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ECN100: Section A — Summer 2016

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Homework Week 1

Demand-Supply Model & Elasticity

1. A survey indicated that chocolate is Americans' favorite ice cream flavor. For each of the following event, indicate the possible effects on demand, supply or both as well as equilibrium price and quantity of chocolate ice cream:

a. A severe drought in the Midwest causes dairy farmers to reduce the number of milk-producing cattle in their herds by a third. These dairy farmers supply cream that is used to manufacture chocolate ice cream.

Demand: lowered; movement up along the demand curve

Supply: lowered; leftward shift in supply curve

Equilibrium Price: rises due to lower equilibrium quantity

Quantity: lowered due to leftward shift in supply curve

b. A new report by the American Medical Association, AMA, reveals that chocolate does have significant health benefits.

Demand: curve shifts rightward; new tastes due to positive health benefits

Supply: rises upward along the supply curve

Equilibrium Price: rises due to rightward shift in demand

Quantity: rises due to rightward shift in demand

c. The discovery of cheaper synthetic vanilla flavoring lowers the price of vanilla ice cream. Vanilla ice cream is considered as a substitute to chocolate ice cream.

Demand: demand curve shifts leftward due to change in consumer tastes

Supply: lowers along supply curve due to leftward shift in demand curve

Equilibrium Price: lowers due to leftward shift in demand curve

Quantity: lowers due to leftward shift in demand curve

d. New technology for mixing and freezing ice cream lowers manufacturers' costs of producing chocolate ice cream.

Demand: rises along demand curve due to rightward shift

Supply: shifts rightward due to change in input price

Equilibrium Price: lowers due to rightward shift in supply curve

Quantity: increases due to rightward shift in supply curve

2. Games Industry and Elasticity

a) What do you think the price elasticity of demand of the Games industry is? Elastic or inelastic in demand? Give your reasoning.

I believe that the game industry's price elasticity is elastic in demand. The game industry is part of the entertainment industry, which is a very competitive industry full of entertainment substitutes. If the price of games rises or the hardware needed to play games rise then consumers can find a different form of entertainment, such as going to the movies, which costs less as a substitute. Also, as a good that is a luxury, the price elasticity of the game industry is inherently high as it is not a necessary good.

b) What do you think the income elasticity of demand of the Games industry is? Normal or inferior? Give your reasoning.

The game industry is part of the entertainment industry. As part of the entertainment industry, the game industry is not a necessary good, but instead is a luxury good. Due to the fact that the game industry is a luxury good, I believe that the income elasticity of the game industry is considered a normal good and not an inferior good.

3. Do you think the price elasticity of demand for Ford SUVs will increase (more elastic, higher absolute number), decrease (less elastic, smaller absolute number), or remain the same when each of the following events occurs?

a. Other manufacturers, such as GM, decide to make and sell SUVs.

The price elasticity of demand will increase due to the availability of close substitutes.

b. SUVs produced in foreign countries are banned from US market

The price elasticity of demand will decrease due to less available close substitutes.

c. Due to ad campaigns, Americans believe that SUVs are much safer than ordinary passenger cars.

The price elasticity will remain the same because the ad campaign does not affect the availability of close substitutes, whether the good is a necessity or a luxury, or effect the long run price elasticity due to the short term nature of ad campaigns.

d. The time period over which you measure the elasticity lengthens. During that longer time, new models such as 4-wheel drive cargo vans appear.

Due to the long term period which is now in effect and the availability of a newer substitute, the price elasticity will increase.

4. What can you conclude about the price elasticity of demand in each following situation?

a. "The pizza delivery business in this town is very competitive. I'd lose half my sales (customers) if I raised the price by as little as 10%".

The price elasticity is high.

b. I always spend a total of exactly \$10 per week on coffee. When price is \$2, I buy 5 cups a week, when price increases to \$2.50, I buy 4 cups a week.

The price elasticity is low due to the small change in quantity purchased when prices increase.

c. Elasticity of ice cream is 1.2 at current price of \$0.50 each, and the current consumption of 100,000 units. Calculate the change in quantity demanded when price rises by \$0.05.

% change in price = $((0.05/0.50) * 100 = 10\%$

% change in quantity demanded = $1.2 * 10 = 12\%$

change in quantity demanded = $10000 * 0.12 = 1200$

d. If the price of a good changes by 30% and quantity demanded for that same good remains unchanged, what is the price elasticity of demand for that good?

The price elasticity of this good is inelastic.

e. If price elasticity of supply is 4 and price changes by 10%, by what percent will the quantity supplied change?

% change in quantity demanded = price elasticity * price change %

% change in quantity demanded = $4 * 0.10 = 0.40$

the quantity supplied will change by 40%

5. In each of the following cases, what will be the effect of a rise in price, in TOTAL REVENUE:

a) Demand is inelastic

If demand is inelastic, a rise in price will increase total revenue

b) Demand is elastic

If demand is elastic, a rise in price will decrease total revenue

c) Demand is unit elastic

If demand is unit elastic, a rise in price will not change the total revenue

6. Calculate the price elasticity for each of the following, and then state whether it is elastic, unit elastic, or inelastic; and will revenue rise, decline or stay the same given the change in price. Use the MIDPOINT formula:

a) The price of Boston Red Sox baseball game rises from \$10 to \$12 a game; the quantity of tickets sold falls from 160,000 to 144,000 tickets.

$$\% \text{ change in quantity demanded} = (144000 - 160000) / ((160000 + 144000) / 2) * 100$$

$$\% \text{ change in quantity demanded} = -16000 / 152000 * 100$$

$$\% \text{ change in quantity demanded} = -10.5 \%$$

$$\% \text{ change in price} = (12 - 10) / ((10 + 12) / 2) * 100$$

$$\% \text{ change in price} = 2 / 11 * 100$$

$$\% \text{ change in price} = 18.2 \%$$

$$\text{price elasticity of demand} = |-10.5\% / 18.2\%|$$

$$\text{price elasticity of demand} = |-0.58\%|$$

$$\text{price elasticity of demand} = 0.58\%$$

1 : 0.58 < 1, so the price elasticity of demand is inelastic. The revenue will increase.

b) The price of water beds rises from \$500 to \$600; quantity demanded falls from 100,000 to 80,000.

$$\% \text{ change in quantity demanded} = (80000 - 100000) / ((100000 + 80000) / 2) * 100$$

$$\% \text{ change in quantity demanded} = -20000 / 90000 * 100$$

$$\% \text{ change in quantity demanded} = -22.2 \%$$

$$\% \text{ change in price} = (600 - 500) / ((500 + 600) / 2) * 100$$

$$\% \text{ change in price} = 100 / 550 * 100$$

$$\% \text{ change in price} = 18.2 \%$$

$$\text{price elasticity of demand} = |-22.2\% / 18.2\%|$$

$$\text{price elasticity of demand} = |-1.22\%|$$

$$\text{price elasticity of demand} = 1.22\%$$

1 : 1.22 > 1, so the price elasticity of demand is elastic. The revenue will decrease.