

AAE101: Intro to Ag. & Applied Econ.

Discussion Section 5

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Today's goal

Elasticity

Elasticity: It is a measure of how much one thing changes in response to changes in something else.

Price Elasticity of Demand: It measures how buyers' respond to price changes. It can be measured as:

$$E_D = \frac{\% \text{ change in quantity demanded of product } X}{\% \text{ change in price of product } X}$$

Demand elasticity determinants are often related to substitutability, proportion of income, luxuries vs. necessities or time.

Elastic Demand: The demand for a good is elastic when the quantity demanded is very sensitive to price changes, meaning changes in price result in relatively large changes in the quantity demanded. We say a demand is elastic if $E_d > 1$. For example: Luxury goods like designer clothes have a very elastic demand: if the price increases, people buy much less.

Inelastic Demand: The demand for a good is said to be inelastic when the quantity demanded is insensitive to price changes, meaning changes in price result in relative small changes in quantity demanded. We say a demand is elastic if $E_d < 1$. Necessities like medicines have inelastic demands, because even if prices increase, people still buy it.

Unit Elasticity: When $E_d = 1$. This is a special case that helps us as a threshold to determine whether demand is elastic or inelastic.

Income Elasticity of Demand: Measures responsiveness of buyers to changes in their income.

Cross Elasticity of Demand: Measures responsiveness of purchases of one good to change in the price of another good.

Practice Questions

1. Calculate the demand curve when Basket 1: ($P = 10$, $Q = 6$) Basket 2: ($P = 11$, $Q = 5$).
2. Take a straight-line demand curve $P = 10 - Q$ show that when Q close to zero demand is elastic and when Q is close to 10 it is inelastic.
3. Show what a constant elasticity of demand curve looks like.
4. **Coffee Shop Price Change:** A popular coffee shop decides to increase the price of a large coffee from \$4 to \$5. After the price increase, the number of large coffees sold decreases from 200 per day to 160 per day. Calculate the price elasticity of demand for large coffees. Is the demand for large coffees elastic or inelastic? What might explain this?
5. **Concert Ticket Price Elasticity:** A band increases the price of concert tickets from \$50 to \$60. As a result, the number of tickets sold drops from 10,000 to 7,000. Calculate the price elasticity of demand for the concert tickets. Based on the elasticity, should the band have increased or decreased their ticket prices to maximize revenue?
6. **Housing Market Elasticity:** A city experiences a surge in housing demand, causing the average price of homes to increase by 10%. In response, the quantity of homes listed for sale increases by 5%. Calculate the price elasticity of supply for homes. Is the supply of homes elastic or inelastic? What factors might affect the ability of homeowners or developers to respond to price changes?

7. **Restaurant Meals:** During an economic boom, the average income of a city's residents increases by 8%. In response, the quantity of restaurant meals demanded increases by 12%. Calculate the income elasticity of demand for restaurant meals. Based on the result, are restaurant meals a normal good, an inferior good, or a luxury good? Why?