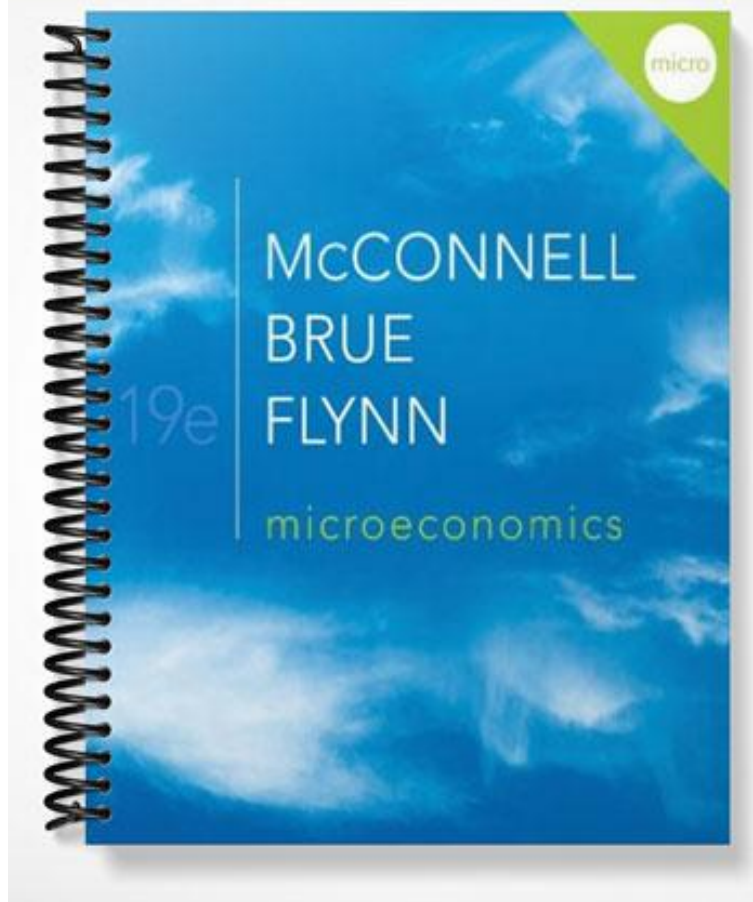


SOLUTIONS MANUAL



Chapter 02 The Market System and the Circular Flow

QUESTIONS

1. Contrast how a market system and a command economy try to cope with economic scarcity.

LO1

Answer: A market system allows for the private ownership of resources and coordinates economic activity through market prices. Participants act in their own self-interest and seek to maximize satisfaction or profit through their own decisions regarding consumption or production. Goods and services are produced and resources are supplied by whoever is willing to do so. The result is competition and widely dispersed economic power.

The command economy is characterized by public ownership of nearly all property resources and economic decisions are made through central planning. The planning board, appointed by the government determines production goals for each enterprise. The division of output between capital and consumer goods is centrally decided based on the board's long-term priorities

2. How does self-interest help achieve society's economic goals? Why is there such a wide variety of desired goods and services in a market system? In what way are entrepreneurs and businesses at the helm of the economy but commanded by consumers? **LO2**

Answer: The motive of self-interest gives direction and consistency to the economy. The primary driving force of the market system is self-interest. Entrepreneurs try to maximize their profits; property owners want the highest price for their resources; workers choose the job with the best wages, fringe benefits and working conditions. Consumers apportion their expenditures to maximize their utility, while seeking the lowest possible prices. As individuals express their free choice, the economy is directed to produce the most wanted goods at the lowest possible cost.

Each individual consumer will choose a variety of goods and services that in combination will maximize his/her satisfaction (utility). There is a wide variety because individual wants are diverse. To maximize profits, producers must respond to the desires of the individual consumer.

Although producers are free to choose what products they will produce, if the producers are to maximize profits, these goods and services must be what consumers desire. Entrepreneurs can drive the economic ship where they want (at least for a while), but the ship will run aground (businesses will fail) if entrepreneurs at the helm don't listen to the consumers that command them.

3. Why is private property, and the protection of property rights, so critical to the success of the market system? How do property rights encourage cooperation? **LO2**

Answer: The ownership of private property and the protection of property rights encourages investment, innovation, and, therefore, economic growth. Property rights encourage the maintaining of the property and they facilitate the exchange of the property. However, the most important consequence of property rights is that they encourage people to cooperate by helping to ensure that only mutually agreeable economic transactions take place.

4. What are the advantages of using capital in the production process? What is meant by the term “division of labor”? What are the advantages of specialization in the use of human and material resources? Explain why exchange is the necessary consequence of specialization. **LO2**

Answer: Capital goods enable producers to operate more efficiently and to produce more output.

“Division of labor” means that workers perform those tasks that are best suited to their individual abilities and skills.

The advantages of specialization for workers are that they can choose work according to their natural aptitudes, have the opportunity to perfect those skills, and save time in not having to shift continually from one task to another. Material resources will be developed and adapted for a specific use. On a regional basis, each region will produce those products for which it is best suited. By specializing in its comparative advantage, each region or set of human and material resources is being used to maximize efficiency.

When resources are specialized, they are no longer self-sufficient. To obtain the goods and services one needs, exchange is necessary. Also, specialization will result in a surplus of a specific good being produced. The surplus of one good will be exchanged for the surplus production of other goods.

5. What problem does barter entail? Indicate the economic significance of money as a medium of exchange. What is meant by the statement “We want money only to part with it”? **LO2**

Answer: Barter requires the “double coincidence of wants.” If someone wants something, he/she will have to find someone who wishes to part with that good and at the same time wishes to exchange the good for something that the first party wishes to part with.

With money as a medium of exchange, one knows the purchase price of the item to be purchased and its relative price to other items. Money is a very convenient common denominator, a common measure of value that is also used as a medium of exchange. Money also encourages specialization. Without money, workers and other resources could not be paid except in the output produced. All those who participated in the production of the good would have to collectively exchange it for all the goods and services desired by the resource owners.

Money itself has value only in relation to the resources, goods, and services that can be obtained with it. When people say that they want money, they really mean that they want the things that money can buy. In this sense, money imparts value only when someone parts with it.

6. Evaluate and explain the following statements: **LO2**

- a. The market system is a profit-and-loss system.
- b. Competition is the disciplinarian of the market economy.

Answer:

- (a) The quotation is accurate. In a market system, producer decisions are motivated by the attempt to earn profits. Those products that enable a firm to earn at least a normal profit (minimum compensation for the entrepreneur for his/her time and talents) will be produced. If the product cannot be produced for a profit—in other words, if losses are involved in production—the capitalist firm will respond by seeking lower cost production methods and may halt the production of goods completely. Because profits and/or losses are the motivation behind the fundamental decisions made in a market system, it could be called a “profit and loss economy.”
- (b) Competition provides discipline in two ways. First, it forces firms to seek the least-cost production methods or face being driven out of business by their rivals. Second, it prevents successful producers from charging whatever the market will bear. Competition keeps prices at a level where total revenue will just cover the total cost of production including a normal profit, but no more in the long run. If sellers try to charge a price that will earn them economic profits, new firms will enter the industry, increasing supply, and lowering prices until the economic profits are eliminated. Competition is indispensable in this role, because otherwise some other method would have to be found to direct firms to use the least-cost production technique and to charge a price that provides only a normal return. Where competition does not exist, such as in natural monopolies like public utility companies, regulators or publicly owned companies must assume the role of disciplinarian. Experience has shown that this is a difficult process and does not achieve the same results as easily as a competitive market situation.

7. Assume that a business firm finds that its profit is greatest when it produces \$40 worth of product A. Suppose also that each of the three techniques shown in the table below will produce the desired output: **LO3**

- a. With the resource prices shown, which technique will the firm choose? Why? Will production using that technique entail profit or loss? What will be the amount of that profit or loss? Will the industry expand or contract? When will that expansion or contraction end?
- b. Assume now that a new technique, technique 4, is developed. It combines 2 units of labor, 2 of land, 6 of capital, and 3 of entrepreneurial ability. In view of the resource prices in the table, will the firm adopt the new technique? Explain your answer.
- c. Suppose that an increase in the labor supply causes the price of labor to fall to \$1.50 per unit, all other resource prices remaining unchanged. Which technique will the producer now choose? Explain.

d. “The market system causes the economy to conserve most in the use of resources that are particularly scarce in supply. Resources that are scarcest relative to the demand for them have the highest prices. As a result, producers use these resources as sparingly as is possible.” Evaluate this statement. Does your answer to part c, above, bear out this contention? Explain.

Resource	Price per Unit of Resource	Resource Units Required		
		Technique 1	Technique 2	Technique 3
Labor	\$3	5	2	3
Land	4	2	4	2
Capital	2	2	4	5
Entrepreneurial ability	2	4	2	4

Answer:

- (a) To calculate the cost of each technique, multiply the price per unit of resource by the amount of the resource employed by the technique and add these together. For example, the cost of technique 1 equals $\$3 \times 5$ (labor cost) + $\$4 \times 2$ (land cost) + $\$2 \times 2$ (capital cost) + $\$2 \times 4$ (entrepreneurial cost) = $\$15 + \$8 + \$4 + \$8 = \$35$. The same process is applied to Techniques 2 and 3. The firm will choose technique 2 because it produces the output at the least cost (\$34 compared to \$35 for techniques 1 and 3). Economic profit will be $\$6 (= \$40 - \$34)$, causing the industry to expand. Expansion in this industry will continue until prices decline to where total revenue equals total cost of \$34 and no additional firms will want to enter the industry.
- (b) The firm will adopt technique 4 because its cost is now lowest at \$32.
- (c) The firm will choose technique 1 because its cost is now lowest at \$27.50.
- (d) The statement is logical. Increasing scarcity of a resource causes its price to rise. Firms ignoring higher resource prices will become high-cost producers. Firms switching to the less expensive inputs become lower-cost producers and earn higher profits than high-cost producers. The market system, therefore, forces producers to conserve on the use of highly scarce resources. Question 7c confirms this: Technique 1 was adopted because labor had become less expensive.

8. Some large hardware stores such as Home Depot boast of carrying as many as 20,000 different products in each store. What motivated the producers of those individual products to make them and offer them for sale? How did the producers decide on the best combinations of resources to use? Who made those resources available, and why? Who decides whether these particular hardware products should continue to be produced and offered for sale? **LO3**

Answer: The quest for profit led firms to produce these goods. Producers looked for and found the least-cost combination of resources in producing their output. Resource suppliers, seeking income, made these resources available. Consumers, through their dollar votes, ultimately decide on what will continue to be produced.

9. What is meant by the term “creative destruction”? How does the emergence of MP3 (or iPod) technology relate to this idea? **LO3**

Answer: Creative destruction refers to the process by which the creation of new products and production techniques destroys the market positions of firms committed to producing only existing products or using outdated methods. The ability to download and store a large number of songs, and the superior quality of MP3 is causing a decline in the CD industry, just as CDs once replaced cassette tapes, which had previously replaced phonographs (records).

10. In a sentence, describe the meaning of the phrase “invisible hand.” **LO4**

Answer: Market prices act as an “invisible hand,” coordinating an economy by rationing what is scarce and providing incentives to produce the most desired goods and services.

11. In market economies, firms rarely worry about the availability of inputs to produce their products, whereas in command economies input availability is a constant concern. Why the difference? **LO4**

Answer: In market economies, buyers of inputs know that sellers want to make resources available for sale because that is how they earn their profits. If there aren't enough resources available, prices will rise until suppliers come forth with the desired amounts. In command economies the availability of inputs depends on what was specified in the plan, and how well the plan was executed. There is no opportunity (at least not legally) to offer greater payments to get those resources provided.

12. Distinguish between the resource market and the product market in the circular flow model. In what way are businesses and households both sellers and buyers in this model? What are the flows in the circular flow model? **LO5**

Answer: The resource markets are where the owners of the resources (the households) sell their resources to the buyers of the resources (businesses). In the product markets, businesses sell the goods and services they have produced to the buyers of the goods and services, the households.

Households (individuals) either own all economic resources directly or own them indirectly through their ownership of business corporations. These households are willing to sell their resources to businesses because attractive prices draw them into specific resource markets. Businesses buy resources because they are necessary for producing goods and services. The interaction of the buyers and sellers establishes the price of each resource.

In the product market, businesses are the sellers and householders are the buyers; their role in the market has been reversed. Each group of economic units both buys and sells.

13. **LAST WORD** What explains why millions of economic resources tend to get arranged logically and productively rather than haphazardly and unproductively?

Answer: The institution of private property is a primary reason why resources are arranged logically and productively. Private property eliminates randomness to the allocation of resources, as property owners act in deliberate ways to protect and maximize the benefits from their property. Owners pursue the greatest possible returns from their property, drawing resources to their most valued uses. Through the interaction of millions of economic agents all trying to use their private property to maximize well-being, a complex, logical, and productive arrangement of resources results.

PROBLEMS

1. Table 2.1 contained information on three techniques for producing \$15 worth of bar soap. Assume that we said “\$15 worth of bar soap” because soap cost \$3 per bar and all three techniques produce 5 bars of soap ($\$15 = \$3 \text{ per bar} \times 5 \text{ bars}$). So you know each technique produces 5 bars of soap. **LO3**

- What technique will you want to use if the price of a bar of soap falls to \$2.75? What if the price of a bar of soap rises to \$4? To \$5?
- How many bars of soap will you want to produce if the price of a bar of soap falls to \$2.00?
- Suppose that the price of soap is again \$3 per bar but that the prices of all four resources are now \$1 per unit. Which is now the least-profitable technique?
- If the resource prices return to their original levels (the ones shown in the table) but a new technique is invented that can produce 3 bars of soap (yes, 3 bars, not 5 bars!) using 1 unit of each of the four resources, will firms prefer the new technique?

TABLE 2.1 Three Techniques for Producing \$15 Worth of Bar Soap

Resource	Price per Unit of Resource	Units of Resource					
		Technique 1		Technique 2		Technique 3	
		Units	Cost	Units	Cost	Units	Cost
Labor	\$2	4	\$ 8	2	\$ 4	1	\$ 2
Land	1	1	1	3	3	4	4
Capital	3	1	3	1	3	2	6
Entrepreneurial ability	3	1	3	1	3	1	3
Total cost of \$15 worth of bar soap			\$15		\$13		\$15

Answers: (a) **Technique 2, Technique 2, Technique 2;** (b) **Zero—it is not profitable to produce bars of soap at this selling price;** (c) **Technique 3;** (d) **No, they will still prefer technique 2.**

Feedback: As stated in the question, also assume that we said “\$15 worth of bar soap” because soap cost \$3 per bar and all three techniques produce 5 bars of soap ($\$15 = \$3 \text{ per bar} \times 5 \text{ bars}$). So you know each technique produces 5 bars of soap.

Part a: Consider the following values for part a. What technique will you want to use if the price of a bar of soap falls to \$2.75? What if the price of a bar of soap rises to \$4? To \$5?

If the price falls to \$2.75 total revenue (price multiplied by units sold) equals \$13.75 (= \$2.75 x 5). This does not change the total cost of each technique, so the firm will continue to use the lowest cost technique 2. This logic also applies to the increase in the sale price to \$4.00 and \$5.00 respectively. This does not change the cost of each technique, so the firm will continue to employ the lowest cost technique 2.

Part b: Consider the following value for part b. How many bars of soap will you want to produce if the price of a bar of soap falls to \$2.00?

Here the answer is different (from that in part a) because total revenue equals \$10.00 (= \$2 x 5). Here it is unprofitable to produce any output because the least cost technique 2 is \$13.

Part c: Consider the following values for part c. Suppose that the price of soap is again \$3 per bar but that the prices of all four resources are now \$1 per unit.

Here we must first calculate the cost incurred by the firm for each technique. Since the price of each input is \$1 per unit, the cost for each technique is just the sum of the inputs used. For example, the cost of technique 1 equals \$7 (= \$4 (labor) + \$1 (land) + \$1 (capital) + \$1 (entrepreneurial ability)) Using the same procedure, the total cost of technique 2 equals \$7 (= \$2 + \$3 + \$1 + \$1) and the total cost of technique 3 equals \$8 (= \$1 + \$4 + \$2 + \$1). Thus, the least-profitable technique is technique 3.

Part d. Consider the following values for part d. Assume the resource prices return to their original levels (the ones shown in the table) but a new technique is invented that can produce 3 bars of soap (yes, 3 bars, not 5 bars!) using 1 unit of each of the four resources.

The total revenue from this new technique equals \$3 (price per bar) multiplied by 3 (units sold and produced), or \$9. The total cost of this technique equals the sum of the resource prices, in the table above, because this technique employs one unit of each input. Thus, total cost equals \$9 (+ \$2 (labor) + \$1 (land) + \$3 (capital) + \$3 (entrepreneurial ability)). Using this new technique economic profit is zero (= \$9 (revenue) - \$9 (cost)), whereas technique 2 continues to generate \$2 of economic profit (= \$15 (revenue) - \$13 (cost)). Since economic profit is greater using technique 2 the firm will continue to employ this technique.

2. Suppose Natasha currently makes \$50,000 per year working as a manager at a cable TV company. She then develops two possible entrepreneurial business opportunities. In one, she will quit her job to start an organic soap company. In the other, she will try to develop an Internet-based competitor to the local cable company. For the soap-making opportunity, she anticipates annual revenue of \$465,000 and costs for the necessary land, labor, and capital of \$395,000 per year. For the Internet opportunity, she anticipates costs for land, labor, and capital of \$3,250,000 per year as compared to revenues of \$3,275,000 per year. (a) Should she quit her current job to become an entrepreneur? (b) If she does quit her current job, which opportunity would she pursue? **LO3**

Answers: (a) Yes; (b) She should pursue the soap business.

Feedback: Natasha should quit her job only if the net revenue from the entrepreneurial business opportunity exceeds that of her current wage (net revenue equals revenue minus cost. This could also be defined as accounting profit).

For example, consider the following values. Suppose Natasha currently makes \$50,000 per year working as a manager at a cable TV company. She then develops two possible entrepreneurial business opportunities. In one, she will quit her job to start a hand-made soap company. In the other, she will try to develop an internet-based competitor to the cable company. For the soap-making opportunity, she anticipates annual revenue of \$465,000 and costs for the necessary land, labor, and capital of \$395,000 per year. For the WiFi opportunity, she anticipates costs for land, labor, and capital of \$3,250,000 per year as compared to revenues of \$3,275,000 per year.

Net revenue from the hand-made soap company equals \$465,000 (revenue) minus \$395,000 (cost). This net revenue of \$70,000 ($= \$465,000 - \$395,000$) exceeds Natasha's current wage of \$50,000, thus she should develop this company instead of working for the TV company.

The net revenue from WiFi company equals \$3,275,000 (revenue) minus \$3,250,000 (cost). This net revenue of \$25,000 ($= \$3,275,000 - \$3,250,000$) is less than Natasha's current wage of \$50,000, thus she should not develop this company and continue working for the TV company.

In summary, Natasha should quit her job and start the hand-made soap company.

3. With current technology, suppose a firm is producing 400 loaves of banana bread daily. Also assume that the least-cost combination of resources in producing those loaves is 5 units of labor, 7 units of land, 2 units of capital, and 1 unit of entrepreneurial ability, selling at prices of \$40, \$60, \$60, and \$20, respectively. If the firm can sell these 400 loaves at \$2 per unit, what is its total revenue? Its total cost? Its profit or loss? Will it continue to produce banana bread? If this firm's situation is typical for the other makers of banana bread, will resources flow toward or away from this bakery good? **LO3**

Answers: TR = \$800; TC = \$760; Profit = \$40; Yes, it will continue to produce banana bread; Resources will flow toward this bakery good.

Feedback: Consider the following example. A firm is producing 400 loaves of banana bread daily. The least-cost combination of resources in producing those loaves is 5 units of labor, 7 units of land, 2 units of capital, and 1 unit of entrepreneurial ability, selling at prices of \$40, \$60, \$60, and \$20, respectively. The firm can sell these 400 loaves at \$2 per unit.

To calculate total profit multiply the selling price by the number of units sold. For our example, total revenue equals \$2 (price) multiplied by 400 (loaves of bread sold). So, total revenue equals \$800 (= \$2 x 400).

To calculate total cost multiply each input usage (number of units employed) by the price of the input and then add these values together. Total cost equals 5 x \$40 (cost of labor) + 7 x \$60 (cost of land) + 2 x \$60 (cost of capital) + 1 x \$20 (cost of entrepreneurial ability) = \$760.

The profit for this firm equals total revenue minus total cost. Here, profit equals \$800 (total revenue) minus \$760 (total cost) = \$40. If total cost happened to be greater than total revenue this firm would have a loss.

Since the firm in our example is earning positive economic profit it will continue to produce banana bread. However, if the firm were losing money (suffering a loss because total cost exceeds total revenue) the firm will stop producing banana bread.

Since the firm (again in our example) is earning positive economic profit other firms or individuals will want to produce banana bread. Thus, resources will flow toward this bakery good. If the firm had been suffering from an economic loss then resources would flow away from this bakery good as firms or individuals exited the market to avoid the loss.

4. Let's put dollar amounts on the flows in the circular flow diagram of Figure 2.2. **LO5**
- Suppose that businesses buy a total of \$100 billion of the four resources (labor, land, capital, and entrepreneurial ability) from households. If households receive \$60 billion in wages, \$10 billion in rent, and \$20 billion in interest, how much are households paid for providing entrepreneurial ability?
 - If households spend \$55 billion on goods and \$45 billion on services, how much in revenues do businesses receive in the product market?

Answers: (a) \$10 billion for entrepreneurial ability; (b) \$100 billion in revenues.

Feedback: (a) \$10 billion for entrepreneurial ability (= \$100 billion in total factor payments - \$60 billion in wages - \$10 billion in rent - \$20 billion in interest)
(b) \$100 billion (= \$45 billion + \$55 billion) because household expenditures equal business revenues.