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Department of Economics
Honors Economics 201-03
Spring 2018

Homework #2 (due by 9:00pm on Wednesday, February 7)

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 3, 7 and 8
Formatting matters with the answers in these 3 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 3 (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 questions 1 or 4 is 6/4, then you should reduce that answer to 3/2 or write it as 1.5, but do not write your answer as 6/4 or 1 1/2.

(ii) Your answer in question 7 should be expressed as a decimal rounded to the nearest tenth. You do not need to include a % in your answer, just record a number. E.g., if your answer is 4.37%, then record your answer as 4.4.

(iii) Your answer in question 8a 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 8b should be expressed in terms of dollars (only). E.g., if your answer is 100, then record your answer as $100 and not 100 or $100.00.

Homework #2 Questions

1. Consider the Louisville area market for sports drinks (i.e. non-carbonated drinks aimed at active consumers who need to replace fluids after exercise, like Gatorade, Powerade, etc.). Assume that this market consists of many buyers and sellers within the city of Louisville. Note that sports drinks are an alternative to other similar, but different beverages like bottled water and carbonated soft drinks. Assume as well that sports drinks are a normal good often purchased by younger consumers (e.g. college and high school students) with energy bars, a snack preferred by active people who exercise and need to replenish calories or carbohydrates and protein (e.g. Luna bars, Clif bars, etc).

You must identify how different events affect this market by <u>matching</u> each event (listed under "Events" below) to the item which represents the most likely item on the list of effects on the market for sports drinks.

Events:

a. Increases in a specific per unit (commodity) tax on all carbonated soft drinks.

b. Significant increase in the employer paid health care benefits of sports drink employees.

c. Decrease in the price of energy bars, a good often purchased with sports drinks.

d. Decrease in the cost of sugar, an ingredient in most sports drinks.

e. Big decrease in regulation within the beverage industry, which includes sports drinks, that lowers the cost associated with making and selling all beverages.

f. Spring Break begins, leading to a large decrease in the Louisville area population as Louisville residents go on vacation and many students leave for home (which is outside of Louisville).

g. An increase in price competition within the carbonated soft drink market that leads to significant decreases in the price of these beverages.

h. The medical community begins making health-related announcements (PSAs) which inform consumers of the high sugar content of beverages like sports drinks and encourage consumers to drink more water.

Effect on Market for Sports Drinks:

A. Increase in Demand for sports drinks

B. Decrease in Demand for sports drinks

C. Increase in Supply of sports drinks

D. Decrease in Supply of sports drinks

E. Increase in the Demand for sports drinks <u>and</u> Increase in the Supply of sports drinks

F. Decrease in the Demand for sports drinks <u>and</u> Decrease in the Supply of sports drinks

G. Increase in the Demand for sports drinks <u>and</u> Decrease in the Supply of sports drinks

H. Decrease in the Demand for sports drinks <u>and</u> Increase in the Supply of sports drinks

This next question 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 pizza again, and that the curves in this market are not horizontal or vertical (i.e. that these curves have their "typical" slope).

2. 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
b. P* decreases and Q* decreases
c. P* decreases and Q* increases

A. Increase in demand
B. Decrease in demand
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

3. 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 <u>do</u> 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 _____

4. When looking at the information given in the question above (i.e. #3) 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 3, 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

Questions #5-7 relate to the information discussed below.

Go to the US Department of Agriculture website where the estimates from various studies of demand-related elasticities are posted. You'll be accessing three excel files at that website (listed below), with links which you should see just below the headings "Data Set" and "2005 Data". Each file is also posted in the folder "**Homework #2 material**", just in case the link doesn't work, which is in the Course Documents section of Blackboard.

http://www.ers.usda.gov/data-products/international-food-consumption-patterns.aspx

Here are the files you'll be accessing:
File i: Income Elasticities for Broad Consumption Categories, 144 Countries, 2005
 • *file i should be the first file listed at the link above*
File ii: Uncompensated Own-price Elasticity for Broad Consumption Groups, 144 Countries, 2005
 • *file ii should be the fourth file listed at the link above*
File iii: Income Elasticities for Food Subcategories, 144 Countries, 2005
 • *file iii should be the fifth file listed at the link above*

Note that each of these files report elasticity estimates for various goods in many different countries. To do the questions below, you'll need to look up an elasticity measure for a specific good in a specific country.

5. Locate the file with income elasticity estimates that's referenced above (file i) and find the income elasticity estimate for "Medical & Health" expenditure in Ethiopia. Which of the following (below) is the most accurate interpretation of the income elasticity measure for Ethiopia. Note that in this particular question, there is *only one correct answer*.

(a) elastic good
(b) inelastic good
(c) normal good
(d) luxury good
(e) necessity
(f) inferior good
(g) normal good and necessity
(h) normal good and luxury good
(i) substitute good
(j) complement good
(k) elastic good and necessity
(l) inelastic good and necessity
(m) none of the above

6. Locate the file with own-price elasticity estimates (file ii) and find the own-price elasticity estimate for Medical & Health expenditure in Ethiopia. Given the own-price elasticity of Medical & Health expenditure in Ethiopia, please indicate every **true statement** about how a change in price should affect the total revenue associated with selling this good (note that in this particular question, it is *possible to have __more than one__ correct answer*):

(a) the own-price elasticity of Medical & Health directly implies that an increase in price would lead to an increase in the total revenue associated with selling Medical & Health
(b) the own-price elasticity of Medical & Health directly implies that a decrease in price would lead to an increase in the total revenue associated with selling Medical & Health
(c) the own-price elasticity of Medical & Health directly implies that an increase in price would lead to a decrease in the total revenue associated with selling Medical & Health
(d) the own-price elasticity of Medical & Health directly implies that a decrease in price would lead to a decrease in the total revenue associated with selling Medical & Health

7. Locate the file with income elasticity estimates for food subcategories (file iii) and find the income elasticity estimate for Beverage & Tobacco (Bev. & Tobacco) in Ethiopia. If the income of the average citizen in Ethiopia increased by 2%, then the quantity of Beverage and Tobacco products sold in Ethiopia to the average citizen would change by _____%.

Note that in answering Question #7 above, that you only need to record a number and not the % with your percentage change. You should also round your answer to the nearest tenth. E.g., if you believe that a 2% increase in income leads to a 2.563% increase in quantity, then your answer should be 2.6.

8. 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.*

  Demand: $P = 400 - 2Q_d$ (Q_d = quantity of A demanded, P = price)
  Supply: $P = 200 + 3Q_s$ (Q_s = quantity of A supplied)

  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)

9. 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 #8.*

  Demand: $P = 400 - 2Q_d$ (Q_d = quantity of A demanded, P = price)
  Supply: $P = 200 + 3Q_s$ (Q_s = quantity of A supplied)

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