Solutions for Essentials of Economics 12th Edition by Schiller

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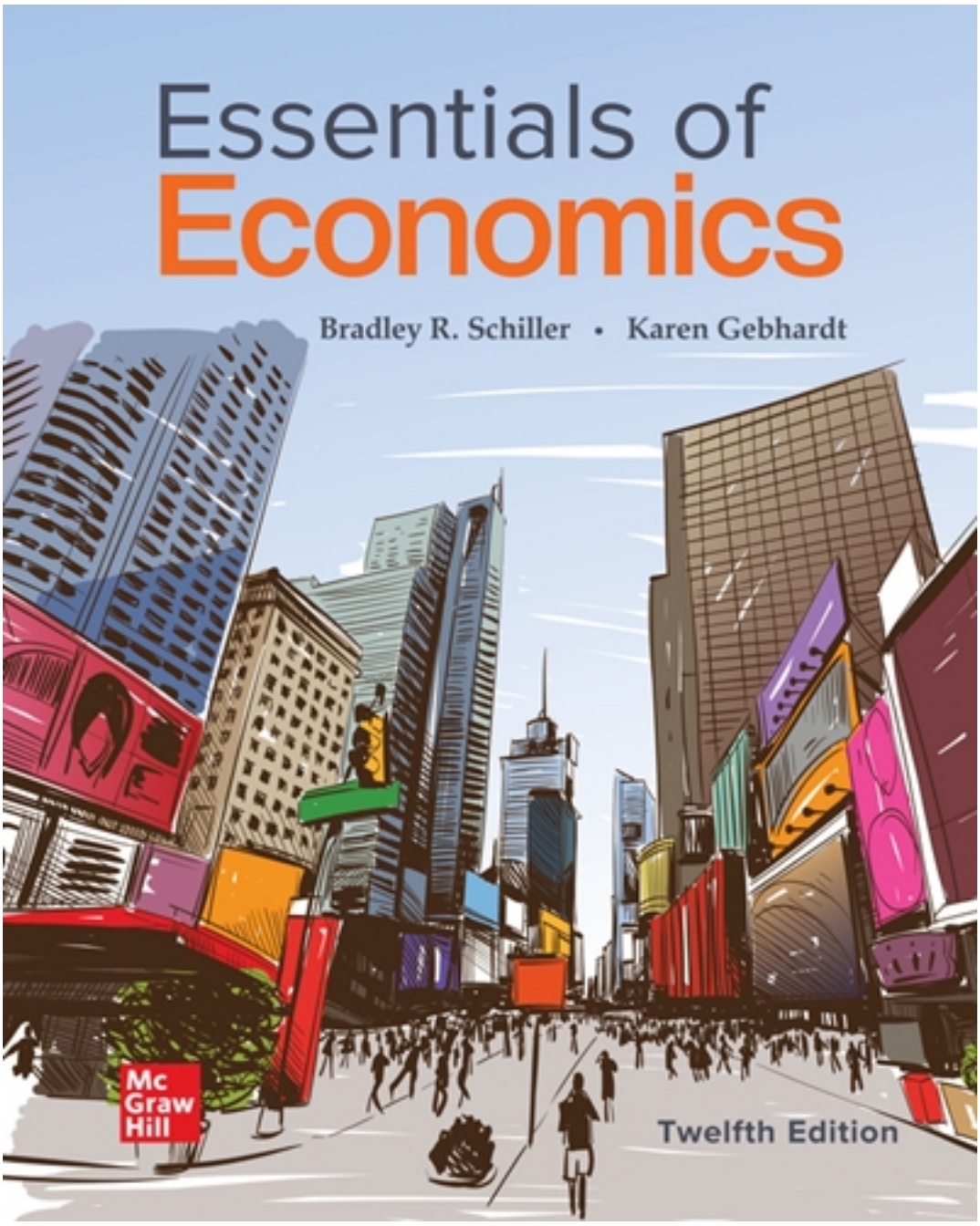

Solutions

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CHAPTER 1: THE CHALLENGE OF ECONOMICS
ANSWERS TO QUESTIONS FOR DISCUSSION AND PROBLEMS

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1 Explain the meaning of scarcity.
2 Define "opportunity cost."
3 Recite society's three core economic questions.
4 Discuss how market and command economies differ.
5 Describe the nature of market and government failures.
6 POLICY PERSPECTIVES Apply the concept of opportunity cost to health care.

QUESTIONS FOR DISCUSSION

1. As rich as America is, how can our resources possibly be "scarce?" **LO1**

   Answer: *Many believe that America has become rich because of the abundance of our natural resources. Others believe our democratic political system and our market-driven economic system play significant roles in our relative financial success. Regardless, as rich as America is, we still want more. The concept of scarcity, in the case of America, is the lack of enough resources to satisfy all American consumer desires. Therefore, resources are scarce in America because the desire for these resources is greater than the amount we possess*.

2. What opportunity costs did you incur in reading this chapter? **LO2**

   Answer: *There are many other things you could have done with your time instead of reading this chapter. The most desired activity you gave up is the opportunity cost*.

3. How would you answer the question in the News Wire "Future Living Standards"? Why? **LO3**

   Answer: *There was a spike of anxiety in 2008–2009 regarding the ability of the U.S. economy to crank out more goods continuously. Today many Americans still worry about the resiliency of our economic system and our many resource limitations. The general definition of economics—the study of how best to allocate scarce resources among competing uses—allows for the potential of brilliant minds to help the economy continue to grow. Additional resources, new technologies, insightful entrepreneurial strategies, and great minds working on economic development provide tremendous hope for future growth in our economy and the associated increase in our standard of living*.

4. How can China's army be twice as large as North Korea's when China spends only 1.9 percent of its output on the military and North Korea spends 19 percent? **LO1**

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Answer: *China has more resources than North Korea and has also chosen to produce at a different combination along its production possibilities curve. China's larger population, larger land area, natural resources, education system (human capital) focused on technology, and the structure of its economy are such that it focuses more of its production on capital goods, as well as on consumer goods and services. These, in turn, enable it to maintain a large army while maintaining a focus on economic growth*.

5. In a purely private market economy, how is the FOR WHOM question answered? Is that optimal? **LO3**

   Answer: *FOR WHOM is one of the three basic economic questions. The other two questions determine how large of an economic pie to bake (WHAT) and how we will bake it (HOW). This FOR WHOM question deals with how to slice the pie. Should some get larger or smaller slices than others? The focus is on how an economy's output is distributed across members of society.*

   In a purely private market economy, those who are willing and able to purchase a slice of pie will receive the slice. Markets are efficient; however, neither markets nor governments always have the right answers. There are certainly times (market failure) when the market generates suboptimal economic outcomes.

6. Why doesn't North Korea reduce its military and put more resources into food production (News Wire "Opportunity Cost")? What is the optimal mix of "guns" and "butter" for a nation? **LO3**

   Answer: *North Korea doesn't reduce its military and put more resources into food production because the North Korean government apparently believes that a large military establishment is essential to its well-being and security. The optimal mix of "guns" and "butter" depends on values and, therefore, the answer to this question will depend on the values of the individual or in this case, the government answering it*.

7. Why would anyone object to giving unemployed workers an extra $400 a week, as President Biden proposed in early 2021? **LO3**

   Answer: *On one hand, providing payments to unemployed workers will help them purchase necessary goods and services. On the other hand, given the standard assumptions about market participant reactions, we would expect that those receiving the benefits may reconsider their choices between work and leisure. Since their reward for not working is not higher, they could be expected to work less. This decision entails trade-offs*.

8. What kind of knowledge must central planners possess to manage an economy efficiently? **LO4**

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Answer: *A central planner will make all the decisions for an economy including what goods are produced, at what prices they are sold, and who gets to have them. For example, a central planner places workers at a bread factory, tells them how much bread to bake, and specifies who is allowed to eat this bread. The WHAT, HOW, and FOR WHOM outcomes are all directed by the central government (planner).*

A central planner would need to be omniscient in order to manage an economy efficiently. He/she would need to know the desires of consumers, consumers' ability to pay, productivity of inputs (such as capital and labor), and technological capabilities. It is simply unreasonable to believe that a central planner could ever have such vast and comprehensive knowledge.

9. **POLICY PERSPECTIVES** Why can't we produce at point X_2 in Figure 1.6? Will we ever get there? **LO5**

Answer: *X_2 is beyond the resources available for production because it is outside of the curve. The only way to get there would be to increase the resources available*.

10. **POLICY PERSPECTIVES** To get from X_1 to X_2 in Figure 1.6, per President Biden's proposals, entails a reduction in the output of "other goods." How do higher taxes help that transition? **LO2**

Answer: *President Biden's goal was to expand the health care industry and to increase access to health care for Americans and to get everyone vaccinated against COVID-19. However, producing more health care means that other goods or services would need to be given up; there is an opportunity cost involved. Higher taxes on "other goods" would decrease the quantity consumed of those other goods. These tax dollars could then be used to purchase and distribute more health care*.

PROBLEMS

1. Iceland has no military. **LO2**
   a. So, at what point in Figure 1.1 is Iceland producing?
   b. If Iceland decided to produce the quantity *OE* of military goods, how much consumer output would it have to give up?

   Answer: *a*. If the country currently does not have a military, then the only output will be consumer goods (point *A*).
   b. If the country is now producing the quantity *OE* of military goods (equal to the combination of *D* consumer goods and *E* military goods), the country would reduce the production of consumption goods by the amount *AD*.

2. What percentage of total U.S. output consisted of military goods: **LO2**
   a. in 1944? (Figure 1.2)

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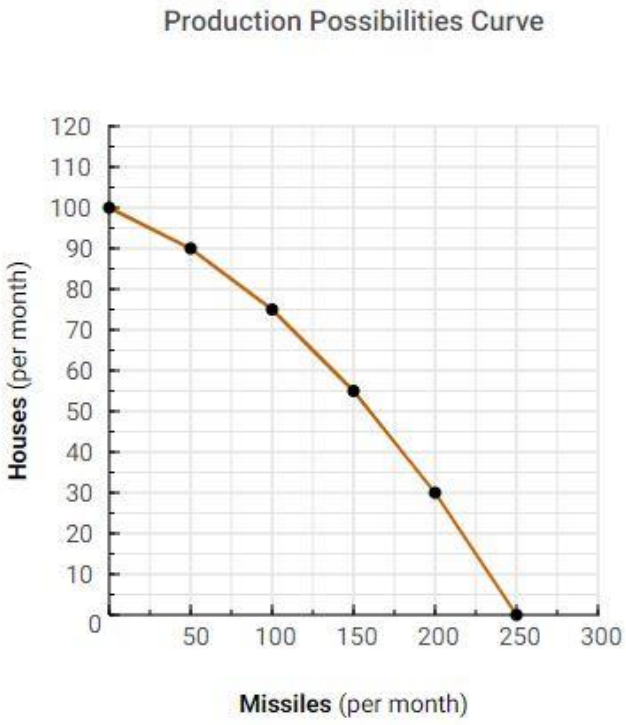
b. in 2020? (Figure 1.2)

Answer: *a, b*. According to the graph, the percentage of total U.S. output consisting of military goods was approximately 39 percent in 1944 and 3.4 percent in 2020.

3. Draw a production possibilities curve based on Table 1.1, labeling combinations *A–F.* What is the opportunity cost of increasing missile production **LO2**
   a. from 50 to 100?
   b. from 100 to 150?

   Answer: A production possibilities curve describes the various combinations of final goods and services that could be produced in a given time period with available resources and technology. Point *A*, for example, is an output combination of 0 missiles and 100 houses plotted on the vertical axis (0,100). Point *F*, on the other hand, is an output combination of 250 missiles and 0 houses plotted on the horizontal axis (250,0).



   a, b. The opportunity cost of increasing the production of missiles is the loss of production of houses. For example, increasing missile production from 50 to 100 results in a loss of 15 houses (= 90 − 75), increasing missile production from 100 to 150 results in a loss of 20 houses (= 75 − 55), and so on.

4. Assume that it takes four hours of labor time to paint a room and two hours to sand a floor. If 24 hours were spent painting: **LO1**
   a. How many rooms could be painted?

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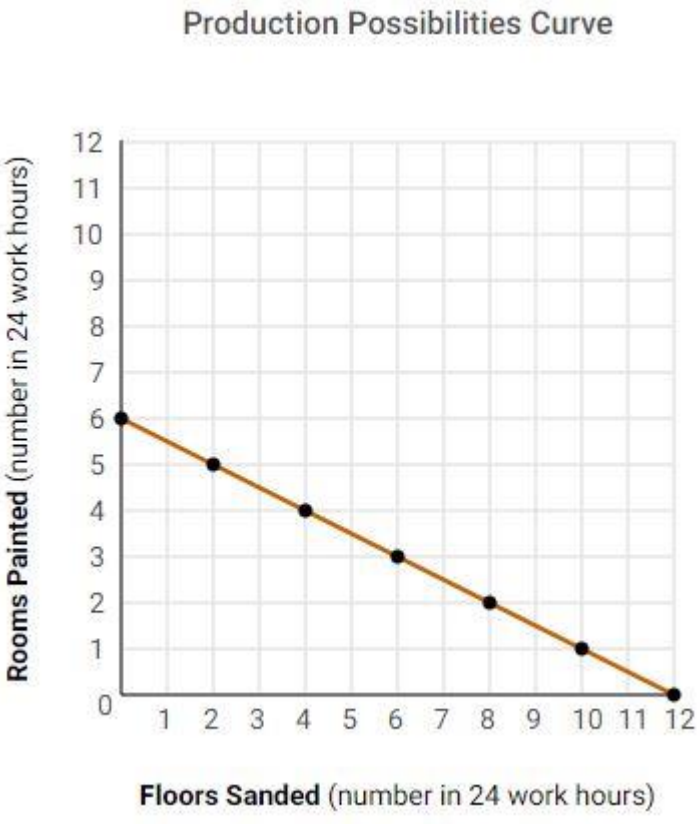
b. If a decision were made to sand two floors, how many painted rooms would have to be given up?
c. Illustrate with a production possibilities curve.

Answer: *a*. If 24 hours were spent painting rooms and a worker can paint a room in four hours, then this worker can paint 6 rooms (= 24 hours ÷ 4 hours per room).
b. Because it takes two hours to sand a floor, it would take a worker four hours to sand 2 floors. Therefore, the worker must give up painting 1 room, which also takes four hours to complete.
c. The various production possibilities are plotted with "Rooms Painted" on the vertical axis and "Floors Sanded" on the horizontal axis. Thus, if a worker spends all of his or her time painting rooms, 6 rooms can be painted (0 floors sanded and 6 rooms painted). On the other hand, if a worker spends all of his or her time sanding floors, 12 floors can be sanded (12 floors sanded and 0 rooms painted). The alternative production possibilities points in between those two extremes are (2 floors sanded and 5 rooms painted), (4 floors sanded and 4 rooms painted), (6 floors sanded and 3 rooms painted), (8 floors sanded and 2 rooms painted), and (10 floors sanded and 1 room painted). See the graph.



5. Assume that it takes four hours of labor time to paint a room and two hours to sand a floor. If two workers each spends 24 hours painting: **LO2**
a. How many rooms could be painted?

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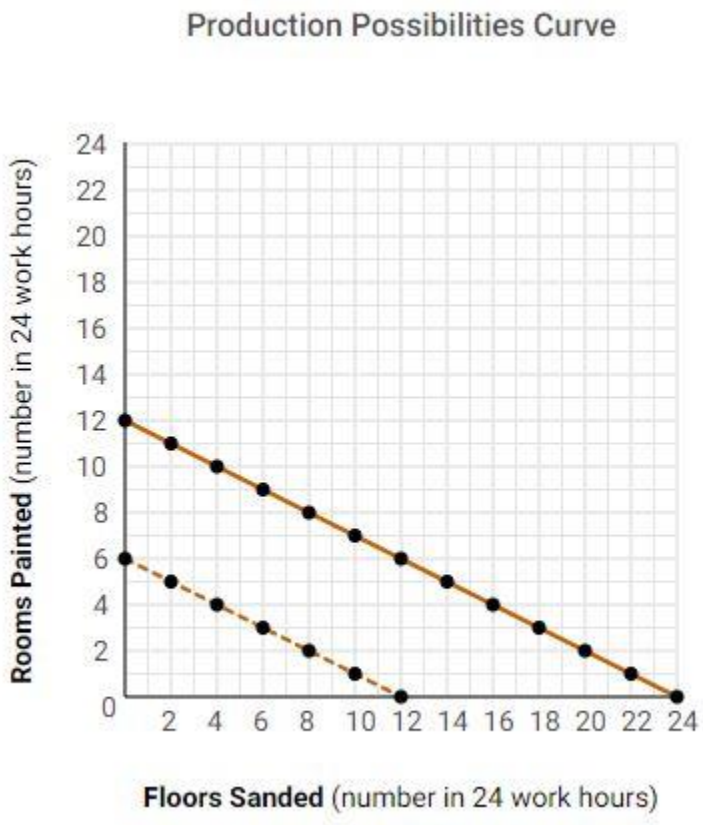
b. If a decision were made to only sand floors, how many floors could be sanded?
c. Illustrate with a production possibilities curve.

Answer: *a*. If two workers each spends 24 hours painting rooms and they can paint a room in four hours, then these workers can paint 12 rooms [= (24 hours × 2 workers) ÷ 4 hours per room].
b. If two workers each spends 24 hours sanding floors and they can sand a floor in two hours, then these workers can sand 24 floors [= (24 hours × 2 workers) ÷ 2 hours per floor].
c. The various production possibilities are plotted with "Rooms Painted" on the vertical axis and "Floors Sanded" on the horizontal axis. Since there are two workers, the production possibilities have doubled. If both workers spend all of their time painting rooms, 12 rooms can be painted (0 floors sanded and 12 rooms painted). On the other hand, if both workers spend all of their time sanding floors, 24 floors can be sanded (24 floors sanded and 0 rooms painted). Some of the alternative production possibilities points in between those two extremes are (4 floors sanded and 10 rooms painted), (8 floors sanded and 8 rooms painted), (12 floors sanded and 6 rooms painted), (16 floors sanded and 4 rooms painted), and (20 floors sanded and 2 rooms painted). See the graph.



6. North Korea has a population of 26 million people, of whom 1.3 million are in the military. South Korea has an army of 560,000 out of a population of 52 million. What percentage of the population is in the military in: **LO2**
a. North Korea?

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b. South Korea?

Answer: *a*. In North Korea, 5.00 percent of the population is in the military. Percentage of population in the military = (military ÷ population) × 100 = (1.3 million ÷ 26 million) × 100 = 5.00%.
b. In South Korea, 1.08 percent of the population is in the military. Percentage of population in the military = (military ÷ population) × 100 = (0.560 million ÷ 52 million) × 100 = 1.08%.

7. The table below describes the production possibilities confronting an economy. Using that information: **LO3**
a. Calculate the opportunity costs of building hospitals.
b. Draw the production possibilities curve.
c. Why can't more of both outputs be produced?
d. Which point on the curve is the most desired one?

Potential Output Combinations	Homeless Shelters	Hospitals
A	20	0
B	17	1
C	13	2
D	7	3
E	0	4

Answer: *a*. **Calculating Opportunity Costs.** Opportunity cost is the most desired goods and services that are forgone in order to obtain something else. In this economy, the opportunity cost of building more hospitals is giving up building homeless shelters.
- The opportunity cost of producing the first hospital is a reduction in the production of homeless shelters from 20 to 17, or 3 homeless shelters.
- The opportunity cost of producing the second hospital is a reduction in the production of homeless shelters from 17 to 13, or 4 homeless shelters.
- The opportunity cost of producing the third hospital is a reduction in the production of homeless shelters from 13 to 7, or 6 homeless shelters.
- The opportunity cost of producing the fourth hospital is a reduction in the production of homeless shelters from 7 to 0, or 7 homeless shelters.

b. **Graphing the Production Possibilities Curve.** A production possibilities curve describes the various combinations of final goods or services that could be produced in a given time period with available resources and technology. For example, one combination of output is 20 homeless shelters and 0 hospitals, a second combination of output is 17 homeless shelters and 1 hospital, and so on. See the graph on the next page for an illustration of the production possibilities curve.

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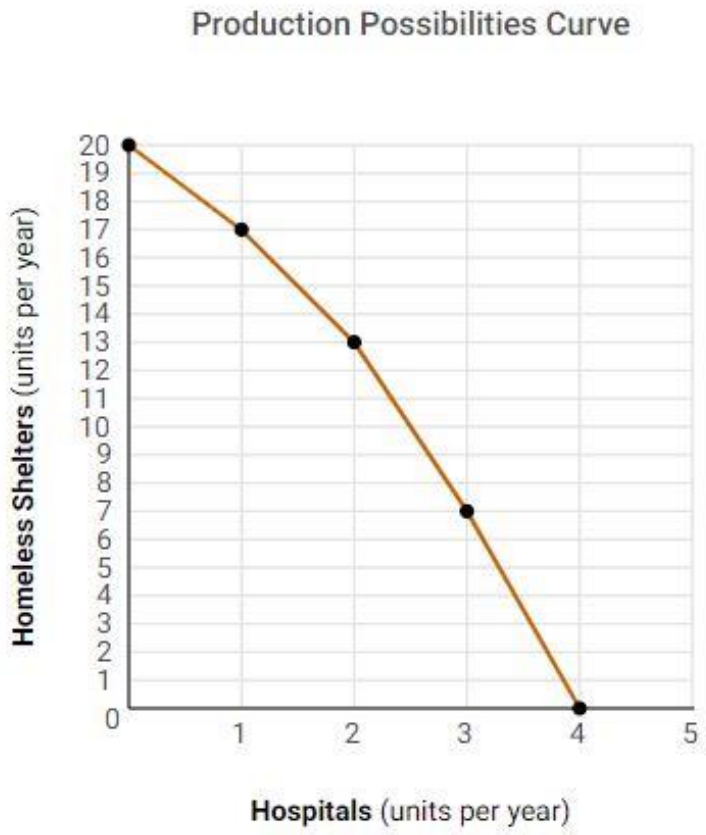

c. Because all resources are scarce and therefore limited, we are not capable of producing more of both products. Although we might want more of both (or more of everything perhaps), we are not capable of producing everything that we want.

d. This answer depends on the value judgments of a society. The most desired combination will vary based on the particular wants and needs of that particular society.

8. In 2020, the dollar value of total output was roughly $40 billion in North Korea and $1,600 billion in South Korea. South Korea devoted 2.5 percent of its output to defense, and North Korea devoted 19.0 percent of its output to defense. **LO3**
   a. How much does North Korea spend on its military (in dollars)?
   b. Which nation spends more (in dollars)?

   Answer: *a*. North Korea spent approximately $7.6 billion on its military.
   $40 billion × 19.0% = $40 billion × 0.190 = $7.6 billion.
   South Korea spent approximately $46.4 billion on its military.
   $1,600 billion × 2.5% = $1,600 billion × 0.025 = $40.0 billion.
   b. South Korea spent more on its defense (in dollars) than North Korea.

9. According to the News Wire "Opportunity Cost," what is the opportunity cost of a single missile test in terms of corn for each of North Korea's 26 million people? **LO4**

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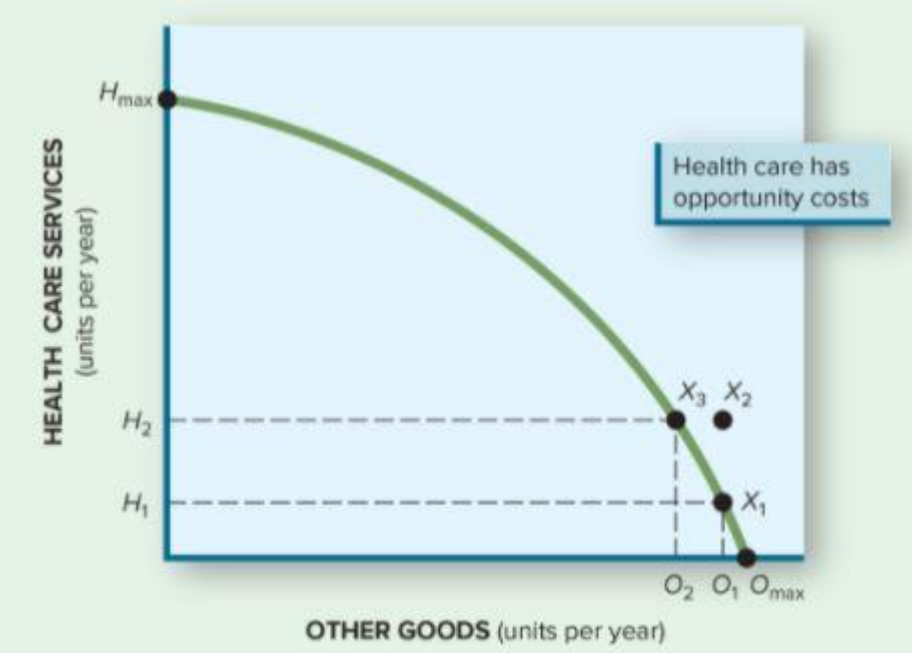
Answer: According to the article, the $1.3 billion spent on the missile test is equivalent to acquiring 5 million tons of corn. This amounts to 0.19 tons of corn per person (= 5 million tons of corn ÷ 26 million people).

10. **POLICY PERSPECTIVES** In Figure 1.6, **LO5**
a. If as much health care as possible is provided, how many other goods will be provided?
b. What is the opportunity cost of increasing health care from H_1 to H_2?



Answer: *a*. If a society uses all of its resources to produce health care, there are no resources remaining to produce other goods.
b. When health care production increases from point H_1 to point H_2, the production of other goods decreases from O_1 to O_2. This decrease in the production of other goods is the opportunity cost of increasing production of health care.

11. **POLICY PERSPECTIVES** Suppose the following data reflect the production possibilities for providing health care and education: **LO5**

	Units per Year						
Health care	400	370	330	270	190	100	0
Education	0	20	40	50	60	70	80

a. Graph the production possibilities curve.
b. If maximum health care is provided, how much education will be provided?
c. What is the opportunity cost of increasing health care from 190 to 270 units?

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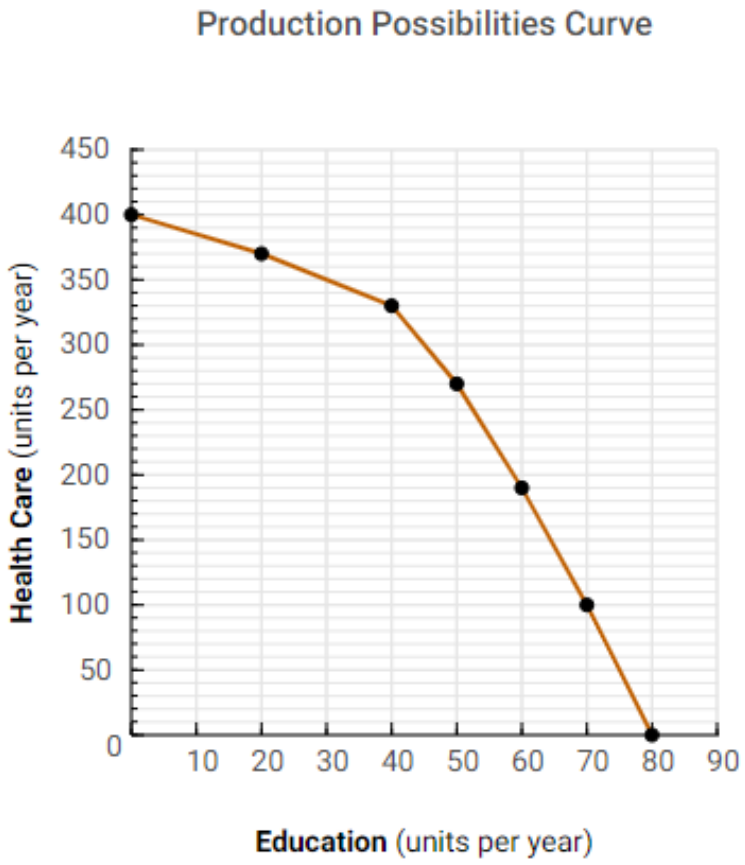
Answer: *a*. A production possibilities curve describes the various combinations of final goods or services that could be produced in a given time period with available resources and technology. For example, one combination of output is 400 units of health care and 0 units of education, a second combination of output is 370 units of health care and 20 units of education, and so on. See the graph below for an illustration of the production possibilities curve.



b. If all resources are used to produce health care, there will be no resources available to produce education.
c. Increasing health care from 190 units to 270 units results in an opportunity cost of 10 units of education (= 60 units of education − 50 units of education).

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CHAPTER 1

THE CHALLENGE OF ECONOMICS

WHAT IS THIS CHAPTER ALL ABOUT?

The chapter introduces students to the basic building blocks of economics, including the discipline's vocabulary and graphical methods. The primary analytical tool introduced in the chapter is the production possibility curve. This chapter establishes the textbook's central theme of the differences between reliance on markets versus government intervention. The current context of public opinion, the changing balance among markets, and government intervention are discussed.

Students' attention is focused on the three most important questions for an economic system:

1. **WHAT are the basic goals of an economic system?**
2. **HOW does a market economy address these goals?**
3. **What role should government play in shaping economic outcomes?**

NEW TO THIS EDITION

- One New "News Wire" on **Budget Trade-Off- "Biden Wants $1.9 Trillion"**

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LECTURE LAUNCHERS

Where should you start?

The following should be brought to the attention of students.

1. The discussion of how the United States became so rich as a nation.
2. The Great Recession of 2008-2009.
3. The Coronavirus of 2020-2021.
4. Future growth of the U.S. economy.

5. Opportunity cost is a key concept, but one often not grasped fully by students.

   a. *Define the term opportunity cost. Use the decision to attend class as an example of opportunity cost. What else could students be doing (sleeping, working, attending another class)? Ask students what they could be doing instead of being in class today.*
   b. *Ask students to list what they give up to attend class in addition to tuition fees. Do the same for going to the movies. Have student prioritize so that the "next best alternative" can be identified.*

6 *Scarcity* and *economics* are terms that, while used in everyday speech, have specific definitions within the discipline.

Discuss with students the need for careful definitions for words that are used casually in everyday speech. Ask students for examples from other disciplines in which accurate thinking requires careful definitions. Remind students that everyday use isn't wrong, but that careful, discipline-specific use is necessary if we are to analyze problems accurately.

7. Factors of Production as the resource input used to produce goods and services (e.g. land, labor, capital, and entrepreneurship).

The more factors of production we have, the more we can produce in a given period of time. Explain to students how it is possible for our available resources to always fall short of our output desires.

7. Remember the three questions: What, How, and For Whom.

All chapters begin with these three questions. Use the questions to analyze an experience common to all students such as: "How many people would attend school if education was provided only by the private market?" If you teach in a state school, many people would say they could not attend college without state subsidies. If you teach in a private school, ask how many students receive guaranteed student loans, Pell grants, etc. Follow this discussion with the question, "Is there then a role for government in subsidizing education?"

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COMMON STUDENT ERRORS

Many students make these common errors. This same list is included in the student study guide. The first statement in each "common error" below is incorrect. Each incorrect statement is followed by a corrected version and an explanation.

1. Words used in economics have the same meaning as they do in our everyday conversation. **WRONG!**
   Words used in everyday conversation very often have different meanings when they are used in economics. **RIGHT!**

   You'll have to be very careful here. Words are used with precision in economics. You'll have difficulty if you confuse their everyday meanings with their economic meanings.

2. Economic models are abstractions from the real world and are therefore useless in predicting and explaining economic behavior. **WRONG!**
   Economic models are abstractions from the real world and as a result are useful in predicting and explaining economic behavior. **RIGHT!**

   Economic thinking requires that we deal with abstractions. By using economic models based on specific assumptions, we can make reasonable judgments about what's going on around us. For example, the production possibilities curve is an abstraction. No economist would argue that the production possibilities curve represents an actual economy! But its focus on tradeoffs (such as the choice between consumer goods and military goods) is certainly useful in public policy discussions.

3. Because economics is a "science," all economists should come up with the same answer to any given question. **WRONG!**
   Economics is a science, but there is often room for disagreement in trying to answer a given question. **RIGHT!**

   Economics is a social science, and the entire society and economy represent the economist's laboratory. Economists cannot run the kind of experiments on the economies that are done by physical scientists. As a result, two economists may approach a given problem or question in different ways using different models. They may also choose different time periods to analyze or different data sets. As a result, they may come up with different answers, but because there is no answer book, you cannot say which is right. The solution is, then, to do more testing, refine our models, compare results, and so on.

4. The opportunity cost of going to a movie is the cost of the movie! **WRONG!**
   The opportunity cost of going to a movie is the value of the other goods not purchased when the money is spent on the movie plus the value of your time. **RIGHT!**

   Opportunity cost is the value of your next best alternative. If you go to a movie and pay, for example, $7, your opportunity cost is not only what you could have bought for the $7 but also what you could have done with your time instead of going to the movie.

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5. Points on a production possibilities curve represent the current output of the economy. **WRONG!**
Points on a production possibilities curve represent what the economy is capable of producing. **RIGHT!**

A production possibilities curve (PPC) represents a theoretical maximum level of production assuming the economy is using all of its resources efficiently. It is most often the case that an economy will have unemployed resources and will therefore be located at a point inside its PPC.

6. Government involvement in the economy always results in a market failure. **WRONG!**
Government involvement in the economy can sometimes result in improving market outcomes. **RIGHT!**

Sometimes markets fail to achieve desirable outcomes. For example, if left entirely to the free market, water and air would likely be more polluted since there would be little incentive for companies to minimize pollution. Government intervention in the market has resulted in less pollution and improved the outcome.

News Wires

This chapter has three News Wire boxes. Their titles and the concept they illustrate are:

"Insatiable Wants" – **Never Enough Money!**
The result of a 2014 opinion poll asking Americans how much money they will need each year to be "happy" show that people sated that they will need twice as much income than they currently have to be happy. People always want more than they have. Even multimillionaires say they do not have enough to live "comfortably."

"Future Living Standard" – **Will Your Kids Be Better Off?**
A Rasmussen National Survey of 2020 asked the following question: Will children born these days have a better life than their parents, a worse life, or about the same? The answers are: Better off 28%, Worse off 29%, Same 24%, and Not sure 19%. Note: Will you be better off than your parents? For living standards to keep rising, the economy must continue to grow. Will that happen? How?

"Opportunity Cost"-North Korea Unveils "'Most Powerful Weapon'"

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North Korea today unveiled what it is calling "the world's most powerful weapon." The Pukguksong-3 is a submarine-launched ballistic missile (SLBM) capable of carrying nuclear warheads. It follows the unveiling of the super-large, land-based Pukguksong-4 missile unveiled at last October 2020's military parade. According to a United Nation's Security Council report. North Korea has accelerated its missile and nuclear programs, despite U.N. sanctions. Critics point out that Kim Jong-Un's missile ambitions are not only a threat to world peace but also a burden on North Korea's population. A single missile test cost more than $1.3 billion, enough money to purchase 5 million tons of corn on the world market--food the Korean people desperately need. North Korea's inability to feed itself is due in part to its large army and missile program. Resources used for the military aren't available for producing food.

"Budget Trade-Offs" - Biden Wants $1.9 Trillion

President Biden's "American Rescue Plan" calls for $1.9 trillion in added spending to help the American economic recovery from the COVID-19 devastation. Included in his plan is $800 billion in direct payments to individuals: an additional $1,400 per person in stimulus payment per person and an additional $400 per week for unemployed workers. Critics say that is too much money. The stimulus payments and higher unemployment benefits will make going back to work less necessary and less profitable. Republicans in the Senate want lower direct payments and smaller unemployment insurance supplements. Providing more income assistance helps people in need but also dampens incentives for people to work and help themselves. The HOW question entails difficult trade-offs.

ANNOTATED CONTENTS IN DETAIL

I. Introduction

News Wire: "Insatiable Wants" - Never Enough Money!

The result of a 2014 opinion poll asking Americans how much money they need each year to be "happy" shows that people stated that they would need twice their current income. People always want more than they have. Even multimillionaires say they do not have enough to live "comfortably."

News Wire: "Future Living Standard" – Will Your Kids Be Better Off?

A Rasmussen National Survey of 2020 asked the following question: Will children born these days have a better life than their parents, a worse life, or about the same? The answers are: Better off 28%, Worse off 29%, Same 24%, and Not sure 19%. Note: Will you be better off than your parents? For living standards to keep rising, the economy must continue to grow. Will that happen? How?

II. The Central Problem of Scarcity

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A. Economics

Definition: **Economics** – The study of how best to allocate scare resources among competing uses.
It offers the framework for explaining how we make choices. The goal of economic theory is to figure out how we can use our scarce resources in the best possible way.

B. Opportunity Cost

Definition: **Opportunity Cost** – The most desired goods and services that are forgone in order to obtain something else.
It is the sacrifice of a next-best alternative.

C. Factors of Production

Definition: **Factors of Production** – Resource inputs used to produce goods and services (e.g. land, labor, capital, and entrepreneurship).
The resources—land, labor, capital, and entrepreneurship—are the basic ingredients of production. They are called factors of production. The more factors of production we have, the more we can produce in a given period of time.

D. Scarcity

Definition: **Scarcity**—Lack of enough resources to satisfy all desired uses of those resources.
A situation where our desires for goods and services exceed our capacity to produce them.

III. Three Basic Economic Questions

The central problem of scarcity forces every society to make difficult choices. Specifically, every nation must resolve three critical questions about the use of its scare resources:

- WHAT to produce
- HOW to produce
- FOR WHOM

A. What to Produce: Because wants exceed resources, we have to decide WHAT goods and services we want most, sacrificing less desired products.

1. **Production Possibilities (Figure 1.1 and Table 1.1)**
   a. **Definition:** **Production Possibilities**—The alternative combinations of goods and services that could be produced in a given time period with all available resources and technology.

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It represents a menu of output choices.

b. Figure 1.1 illustrates a production possibilities curve that helps demonstrate the need to choose between the production of military goods and consumer goods.

c. Table 1.1 presents a numeric example of production possibility information. More missiles can be produced only if some resources are diverted from home construction. Only one of these output combinations can be produced in a given time period. The question of WHAT to produce boils down to choosing one specific mix of output—a specific combination of missiles and houses. Selecting that mix is a basic economic issue.

2 **Military Share of Total U.S. Output**

Military-spending as a percent of the nation's output has been declining gradually for the past 50 years, with a slight increase in the last decade. Figure 1.2 illustrates rapid military buildup during World War II and how quickly resources were reallocated to consumer goods after the War. The September 11, 2001, terrorist attacks on New York and Washington, DC, altered the WHAT choice again, increasing the military share of total output with the war in Iraq and Afghanistan absorbing more resources.

3. **The Cost of War and the Military Share of Output (Figures 1.3 and 1.4)**

a. The money spent on the war in Iraq and Afghanistan is money that otherwise might have been spent on schools, highways, or other non-defense projects. North Korea spends nearly 20 percent of output on military goods and services; China has the world's largest army, but it spends only 1.9 percent of its output on the military.

b. **News Wire: Opportunity Cost – North Korea Unveils "Most Powerful Weapon"**

North Korea today unveiled what it is calling "the world's most powerful weapon." The Pukguksong-3 is a submarine-launched ballistic missile (SLBM) capable of carrying nuclear warheads. It follows the unveiling of the super-large, land-based Pukguksong-4 missile unveiled at last October 2020's military parade. According to a United Nation's Security Council report. North Korea has accelerated its missile and nuclear programs, despite U.N. sanctions. Critics point out that Kim Jong-Un's missile ambitions are not only a threat to world peace but also a burden on North Korea's population. A single missile test cost more than $1.3 billion, enough money to purchase 5 million tons of corn on the world market--food the Korean people desperately need. North Korea's inability to feed itself is due in part to its large army and missile program. Resources used for the military aren't available for producing food.

4. **Economic Growth (Figure 1.5)**

a. **Investment**

Definition: **Investment**—Expenditures on (production of) new plant and equipment (capital) in a given time period, plus changes in business inventories.

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Enhances our capacity to produce. If we want the economy to keep growing—and our living standard to rise—we must allocate some of our scarce resources to investment rather than current consumption.

b. **Economic Growth**

Definition: **Economic Growth**—An increase in output (real GDP); an expansion of production possibilities.
Expands the production possibilities outward, allowing society to produce more goods in future years(Figure 1.5)

B. **How to Produce:** The second basic economic question concerns HOW we produce outputs. For example, should a class be taught in an auditorium or in small discussion sections? Should it meet twice a week or only once? Should the class be taught online? Should the instructor assign more electronic supplements and homework? Should exams be open book? People may hold different views on the question of HOW, the common goal of every society is to find an optimal method of producing goods and services. The best possible answer to the HOW question involves efficiency in the use of factors of production and adequate safeguards for the environment and other social concerns.

C. **For Whom to Produce:** The FOR WHOM question focuses on how an economy's output is distributed across members of society.

1. The economic pie can be divided in several ways.
   a. Distribution based on productive contributions.
   b. Distribution based on need.
   c. Some combination of productive contributions and need.

Karl Marx's communist vision of For Whom to Produce is based on need rather than on productive contribution.

2. **Incentives:** Distribution based on need rather than work effort may result in less work effort and thus less output to distribute. As a result, the size of the pie may get smaller. It is difficult to select the right answer to the FOR WHOM question. The optimal distribution of income must satisfy our sense of fairness as well as our desire for more output.

IV. The Mechanisms of Choice

There are conflicts and tradeoffs with every choice. More of one good implies less of another. Society has to evaluate the alternatives and find the best possible answers to each question. The following mechanisms show how society actually makes decisions about WHAT to produce, HOW, and FOR WHOM.

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A. **The Political Process:** Many basic economic decisions are made through the political process. The decision to increase the military share of output after 9/11 was made through the political process. The decision was made by the U.S. Congress.

B. **The Market Mechanism:** Offers an alternative decision-making process.

1. Market Mechanism
   Definition: **Market Mechanism** – The use of market prices and sales to signal desired outputs (or resources allocations).
   This is the central actor in the reshuffling of resources and output.
2. Market sales and prices send a signal to producers about what mix of output consumers want.
3. Laissez Faire
   Definition: **Laissez Faire** – The doctrines of "leave it alone," of nonintervention by government in the market mechanism. That the market be left alone to make basic economic decisions.

C. **Central Planning**

1. Karl Marx believed the marketplace would cater to the whims of the rich and neglect the needs of the poor. That workers will be exploited by industrial barons and great landowners.
2. Central planning is still the principal mechanism of choice for nations such as North Korea and Cuba. The (people's) government, not the market, decides what goods will be produced, at what prices they are sold, and even who gets them.

D. **Mixed Economies**

1. **Definition:** **Mixed Economy** – An economy that uses both market and non-market signals to allocate goods and resources.
2. Few countries still depend so fully on central planners (government) to make basic economic decisions. China, Russia, and other formerly communist nations have turned over many decisions to the market mechanism.

V. What Economics Is All About

A. The different economic systems employed around the world are intended to provide the right answers to the WHAT, HOW, and FOR WHOM questions.

B. The different economic systems produce different outcomes and economist attempt to explain how these various outcomes emerge. Why are some nations more prosperous than other? What forces cause economic downturns in both rich and poor countries? What causes prices to go up and down so often? How can economies grow without destroying the environment?

C. Market failure

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1. **Definition: Market Failure** – A situation in which the market mechanism generates suboptimal economic outcomes; an imperfection in the market mechanism that prevents optimal outcomes.
2. In studying these questions, economists recognize that neither markets nor government always have the right answers. Therefore, market failures occur when the market mechanism does not generate the best possible (optimal) answers to the WHAT, HOW, and FOR WHOM questions.
3. Markets might fail to distribute goods and services in the best possible way; that is, markets might produce too many luxury cars and too few hospitals or neglect the needs of the poor.

D. Government Failure

1. **Definition: Government Failure –** Government intervention that fails to improve market outcomes.
2. The possibility of government failure is sufficient warning that there is no guarantee that the visible hand of government will be any better than the invisible hand of the marketplace.
3. Just because the market fails doesn't always mean that government intervention will provide better answers to the WHAT, HOW, FOR WHOM questions.

E. Macro vs. Micro

1. Macroeconomics

   Definition: **Macroeconomics** – The study of aggregate economic behavior, of the economy as a whole.

   The essential concern of macroeconomics is to understand and Improve performance of the economy as a whole.

   Macroeconomics focuses on the behavior of the entire economy. In studying macroeconomics the focus is on national goals such as full employment, control of inflation, and economic growth.
2. Microeconomics

   Definition: **Microeconomics**—The study of individual behavior in the economy, of the components of the larger economy.

   Microeconomics focuses on the individuals, firms, and government agencies that actually make up the larger economy. The interest is to understand the behavior of individual actors. What are their goals? How can they best achieve these goals with their limited resources? How will they respond to various incentives and opportunities?

E. Theory vs. Reality

1. Reality is too complex to describe and explain in one course.
2. We thus focus on basic relationships while ignoring unnecessary details. This means that theories, or models, of economic behaviors are formulated, and then those theories are used to evaluate and design policies.

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3. *Ceteris Paribus*
   Definition: ***Ceteris Paribus*** – The assumption that nothing else changes. This assumption of "other things remaining equal (unchanged) " (in Latin, *ceteris paribus*) allows us to make straightforward predictions.

F. **Politics vs. Economics:** Although economic theory can make significant contributions to policy formulation, ultimately all policy decisions are a mix of politics and economic theory. Economists contribute to policy decisions by offering measures of economic impact and predictions of economic behavior. In the real world, those measures and predictions always contain a substantial margin of error.

G. **Modest Expectations:** In this course, our goals are modest: to develop a fresh perspective on economic behavior and an understanding of basic principles and to acquire a better view of how the economy works.

VII. Policy Perspectives: Is "Free" Health Care Really Free?

A. Everyone wants more and better health care, and nearly everyone agrees that even the poorest members of society need reliable access to doctors and hospitals. President Biden made health care a priority in his first year.

B. Were health care a free good, everyone would have welcomed President Biden's proposals. The most fundamental concept in economics is this: **There is no free lunch.** By expanding health care to more consumers, resources that could have been used elsewhere are being allocated to the expansion of health care. The opportunity costs of expanded health care are the other goods that could have been produced (and consumed) with the same resources..

C. Health care absorbs resources that can be used to produce other goods. Increasing health care services requires a reduction in the production of other goods. **Figure 1.6**

D. If health care were a free good, no one would object to raising the quantity of health care. But health care isn't a free good: It absorbs resources that could be used to produce other goods. That's the policy dilemma. What other goods will be sacrificed, and who will absorb the loss?

VIII. Appendix

A. Using Graphs: The appendix to this chapter helps the students use and interpret graphs. It is highly recommended that you either cover the appendix or assign to students as outside reading. Laying a good graphical foundation early in the semester will pay tremendous dividends as the semester continues.
1. The relationship of grades and study time (Figure A.1)
2. Slopes

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a. Slope = $\frac{the\ rise}{the\ run}$

3. Shifts: When a curve shifts, the underlying relationship between the two variables has changed. (Figure A.2)
4. Linear vs. Nonlinear Curve: Curves can be either linear or non-linear (Figures A.3 and A.4, respectively). A distinguishing feature of linear curves is that they have the same (constant) slope throughout, while the slope of nonlinear curve changes at each point of the curve.
5. Causation: A graph plotting grades versus study time is simply a plot of empirical observations. The graph does not show causation; rather, the plot must be interpreted based upon some underlying theory or expectation.

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DISCUSSION PROMPT, EXTENDING THE DISCUSSION, AND DISCUSSION PROJECTS

Discussion Prompt: Do we work too hard?

One of the limiting resources in our economy is time. As a society, we make choices about the allocation of time between work and other pursuits. In the United States, most workers are eligible for overtime pay if they work more than 40 hours a week, whereas most European workers become eligible at 35 hours per week. In addition, workers in Europe have guaranteed vacation time—five weeks in France—a benefit not available in the United States. As a result, the typical U.S. worker puts in about 2,000 hours per year compared to 1,700 hours per year in France and Germany.

Should U.S. laws be changed to require a shorter workweek and longer vacation time?

For each side of the question, list three strong arguments. Use the following concepts from the chapter at least once.

Production possibilities curve
Economic growth
Market mechanism
Market failure

Teaching notes

Classroom discussion often encourages students to debate one another. Although lively, such discussion usually involves a minority of students. A cooperative controversy ensures that *every* student is involved in the debate while using a relatively short period of class time. Moreover, it can help students see the arguments on both sides of an issue, often a difficult task for college students. Finally, the technique helps focus on an outcome such as identification of the strongest argument on each side. These outcomes may be useful later, if students are assigned an appropriate essay.

Format: Organize students into groups of two. (Use instructor assignment or random assignment so that friends don't work together.) Assign the "pro" side to half of the groups and the "con" side to the other half. Have each pair list the strongest arguments for their position. Then, combine pairs into groups of four, with one pair on each side of the debate. Instruct one pair to read their reasons while the other side listens. Then have the pairs reverse roles and repeat. Finally, ask each group of four to select the strongest argument on each side and, if appropriate, reach a consensus on a final position.

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Sample answers:

No

1) A reduction in the workweek would shift the **production possibilities curve** in, reducing the capacity of the economy to produce. Americans value the output that would be lost more highly than the leisure time they lose by choosing to do it. If that were not the case, they wouldn't be working those hours.

2) The reduction in production capacity would not just occur in the present. It would also affect the future. If the production possibilities curve shifts in, it seems likely that there will be less consumption goods *and* less capital goods produced. That will mean slower **economic growth** in addition to lower production in the present.

3) Government should not further involve itself in regulating hours of work or number of holidays. This is something that ought to be left to the market. To understand why, think about a simple example: suppose that compensation has only two dimensions—wages and paid vacation. Employers compete for workers by offering different mixes of compensation. Some offer higher wages and fewer weeks of paid vacation; others offer lower wages and more weeks of vacation. Workers will go to work for the employers offering the most attractive mix. As a result of this competition for workers, employers have a strong incentive to offer vacation benefits that reflect the preferences of workers.

Yes

1) It is tempting to think that Americans working 2,000 hours per year, on average, simply reflects the preference of Americans. But **market mechanisms** don't always produce the optimal mix of output; **market failures** occur. It is possible that choices made through the market lead to our economy producing less leisure than would be optimal. This might be true, for example, if there were externalities imposed on third parties as a result of long hours of work. For example, maybe children spend many hours in bad day care as a result of their parents working long hours. If parents don't fully understand the consequences to society, in terms of future aggressive behavior, or if they value the extra income more highly than they value well-socialized children, from society's point of view they may work too many hours in the market and too few hours caring for their children.

2) To argue that **market mechanisms** will automatically get employers to offer vacation benefits that reflect worker preferences is to believe too readily in the power of the market. While there are times when employers are competing intently for workers, for many jobs, at many times, workers are in surplus. If the economy is operating inside its production possibilities frontier, for example during a recession, employers are free to think more about what is best for the business and less about getting the mix of wages and weeks of vacation right from the employee's point of view.

Extending the Discussion: Too much for the military—or not enough?

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The allocation of resources to the military is a major policy choice for the United States. First, find out how much currently is spent on military programs from the National Priorities Project, a website that analyzes and clarifies federal data so that people can understand and influence how their tax dollars are spent at www.nationalpriorities.org/.

In Washington, DC, research organizations provide information to political leaders regarding the military budget. At the following two sites, find three arguments in favor of the current budget level (or increasing it) and three arguments for reducing the current spending level. Select one argument from each side as the most important reason for increasing/maintaining/reducing military spending. Then write a response to this argument, pointing out its weak points.

The Heritage Foundation is a think tank to promote conservative public policies based on a strong national defense. https://www.heritage.org/defense

Project on Defense Alternatives is a think tank to promote the broadest range of defense options that will allow significant reductions in the level of armed forces and military spending. www.comw.org/pda/

Teaching notes

Possible student answers:

Raise the military budget

America's military leaders are asking—practically begging—for more support, and some members of Congress are starting to listen. Former Chairman of the Joint Chiefs of Staff, Admiral Michael Mullen, recently told *The New York Times* and *Defense News* that current defense spending of about 4 percent of gross domestic product (GDP) is the floor for the next several years and that the U.S. military will need to increase its share of the overall budget to replace aging weapons and platforms. The former Air Force Chief of Staff, General T. Michael Moseley, also endorsed the 4 percent floor and has said that there needs to be a national debate about robust and sustained defense spending.
https://www.heritage.org/defense
However, in its budget request for 2022, the Defense Department is asking Congress for $715 billion, which is an increase of approximately $10 over 2021 allocation of about $705.4 billion.
https://www.cnbc.com/2021/05/28/pentagon-asks-for-715-billion-in-2022-defense-budget.html
The 2021 budget allocation of $705.4 is approximately 3.8 percent of 2020 RGDP (annualized), while if funded the 2022, budget request of $715 will be approximately 3.88 percent of 2020 RGDP (annualized). These percentages of GDP are in line with the amount of defense spending suggested as spending floors by the former chairman of the joint chiefs of staff. The annualized RGDP for 2020 was $18,384 trillion.

Reduce the military budget

The devastating impact of the coronavirus pandemic and its economic fallout provide ample reason to reconsider what truly constitutes national security. Such a reassessment is long overdue. Despite the trillions of dollars Congress and successive administrations have lavished on the Pentagon since the turn

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of the century, the massive U.S. arsenal and fighting force deployed worldwide are powerless against grave, nonmilitary threats to national security—from a raging pandemic to the fact that tens of millions of Americans breathe foul air, drink tainted water, and struggle to pay for food, housing and health care. When it comes to U.S. spending priorities, the numbers seem especially misguided in an era of tight budgets to come. By the Department of Defense's own accounting, taxpayers spent $13.34 trillion on the U.S. military from 2000 through fiscal year 2019 in inflation-adjusted 2020 dollars. Add to that another $3.18 trillion for the Veterans Administration, and the yearly average comes to a whopping $826 billion. No other country's military outlays come close. In FY 2019, the Pentagon's budget was nearly three times bigger than China's defense spending and more than 10 times larger than Russia's. All told, the U.S. military budget in 2019 exceeded the next 10 countries' defense budgets combined and singlehandedly accounted for a hefty 38 percent of military spending worldwide. While the Pentagon budget routinely eats up more than half of annual U.S. discretionary spending, a host of other interrelated threats that undermine national security writ large go chronically underfunded, including the current public health, environmental and climate crises, all of which disproportionately harm low-income communities and communities of color. https://www.scientificamerican.com/article/its-time-to-rein-in-inflated-military-budgets/

Discussion Project: Economic growth

Although economists routinely use GDP and other national income and product statistics in their research, there is debate among economists about the appropriateness of GDP as a measure of well-being—and even disputes about whether or not we are *really* better off if we have more goods and services.

Key questions:

- Is GDP a good measure of our economic well-being?
- What has been done in recent years to improve GDP statistics?
- Should GDP take into account environmental issues, distributional issues, and health and welfare issues?
- How, specifically, can GDP be adjusted to better measure well-being?

For arguments on why we would be better off with a simpler lifestyle, see: https://health.usnews.com/health-news/health-wellness/articles/2014/11/05/the-health-benefits-of-simple-living and https://www.lifehack.org/276972/10-reasons-why-simple-lifestyle-reduces-stress-and-benefits-your-health.

On the advantages of economic growth, look at reports from the Federal Reserve Bank of Dallas. Their annual reports can be found at https://www.dallasfed.org/fed/annual.aspx. (From the homepage www.dallasfed.org, click on "Publications" in the upper-right corner, then click on "Annual Report—Dallas Fed" from the alphabetized list that appears.) For U.S. Economy: Analyzing the Business Economic Outlook of the United Sates go to https://www.dallasfed.org/research/US

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For discussion of GDP and other measures of income and output by the U.S. Department of Commerce, see the Bureau of Economic Analysis at www.bea.gov.

For criticisms of GDP as a measure of well-being and for alternative indicators for individual countries (ranging from life expectancy to personal computers in use), see the United Nations Development Program Human Development Report at http://hdr.undp.org/en/.

For an alternative to GDP, see the World Happiness Report at https://worldhappiness.report.

For discussion of the environment and economic growth, see Resources for the Future at www.rff.org/.

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FLIPPED AND ONLINE CLASS APPLICATIONS to accompany this chapter can be found in the Instructor's Resources section of Connect.

Chapter 1 Flipped and Online Class Applications

1. Go to the Heritage Foundation's Index of Economic Freedom at https://www.heritage.org/index/. Click on "See all Rankings" to see the ranking of all of the countries in the world. Find the United States on the list, and click to see more details. "Click on "Government Size", then click on "Government Spending." At the bottom of the graph click on the icon "Government Spending" to answer the questions below.
    a. Has government spending increased or decreased from the previous year?
    b. How has that affected the overall "score" that the United States receives in the Index of Economic Freedom? Why do you think this is? Is increased government spending good or bad for the economy?
    c. Using a *production possibilities curve* with "Government Output" on one axis and "Consumer Goods" on the other axis, show the change you discuss above. Use one point on the curve to represent the current year (or the most recent year of the index if it hasn't been updated yet) and another point to represent the previous year. (Assume that the production possibilities did not shift from the previous year.)

2. Return to the full list of countries in the Heritage Foundation's Index of Economic Freedom. Find the countries that rank #1, #51, and #101 to answer the questions below.
    a. Fill in the table below.

	Ranked #1	Ranked #51	Ranked #101
Country Name			
GDP			
Unemployment			
Government Spending as a percent of GDP			
Growth rate of GDP			

    b. GDP is a measure of how much an economy produces. Using the information in the table above, draw *production possibilities curves* for the three countries about which you've gathered information, and draw a point to indicate each economy's current mix of output. Put "Government Output" on one axis and "Consumer Goods" on the other. Consider the following when drawing your curves: How much output is the economy capable of producing? How much of the spending in the economy is done by government? What is the rate of unemployment, and how does this affect where you will draw the point representing the current mix of output?
    c. How do you think each of these three diagrams will be different in 10 years?

3. Visit the National Economic Accounts section of the Bureau of Economic Analysis website at https://www.bea.gov/data/gdp/gross-domestic-product#gdp and open up the latest News Release on gross domestic product (GDP). Investment is necessary to replace, modernize, and

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expand the nation's production capacity. Find the paragraph that deals with *real nonresidential fixed investment*.

a. What was the percentage change in nonresidential fixed investment during the previous two quarters?
b. What does this tell you about what is happening to the country's production possibilities curve?

Answers to Chapter 1 Flipped and Online Class Applications

1. The answers below will vary as the Index of Economic Freedom is updated. All answers below refer to the 2018 Index of Economic Freedom.
   a. Government spending increased.
      Because more government spending leaves individuals less choice, individuals will not be able to make as many decisions on their own since the government makes them for them. Increased government spending can be good or bad, but as a percent of GDP, if government spending increases, this tends to be a drag on the economy.
   b. The algorithm for the Index score does not appear in the index. The discussion from the authors states that zero government spending is the benchmark, but that "excessive" government spending is penalized in the index. As the United States moves toward 30 percent or more of GDP composed of government spending, the index value for the United States will drop significantly. This is because the index is not linear; it is geometric. The discussion of the tax rates and the fact that they remain the same would not affect the Index. If rates had increased, then the Index would have fallen. The discussion of the large deficits is there because the builders of the Index feel that higher deficits are generally a bad thing and would reduce a country's rating in the Index. This is probably because the makers of the Index favor private market activity over government spending. In fact, the Heritage Foundation considers zero government spending to be the ideal amount. Whether or not more government spending is good or bad for the economy depends at least in part on whether *market failures* are greater or more common than *government failures*. This is an open question.
   c. The production possibilities curve below is based on the increase in government spending from 2012–2013. The most important thing is that the points move in the proper direction; the exact location of the two points on the curve is not important.

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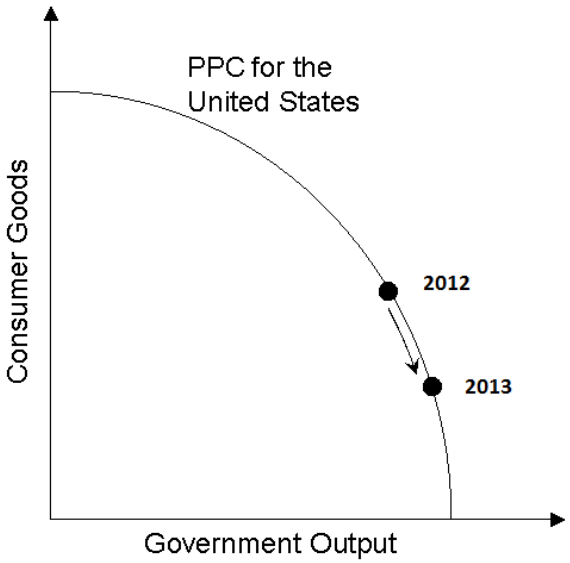
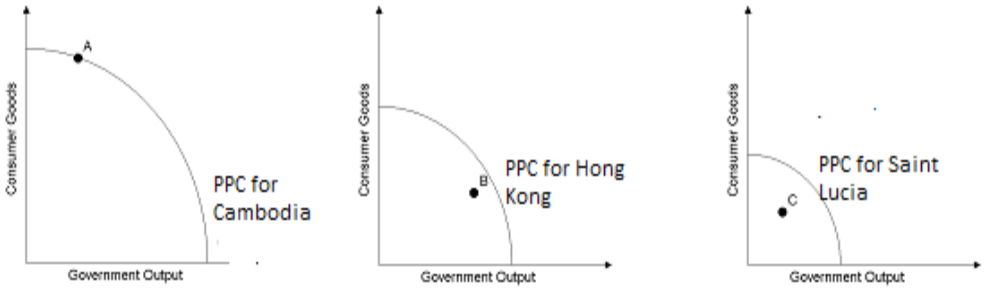


1

2. The answers below reflect the 2018 Index of Economic Freedom.
   a. The table should look something like this:

	Ranked #1	Ranked #51	Ranked #101
Country Name	Hong Kong	Saint Lucia	Cambodia
GDP (PPP)	$429.7 Billion	$2.1 Billion	$59 Billion
Unemployment	3.4%	19.8%	0.3%
Government Spending as a percent of GDP	18.0%	30.3%	21.2%
Growth rate of GDP	2.4%	1.6%	6.9%

   b. Below are examples of the three production possibilities curves that could be made based on the data above. Of primary importance are the following: the curves should be shifted farther outward for countries with higher GDP; the points reflecting the current mix of output should reflect the data on government spending; the countries with lower unemployment should be closer to (or on) the curves.



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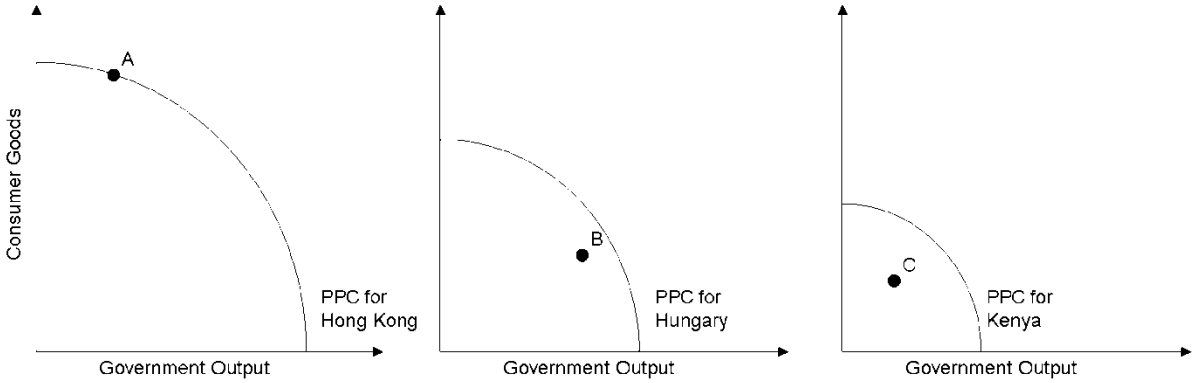

c. Based on the growth rate data collected above, Israel's should shift outward the most due to its very high growth rate. Hong Kong's should also shift out significantly, but slightly less than Israel's. Benin's should shift out the least, but just a bit less than Hong Kong's due to its slightly lower growth rate. It would probably be best to use the figures for the 5-year average growth rather than the annual growth because the 5-year growth is more likely to capture long-run growth rather than any short-term anomaly.

3. These data will change every semester. Below are correct answers based on the News Release of May 31, 2013, covering the first quarter of 2013 and the fourth quarter of 2012. Note that the easiest way to find this information is to use the search tool in the upper right part of the screen on the BEA website.
   a. Real nonresidential fixed investment increased 2.2 percent in the first quarter of 2013 compared to a rapid 13.2 percent increase in the fourth quarter of 2012.
   b. Because investment is necessary to replace, modernize, and expand the nation's production capacity, increases in investment shift the production possibilities curve outward. Arguably, the relatively frenzied pace of growth in the fourth quarter of 2012 could only be followed by a slower pace in the first quarter of 2013.

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MEDIA EXERCISE Name: _____

Chapter 1 Section: _____

Economic: The Challenge of Economics

Find an article that describes a tradeoff between two goods or services. Use the article you have found to fulfill the following instructions and question.

1. Print an article from an Internet news agency such as www.cnn.com, www.wsj.com, www.npr.org, www.nytimes.com, etc.

2. What are the two goods or services (or groups of goods or services) involved in the tradeoff?
   - Use an arrow to indicate each good or service (or groups of goods or services) in the article. You should draw exactly two arrows in your article.
   - Below the article draw a pair of axes for a production possibilities curve. Write the name of one of the goods or services on the horizontal axis and the other on the vertical axis.

3. Place brackets around the phrase (not more than a sentence) that indicates that there is a tradeoff between the two goods or services.

4. Are there increasing opportunity costs in the tradeoff between the two goods or services? Under the article write one of the following:
   - "Increasing opportunity costs exist."
   - "No increasing opportunity costs exist."

5. What would the production possibilities curve between the two goods or services look like? Carefully and neatly, draw a production possibilities curve for the two goods or services. Don't use any numbers. Be very careful to draw the correct shape of the production possibilities curve on the evidence of the applicability or inapplicability of the law of increasing opportunity cost (see your answer in Exercise 4).

6. On the basis of information in the article, is there a possible shift of the production possibilities curve or a movement along it? The shift or movement may have occurred already, may be occurring presently, or may occur in the future. Possibly, the author of the article is implicitly advocating a shift or a movement. Underline the single word, phrase, or sentence (not more than a sentence) that indicates a shift or a movement.

7. Use an arrow or your graph to indicate what direction there would be a movement along the production possibilities curve or in what direction the curve would shift as a result of the event that you have just underlined.

8. In the remaining space below your article, indicate the source (name of newspaper, magazine, or website), title (newspaper headline, magazine article, or web article title), date, and page for the article you have chosen. If this information also appears in the article itself, circle each item. Use this format:

   Source: _____ Date: _____ Page: _____
   Headline: _____

9. Neatness counts.

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Professor's Note

Learning Objective for Media Exercise

To test the students' understanding of increasing opportunity cost, the concept of tradeoff, and the difference between shifts of and movements along the production possibilities curve.

Suggestions for Correcting Media Exercise

1. Check that the items indicated with an arrow correspond to what is on the axes of the production possibilities curve that the student has drawn.
2. Check for the consistency between the student's drawing of the opportunity cost curve and his or her choice about whether or not there is increasing opportunity cost.
3. Check that the underlined passage indicates a shift or a movement along the production possibilities curve. Then see if the student has correctly pointed the arrow in the diagram to indicate the shift.

Likely Student Mistakes and Lecture Opportunities

1. There are likely to be many articles about budgetary disputes in Congress. Implicitly, the scarce factor is money, and there would appear to be no applicable law of increasing opportunity cost. The point needs to be made that the production possibilities curve applies to real goods and services with the factors of production such as labor, land, and capital.
2. The students are likely not to have a firm grasp on the difference between shifts of and movements along the production possibilities curve. This assignment and a short lecture on the issue should clear up the difference quickly.

SUPPLEMENTARY SOURCES

Ferraro, Paul J., and Laura O. Taylor, 2005. "Do Economists Recognize an Opportunity Cost When They See One? A Dismal Performance from the Dismal Science," *Contributions to Economics Analysis and Policy* 4(1): Article 7. An interesting opportunity cost example given to Ph.D. economists at the annual meetings. Ph.Ds scored very poorly. This article highlights the importance of understanding opportunity costs.

Heilbroner, Robert. 1990. "Analysis and Vision in the History of Modern Economic Thought," *Journal of Economic Literature*, 28(3): 1097–1114. This article provides a dramatic, easily readable explanation of capitalist and socialist theories.

Landes, David S. 1999. *The Wealth and Poverty of Nations: Why Some Are So Rich and Some So Poor,* W.W. Norton. This economic history includes an epilogue on current economic tensions.

DeLong, J. Bradford. July 28, 2016. "A Brief History of Modern Inequality," World Economic Forum, https://www.weforum.org/agenda/2016/07/a-brief-history-of-modern-inequality/.

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Chapter 1 Flipped and Online Class Applications

1. Go to the Heritage Foundation's Index of Economic Freedom at https://www.heritage.org/index/ Click on "See all Rankings" to see the ranking of all of the countries in the world. Find the United States on the list, and click to see more details. "Click on "Government Size", then click on "Government Spending." At the bottom of the graph click on the icon "Government Spending." to answer the questions below.
    a. Has government spending increased or decreased from the previous year?
    b. How has that affected the overall "score" that the United States receives in the Index of Economic Freedom? Why do you think this is? Is increased government spending good or bad for the economy?
    c. Using a *production possibilities curve* with "Government Output" on one axis and "Consumer Goods" on the other axis, show the change you discuss above. Use one point on the curve to represent the current year (or the most recent year of the index if it hasn't been updated yet) and another point to represent the previous year. (Assume that the production possibilities did not shift from the previous year.)

2. Return to the full list of countries in the Heritage Foundation's Index of Economic Freedom. Find the countries that rank #1, #51 and #101 to answer the questions below.
    a. Fill in the table below.

	Ranked #1	Ranked #51	Ranked #101
Country Name			
GDP			
Unemployment			
Government Spending as a percent of GDP			
Growth rate of GDP			

    b. GDP is a measure of how much an economy produces. Using the information in the table above, draw *production possibilities curves* for the three countries about which you've gathered information, and draw a point to indicate each economy's current mix of output. Put "Government Output" on one axis and "Consumer Goods" on the other. Consider the following when drawing your curves: How much output is the economy capable of producing? How much of the spending in the economy is done by government? What is the rate of unemployment, and how does this affect where you will draw the point representing the current mix of output.
    c. How do you think each of these three diagrams will be different in 10 years?

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3. Visit the National Economic Accounts section of the Bureau of Economic Analysis website at https://www.bea.gov/data/gdp/gross-domestic-product#gdp and open up the latest News Release on gross domestic product (GDP). Investment is necessary to replace, modernize, and expand the nation's production capacity. Find the paragraph that deals with real nonresidential fixed investment.
    a. What was the percentage change in nonresidential fixed investment during the previous two quarters?
    b. What does this tell you about what is happening to the country's production possibilities curve?

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