

EC155a: Problem set #2

**Due on Friday, October 13 by 5:00 PM at Professor Isham's office
(Hillcrest Environmental Center 119)**

Question 1

- a) Why is the supply curve upward sloping?
- b) Imagine that two goods, A and B, are complements. Is their cross-price elasticity positive or negative? If the price of good B goes up, show the shift in demand for good A, *if any*.
- c) If a state raise its minimum wage, what is the likely outcome? Is raising the minimum wage a good idea or a bad idea? Justify your answer.
- d) If the state of California taxes sugared drinks, what will happen to the consumer price for these drinks and the equilibrium quantity consumed? Who do you think will 'bear the burden' of this tax? Is such a tax a good idea? Justify your answers.

Question 2

- a. On a Saturday night, Juan says that he will spend \$20 on pizza, no matter what the price per slice. Cheryl says she will buy three slices, no matter what the price per slice. What is Juan's elasticity of demand for pizza slices? What is Cheryl's elasticity of demand for pizza slices? Justify and illustrate your answers.
- b. When the price of a good is raised from \$90 to \$110, the quantity demanded of the good declines by 5%. If the producer of this good wants to increase revenues, should she raise prices, lower prices, or do nothing - or is it not certain?
- c. Imagine that demand and supply for a good are neither perfectly elastic not perfectly inelastic. Before the imposition of a tax, the equilibrium price for the good is \$10.00. After the imposition of a \$2.00 per unit tax, will the new equilibrium price for consumers be greater than, equal to, or less than \$12.00 - or is it not certain?
- d. Under what conditions will a tax on gasoline dramatically reduce the consumption of gasoline? Explain and illustrate graphically.

Question 3

True or false questions: in all cases, justify your answers.

- a. An increase in the price of a product will always lead to a reduction in total spending for that product.

- b. The demand for Samsung smartphones is likely to be more inelastic than the demand for all smartphones.
- c. If the government imposes regulations on electric refrigerators that dramatically increased their efficiency, demand for electricity will always shift in.

Question 4

Production and consumption of maple syrup - a delicious sweetener that comes from the sap of maple trees - are very common in Vermont. It is produced in the early spring ("mud season") from full grown trees and consumed year-round.

Imagine that the demand and supply for pints of syrup among three suppliers and three consumers are as follows:

	Consumer A	Consumer B	Consumer C
\$10	35	30	40
\$20	30	25	35
\$30	20	15	25
\$40	15	15	20
\$50	10	10	20
\$60	5	5	10
\$70	0	0	5
\$80	0	0	0

	Producer X	Producer Y	Producer Z
\$10	0	0	0
\$20	0	0	5
\$30	5	0	10
\$40	10	5	15
\$50	10	10	20
\$60	15	15	25
\$70	20	20	30
\$80	30	25	30

- a) Based on these data, what is the market demand schedule for maple syrup? What is the market supply schedule?

b) What is the elasticity of market demand in the range between \$20 and \$30? What is the elasticity of market supply in the range between \$20 and \$30? Is demand in this range elastic or inelastic? What is the sign of the elasticity of supply?

c) In January 2014, researchers at the Proctor Maple Research Center at the University of Vermont announced the discovery of a new technique that extracts the sap out of maple saplings. The new technique “would allow more maple syrup to be produced on less land.” Using a graphical model, show how this discovery is likely to affect the supply of maple syrup. How is the price of maple syrup likely to change in the short-run *and* the long-run as a result of this new technique? Is this change likely to increase revenues for producers? Justify your answers.

Question 5

Imagine that you are an economic advisor to Vermont Governor Phil Scott. He tasks you with following challenge:

- Design a consumption tax on one item of food to raise \$10,000,000 in revenue.
- Make sure that the tax does not disproportionately hurt lower income nor older people.

As you are considering options for this tax, what kind of data would you need to collect to decide what food product to tax? How would those data help you to design the tax? Justify your answers, and use a graphic model to illustrate your answer.