

# Production, Economic Growth, and Trade

# 2

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## Chapter Overview

The focus of this chapter is on the basic economic choices that must be made and on the framework for making such choices. Growth is presented in the context of a choice between the present and the future, and policies to enhance growth are discussed. International trade is analyzed and connected to growth.

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## Chapter Outline

### Basic Economic Questions and Production

#### Basic Economic Questions

##### Economic Systems

#### Resources and Production

##### Land

##### Labor

##### Capital

##### Entrepreneurial Ability

#### Production and Efficiency

#### *Checkpoint:* Basic Economic Questions and Production

##### Production Efficiency

##### Allocative Efficiency

### Production Possibilities and Economic Growth

#### Production Possibilities

##### Full Employment

##### Opportunity Cost

##### Increasing Opportunity Costs

#### Economic Growth

##### Expanding Resources

##### Technological Change

#### Summarizing the Sources of Economic Growth

#### *Issue:* Will Renewable Energy Be the Next Innovative Breakthrough?

#### *Checkpoint:* Production Possibilities and Economic Growth

## Specialization, Comparative Advantage, and Trade

## Absolute and Comparative Advantage

## The Gains from Trade

*Issue:* Do We Really Specialize in That? Comparative Advantage in the United States and China

## Limits on Trade and Globalization

*Checkpoint:* Specialization, Comparative Advantage, and Trade

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 Ideas for Capturing Your Classroom Audience

- Talk about students' possessions: Where was your shirt made? What about your shoes? For a fun illustration of global trade, go to the Web site [http://money.cnn.com/2008/04/03/smbusiness/birds\\_feathers.fsb](http://money.cnn.com/2008/04/03/smbusiness/birds_feathers.fsb). Here you will learn more about where Big Bird's feathers come from and the feather trade in general.
- Bring the global economy into your classroom. Visit the Web site of the *CIA Factbook* to discuss the United States and other countries in terms of resources (like population, education, health) and technology. The site includes data on Internet service providers and mobile phone use. The page for the United States (available at <https://www.cia.gov/library/publications/the-world-factbook/geos/us.html>) also has the menu box from which to access other countries.

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 Chapter Checkpoints
*Basic Economic Questions and Production*

*Question:* The one element that really seems to differentiate entrepreneurship from the other resources is the fact that entrepreneurs shoulder the *risk* of failure of the enterprise. Is this important? Explain.

*The point is to check that students can:* differentiate between entrepreneurship and other types of resources. The question asks whether or not it seems “right” that entrepreneurs shoulder the risk of failure of the enterprise. Students may see this as a normative question. Some may make the observation that entrepreneurs (if successful) are compensated for undertaking the risk.

*Production Possibilities and Economic Growth*

*Question:* Taiwan is a small, mountainous island with 23 million inhabitants, little arable land, and few natural resources, while Nigeria is a much larger country with seven times the population, 40 times more arable land, and tremendous deposits of oil. Given Nigeria's sizable resource advantage, why is Nigeria's total annual production only half the size of Taiwan's?

*The point is to check that students can:* appreciate that the resources an economy has matter as much as how much of them it has. Moreover, students should understand that having a variety of resources provides an economy with more flexibility. Students will likely have some intuition that being too dependent on a few things involves a degree of risk.

### Specialization, Comparative Advantage, and Trade

**Question:** Why do Hollywood stars (and many other rich individuals)—unlike most people—have full-time personal assistants who manage their personal affairs?

*The point is to check that students can:* apply the concept of opportunity cost to the use of time. Student comments may lead to a discussion about what someone's time is "worth" in terms of social value, but the point of the question is really about available alternatives and their compensation. Students are also likely to point out that people with high incomes can afford to hire others.

### Debate the Issues

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#### **Issue: Will Renewable Energy Be the Next Innovative Breakthrough?**

An excellent resource on renewable energy is the Web site of RenewableEnergyWorld.com at <http://www.renewableenergyworld.com/rea/tech/home>.

For more information about William Baumol, visit <http://economics.about.com/cs/nobelwinners/p/baumol.htm>. To learn more about his work on innovation, read "A Conversation with Will Baumol on Capitalism, Innovation and Growth" by Antonio Guarino and Maurizio Iacopetta, available at <http://www.homepages.ucl.ac.uk/~uctpagu/baum-inter.pdf>. The authors interviewed Baumol, and this site is the transcript of the interview. (You can contact the authors for a tape.)

#### **Issue: Do We Really Specialize in That? Comparative Advantage in the United States and China**

Learn more about the production of soybeans and other crops on the Web site of the Environmental Protection Agency at <http://www.epa.gov/oecaagct/ag101/cropmajor.html>.

Another great resource is the Web site of the United Soybean Board at <http://www.unitedsoybean.org/>.

For a twist on the issue's introduction (for instance, most people associate soy with Asian food products, but the United States is a key producer), see the story from *The Economist* that discusses how China (estimated to be only 5% Christian) is home to one of the world's largest producers of Bibles. It is found at <http://www.economist.com/news/china/21574529-china-has-become-one-largest-producers-bibles-world-beginning-was>.

### Examples Used in the End-of-Chapter Questions

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Questions 7 and 10 reference the economies of India and China. Students can learn more about the tremendous growth in these two nations and the role that has been played by technology by reading "A New World Economy," by Pete Engardio (*BusinessWeek*, August 22, 2005). The article is available online (along with other linked materials) at <http://www.businessweek.com/stories/2005-08-21/a-new-world-economy.htm>.

Question 14 can be related back to the previous chapter. Ask how the recent recession affected relative costs and benefits of a college education and the choice between public and private colleges and universities.

## Economics Is Everywhere

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The following short synopsis, selected from the many vignettes in *Economics Is Everywhere* by Daniel S. Hamermesh (packaged for free with any Worth Principles text), corresponds to the material covered in this chapter of the text. The question that accompanies each vignette appears as an essay-type question in the Hamermesh text; for use with the Chiang text, those questions are adapted to a multiple-choice format and are also assignable in LaunchPad. The correct answers are indicated and feedback is provided here.

1.6 Describes the tradeoff people make between spending time with their family and spending time working (earning more money in the process).

Q: Draw a production possibilities frontier (PPF) that shows the tradeoff between family time and income (place income on the vertical axis and time on the horizontal axis). How would that frontier change if people do more telecommuting?

- a. The PPF would shift to the right.
- b. The PPF would shift to the left.
- c. The horizontal intercept would decrease making the PPF flatter.
- d. The vertical intercept would decrease making the PPF steeper.

A: Correct: a. The entire frontier would shift out to the right. The assumption made here is that commuting time is reduced. What will people do with that time? It is possible that a telecommuter may be able to work more and have more family time. While changes in the intercepts are also possible, the examples given in this question are incorrect.

20.2 Tells a story about two people working on a project to remove old wood fencing. It tells how they divided up the tasks by ability and notes how skills (and therefore productivity) changed with practice.

Q: Removing wood fencing requires three steps: dragging the wood, hammering the nails from the sharp ends so that their heads stick out, and removing the nails from the wood by pulling from the head end. In dividing up these tasks between two people, the person who should do the hammering is the one who has:

- a. an absolute advantage in hammering.
- b. a comparative advantage in hammering.
- c. no absolute advantage in any of the three steps.
- d. the absolute advantage in any two of the three steps.

A: Correct: b. The person with the comparative advantage in a task or occupation should be the one to do it. That's the efficient solution and the reason why specialization and trade can be mutually beneficial.

## For Further Analysis

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### Analyzing the Gains from Trade and the Effect of Growth

This example can be used as an in-class small group exercise or as an individual in-class exercise. It is designed to complement the text's material on comparative advantage and the gains from trade by incorporating Figure 7 and allowing students to work through the data presented in Tables 1–3. A shift in a production possibilities curve is also included.

**Learning objectives:** review of the definitions of absolute advantage and comparative advantage; application of the analysis of comparative advantage and the gains from trade; analysis of the causes and effects of growth; and reinforcement of critical thinking skills.

### Web-based Exercise

Students can investigate the differences between the Chinese and Indian economies in terms of the degree of government intervention. Indeed, some have wondered whether India's comparatively greater degree of democracy may have caused it to lag behind China economically. Possible sources include "Why India's Economy Lags Behind China's," by Ramtanu Maitre, *Asian Times*, June 27, 2003 (online at [http://www.atimes.com/atimes/South\\_Asia/EF27Df04.html](http://www.atimes.com/atimes/South_Asia/EF27Df04.html)) and "The Tiger in Front," *The Economist*, March 3, 2005.

*Points to be noted include the following:* China has been more successful than India in attracting foreign direct investment (FDI), which refers to foreign firms' building productive capacity in China. China has also been growing at a much faster rate. However, both of those statistics have been criticized for likely being subject to measurement errors. Observers have also pointed out that China's relative success may be in large part due to its greater amounts of investment in its infrastructure, including transportation and communication.

### Tips from a Colleague

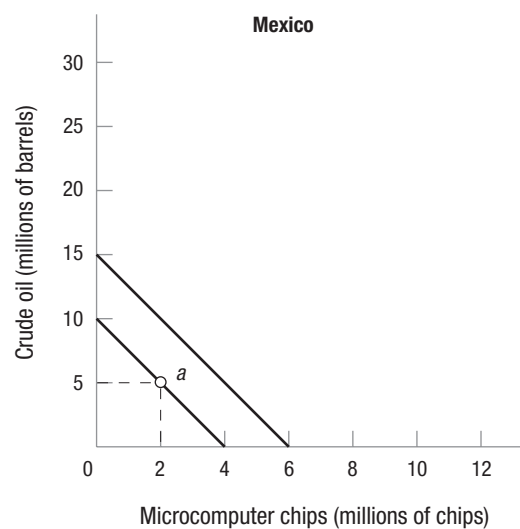
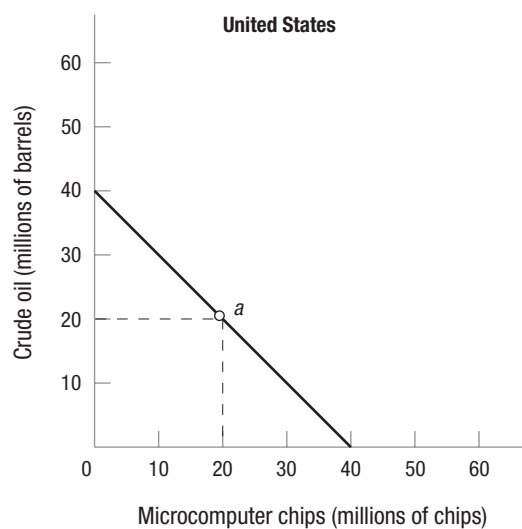
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Use the material in the opening pages to reinforce the information on resources and technology and their impacts on specialization and trade. Most students will have heard of Nokia and will identify it with electronics. Did you know they started out as a paper mill? See the Nokia story at <http://www.nokia.com/global/about-nokia/about-us/the-nokia-story>.



## HANDOUT 2-1

Date\_\_\_\_\_ Name\_\_\_\_\_ Class\_\_\_\_\_ Professor\_\_\_\_\_



## Analyzing the Gains from Trade and the Effect of Growth

The figure illustrates the production possibilities for the United States and Mexico, each of which can produce crude oil and microcomputer chips. Use the figure to answer the following questions:

- 1) Which country has the absolute advantage in crude oil? Which country has it in microcomputer chips? Explain.
- 2) Which country has the comparative advantage in crude oil? Which country has it in microcomputer chips? Explain.

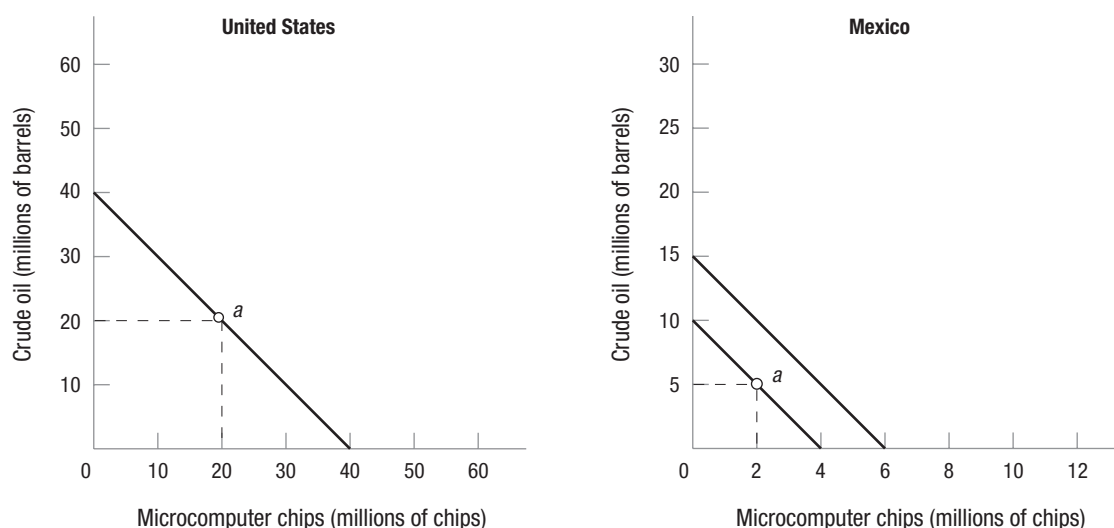
HANDOUT 2-1 (*continued*)

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- 3) Suppose that each country is producing and consuming the combination of the two goods represented by the point labeled  $a$  on its production possibilities curve. Suppose further that Mexico specializes in the production of oil and then trades 5 million barrels of oil to the United States in exchange for 3.5 million computer chips. Illustrate the new combination of the two goods that can now be consumed by each country. Label the points on the graphs as  $b$ .
- 4) Explain why each country is better off at  $b$  than it was at  $a$ .
- 5) Suppose that Mexico experiences growth such that its production possibilities curve now has the endpoints of 15 on the vertical axis and 6 on the horizontal axis. Draw the new production possibilities curve for Mexico.
- 6) Explain what may have caused this growth.
- 7) Has Mexico's absolute advantage changed as a result of growth? Has its comparative advantage changed? Explain why or why not.



## ANSWERS TO HANDOUT 2-1



## Analyzing the Gains from Trade and the Effect of Growth

The figure illustrates the production possibilities for the United States and Mexico, each of which can produce crude oil and microcomputer chips. Use the figure to answer the following questions:

- 1) Which country has the absolute advantage in crude oil? Which country has it in microcomputer chips? Explain.

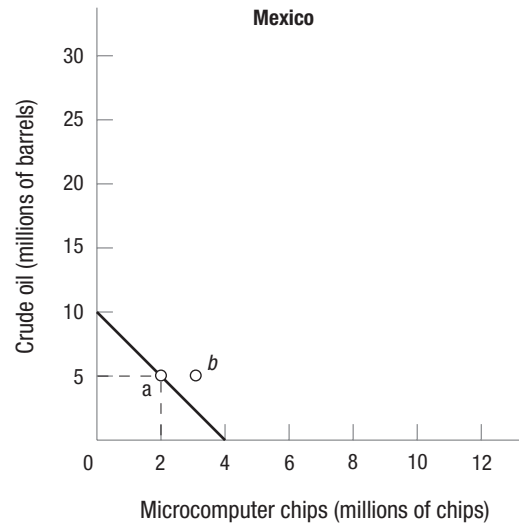
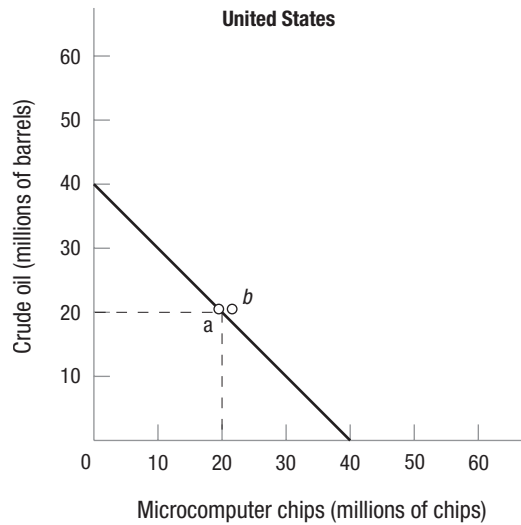
*The United States has the absolute advantage in both crude oil and microcomputer chips because it can produce more of each good than Mexico can.*

- 2) Which country has the comparative advantage in crude oil? Which country has it in microcomputer chips? Explain.

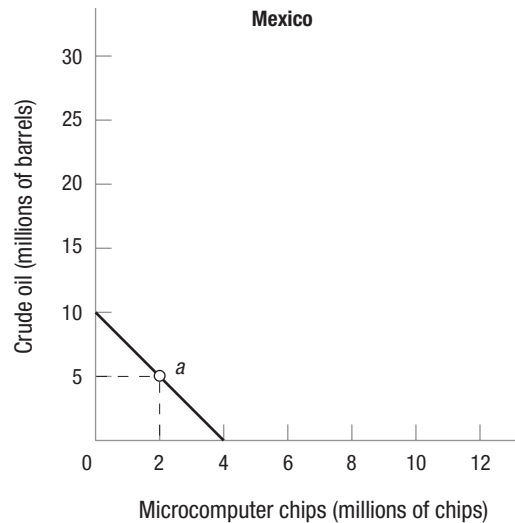
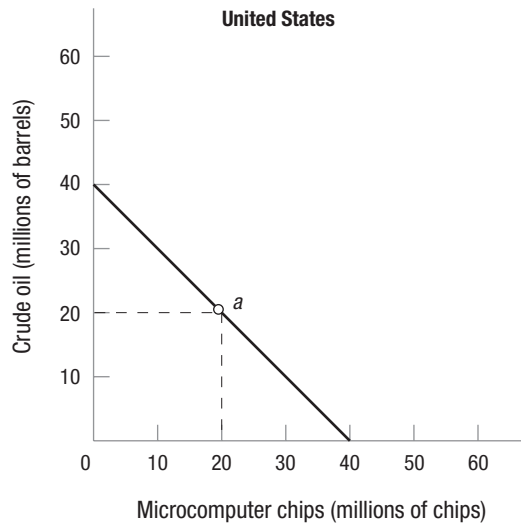
*The United States has the comparative advantage in microcomputer chips because producing 1 million more chips means sacrificing 1 million barrels of crude oil. For Mexico to produce 1 million more chips means sacrificing 2.5 million barrels of crude oil. Using the same reasoning, Mexico has the comparative advantage in crude oil because producing 1 million barrels more oil means sacrificing 0.40 million of chips. For the United States to produce 1 million barrels more crude oil means sacrificing 1 million of chips.*

- 3) Suppose that each country is producing and consuming the combination of the two goods represented by the point labeled "a" on its production possibilities curve. Suppose further that Mexico specializes in the production of oil and then trades 5 million barrels of oil to the United States in exchange for 3.5 million computer chips. Illustrate the new combination of the two goods that can now be consumed by each country. Label the points on the graphs as "b."

## ANSWERS TO HANDOUT 2-1 (continued)



- 4) Explain why each country is better off at *b* than it was at *a*.  
*Each country is better off at b than it was at a because the combinations of the two goods represent increased amounts of one good without a decreased amount of the other good.*
- 5) Suppose that Mexico experiences growth such that its production possibilities curve now has the endpoints of 15 on the vertical axis and 6 on the horizontal axis. Draw the new production possibilities curve for Mexico.



- 6) Explain what may have caused this growth.  
*This growth could be the result of an expansion in resources or improvements in technology. The quantity or quality of labor may have changed in such a way as to allow greater production of both goods.*

ANSWERS TO HANDOUT 2-1 (continued)

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- 7) Has Mexico's absolute advantage changed as a result of growth? Has its comparative advantage changed? Explain why or why not.

*No; even with the growth Mexico still does not have the absolute advantage in either chips or crude oil because the United States still can produce more of both. Nor has its comparative advantage changed; even with the increased amounts of both goods that can be produced the opportunity cost of each good has not changed.*

*[OPTIONAL: Consider a change in resources and/or technology such that Mexico's PPF changes in slope. That would affect the comparative advantage because the opportunity costs would now be different.]*

