

ELASTICITY OF DEMAND AND SUPPLY

- I. PRICE ELASTICITY OF DEMAND
 - a. The responsiveness of the quantity of a product demanded by consumers when the product price changes is measured by a product's PRICE ELASTICITY OF DEMAND
 - i. Some products are highly responsive: example: restaurant meals. These are considered ELASTIC.
 - ii. Other products are not very responsive to price changes. Example: medicine ; INELASTIC
 - b. PRICE-ELASTICITY COEFFICIENT AND FORMULA
 - i. $E_d = \frac{\% \text{ change in quantity demanded of X}}{\% \text{ change in price of X}}$
 - ii. Elasticity is the same whether the price rises or falls
 - iii. All the elasticity coefficients that follow are calculated using averages, also known as the MIDPOINTS APPROACH
 - iv. Even though the demand curve is downsloping which would normally have a negative coefficient, all elasticities are represented as positive coefficients.
 - c. INTERPRETATION OF ELASTICITY OF DEMAND
 - i. ELASTIC DEMAND – Demand is elastic if the % change in quantity demanded is GREATER than the % change in price
 1. Coefficient will be GREATER than

- ii. INELASTIC DEMAND- Demand is inelastic if the % change in quantity demanded is LESS than the % change in price
 - 1. Coefficient will be LESS than 1
- iii. UNIT(ARY) ELASTIC – Demand is unitary elastic if the % change in quantity demanded is EQUAL to the % change in price
 - 1. Coefficient is 1
- iv. EXTREME CASES
 - 1. Where a price change results in NO CHANGE in quantity demanded, demand is PERFECTLY INELASTIC : curve is totally vertical; note figure 4.1a on page 83
 - a. The coefficient is 0
 - 2. Where a price change causes consumers to obtain all they can (for a reduction), or have none (for a price increase), demand is PERFECTLY ELASTIC; curve is totally horizontal; note figure 4.1b on page 83
 - a. Coefficient is infinity
- v. THE TOTAL-REVENUE TEST
 - 1. TOTAL REVENUE (TR) – total amount the seller receives in compensation from the sale of a product in a particular time period
 - a. Calculated by multiplying the product price (P) by the quantity demanded and sold (Q):
 - i. $TR = P \times Q$

- b. If Total Revenue changes in the OPPOSITE direction from price, demand is ELASTIC. If Total Revenue changes in the SAME direction as price, demand is INELASTIC.
 - 2. ELASTIC DEMAND – If demand is elastic, an INCREASE in price will yield a DECREASE in total revenue; review figure 4.2a on page 85
 - 3. INELASTIC DEMAND- If demand is inelastic, an INCREASE in price will yield an INCREASE in total revenue; review figure 4.2b on page 85
 - 4. UNITARY ELASTIC – an INCREASE or DECREASE in price leaves total revenue UNCHANGED. Review figure 4.2c on page 85
- vi. PRICE ELASTICITY ALONG A LINEAR DEMAND CURVE
 - 1. Elasticity varies over the different price ranges of the same demand curve
 - 2. Review figure 4.3 on page 89, both the schedule and the graph.
 - 3. The slope of the curve is computed from ABSOLUTE changes in price and quantity, while elasticity involves RELATIVE or PERCENTAGE changes in price and quality.

4. Review Price Elasticity of Demand and College Tuition on page 89; review all other examples on pages 89-92

II. PRICE ELASTICITY OF SUPPLY

- a. If the quantity supplied by producers is relatively responsive to price changes, supply is elastic. If the quantity supplied by producers is relatively insensitive to a change in price, supply is inelastic.
- b. Just the same as demand, if the coefficient is less than 1, supply is INELASTIC. If the coefficient is greater than 1, supply is INELASTIC. If the coefficient is 1, supply is UNIT(ARY) ELASTIC.
- c. THE DEGREE OF PRICE ELASTICITY OF SUPPLY DEPENDS MAINLY ON HOW EASILY AND QUICKLY PRODUCERS CAN SHIFT RESOURCES BETWEEN ALTERNATIVE USES TO ALTER PRODUCTION OF A GOOD OR SERVICE.
 - i. The more rapid and easier the transfer of resources, the GREATER the price elasticity.
 - ii. The longer the TIME, the greater and easier the transferability of resources.
- d. PRICE ELASTICITY OF SUPPLY: THE MARKET PERIOD
 - i. THE MARKET PERIOD is the period that occurs when the time immediately after a change in market price is too short for producers to respond with a change in the amount they supply.

1. Example is supply curves for tomatoes (perfectly elastic – vertical)
 2. Review figure 4.4a on page 95
- e. PRICE ELASTICITY OF SUPPLY: THE SHORT RUN
- i. THE SHORT RUN in microeconomics is a period of time too short to change PLANT CAPACITY, but long enough to use the fixed-size plant more or less intensively.
 1. In the farmer’s example, can’t change land or capital, but CAN change labor or raw materials.
 2. Review figure 4.4b on page 95
- f. PRICE ELASTICITY OF SUPPLY: THE LONG RUN
- i. THE LONG RUN in microeconomics is a time period long enough for firms to adjust their PLANT SIZES AND FOR NEW FIRMS TO ENTER (OR EXISTING FIRMS TO EXIT) THE INDUSTRY.
 - ii. There is no total revenue test for elasticity of supply. Regardless of the elasticity, price and total revenue always move together.
 - iii. Review figure 4.4c on page 95; note the slope of the supply curves in 4.4a, b, and c.
 - iv. Review the “Applying the Analysis” on pages 95-96
- III. INCOME ELASTICITY OF DEMAND
- a. INCOME ELASTICITY OF DEMAND measures the degree to which the quantity of a

product demanded responds, positively or negatively, to a change in consumers' incomes

i. $\frac{\% \text{ change in quantity demanded}}{\% \text{ change in income}}$

b. NORMAL GOODS – coefficient is positive, whether elastic or inelastic; the higher the income, the more NORMAL GOODS consumer purchases

i. Example: New cars; steaks

c. INFERIOR GOODS – coefficient is negative; the higher the income, the LESS INFERIOR GOODS consumer purchases

i. Example: used cars, hamburger helper

IV. CROSS-ELASTICITY OF DEMAND

a. CROSS-ELASTICITY OF DEMAND

measures how the quantity of a product demanded (X) responds to a change in price of some other product (Y).

i. $\frac{\% \text{ change in quantity demanded (X)}}{\% \text{ change in price of product (Y)}}$

b. SUBSTITUTE GOODS – If cross-elasticity of demand is POSITIVE, meaning that the sales of X move in the same direction as the change in price of Y, then X and Y are SUBSTITUTE GOODS.

i. Example; Evian water and Dasani Water

ii. The larger the positive cross-elasticity coefficient, the greater the SUBSTITUTABILITY of the two products

c. COMPLEMENTARY GOODS- When cross-elasticity is NEGATIVE, we know that goods X and Y go together; an increase in the price of Y will yield a decrease in the quantity demanded of X.

- i. Example, skis and ski boots
 - ii. The larger the negative cross-elasticity coefficient, the greater the complementarity between the two goods.
- d. INDEPENDENT GOODS – a zero or near-zero coefficient suggests that the two products being considered are unrelated or independent goods.
 - i. Example: skis and Dasani water