

Chapter 2 – Microeconomic Tools for Health Economists

Key Ideas

- An equilibrium is an important economic concept. If we are not in equilibrium, we go to equilibrium. If we are in equilibrium, we stay there. This affects supply and demand, as well as individual, and firm level behaviors.
- Elasticities provide valuable information. We know that if price rises, quantity demanded will go down, but will it go down a *little* or a *lot*? Elasticities tell us. Instructors must emphasize that elasticities refer to *percentage* changes rather than slopes.
- Economic optima occur when marginal cost (the cost to produce) equal price (the value to the consumer). Perfect competition takes us to these optima; monopolies do not.
- Economic optima are about *quantity*. Monopolies are “bad” not because they provide positive monopoly profits, but because the wrong quantity is produced. Externalities are “bad,” again, because the wrong quantity is produced.

Teaching Tips

- Instructors may wish to “pick and choose” topics through this chapter, or to use the chapter as a reference. It is not designed to be self-contained course in microeconomic analysis.
- There are several instances here where simple spreadsheet programs can show how equilibria or elasticities are calculated. Figures 2-3 or 2-4 can be drawn and shifted to show changes in equilibria.

- For elasticities, price and quantity coordinates can be used to compute the values of demand elasticities. If these are linked (in the program) to graphs, then one sees that the steeper the demand curve, the less elastic it is.

Chapter 2 – Microeconomic Tools for Health Economists - Multiple Choice

Society's Trade-off between Guns and Butter

<u>Point</u>	<u>Butter</u>	<u>Guns</u>	<u>Opportunity Cost for 100 Guns</u>
A	850	0	
B	800	100	<u>x</u>
C	700	200	100
D	550	300	150
E	<u>z</u>	400	250
F	0	500	300

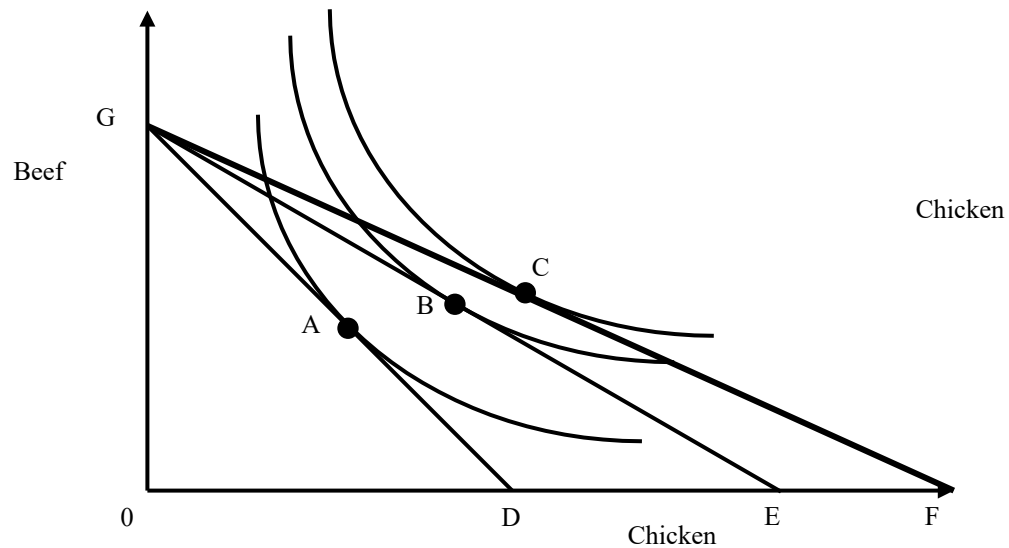
1. In the above table, calculate the opportunity cost x (in foregone butter) for the first 100 guns.
 - a. 10 units of butter
 - b. 50 units of butter*
 - c. 100 units of butter
 - d. 200 units of butter
2. In the table above, calculate output of butter z that is consistent with the opportunity cost of 250 units of butter.
 - a. 400 units of butter
 - b. 350 units of butter
 - c. 325 units of butter
 - d. 300 units of butter*

Market for Apples

<u>Price</u>	<u>Quantity Demanded</u>	<u>Quantity Supplied</u>
10	100	500
8	200	400
6	300	300
4	400	200
2	500	100

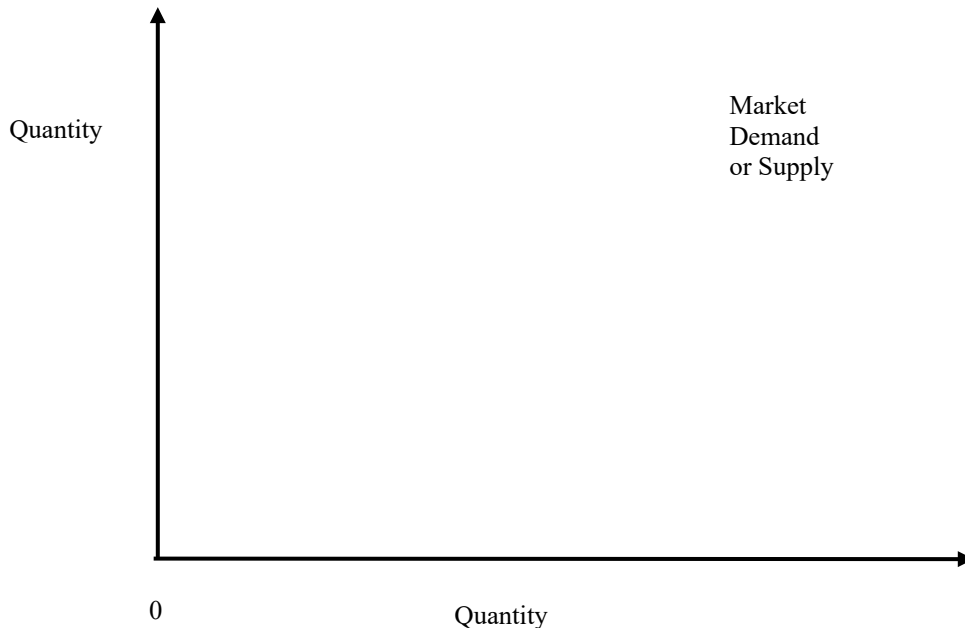
3. At a price of \$4 per bushel, demanders are willing to buy ____ bushels, for total expenditures of _____.
 - a. 400; \$400.
 - b. 200; \$1600.
 - c. 300; \$1800
 - d. 400; \$1600*
4. At a price of \$8 per bushel, suppliers are willing to provide ____ bushels, for total expenditures of _____.
 - a. 400; \$3200.*
 - b. 300; \$1800.
 - c. 200; \$ 800.
 - d. 100; \$ 100.
5. In the market above, the equilibrium price is ____ dollars per bushel, and the equilibrium quantity is ____ bushels:
 - a. 2; 500
 - b. 3; 400
 - c. 6; 300*
 - d. 10; 500
6. Suppose that in the market above, a new technology allows suppliers to supply 50 more bushels at each price (for example, at a price of \$10, 550 bushels of apples will be supplied). Compared to problem 5:
 - a. equilibrium prices and quantities will remain unchanged from earlier.
 - b. equilibrium price will fall and equilibrium quantity will rise.*
 - c. equilibrium price will rise and equilibrium quantity will fall.
 - d. equilibrium price and quantity will both rise.

7. Suppose that in the market above, there is a lack of rainfall, shrinking the crop of apples. At the same time a government report urges people to eat apples rather than junk food. Compared to problem 5:
- equilibrium prices and quantities will remain unchanged from earlier.
 - equilibrium price will rise and equilibrium quantity will rise.
 - equilibrium price will rise and equilibrium quantity may rise or fall. *
 - equilibrium price and quantity will fall.
8. As Kathy's wealth increases:
- her total utility increases.*
 - her marginal utility of wealth increases
 - her average utility of wealth increases
 - none of the above are true.



9. On the graph above, the curved lines refer to:
- downward sloping demand curves
 - indifference curves where utility is constant*
 - marginal utility curves, relating beef to chicken
 - total utility curves relating income to chicken
10. Suppose that the consumer is at point B. Line GE represents:
- the demand for chicken.
 - the demand for beef.
 - the consumer's budget constraint.*
 - the supply of chicken.

11. Suppose at point B that chicken increases in price and beef does not. Which point represents the most plausible new equilibrium for the consumer?
- point A*
 - point B
 - point E
 - point F
12. An increase in income at point B is represented by:
- an inward rotation of the budget constraint at point G.
 - an outward rotation of the budget constraint at point G.
 - a parallel inward shift of the budget constraint.
 - a parallel outward shift of the budget constraint.*
13. As drawn, decreases in the price of chicken lead the consumer from point B to point C to point D. At point D, compared to point B:
- consumers have increased their consumption of chicken, but decreased their consumption of beef because its price has not decreased.
 - consumers have increased their consumption of chicken and beef because their tastes for beef have changed.
 - consumers have increased their consumption of chicken and beef because the fall in the price of chicken has freed up income to spend on beef.*
 - the relative amounts of chicken and beef are unchanged.



14. Draw the following demand curve on the graph above:

$$\text{Quantity Demanded} = 30 - 1.5 * \text{Price}$$

- a. If the market price equals 6, quantity demanded equals 15.
- b. If the market price equals 8, quantity demanded equals 18.
- c. If the market price equals 12, quantity demanded equal 12.
- d. Answers (b) and (c) are correct.*

15. Draw the following supply curve on the graph above.

$$\text{Quantity Supplied} = -6 + 2.5 * \text{Price}$$

- a. If the price equals 3, quantity supplied will be 1
- b. If the price equals 4, quantity supplied will be 2.
- c. If the price equals 6, quantity supplied will be 9.*
- d. If the price equals 10, quantity supplied will be 15.

16. Using these equations, calculate the equilibrium price and quantity.

$$\text{Quantity Demanded} = 30 - 1.5 * \text{Price}$$

$$\text{Quantity Supplied} = -6 + 2.5 * \text{Price}$$

- a. Price = 14; Quantity = 9
- b. Price = 10; Quantity = 17.5
- c. Price = 9; Quantity = 16.5*
- d. Price = 5; Quantity = 20.

17. In problem 16, if demand increases and supply increases:

- a. equilibrium quantity will increase, and equilibrium price will stay the same
- b. equilibrium quantity will increase, and equilibrium price may rise or fall.*
- c. equilibrium price will increase, and equilibrium quantity will stay the same.
- d. equilibrium price will decrease, and equilibrium quantity may rise or fall.

18. In many cases, diabetics require the drug insulin. If they do not get it they will die. From this information, we would guess that the price elasticity of demand is approximately:

- a. -20.0
- b. -1.0
- c. -0.5
- d. 0.0*

19. Suppose that twin eye doctors work across the hall from each other. Even their parents have trouble telling them apart, and they both went to the same medical school. From this information, we would guess that the price elasticity of demand for either of their services is closest to:
- -20.0^*
 - -1.0
 - -0.5
 - 0.0
20. If the income elasticity of demand is $+0.7$, a 10% increase in income will _____.
- decrease expenditures by about 7%.
 - increase expenditures by about 7%.*
 - leave expenditures unchanged.
 - The answer cannot be determined.
21. If the price elasticity of demand is -0.5 , a 10% increase in price will _____.
- decrease expenditures by about 5%.
 - increase expenditures by about 5%.*
 - leave expenditures unchanged.
 - The answer cannot be determined.

Production Schedule for MRIs.

<u>Capital</u>	<u>Labor</u>	<u>Quantity</u>	<u>MP(labor)</u>	<u>AP (labor)</u>
10	0	0		
10	1	3.98	3.98	3.98
10	2	5.25	1.27	2.62
10	3	6.18	_____	2.06
10	4	6.93	_____	_____
10	5	7.58	_____	_____

22. Using the above table, we can determine that the marginal product of labor _____.
- falls to 0 by the fourth worker
 - falls and then rises to 7.58
 - falls to 0.75 by the fourth worker*
 - cannot be calculated past the second worker.

23. Using the above table, with 5 laborers, the MP = _____, and the AP = _____.

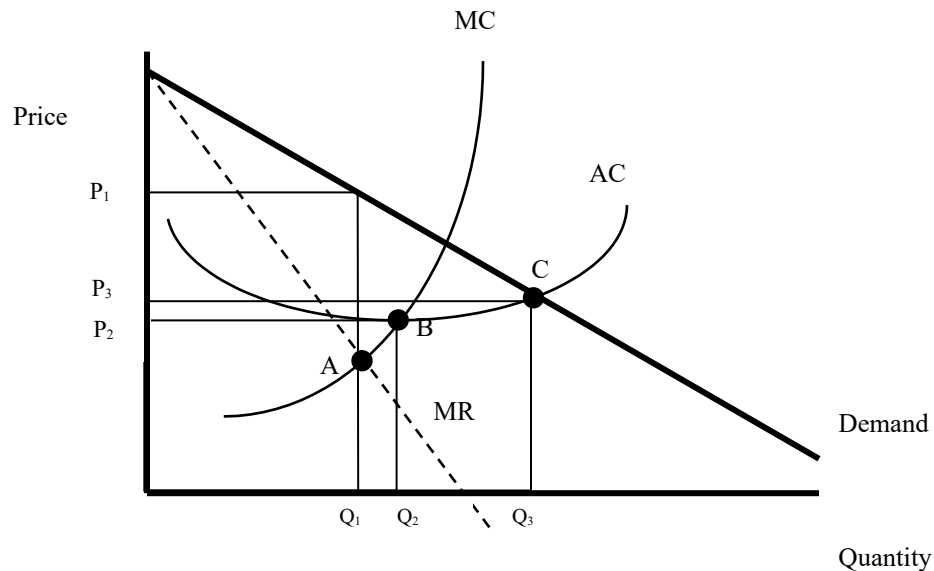
- a. 0.65; 1.52. *
- b. 1; 2.
- c. 5; 10.
- d. cannot be calculated past the second worker.

24. Using the above table, we can determine that the average product of labor _____.

- a. will increase the more labor is used
- b. will decrease the more labor is used
- c. will decrease as long as the amount of capital is kept constant
- d. Answers (b) and (c) are correct.*

25. The marginal cost curve:

- a. always cuts the minimum of the total cost curve
- b. always cuts the minimum of the average cost curve*
- c. is always situated below the demand curve
- d. Answers (b) and (c) are correct.



26. In the diagram directly above, marginal revenue is less than price because:

- a. perfect competition affects monopolists differently than competitors.
- b. monopolists must charge consumers more to earn higher profits
- c. monopolists must lower prices to existing customers in order to sell more units.*
- d. Answers (b) and (c) are correct.

27. In the diagram directly above, in contrast to a perfect competitor, who equalizes marginal cost and product price, the monopolist optimizes at _____.
- a. point A.*
 - b. point B.
 - c. point C.
 - d. maximum price.
28. If there was perfect competition in the industry, total economic profits would be:
- a. zero*
 - b. positive because firms must earn profits to stay in business.
 - c. positive because price exceed average costs.
 - d. negative because competition forces firms to lower prices to stay in business.
29. In the diagram above, if there was perfect competition in the industry, the market price would be:
- a. P_1 .
 - b. P_2 .*
 - c. P_3 .
 - d. None of the above.
30. In the diagram above, the “welfare loss” of monopoly occurs because price _____.
- a. P_2 is lower than the competitive price; and the quantity Q_2 is higher than the competitive quantity.
 - b. P_3 does not equal average cost.
 - c. P_1 is higher than competitive price, and quantity Q_1 is lower than competitive quantity.*
 - d. P_2 does not equal marginal cost.