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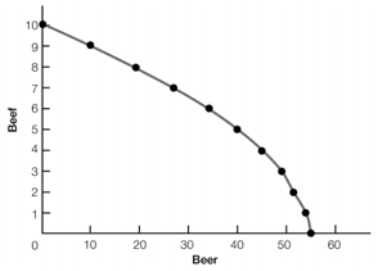
FOR YOUR REVIEW ANSWER KEY

CHAPTER 2

SCARCITY, TRADE-OFFS, AND PRODUCTION POSSIBILITIES

SECTION 2.1 THE PRODUCTION POSSIBILITIES CURVE

1. a.



   b. 1 side of beef; 6 kegs of beer; 9 kegs of beer
   c. 35 kegs of beer
   d. No; that combination is inside the production possibilities curve, which means more of one good could be produced without giving up any production of the other good.
   e. No; that combination is beyond the production possibilities curve and therefore unattainable.

2. a. A production possibilities curve, which applies to a specific period of time, is drawn assuming that resources and the level of technology are held constant.
   b. The opportunity cost of another pizza, when moving from point B to point C, is 4 units of robots. The opportunity cost of another pizza, when moving from point D to point E, is 8 units of robots.
   c. These combinations are exhibiting increasing opportunity cost—the more pizzas you have, the higher the opportunity cost of obtaining additional pizzas.

3. This is the law of increasing opportunity cost in action. As you planted more and more of your land in wheat, you would move into some of the less fertile land and, consequently, wheat yields on this additional land would fall. If you were to go so far as to plant the entire island with wheat, you would find that some of the less fertile land would yield virtually no extra wheat. It would, however, have been great for cattle grazing—a large loss. So the opportunity cost of using that marginal land for wheat rather than cattle grazing would be very high.

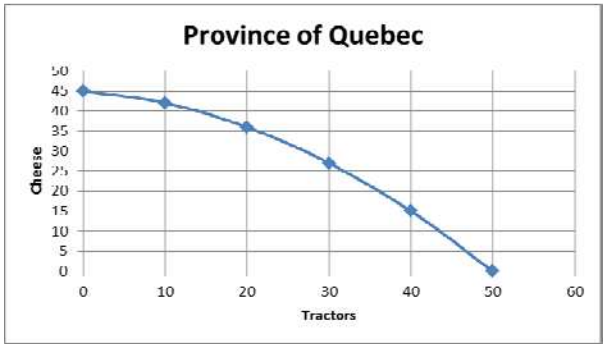
SECTION 2.1 THE PRODUCTION POSSIBILITIES CURVE—AND—
SECTION 2.2 ECONOMIC GROWTH AND THE PRODUCTION POSSIBILITIES CURVE

4. a. Double-digit unemployment would not affect the production possibilities curve itself. An economy experiencing double-digit unemployment would be operating at a point inside the production possibilities curve.

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b. The production possibilities curve shifts outward whenever the economy experiences economic growth.
c. Assuming resources are being used efficiently, the economy moves from one point along the production possibilities curve to another in the direction of more food production (requiring a sacrifice of shelter).
d. Assuming resources are being used efficiently, the economy moves from one point along the production possibilities curve to another in the direction of more shelter (requiring a sacrifice of food).

5. a.

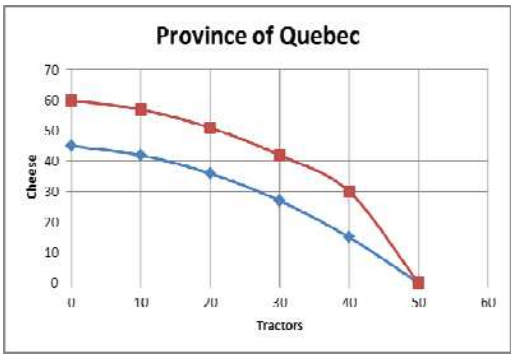


b.

	A		B		C		D		E		F	
		−3		−6		−9		−12		−15		
Cheese	45		42		36		27		15		0	
Tractors	0		10		20		30		40		50	
		+10		+10		+10		+10		+10		

As indicated in the table above, if the province of Quebec is to continually increase tractor production by 10 tractors it must give up increasing amounts of cheese—thus illustrating the law of increasing opportunity cost.

c.



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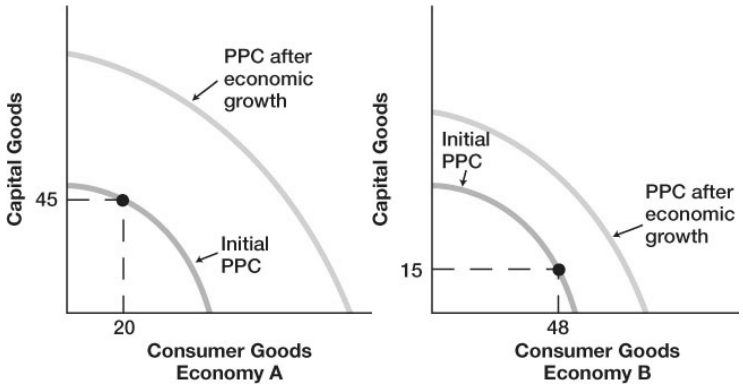
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d. The alteration in production from production alternative B to alternative E represents an increase in capital goods and a decrease in consumption goods. As a result, the prediction would be that the province of Quebec would experience greater economic growth in the future.

6. a. Yes; the bowed-outward shape of the production possibilities curve indicates increasing opportunity costs.
   b. Zero; because point I is inside the production possibilities curve, moving from point I to point D means that the output of food can increase with no decrease in the output of shelter.
   c. 10 units of food
   d. All of the points on the production possibilities curve are efficient because at any of those points more of one good could be produced only by sacrificing some output of the other good. However, the curve does not tell us which of those points is best from the perspective of society.
   e. Point N; additional resources or new technology (shifting the PPC outward).
   f. Point I; economy must ensure that all resources are being utilized to their fullest extent—no wasted resources.

SECTION 2.2 ECONOMIC GROWTH AND THE PRODUCTION POSSIBILITIES CURVE

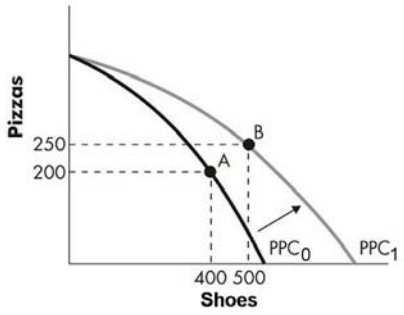
7. Investment in capital goods increases the future productive potential of an economy. Economy A will grow more rapidly, shifting the production possibilities curve outward to a greater extent over time, if it invests in a higher proportion of capital goods than does Economy B.



8. A technological advance that increases only the efficiency of shoe production, but not pizza, would rotate the production possibilities curve outward along the shoe axis. Since shoe production would require fewer resources, it is possible to produce more of both shoes and pizza by shifting resources from shoe manufacturing to pizza production. For example, as illustrated in the diagram below, an economy might initially operate at point A, where 200 pizzas and 400 pairs of shoes are produced. After the technological advance, it is possible to produce at point B, where 250 pizzas and 500 pairs of shoes can be manufactured.

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9. The politician would be able to keep her promise if the economy was operating inside the production possibilities curve. It would then be possible to have more of both schools and prisons by better utilizing available resources. Alternatively, an advance in technology or an increase in available resources (perhaps due to immigration) would also make it possible to have more of both goods by shifting the production possibilities curve in an outward direction.

10. a. A country will fail to grow if its sacrificed consumption is spent in other countries.
    b. A country will fail to grow if it chooses not to sacrifice because it cares so much about current consumption.
    c. Growth will be limited if a country does not invest in human capital.
    d. A country will fail to grow if its sacrificed consumption is spent on goods other than capital goods.

SECTION 2.3 MARKET PRICES COORDINATE ECONOMIC ACTIVITY

11. The definition of a market focuses on the process of exchange not on the physical location where the exchange takes place. Therefore, even though online buyers and sellers are never actually in the same place, their behaviour still constitutes a market transaction due to the fact that goods and services are being exchanged.

12. Buyers determine the demand side of the market. Consumers demand goods and services in product markets and producers demand resources in factor markets. Alternatively, resource owners supply factors of production in factor markets and producers supply goods and services in product markets.

13. Options (a), (b), and (c) would cause increases in the relative value and price of potatoes. In option (d), the reduction in the prices of potato substitutes would make alternatives more attractive and reduce the relative value and price of potatoes.

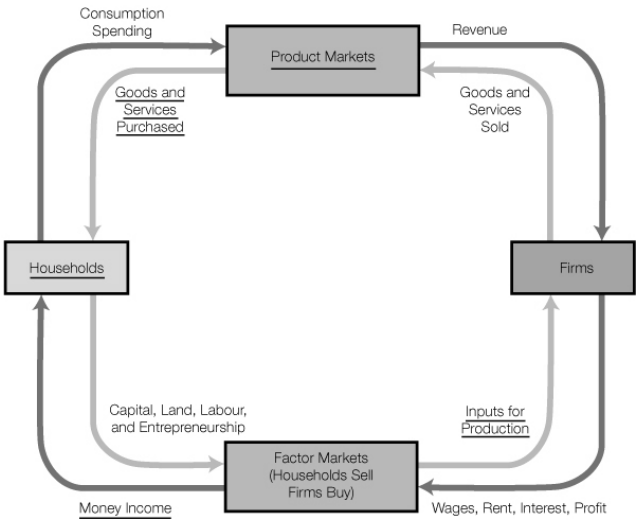
14. a. Price of Jack Russell terriers rises
    b. Price of housing in Tampa rises
    c. Price of coffee rises
    d. Price of wheat rises
    e. Wages of Canadian doctors fall
    f. Price of gasoline rises.

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SECTION 2.4 THE CIRCULAR FLOW MODEL

15.



16. a. Product market
    b. Factor market
    c. Product market
    d. Factor market.

    Furniture is a good purchased in the product market from firms. Labour is a resource that households sell to firms in the factor market. Restaurant food is a good purchased by consumers in the product market. Finally, Billy's entrepreneurial resource is paid a profit, which is the amount left over after all his other costs have been paid. This takes place in the factor market.

17. a. Claire getting paid $800 as a rental agent and Markus getting paid $70 to teach a fitness class both occur in the factor market.

    b. Clair spending $40 a week on her gym membership and Markus spending $200 on a rental car both occur in the product market.

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CHAPTER 2
SCARCITY, TRADE-OFFS, AND PRODUCTION POSSIBILITIES

SECTION 2.1 THE PRODUCTION POSSIBILITIES CURVE

- The economic concepts of scarcity, choice, and trade-offs can be shown with a simple graph called a **production possibilities curve.** This curve represents the potential total output combinations of any two goods for an economy. It illustrates an economy's potential for allocating its limited resources for producing various combinations of goods in a given time period.
- On a production possibilities curve, we assume that the economy has a given quantity and quality of resources and technology available to use for production.
- The production possibilities curve discussion begins with a straight-line production possibilities curve, with the goods being one's expected grade in economics and one's expected grade in accounting, given a fixed amount of resources (study time).

Exhibit 1: *Production Possibilities Curve: "Producing" Grades in Economics and Accounting*

- The production possibilities curve discussion is extended to a nonlinear production possibilities curve, with an example involving food and shelter.

Exhibit 2: *Production Possibilities Curve: The Trade-off between Shelter and Food*

- The economy cannot produce beyond the levels of output indicated by the production possibilities curve during a given time period because there are not enough resources to produce that output. However, it is possible to operate inside the production possibilities curve.
- If an economy is operating inside its production possibilities curve, it is not at full capacity and is operating inefficiently. As a result, actual output is less than potential output.
- Most modern economies have resources that are idle, at least for some period of time. If those resources were not idle, people would have more scarce goods and services available for their use.
- Unemployed resources create a serious problem, not just for labour but for all resources entering into production, such as plant capacity. All resources entering into production must be used effectively for efficient production.
- Underutilized resources or those not being put to their best uses are illustrated by output combinations inside the production possibilities curve. By putting unemployed resources to work or by putting already employed resources to better uses, we could expand output.
- Increasing or improving the utilization of resources can lead to greater output of all goods. That is why we all have an interest in the efficient use of all of society's resources: There can be more of everything we want available for our use.

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- **Efficiency** requires society to use its resources to the fullest extent—getting the most we can out of our scarce resources.
- If resources are being used efficiently, that is, at some point along a production possibilities curve, then more of one good or service requires the sacrifice of another good or service—in other words a related **opportunity cost**.
- Efficiency does not tell us which point along a production possibilities curve is *best*, but it does tell us that points inside the curve cannot be best because some resources are wasted.
- In most cases, the opportunity cost of a good increases as we increase production. The result is a "bowed-out" production possibility frontier. This bowing-out occurs because as we expand production, we are adding productive resources that are less productive than resources already used in production.

Exhibit 3: *Increasing Opportunity Cost and the Production Possibilities Curve*

Business Connection: *What Can the PPC Offer Managers?*

SECTION 2.2 ECONOMIC GROWTH AND THE PRODUCTION POSSIBILITIES CURVE

- Some nations have been able to rapidly expand their output of goods and services over time, while others have been unable to increase their standard of living at all.
- An economy can grow only with qualitative or quantitative changes in the factors of production—land, labour, capital, and entrepreneurship. Advancements in technology, improvements in labour productivity, or new natural resource finds could all lead to outward shifts of the production possibilities curve.
- Economic growth means an outward shift in the possible bundles of goods and services illustrated by the production possibilities curve. Advances in technology, improvements in labour technology, or new sources of natural resources could all lead to outward shifts of the production possibilities curve.

Exhibit 1: *Economic Growth and Production Possibilities*

- It is important to remember that increases in a society's output do not make scarcity disappear. Even when output has grown more rapidly than population so that people are made better off, they still face trade-offs. At any point along the production possibilities curve, to get more of one thing, you must give up something else.
- Economies that choose to invest more of their resources for the future (devoting a larger share of their productive capacity to capital goods rather than consumption goods) will grow faster than those that don't, other things equal. The society that devotes a larger share of its productive capacity to capital goods (machines, factories, tools, and education), rather than consumption goods (video games, pizza, and vacations), will experience greater growth.
- Investment in capital goods will shift out the production possibilities curve in the future, allowing for greater consumption.

Exhibit 2: *Increasing Opportunity Cost and the Production Possibilities Curve*

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- Technological advance does not have to impact all sectors of the economy equally.

Exhibit 3: *The Effects of Change on the Production Possibilities Curve*

Exhibit 4: *Production Possibilities Curve*

Debate: *Will Capitalism, Which Relies on Growth, Be Unsustainable over the Long Term?*

SECTION 2.3 MARKET PRICES COORDINATE ECONOMIC ACTIVITY

- Market prices communicate information about the relative availability of products to buyers, and they provide sellers with critical information about the relative value that consumers place on those products.
- The price system guides people's choices and produces solutions to the questions of what goods to produce and how to produce and distribute those goods. Countries that do not rely on the market system have no clear communication between buyers and sellers.
- The roles of buyers and sellers are important in markets. Buyers determine the demand side of the market, while sellers determine the supply side of the market.
- The market system, for the most part, will allow resources to be allocated efficiently.
- Market prices communicate information to the buyers about relative availability, and communicate information to the sellers about the relative value consumers place on products.
- The market system can function properly only when there are clearly defined and legally binding property rights.
- **Market failure** occurs when the market mechanism fails to allocate resources efficiently on its own. This failure usually occurs when an economic agent does not face all of the costs and benefits of an economic activity, such as pollution and scientific research. In this case, the government may be able to improve society's well-being by intervening in the market.
- Sometimes a painful trade-off occurs between efficiency and equity. There is no guarantee that the market economy will provide everyone with adequate amounts of food, shelter, and transportation.

SECTION 2.4 THE CIRCULAR FLOW MODEL

- In a simple economy, there are two decision makers, firms and households. Exchanges between these two decision makers take place in product and factor markets and involve flows of goods, services, and money.
- **Product markets** are the markets for consumer goods and services. Households buy the goods and services that firms produce and sell.
- **Factor or input markets** are the markets where households sell their factors of production—capital, land, labour, and entrepreneurship—to firms. In factor markets, households are the sellers, and firms are the buyers.

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- **The goods and services flow** represents the continuous flow of inputs and output in the economy. Households make inputs available to producers through the factor markets. These inputs are then turned into outputs that are then bought by households.
- **The income flow** represents the continuous flow of income and expenditure in the economy. Households receive money payments from firms for their inputs in the form of wages, interest payments, and profits. The payments from households to firms are for the purchase of goods and services.
- **The circular flow model on income and output** is an illustration of the continuous flow of goods, services, inputs, and payments between firms and households.

***Exhibit 1*:** *The Circular Flow Model*

- The circular flow model can be extended to show the roles of government, financial, and foreign markets, as well as the roles of taxes and saving.

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