Chapter 3
Market Supply and Demand

CHAPTER SUMMARY

Demand and supply analysis is fundamental to an understanding of how a capitalist or market-oriented economy works. The laws of demand and supply and how any market functions is introduced and intuitively explained. Chapter 4 follows with more demand and supply analysis.

The law of demand is expressed as a downward sloping curve. The market demand curve is the horizontal summation of all individual demand curves in the market. If the price changes it causes a change in the quantity demanded and is reflected as movement along a given demand curve. Whereas, if some non-price determinant of demand changes this will cause a change in demand and is reflected as a complete shift of the demand curve.

The law of supply is expressed as an upward sloping curve. The market supply curve is the horizontal summation of all individual supply curves in the market. If the price changes it causes a change in the quantity supplied and is reflected as movement along a given supply curve. Whereas, if some non-price determinant of supply changes, this will cause a change in supply and is reflected as a complete shift of the supply curve.

When we bring demand and supply together we have a market. Equilibrium is shown at the point of intersection between the demand and supply curves. Equilibrium exists at that price in which the quantity demanded is just equal to the quantity supplied. That is, where there is neither a surplus nor a shortage. If price is above equilibrium then a surplus is observed (the quantity supplied exceeds the quantity demanded). Conversely, if the price is below equilibrium a shortage will be observed. Surpluses cause prices to fall while shortages cause prices to rise.

NEW CONCEPTS INTRODUCED

law of demand	substitute good	market
demand	complementary good	surplus
change in quantity demanded	law of supply	shortage
change in demand	supply	equilibrium
normal good	change in quantity supplied	price system
inferior good	change in supply	

INSTRUCTIONAL OBJECTIVES

After completing this chapter, students should be able to:

1. Describe the laws of demand and supply and express them graphically.
2. Distinguish a change in quantity demanded (supplied) from a change in demand (supply).
3. Understand that a change in the quantity demanded (supplied) is reflected graphically as movement along a given demand (supply) curve, whereas a change in demand (supply) is reflected as a complete shift of the demand (supply) curve.
4. Express an increase in demand (supply) as a rightward shift and a decrease in demand (supply) as a leftward shift of the demand (supply) curve.
5. Describe what could cause an increase and a decrease in demand (supply).
6. Graphically express market equilibrium.

7. Understand that equilibrium exists at that price in which the quantity demanded equals the quantity supplied.
8. Graphically express a surplus and a shortage.
9. Understand that a surplus (shortage) exists whenever the price is above (below) equilibrium and the quantity supplied exceeds (is less than) the quantity demanded
10. Explain why a surplus (shortage) will cause the price to fall (rise) in the market.

CHAPTER OUTLINE

I. Preview

II. The Law of Demand

a. Market Demand

Exhibit 1 "An Individual Buyer's Demand for Blu-rays"

Exhibit 2 "The Market Demand Curve for Blu-rays"

III. The Distinction between Changes in Quantity Demanded and Changes in Demand

Exhibit 3 "Movement along a Demand Curve versus a Shift in Demand"

IV. Nonprice Determinants of Demand

Exhibit 4 "Terminology for Changes in Price and Nonprice Determinants of Demand"

a. Number of Buyers
b. Tastes and Preferences
c. Income
d. Expectations of Buyers
e. Prices of Related Goods

Exhibit 5 "Summary of the Impact of Changes in Nonprice Determinants of Demand on the Demand Curve"

Checkpoint: "Can Gasoline Become an Exception to the Law of Demand?"

V. The Law of Supply

Exhibit 6 "An Individual Seller's Supply Curve for Blu-rays"

a. Market Supply

Exhibit 7 "The Market Supply Curve for DVDs"

Checkpoint: "Can the Law of Supply Be Repealed for the Oil Market?"

VI. The Distinction between Changes in Quantity Supplied and Changes in Supply

Exhibit 8 "Movement along a Supply Curve versus a Shift in Supply"

Exhibit 9 "Terminology for Changes in Price and Nonprice Determinants of Supply"

VII. Nonprice Determinants of Supply
- a. Number of Sellers
- b. Technology
- c. Resources Prices
- d. Taxes and Subsidies
- e. Expectations of Producers
- f. Prices of Other Goods the Firm Could Produce

Exhibit 10 "Summary 0f the Impact of Changes in Nonprice Determinants of Supply on the Supply Curve"

You're The Economist: Analyze the Issue
"PC Prices: How Low Can They Go? Applicable Concept: nonprice determinants of demand and supply

VIII. A Market Supply and Demand Analysis
- a. Equilibrium Price and Quantity

Exhibit 11 "Demand, Supply, and Equilibrium for Sneakers (Pairs per Year)"

Exhibit 12 "The Supply and Demand for Sneakers"

- b. Rationing Function of the Price System

Global Economics: Analyze the Issue
"The Market Approach to Organ Shortages" Applicable Concept: price system

Checkpoint: "Can the Price System Eliminate Scarcity?"

IX. List of Key Concepts

X. Summary

XI. Checkpoints Answers

XII. Study Questions and Problems

XIII. Sample Quiz

HINTS FOR EFFECTIVE TEACHING

1. Stress these specific points:
   - a. Demand is a curve or schedule showing the various quantities of a produce consumers are willing to purchase at possible prices during a specified period of time, ceteris paribus.

b. Under the law of demand, any decrease in price along the vertical axis will cause an increase in quantity demanded, measured along the horizontal axis.
c. Changes in nonprice determinants can only produce a shift in the demand curve and not a movement along the demand curve, which is caused by a change in price.
d. Supply is a curve or schedule showing the various quantities of a produce sellers are willing to produce and offer for sale at possible prices during a specified period of time, ceteris paribus.
e. Only at a higher price will it be profitable for sellers to incur the higher opportunity cost associated with producing and supplying a larger quantity.
f. Under the law of supply, any increase in price along the vertical axis will cause an increase in quantity supplied, measured along the horizontal axis.
g. Changes in nonprice determinants can only produce a shift in the supply curve and not a movement along the supply curve.
h. Graphically, the intersection of the supply curve and the demand curve is the market equilibrium price-quantity point. When all other nonprice factors are held constant, this is the only stable coordinate on the graph.

2. Spending some time on demand and supply analysis will pay off later. So, don't rush through this material.

3. Use a particular good as an example as you go through demand and supply analysis.

4. Stress the distinction between a change in the quantity demanded (supplied) and demand (supply). This appears like splitting hairs to most students. However, getting it right means better communication---especially on an exam. The distinction is made so that we know whether, for example, people are buying more *because* the price went down (increase in the *quantity* demanded) or *because* of some *non*-price factor (increase in demand). Point out that in economics we are concerned with what causes what---with lines of causation. If the lines of causation get tangled we get predictions which are useless. You may want to have students remember to “Mind their Ps and Qs.” That is, if there is a change in the *price* then this will cause a change in the *quantity* demanded (or supplied).

5. Emphasize what is meant by an increase in demand (supply); as well as a decrease. For example, note that an increase in demand means buyers will buy more at any given price---the price hasn't changed yet people are buying more. Show this graphically.

6. Have students think of some non-price determinants of demand or supply which are not mentioned in the book that would result in an increase or decrease in supply---get the students involved in the class!

7. Use the graph as a visual aid but stress intuitive reasoning. For example, intuitively explain that a surplus means more is put up for sale than buyers are willing to buy *at that particular price*. Therefore, sellers are faced with unwanted inventories. They reduce their price---have a clearance, or liquidation sale---to rid themselves of their excess production. Likewise, a shortage means that some people will be willing and able to pay more just to get the item. In this way there is an inherent tendency for prices to move toward equilibrium.

8. Stress that a surplus will cause *sellers* to competitively bid down the price. A shortage will cause *buyers* to competitively bid up the price (take gas as an example).

9. It is usually a good idea to mention that demand and supply forces are at play in *every* market. This stuff is not just an academic exercise. Mention that there are only 3 types of markets: 1) product markets (goods and services); 2) resource markets (land, labor and capital); and 3) loanable funds

markets. Students may find it helpful to use demand and supply analysis in the labor or loanable funds market. Mention that the only thing which changes is who is doing the demanding who is doing the supplying---all other analysis remains the same! Have students determine whether it is households or businesses that are doing the supplying and demanding in each of the three basic types of markets.

10. Note that the box insert on organ shortages requires students to draw a supply and demand curve at a zero price in the United States. In the next chapter the instructor may wish to explain this situation in terms of a price ceiling.

11. You may want to get students to think about the relationship between markets. For example, what happens to the demand for U.S. autoworkers given an increase in the demand for American-made cars? Or, what happens to the demand for products given an increase in the supply of money?

CRITICAL THINKING/GROUP DISCUSSION QUESTIONS

1. What are some examples of inferior products?
   Potatoes, cheap grades of meat, some generic products, cheap whiskey wine, and beer.

2. What can you say about the price of campus parking permits if there never seems to be enough places to park even when you have a permit?
   The price is too low. It is below equilibrium giving rise to the shortage.

3. Who does the demanding and the supplying in the labor market? The loanable funds market?
   Businesses do the demanding of labor while workers do the supplying. Borrowers are the demanders of loanable funds while lender (or lending institutions) do the supplying.

4. Is the price system a "just" or "fair" way to allocate products? What about medical services?
   This is debatable---weigh the benefits and the costs.

5. What can we say about the demand and supply curves for products which are "free", like matches, toothpicks, and kittens?
   Supply is greater than demand at all positive prices.

6. Why do you think "rock" stars charge concert ticket prices below what they could charge and still sell out their performances?
   *These stars are obviously charging ticket prices below equilibrium resulting in shortages of tickets. This may be on purpose in order not to alienate fans by charging "market-clearing" ticket prices (which could cause CD sales to suffer) or be*cause *of the free publicity the rush for tickets creates.*

7. Assume the supply and demand curves for a good are given by the following equations:
   Qd = 1000 - 20P ; Qs = 5P. What is the equilibrium price and quantity?
   Setting Qd = QS, we get an equilibrium price of 40, and an equilibrium quantity of 200.

CLASSROOM GAMES

Approximately 170 non-computerized economic games (experiments) for use in the classroom are available for free at http://www.marietta.edu/~delemeeg/games/. The following games are recommended to help teach some of the concepts in this chapter:

Game #1—Objective: To experimentally derive a demand curve.
Games #4 and #30—Objective: To demonstrate how supply and demand determine market equilibrium.
Game 103—Objective: To construct and identify the demand curves for a set of everyday commodities.
Game #137—Objective: To demonstrate the advantages of price allocation over non-price allocation.
Game #140—Objective: To illustrate the concept of competitive equilibrium.

ANSWERS TO: *"You're the Economist" and "Global Economics:" "Analyze the Issue"*

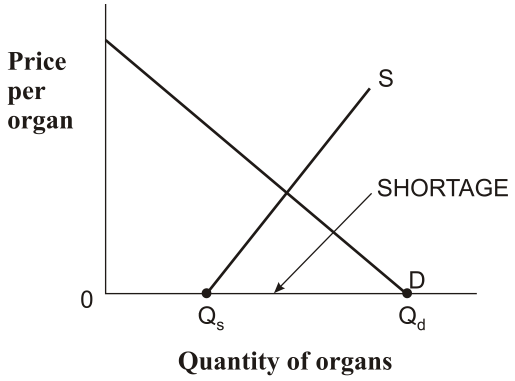
PC PRICES: How Low Can They Go?
Identify changes in the quantity demanded, changes in demand, changes in quantity supplied, or changes in supply described in the article. If there is a change in demand or supply, also identify the nonprice determinant causing the change.

The 1998 article begins with an increase in supply caused by a fall in resource prices for computer parts. Because resource prices fell, the same quantity supplied could be supplied at a lower price for each possible quantity and the supply curve shifted rightward. In the 1999 article, using the internet to sell directly to customers illustrates how technology cuts costs and increases supply. The 2001 article describes a decline in demand when the number of buyers declined. The 2001 article describes recurrence of the situations in the 1998 article. The 2012 article describes an increase in demand from email and entertainment experiences.

THE MARKET APPROACH TO ORGAN SHORTAGES

1. Draw a demand and supply curve for the U.S. organ market and compare it to a country where selling organs is legal.

   Since selling organs is illegal in the U.S. the price is zero. At a zero price, the quantity demanded exceeds the quantity supplied, and there is a shortage. In a country in which selling organs is legal, an equilibrium price would be established where there is no shortage.



2. What are some arguments against using the price system to allocate organs?

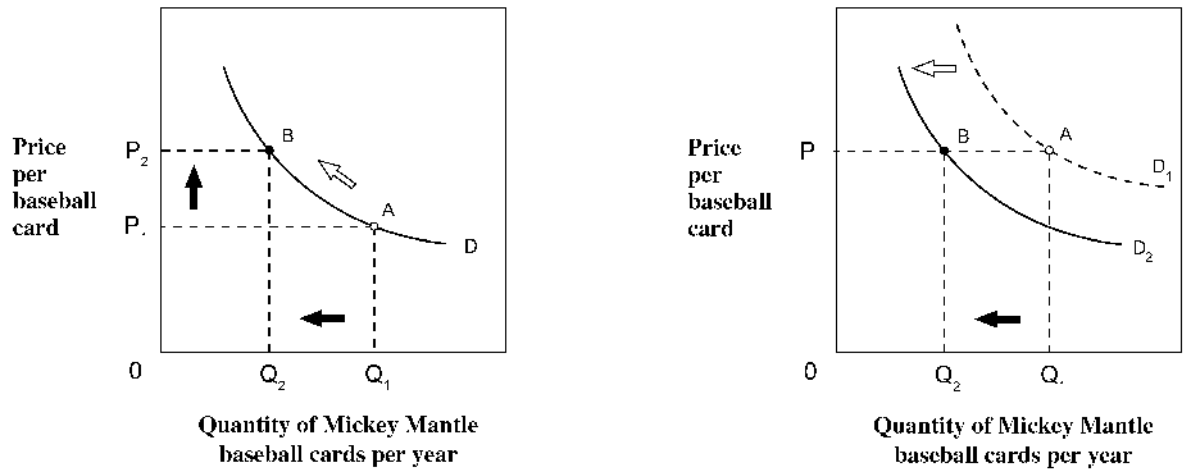
   The key argument against using the price system is that selling organs for profit is not moral. Another objection is that allowing the sale of programs encourages people to kill other people for their body parts.

3. Should foreigners have the right to buy U.S. organs?
   The objections expressed are that it is not moral to market organs for profit. In addition, there can be differences in the quality of organs from U.S. citizens compared to organs from other countries with lower standards. For example, one investigation found that Russians eager for dollars sold organs from corpses with infectious diseases.

ANSWERS TO EVEN-NUMBERED *"Study Questions and Problems"*

2. Figure 3A-1

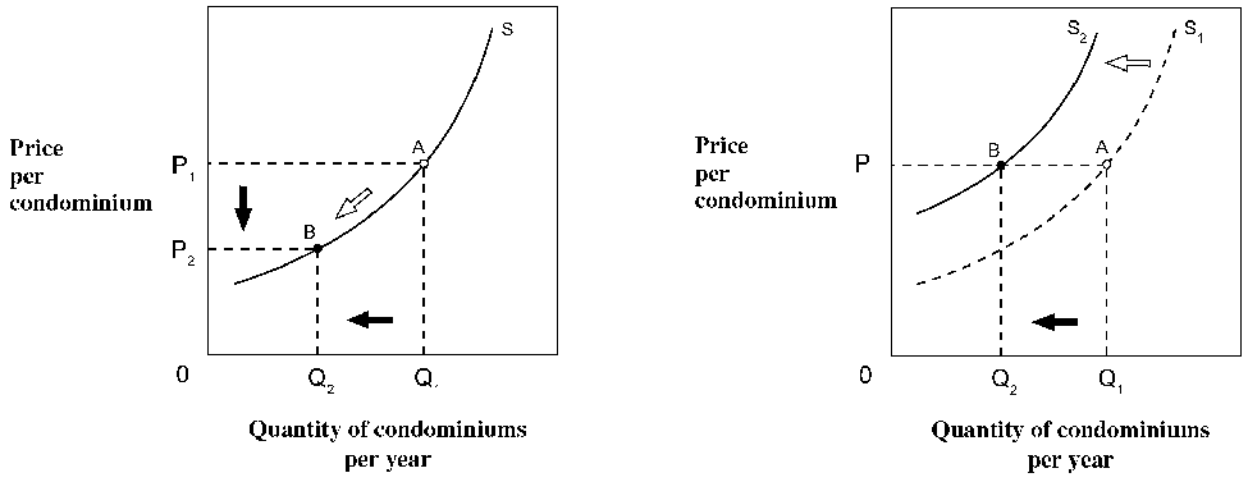
(a) Decrease in the quantity demanded *(b) Decrease in demand*



The decrease in the quantity demanded is a response to an increase in the price from P_1 to P_2 per Mickey Mantle baseball card. The decrease in demand from D_1 to D_2 is caused by a change in a nonprice determinant, such as a decrease in the number of buyers.

4. Figure 3A-2

(a) Decrease in the quantity supplied *(b) Decrease in supply*



The decrease in the quantity supplied is a response to decrease in the price from P_1 to P_2 for condominiums. The decrease in supply from S_1 to S_2 is caused by a change in a nonprice determinant, such as a decrease in the number of sellers.

6. (*a*) *Supply increases and price decreases.*
   (*b*) *Demand decreases and price decreases.*
   (*c*) *Demand increases and price increases.*
   (*d*) *Demand increases and price increases.*

(e) Demand decreases and price decreases.
(f) Demand decreases and price decreases.
(g) Supply increases and price decreases.
(h) Supply increases and price decreases.
(i) Supply increases and price decreases.

8. *The market price moves by trial and error toward the equilibrium price. If the market price is above the equilibrium price, there will be a surplus. If the market price is below the equilibrium price, there will be a shortage.*
10. *The increased number of firms offering mail services reduces the price of this substitute service, and the effect will be to reduce demand for U.S. postal services.*
12. *Higher market prices for good X discourage consumer purchases and encourage an increase in the quantity of good X offered for sale. Lower market prices for good X encourage consumption and discourage an increase in the quantity of good X offered for sale.*

CHAPTER 3 SUMMARY QUIZ

1. Which of the following statements is true?
   a. The law of demand implies that an increase in the price of a good will decrease the demand for that good.
   b. The law of supply implies that an increase in the price of a good will increase the quantity supplied of that good.
   c. A change in a nonprice determinant of demand will result in movement along a given demand curve.
   d. An increase in supply is reflected graphically as a leftward shift of the supply curve.

2. An increase in demand:
   a. results in a leftward shift of the demand curve.
   b. could be caused by a decrease in the price of the good.
   c. could be caused by an increase in the price of a substitute good.
   d. is shown as movement down along a demand curve.

3. Which of the following will increase the supply of a good?
   a. An increase in the price of another good which producers could produce.
   b. A lower price paid resources used in the production of the good.
   c. A decrease in the number of sellers.
   d. An increase in taxes paid to the government by producers.

4. When the price of a good in a market is above equilibrium:
   a. the quantity supplied exceeds the quantity demanded.
   b. a surplus is observed.
   c. the price will fall in the near future.
   d. all of the above.

5. If a shortage exists in a market then:
   a. the price is below equilibrium.
   b. the quantity demand exceeds the quantity supplied.
   c. the price will rise in the near future.
   d. all of the above.

ANSWERS TO CHAPTER 3 SUMMARY QUIZ

1. b	3. b	5. d
2. c	4. d	