

Problem Set #1

Due in hard copy at beginning of lecture on Friday, February 8 2013

Important: Place all answers in the indicated spaces. Only your work and answers in the indicated spaces will be graded. All pages must be in order and stapled together.

1. Define Economics

1. Definition of Economics

Economics is the study of how scarce resources are allocated among alternative competing uses to satisfy the unlimited wants of individuals and societies.

2. Define Opportunity Cost.

1. Definition of Opportunity Cost

The opportunity cost of any decision you make is the value of the next best foregone alternative.

3. Determine which of the following four sentences uses the terminology of the supply and demand model correctly:
- A. "The price of bicycles rose, and therefore the demand for bicycles went down."
 - B. "The demand for bicycles increased, and therefore the price went up."
 - C. "The price of bicycles fell, decreasing the supply of bicycles."
 - D. "The supply of bicycles increased, and therefore the price of bicycles fell."

Sentence **B or D** uses the terminology of the supply and demand model correctly:

Note that there are two correct answers here.

4. The demand and supply curves for hotdogs in Sacramento are given by the following two equations

$$Q^D = 8,000 - 800P$$

$$Q^S = 2,000 + 200P$$

Where Q^D represents quantity demanded, Q^S represents quantity supplied and P represents price.

- a. Find the equilibrium quantity and price:

To solve, set Q^D equal to Q^S and solve for P .

$$8,000 - 800P = 2,000 + 200P$$

$$6,000 = 1,000P$$

$$P = 6$$

Now, plug the value of P back in and solve for quantity.

$$Q^D = 8,000 - 800(6) = 3,200$$

$$Q^S = 2,000 + 200(6) = 3,200$$

Equilibrium Quantity:

3,200

Equilibrium Price:

\$6.00

- b. If students suddenly acquire a greater taste for hotdogs, which of the following would be the new demand curve? **Circle the correct equation and calculate the new equilibrium quantity and price.**

$$Q^D = 6,500 - 800P$$

$$Q^D = 9,500 - 800P$$

Again, to solve, set Q^D equal to Q^S and solve for P .

$$9,500 - 800P = 2,000 + 200P$$

$$7,500 = 1,000P$$

$$P = 7.50$$

Now, plug the value of P back in and solve for quantity.

$$Q^D = 9,500 - 800(7.5) = 3,500$$

$$Q^S = 2,000 + 200(7.5) = 3,500$$

Equilibrium Quantity:

3,500

Equilibrium Price:

\$7.50

- c. If instead one of the stores selling hotdogs goes out of business, which of the following might be the new supply curve? **Circle the correct equation and calculate the new equilibrium quantity and price.**

$$Q^S = 1,200 + 200P$$

$$Q^S = 2,800 + 200P$$

Again, to solve, set Q^D equal to Q^S and solve for P.

$$8,000 - 800P = 1,200 + 200P$$

$$6,800 = 1,000P$$

$$P = 6.80$$

Now, plug the value of P back in and solve for quantity.

$$Q^D = 8,000 - 800(6.8) = 2,560$$

$$Q^S = 1,200 + 200(6.8) = 2,560$$

Equilibrium Quantity: 2,560

Equilibrium Price: \$6.80

6. Consider the following supply and demand model of the world tea market (in billions of pounds.)

Price per Pound	Quantity Supplied	Quantity Demanded
\$0.38	1,500	525
\$0.37	1,000	600
\$0.36	700	700
\$0.35	600	900
\$0.34	550	1,200

- a. Is there a shortage or surplus when the price is \$0.38 per pound? How large is it?

There is a shortage/**surplus** (circle one) of 975 billion pounds.

- b. Is there a shortage or surplus when the price is \$0.34 per pound? How large is it?

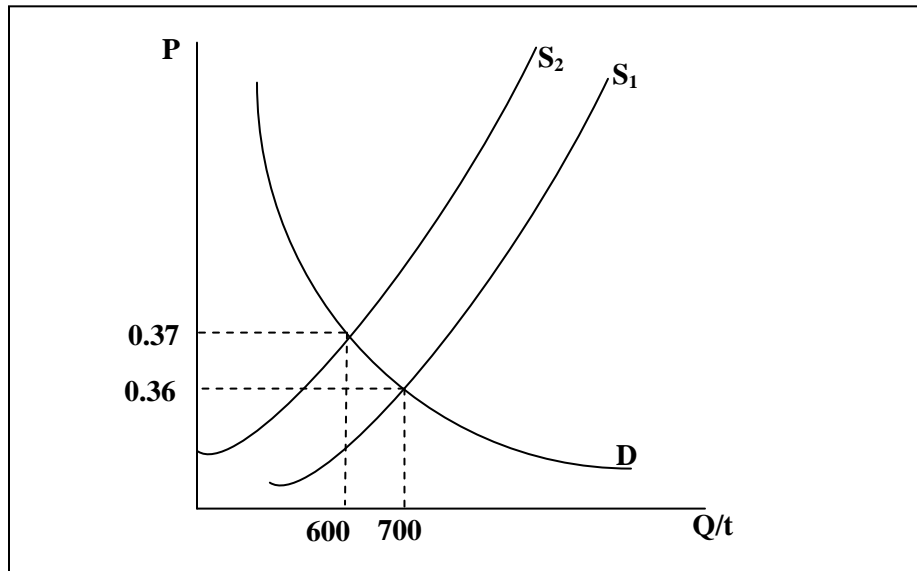
There is a **shortage**/surplus (circle one) of 650 billion pounds.

- c. What is the equilibrium quantity and equilibrium price?

Equilibrium Quantity: 700

Equilibrium Price: \$0.36

- d. Graph the supply and demand curves and label the equilibrium. Also correctly label your curves and the axes.



- e. Suppose there is a drought in Sri Lanka that reduces the supply of tea by 400 billion pounds at every price. Also suppose demand does not change. In the table fill in the new supply schedule.

Price per Pound	Quantity Supplied	Quantity Demanded
\$0.38	1,100	525
\$0.37	600	600
\$0.36	300	700
\$0.35	200	900
\$0.34	150	1,200

- f. Find the new equilibrium quantity and new equilibrium price.

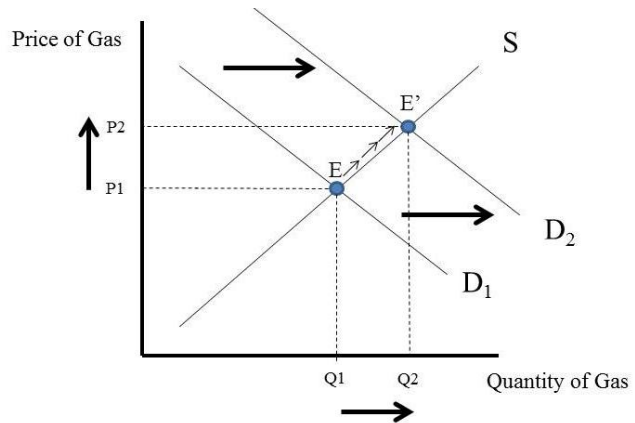
Equilibrium Quantity: Equilibrium Price:

- g. Draw the new supply curve on your diagram in part d and indicate the new equilibrium.

7. For each of the events described below, draw a supply and demand diagram that illustrates the event. Be sure to properly label all axes, curves and relevant points in your diagram. In the area to the left of your diagram, **explain why you think your graph is correct**. In that area, **also answer the questions asked**.

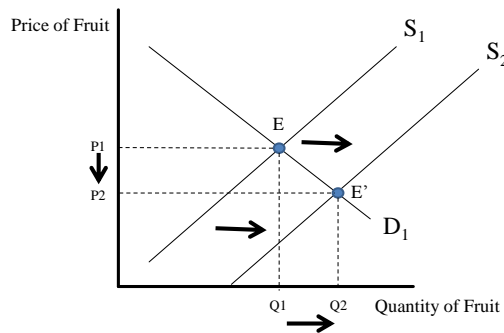
a. Gasoline: Strong growth in India, China, and the Middle East has increased worldwide demand for gas. What is the effect on the price of gasoline and on the quantity of gasoline sold?

Demand increases (shifts to the right).
The quantity supplied increases. Not though that supply does not change.
Equilibrium price and quantity both increase.



b. Fresh fruit: Walmart, the nation’s largest grocery retailer by far, vows to reduce the costs of growing, picking and transporting fresh fruit. Because it’s now cheaper, families add more fresh fruit to their daily diets. What is the effect on the retail price of fresh fruit and on the quantity of fresh fruit sold?

Supply increases (shifts to the left).
The quantity demanded also increases. The question states “Because it’s now cheaper. . .” which is your clue that the change in buyer behavior is a movement along the demand curve and not a shift of the demand curve
Equilibrium price decreases and equilibrium quantity increases.



- c. Houses in Sacramento: Tighter lending standards make it more difficult for many families to borrow money to buy a house. At the same time, thousands of houses taken by banks through foreclosure are offered for sale. What happens to the price of houses and to the quantity of houses sold in Sacramento?

First, look at the demand side of the market. Loans and houses are complements. When lending standards are tighter so borrowing is more difficult, you can think of that as an increase in the price of a loan for the typical borrower. Demand for houses – the complement good – will decrease because some people cannot get a loan (even if they want one). The demand curve shifts to the left from D_1 to D_2 . This decrease in demand will lead to a decrease in the price and a decrease in the quantity of homes sold at the new equilibrium (E').

Second, look at the supply side of the market. As foreclosures start to increase, the banks will take ownership of the houses they foreclose upon and will then put them back on the market to resell them. This will cause an increase in the supply of homes available for sale, and the supply curve shifts to the right from S_1 to S_2 . The price of houses will drop even more to P_3 .

However, we do not know what happens to the quantity of houses sold. The decline in demand for houses puts downward pressure on the quantity of houses sold; the increase in the supply of houses puts upward pressure on the quantity of houses sold. Thus, lacking more information on the relative sizes of the changes in demand and supply of houses, the net effect on the quantity of houses sold is ambiguous. If – as shown below – the decrease in demand is larger than the increase in supply, the equilibrium quantity decreases. If the decrease in demand is smaller than the increase in supply, the equilibrium quantity increases. If the changes in demand and supply are the same size, the equilibrium quantity remains the same. Your graph may look different than this graph; it depends upon the relative sizes of the changes you drew in demand and supply

