

AAE101: Intro to Ag. & Applied Econ.

Discussion Section 6

Professor: Siwan Song

TA: Erick F Molina *

October 17 & 18, 2024

Dept. of Agricultural & Applied Economics
Taylor Hall 520, 427 Lorch St, Madison, WI 53706

✉ molinaperez@wisc.edu

Today's goal

To understand the concept of elasticity and how it relates to supply and demand.

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

*This handout is based on the corresponding handouts from previous years by Felipe Parra Escobar, Matt McKetty & Talita Silva. Modifications and additions in this version by Erick.

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.

Total Revenue Test: The total revenue is defined as $TR = \text{Price} \times \text{Quantity}$. A demand is said to be inelastic if the price and TR move in the same direction. A demand is said to be elastic if the price and the TR move in opposite direction.

Price Elasticity of Supply: It measures how sellers respond to price changes. It can be measured as:

$$E_S = \frac{\% \text{ change in quantity supplied of product } X}{\% \text{ change in price of product } X}$$

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. **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?
2. **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?
3. **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?
4. **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?
5. **Substitutes in the Soda Market:** The price of Coca-Cola rises by 15%, and as a result, the quantity of Pepsi purchased increases by 10%. Calculate the cross elasticity of demand between Coca-Cola and Pepsi. Are Coca-Cola and Pepsi substitutes or complements? How might the elasticity affect Pepsi's pricing strategy?
6. **Stadium Seats:** A city hosts an annual concert in its sports stadium, which has a total capacity of 50,000 seats. This year, due to high demand, the concert organizers raise the ticket price from \$100 to \$150. Even though the price increased by 50%, the stadium still sells all 50,000 tickets. Calculate the price elasticity of supply for stadium seats. Is supply elastic or inelastic?