

ACTIVITY 21**What Is Price Elasticity of Demand?**

You have learned that when price changes, the quantity demanded changes. An increase in price causes a decrease in the quantity demanded. A decrease in price causes an increase in the quantity demanded.

However, it is not enough to know that the quantity demanded rises or falls in response to price changes. It is also important to know by how much the quantity demanded changes. A business may decide not to increase the price of a product if people will buy *much less* of it at the higher price. Or, a business may decide to increase the price of a product if people will buy only a *little less* of it at the higher price.

How much the quantity demanded changes in response to price changes is called the *price elasticity of demand*. If the quantity demanded changes considerably, the good or service has an *elastic* demand. Elastic demand means the quantity demanded is very responsive to changes in price. If the quantity demanded changes little, the good or service has an *inelastic* demand. Inelastic demand means the quantity demanded responds relatively little to changes in price.

Several factors can determine if a product has an elastic or an inelastic demand schedule.

Necessities tend to have an inelastic demand. People find it hard to give up a necessity because they cannot readily buy less of it when its price rises. Luxuries tend to have an elastic demand. People can get along without them if the price becomes too high.

Products that have many substitutes tend to have an elastic demand because it is easy to buy a substitute if the price of one product in the group of substitutes rises too much. A product that has few substitutes tends to have an inelastic demand. Buyers don't have much choice if there are few substitutes, so they think twice before giving up such a product when its price rises.

Goods and services that take a large portion of a purchaser's budget tend to have an elastic demand schedule. Those that consume a small portion of a purchaser's budget tend to have an inelastic demand schedule.

Determine whether the demand for the following items is price elastic or inelastic. Write your answer on the line after the item. Then write the reasons for your answer.

1. Salt _____ Why?
2. New cars _____ Why?
3. Pork chops _____ Why?
4. European vacation trip _____ Why?
5. Insulin _____ Why?
6. Insulin at one of four drugstores
in a shopping mall _____ Why?

ACTIVITY 22

Elasticity of Demand and Changes in Total Revenue

What exactly do we mean by “a considerable change” and “a little change” in the quantity demanded? One way to define elasticity of demand more precisely is to examine what happens to *total revenue* when a price changes. Total revenue is price times quantity demanded.

$$\begin{array}{rcl} \text{Price} \times \text{quantity demanded} & = & \text{total revenue} \\ \$10 \times 150 \text{ items} & = & \$1500 \end{array}$$

What happens to total revenue depends on the *relative size* of the changes in price and the quantity demanded. If the percentage change in the quantity demanded is greater than the percentage change in price, total revenue and the price change will move in opposite directions. This situation indicates that the demand

schedule that lies between the two prices is elastic. If the percentage change in quantity demanded is less than the percentage change in price, total revenue and the price change will move in the same direction. This situation indicates that the demand schedule that lies between these two prices is inelastic. Let's summarize these points:

$$\begin{array}{l} \text{Price } \uparrow \text{ total revenue } \downarrow = \\ \text{Price } \downarrow \text{ total revenue } \uparrow = \end{array} \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \text{Elastic} \\ \text{demand} \end{array}$$

$$\begin{array}{l} \text{Price } \uparrow \text{ total revenue unchanged} = \\ \text{Price } \downarrow \text{ total revenue unchanged} = \end{array} \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \text{Unit elastic} \\ \text{demand} \end{array}$$

$$\begin{array}{l} \text{Price } \uparrow \text{ total revenue } \uparrow = \\ \text{Price } \downarrow \text{ total revenue } \downarrow = \end{array} \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \text{Inelastic} \\ \text{demand} \end{array}$$

Now let's do some problems to drive home the point. For each problem, complete the mathematics, fill in the answer blanks and circle the correct answer. Then write whether the product has an elastic or inelastic demand schedule between these two prices. The first problem is completed for you.

1. Price rises from \$5 to \$6. Quantity demanded decreases from 15 to 10.

a. Old price x quantity demanded = old total revenue
 $\underline{5} \quad \underline{15} \quad \underline{75}$

b. New price x quantity demanded = new total revenue
 $\underline{6} \quad \underline{10} \quad \underline{60}$

c. P $\downarrow \uparrow$ TR $\downarrow \uparrow$ elastic

2. Price falls from \$10 to \$9. Quantity demanded increases from 100 to 110.

a. Old price x quantity demanded = old total revenue
 $\underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$

b. New price x quantity demanded = new total revenue
 $\underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$

c. P $\downarrow \uparrow$ TR $\downarrow \uparrow$

Unit 2

ACTIVITY 22 continued

3. Price rises from \$6 to \$9. Quantity demanded decreases from 60 to 50.
- a. Old price x quantity demanded = old total revenue
_____ x _____ = _____
- b. New price x quantity demanded = new total revenue
_____ x _____ = _____
- c. P ↓ ↑ TR ↓ ↑ _____
4. Price falls from \$6.50 to \$6.00. Quantity demanded increases from 100 to 200.
- a. Old price x quantity demanded = old total revenue
_____ x _____ = _____
- b. New price x quantity demanded = new total revenue
_____ x _____ = _____
- c. P ↓ ↑ TR ↓ ↑ _____
5. Price falls from \$4.00 to \$3.75. Quantity demanded increases from 300 to 340.
- a. Old price x quantity demanded = old total revenue
_____ x _____ = _____
- b. New price x quantity demanded = new total revenue
_____ x _____ = _____
- c. P ↓ ↑ TR ↓ ↑ _____
6. Why do price and total revenue go in opposite directions when the demand for the good is elastic?
7. Why do price and total revenue go in the same direction when the demand for the product is inelastic?