the Metro Louisville area.
- b. Passage of Federal environmental regulation increases the cost of selling gasoline.
- c. Automation (technological change) occurs within many Louisville area gas stations which allow the stations to replace cash register workers with machines and computers.
- d. Bad Winter weather shuts down many of the Louisville area roads and highways.
- e. Indiana State Government decreases their state-level commodity tax on gasoline.

Effect on Louisville Market for Gasoline (Answer Items):

- A. Increase in Demand for gasoline
- B. Decrease in Demand for gasoline
- C. Increase in Supply of gasoline
- D. Decrease in Supply of gasoline
- E. Increase in the Demand for gasoline and Increase in the Supply of gasoline
- F. Decrease in the Demand for gasoline and Decrease in the Supply of gasoline
- G. Increase in the Demand for gasoline and Decrease in the Supply of gasoline
- H. Decrease in the Demand for gasoline and Increase in the Supply of gasoline

2. Consider the Metro Louisville area market for gasoline. Note that discussion of this market from Question 1 also applies to this question.

You must identify how different events affect equilibrium price and equilibrium quantity of gasoline in the Louisville gasoline market by matching each event (listed under “Events” below) to the item which represents the most likely effect on the market’s equilibrium price and quantity.

Events (Question Items):

- a. Passage of Federal legislation that requires all employers to provide higher employer-paid cost health care benefits to their employees.
- b. Car manufacturers engage in price competition that leads to large reductions in both used and new car prices within Louisville.
- c. Lower diesel gasoline prices decrease the price of distributing gasoline to gas stations within Louisville, and as a result lowers the cost that gas stations pay to buy gasoline.
- d. Metro Louisville government places a (new) country-level commodity tax on the suppliers of gasoline in Louisville.
- e. Federal government subsidizes the purchase of electric vehicles, making these vehicles significantly less expensive.

Effect on equilibrium within the Louisville Market for Gasoline (Answer Items):

- A. Increase in both the equilibrium price and equilibrium quantity of gasoline
- B. Decrease in both the equilibrium price and equilibrium quantity of gasoline
- C. Increase in the equilibrium price of gasoline, and decrease in the equilibrium quantity
- D. Decrease in the equilibrium price of gasoline, and increase in the equilibrium quantity

Question 3 relates to how we explain changes in price and quantity on the basis of the demand and supply model from class. Assume we’re dealing with the demand and supply of Louisville area gasoline, and that the curves in this market are not horizontal or vertical (i.e. that these curves have their "typical" slope).

3. Match the change in equilibrium on the left with the shift(s) on the right that best explains that change. E.g., suppose you’re given an increase in equilibrium price (P^*) and equilibrium quantity (Q^*). If you believe this change is best explained by a decrease in supply, then your answer would be “decrease in supply” (answer D).

- | | |
|--|--|
| a. P^* increases and Q^* decreases | A. Increase in demand |
| b. P^* decreases and Q^* decreases | B. Decrease in demand |
| c. P^* decreases and Q^* increases | C. Increase in supply |
| | D. Decrease in supply |
| | E. Increase in demand and increase in supply |
| | F. Decrease in demand and decrease in supply |
| | G. Increase in demand and decrease in supply |
| | H. Decrease in demand and increase in supply |

4. Assume that researchers determine the following information about good X, in terms of how the quantity demanded for good X is affected by changes in specific variables.

- Increasing advertising expenditure on good X by 8% increases the quantity demanded for good X by 3%
- Increasing the price of good X by 4% decreases the quantity demanded for good X by 8%
- Increasing consumer income by 4% increases the quantity demanded for good X by 6%
- Increasing the price of good W by 4% decreases the quantity demanded for good X by 2%
- Increasing the quantity sold of good X by 5% increases the quantity sold of good W by 10%

Assume that the information above allows you to directly calculate the elasticity measures requested in parts a, b and c below. Note that some of this information may not be relevant to answering any of the three questions below.

*Make sure that you read the formatting instructions provided at the beginning of this homework. Also, if applicable, you **do** need to indicate whether a number is negative (i.e. include "-" in front of any negative number to indicate that it's a negative number).*

- a. The (own) price elasticity of good X is _____
- b. The income elasticity of good X is _____
- c. The cross price elasticity of goods X and W is _____

5. When looking at the information given in the question above (i.e. #4) it is possible to characterize good X in terms of whether it is a normal good, inferior good, substitute for good W, complement to good W, etc. In the responses given below, **check all correct responses** when it comes to characterizing good X in the manner described above. E.g., based on the information from Question 4, if you think Good X is an inferior good, a luxury, and also a substitute for good W, then you would check those three boxes below.

Note that your answer to this question is either completely correct or it's incorrect. I.e., there is no partial credit on this one.

- (a) The demand for good X is inelastic
- (b) The demand for good X is elastic
- (c) The demand for good X is "unit elastic"
- (d) Good X and good W are not related goods
- (e) Good X and good W are substitutes
- (f) Good X and good W are complements
- (g) Good X is a normal good
- (h) Good X is an inferior good
- (i) Good X is a necessity
- (j) Good X is a luxury

*In the Blackboard shell for this course, there's a folder entitled "**Homework #2 material**" that's located in the Course Documents section of Blackboard. Access that folder and get the file called "Measures of elasticity handout.pdf". You'll be using this file to answer questions #6-7.*

6. Use the own-price elasticity estimate from Table 1 and then indicate **every true statement** below about how a change in price should affect the total revenue associated with selling this good (note that in this question, it is **possible to have multiple answers**, e.g. a and c, or c and d):

- (a) the own-price elasticity of beer reported in Table 1 directly implies that an increase in price would lead to an increase in the total revenue associated with selling beer
- (b) the own-price elasticity of beer reported in Table 1 directly implies that a decrease in price would lead to an increase in the total revenue associated with selling beer
- (c) the own-price elasticity of beer reported in Table 1 directly implies that an increase in price would lead to a decrease in the total revenue associated with selling beer
- (d) the own-price elasticity of beer reported in Table 1 directly implies that a decrease in price would lead to a decrease in the total revenue associated with selling beer

7. Using the four elasticity estimates from Table 1, indicate every **true statement** below (note that in this question, **there's one response for each of the 4 measure from the table**):

- (a) beer is an elastic good
- (b) beer is an inelastic good
- (c) beer is a normal good and a necessity
- (d) beer is a normal good and a luxury good
- (e) beer is a normal good (only), and not also a luxury good or a necessity
- (f) beer is an inferior good
- (g) beer and wine are substitute goods
- (h) beer and wine are complement goods
- (i) beer and spirits are substitute goods
- (j) beer and spirits are complement goods

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8.a. Locate the Table 2 estimates for air travel within North America. If there was a 4% increase in the price of short-haul flights, then the quantity of (domestic) **leisure** flights within North America would decrease by _____%.

8.b. Using the same table, if there was a 4% increase in the price of short-haul flights, then the quantity of (domestic) **business** flights within North America would decrease by _____%.

Note in answering Questions #8a and 8b above, you should round to the nearest tenth. Also, based on the way these problems are worded, you do not have to include a negative sign or a percentage sign as part of your answer.

9. Locate the Table 3 estimates for air travel within the U.S. If recession leads to a 2% decrease in income for the typical consumer, then the quantity of long-haul flights would decrease by _____%.

Again, note in answering Question #9 above, you should round to the nearest tenth. Also, based on the way this problem is worded, you do not have to include a negative sign or a percentage sign as part of your answer.

10. Assume that the demand and supply curves for good A are given as the equations you see below. *Note: please read the instructions above about rounding your answers.*

$$\begin{array}{ll} \text{Demand:} & P = 400 - 2Q_d \quad (Q_d = \text{quantity of A demanded, } P = \text{price}) \\ \text{Supply:} & P = 200 + 3Q_s \quad (Q_s = \text{quantity of A supplied}) \end{array}$$

a. The equilibrium quantity in this market is _____
(express your answer as a number – e.g., if the answer is 25 units, then record your answer as 25 and not “25 units”)

b. The equilibrium price in this market is _____
(express your answer in terms of dollars, not dollars and cents – e.g., if your answer is 25, then record your answer as \$25 and not \$25.00 or 25)

11. Assume that the demand and supply curves for good A are given as the equations you see below. *Note: these are the same equations from Question #10 above.*

$$\begin{array}{ll} \text{Demand:} & P = 400 - 2Q_d \quad (Q_d = \text{quantity of A demanded, } P = \text{price}) \\ \text{Supply:} & P = 200 + 3Q_s \quad (Q_s = \text{quantity of A supplied}) \end{array}$$

Assume that government has placed a price ceiling on the market for good A. If the price ceiling is set at \$290, then which one of the following (direct) effects is the most likely to occur:

- (a) No effect (i.e. no shortage, no surplus)
- (b) Shortage of 15 units
- (c) Surplus of 15 units
- (d) Shortage of 25 units
- (e) Surplus of 25 units
- (f) Shortage of 30 units
- (g) Surplus of 30 units
- (h) Shortage of 40 units
- (i) Surplus of 40 units
- (j) Shortage of 55 units
- (k) Surplus of 55 units