

- Inelastic Demand ($|e| < 1$): Quantity changes less than price.

$\Delta\text{Revenue}$	
Price $\uparrow$	+
Price $\downarrow$	-

- $MR > MC$ implies that $(P - MC)/P > 1/|e|$; that is, the more elastic is demand, the lower the optimal price.
- Five factors affect elasticity:
 1. Products with close **substitutes** have more elastic demand.
 2. Products with many **complements** have less elastic demand.
 3. Demand for brands is more elastic than industry demand.
 4. In the long run, demand becomes more elastic.
 5. As price increases, demand becomes more elastic.
- **Income elasticity, cross-price elasticity, and advertising elasticity** are measures of how changes in these other factors affect demand.
- It is possible to use elasticity to forecast changes in demand: $\% \Delta \text{Quantity} = (\text{factor elasticity})(\% \Delta \text{Factor})$.
- **Stay-even analysis** can be used to determine the quantity change required to offset a price change. The stay-even quantity is $\% \Delta Q = \% \Delta P / (\% \Delta P + \text{margin})$.
- A proposed price increase is profitable if the predicted quantity loss is less than the stay-even quantity.

Multiple-Choice Questions

1. Jim has estimated elasticity of demand for gasoline to be -0.7 in the short run and -1.8 in the long run. A decrease in taxes on gasoline would
 - a. lower tax revenue in both the short and long run.
 - b. raise tax revenue in both the short and

- c. raise tax revenue in the short run but lower tax revenue in the long run.
 - d. lower tax revenue in the short run but raise tax revenue in the long run.
2. Which one of the following is true?
 - a. Nike has a less elastic demand curve than shoes.
 - b. The demand curve for gas is more elastic in the short run than in the long run.
 - c. Cigarettes have a more elastic demand than televisions.
 - d. Salt has a less elastic demand than ice cream.
 3. Jim recently graduated from college. His income increased tremendously from \$5,000 a year to \$60,000 a year. Jim decided that instead of renting he will buy a house. This implies that
 - a. houses are normal goods for Jim.
 - b. houses are inferior goods for Jim.
 - c. renting and owning are complementary for Jim.
 - d. need information on the price of houses.
 4. Which of the following goods has a negative income elasticity of demand?
 - a. Cars
 - b. Items from Dollar stores
 - c. Shoes
 - d. Bread
 5. An economist estimated the cross-price elasticity for peanut butter and jelly to be 1.5 . Based on this information, we know the goods are
 - a. inferior goods.
 - b. complements.
 - c. inelastic.
 - d. substitutes.
 6. Christine has purchased five bananas and is considering the purchase of a sixth. It is likely she will purchase the sixth banana if
 - a. the marginal value she gets from the sixth banana is lower than its price.
 - b. the marginal benefit of the sixth banana exceeds the price.
 - c. the average value of the sixth banana

the predicted quantity decrease is smaller than the stay-even quantity decrease, the price increase is profitable. Stay-even analysis tells us how much quantity we could afford to lose. Our elasticity estimates tell us how much quantity we would lose.

6.7 Cost-Based Pricing

Our expressions for optimal pricing, $MR = MC$ or $(P - M)/P = 1/|e|$, take into account both a firm's cost structure and its consumers' demand to obtain the optimal price. Yet, many companies set prices based only on the cost component, ignoring consumer demand entirely. For example, cost-plus pricing arrives at a price by adding a fixed dollar margin to the cost of each product, while mark-up pricing multiplies the cost by a fixed number greater than 1. It doesn't take much analysis to see that ignoring consumer demand leads to suboptimal pricing—just imagine cost-based pricing applied to diamonds, wine, movie tickets, or bottled water. Without comparing costs to demand, we cannot know if goods are priced optimally.

To understand why cost-based pricing persists, we apply the second question in our problem-solving paradigm: does the decision maker have enough information to make a good decision? In one survey of managers, most reported that they are well informed about their own costs, but much fewer than half reported being well informed about demand.¹² Part of the reason for this is historical accident. Tax compliance required firms to have cost accountants, and since these cost data were there anyway (though using accounting—not economic—costs), pricing managers used them. A firm that takes its profitability (and pricing) seriously needs a “demand accounting” (market research) division, too.

SUMMARY & HOMEWORK PROBLEMS

Summary of Main Points

- Individual demand describes how many units an individual will purchase at a given price.
- **Aggregate demand**, or market demand, is the total number of units that will be purchased by a group of consumers at a given price.
- Pricing is an extent decision. Reduce price (increase quantity) if $MR > MC$. Increase price (reduce quantity) if $MR < MC$. The optimal price is where $MR = MC$.
- **Price elasticity of demand**, $e = (\% \text{ change in quantity demanded}) \div (\% \text{ change in price})$

1. Estimated price elasticity $= [(Q_1 - Q_2)/(Q_1 + Q_2)] \div [(P_1 - P_2)/(P_1 + P_2)]$ is used to estimate demand from a price and quantity change.
2. If $|e| > 1$, demand is **elastic**; if $|e| < 1$, demand is **inelastic**.
 - $\% \Delta \text{Revenue} \approx \% \Delta \text{Price} + \% \Delta \text{Quantity}$
 - Elastic Demand ($|e| > 1$): Quantity changes more than price.

$\Delta\text{Revenue}$	
Price $\uparrow$	-
Price $\downarrow$	+