

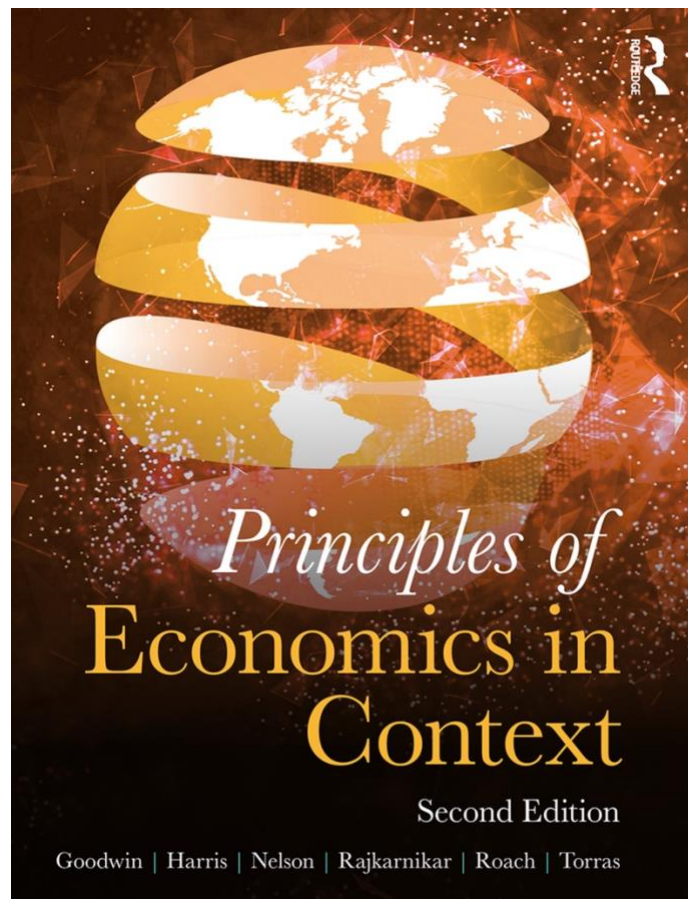
Student Study Guide

Principles of Economics in Context

Second Edition

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Chapter 1

ECONOMIC ACTIVITY IN CONTEXT

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter introduces you to the basic concepts that underlie the study of economics. We define economics as “the study of how people manage their resources to meet their needs and enhance their well-being.” This definition sets our study of economics into a broader context of concern for well-being, as opposed to the more traditional approach that focuses on markets as the sole location of economic activity. We discuss the basic questions of economics (*what, how, and for whom*), as well as the four essential economic activities (resource management, the production of goods and services, the distribution of goods and services, and the consumption of goods and services). As you work through this book, you will learn in detail about how economists analyze each of these areas of activity.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Define the difference between normative and positive questions.
2. Differentiate between intermediate and final goals.
3. Discuss the relationship between economics and well being.
4. Define the four essential economic activities.
5. Illustrate tradeoffs using a production possibilities frontier.
6. Explain the concept of opportunity costs.

Key Terms

economics	capital stock
well-being	natural capital
microeconomics	manufactured capital
macroeconomics	human capital
positive questions	social capital
normative questions	financial capital
intermediate goal	stock flow
final goal	stock-flow diagram
gross domestic product (GDP)	investment
efficiency	production
economic actor (agent)	inputs
negative externalities	outputs
positive externalities	waste products
resource management	distribution

exchange
transfer
in-kind transfers
consumption
saving

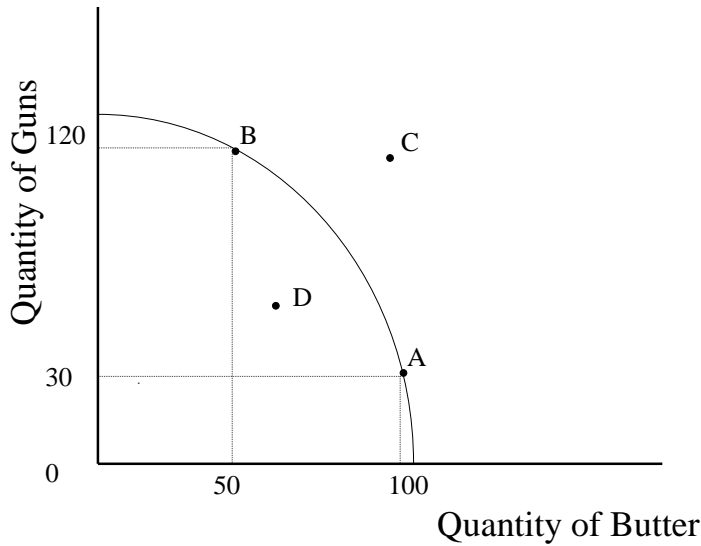
abundance
scarcity
production possibilities frontier (PPF)
opportunity cost
technological progress

Active Review Questions

Fill in the blank

1. You buy a new book. If you didn't buy the book, you would have purchased a pizza instead. Economists would call the pizza your _____ of buying the book instead.
2. A new factory begins discharging pollutants into a previously pristine river. Fish in the river begin to die, and people who make their living through fishing have trouble maintaining their catch. This factory is generating a _____.
3. Protecting wildlife in a national park is an example of the economic activity of _____.
4. Your grandmother sends you a check for \$100. This form of resource distribution is referred to as a _____.
5. A diagram that shows the tradeoffs between production of two goods is called a(n) _____.
6. A professional musician practices piano every afternoon. Her neighbor listens to the music and enjoys it. Through her activity, the musician is creating a(n) _____.
7. The activity that turns inputs into new goods and services, or outputs, is called _____.

Questions 8 to 10 refer to the production possibilities frontier shown below.



True or false

8. In the graph shown above, at point B, society is producing the maximum possible amount of butter.
9. To move from point A to point B, society would have to cut down on its gun production and increase butter production.
10. Starting from point B, society would have to invest substantial resources to increase gun production.
11. Watching a movie is an example of “consumption.”
12. The number of fish sold per day at Big City Fish Shop is an example of a stock.

Short answer

13. Name the four essential economic activities.

14. “Children should learn to clean up after themselves by the age of six.” Is this a positive or a normative statement? _____

15. “The business sphere contributed 64% of production in the US in 2016.” Is this a positive or a normative statement? _____

16. List the three basic economic questions.

17. Name the five types of capital.

18. Explain the difference between a stock and a flow.

19. What are the two main forms of economic distribution? What is the difference between them?

20. A family enjoys a three-week vacation. In order to afford this vacation, the family saved money over the course of a year. Was earning this money a final goal or an intermediate goal?

21. Technological innovations can vastly increase a society's productive capacity. How might a technological innovation affect a society's production possibilities frontier?

Self Test

1. Which of the following best exemplifies an intermediate goal?
 - a. Spending a relaxing vacation with your family.
 - b. Spending a day at the art gallery.
 - c. Going fishing for fun.
 - d. Getting a summer job so you can afford a trip abroad.
 - e. Reading a novel.

2. Which of the following statements is positive (as opposed to normative)?
 - a. One should always be polite at the dinner table.
 - b. There are ten people in this class.
 - c. A young person's top priority should be job security.
 - d. The best professor is one who meets with students individually each week.
 - e. Resources should be distributed equally across society.

3. Which of the following is an example of a positive externality?
 - a. A musician performs in a concert. People pay to listen to the concert.
 - b. An architect designs a house for herself to live in. She enjoys spending time in the house.
 - c. A student volunteers in a shelter for the homeless.
 - d. A homeowner plants a tree for shade around her house. The tree also provides shade for her next-door neighbor.
 - e. A teacher drives his car to work and gets stuck in a traffic jam.

4. Which of the following is an example of a negative externality?
 - a. A student receives a failing grade on a French exam.
 - b. Your roommate throws a loud party that keeps you awake all night.
 - c. You decide to take public transportation to work every day.
 - d. A group of farmers pool their resources to purchase seeds for next year.
 - e. You receive a letter saying your bank account is overdrawn.

5. Enjoying art at a museum is an example of ...
 - a. Production
 - b. Consumption
 - c. Exchange
 - d. Transfer
 - e. Resource management

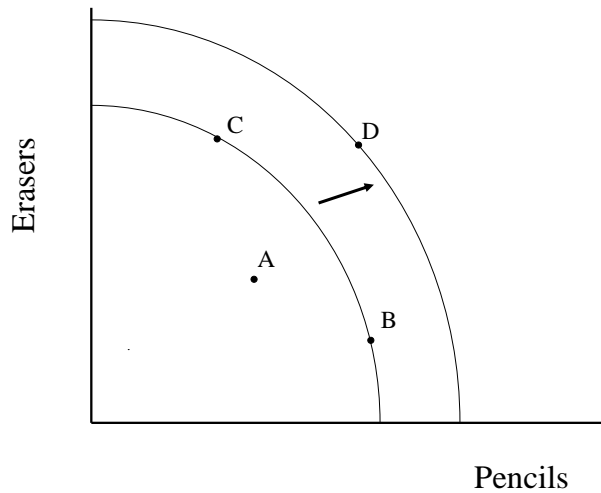
6. Which of the following statements is *false*?
 - a. Final goals could include fairness, freedom, or a sense of meaning in one's life.
 - b. You are offered a very interesting job, but you need a car to get there. Getting a car is an example of a final goal.
 - c. Resource management refers to activities associated with tending to, preserving, or improving natural, social, and other resources.
 - d. Production is the conversion of resources into goods or services.
 - e. Distribution is the sharing of products and resources among people.

7. Which of the following is an example of the economic activity of resource management?
- a. cooking dinner
 - b. operating a factory
 - c. providing worker education
 - d. drilling for oil
 - e. buying a bicycle
8. Which of the following factors could expand a society's production possibilities frontier?
- a. Increased butter production.
 - b. Shifting from one product to another.
 - c. Producing air pollution.
 - d. Depleting resources now instead of later.
 - e. Technological innovations.
9. Which of the following is an example of the economic activity of distribution?
- a. A baker makes 10 loaves of bread.
 - b. A plumber fixes a leak.
 - c. The legal speed limit is raised from 65 to 75 mph.
 - d. A couple enjoys a walk in the forest.
 - e. A retired worker receives Social Security benefits.
10. Which of the following is an example of the economic activity of consumption?
- a. A baker makes 10 loaves of bread.
 - b. A plumber fixes a leak.
 - c. The legal speed limit is raised from 65 to 75 mph.
 - d. A couple enjoys a walk in the forest.
 - e. A retired worker receives Social Security benefits.
11. Which of the following is an example of a stock?
- a. The number of haircuts you got last year
 - b. The amount of water that passes over a waterfall per second
 - c. The number of screwdrivers sold by a hardware store each week
 - d. The number of fish produced at a hatchery each day
 - e. The number of goldfish in the pet store's aquarium

12. A diagram that shows how flows change the level of a stock over time is known as a(n)
- a. flow chart
 - b. flow diagram
 - c. stock-flow diagram
 - d. input-output model
 - e. capital stock diagram
13. Which of the following is an example of a transfer?
- a. You get a new job.
 - b. You trade violin lessons for foot massages.
 - c. You buy a bag of groceries.
 - d. You make a donation to a local soccer team.
 - e. You buy stock in a start-up firm.
14. What does the Production Possibilities Frontier represent?
- a. A catalog of all possible production options, represented as percentages.
 - b. The tradeoffs between production and consumption options.
 - c. The tradeoffs between possible production levels for two goods.
 - d. The amount that a society could produce if it devoted all its resources to producing one good.
 - e. The possible gains from international trade in two or more goods.

Questions 15 and 16 refer to the following scenario.

An economy produces two goods: pencils and erasers. The graph shown below depicts two possible production possibilities frontiers (PPFs) for this economy.



15. Which of the following events could cause the economy to move from point B to point D?

- a. Workers become less productive due to poor working conditions.
- b. A hurricane destroys vital resources for pencil production.
- c. A new machine is invented that makes it easier to produce both pencils and erasers.
- d. All production costs rise proportionally.
- e. The cost of eraser inputs goes up.

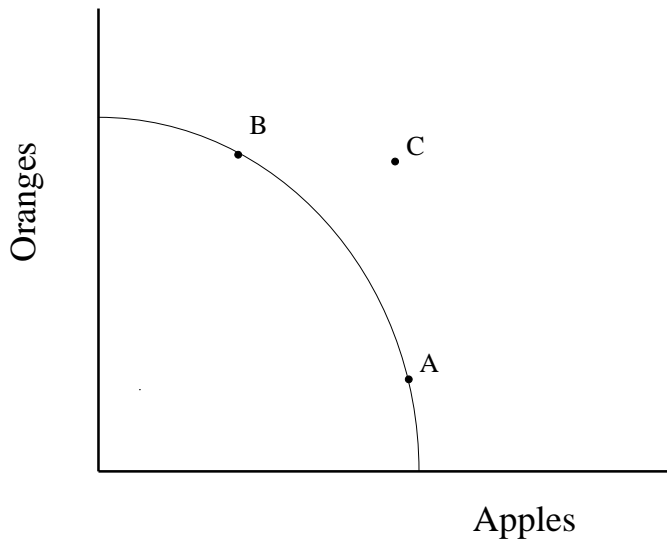
16. Which of the following statements is true?

- a. Moving from point C to point B requires shifting resources away from eraser production and into pencil production.
- b. Point B represents a less efficient resource mix than point C.
- c. Depletion of nonrenewable resources could lead the economy to shift from point C to point D.
- d. Utility is maximized at point A.
- e. At point A, society is producing all the pencils it can.

17. The nation of Anyplace produces two goods, chairs and tables. Anyplace can produce the chairs and tables using either sustainable methods or resource-depleting methods. If Anyplace chooses resource-depleting methods, which of the following statements is true?

- a. Eventually the PPF of Anyplace will shift outward (away from the origin).
- b. Eventually the PPF of Anyplace will shift inward (toward the origin).
- c. Eventually the PPF of Anyplace will pivot, causing a change in the slope of the curve.
- d. Eventually Anyplace will have to choose between producing only chairs or producing only tables.
- e. None of the above.

Question #18 refers to the graph shown below.



18. Which of the following statements is true?

- a. Point A is inefficient.
- b. Point B is inefficient.
- c. Point A is preferred to point B.
- d. Point B is preferred to point A.
- e. Point C cannot be attained with current technology.

19. Suppose there is a production possibilities frontier (PPF) for wine and cheese. Which of the following situations would shift the PPF inward (toward the origin)?

- a. A severe weather event that destroys much of the economy's productive capacity.
- b. Discovery of a new, cheaper source of milk for making cheese.
- c. Increased popularity of wine, as compared with cheese.
- d. A technological breakthrough.
- e. Improved education of the work force.

20. In general, as production of a good increases, the opportunity cost of production increases. How is this notion reflected in the graph of production possibilities frontier (PPF)?

- a. The PPF bows inwards (that is, looks like a slide or a valley)
- b. The PPF bows outwards (that is, looks like a hillside).
- c. The PPF shifts in response to technological change.
- d. The PPF shows production of one good at a time.
- e. The PPF becomes flatter as resource availability increases.

Answers to Active Review Questions

1. opportunity cost
2. negative externality
3. resource management
4. transfer
5. production possibilities frontier
6. positive externality
7. production
8. False. Society could produce more butter by producing fewer guns.
9. False. To move from A to B, society would have to decrease butter production and increase gun production.
10. True. At point B, society is already employing many of its resources to produce guns. Increasing gun production further will present high opportunity costs.
11. True. An experience can be “consumed” without using up material resources.
12. False, it’s a flow.
13. production, distribution, consumption, and resource management
14. normative
15. positive
16. What should be produced and maintained? How? For whom?
17. The five types of capital are: natural capital, manufactured capital, human capital, social capital, and financial capital.
18. A stock is something whose quantity is measured at a point in time, whereas a flow measures the quantity of something over a period of time.
19. Exchange and transfer. Exchange occurs when one actor provides a good or service, or money, in return for something else. Transfer is a one-way transaction, when one actor gives something to another.
20. intermediate
21. A technological innovation can expand the production possibilities frontier (move it “out,” away from the origin).

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. d | 11. e |
| 2. b | 12. c |
| 3. d | 13. d |
| 4. b | 14. c |
| 5. b | 15. c |
| 6. b | 16. a |
| 7. c | 17. b |
| 8. e | 18. e |
| 9. e | 19. a |
| 10. d | 20. b |

Chapter 2

USEFUL TOOLS AND CONCEPTS

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter introduces standard concepts of economic modeling and reviews graphing techniques. It describes two different macroeconomic models: the neoclassical model and the contextual model. It also provides an overview of the three spheres of economic activity: the core sphere, the public purpose sphere, and the business sphere. In this chapter you will see these concepts set into a broader context of concern for well-being.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Distinguish and differentiate among the different methods of investigation: empirical investigation, theoretical investigation, and historical investigation.
2. Understand the principle of an economic model.
3. Describe the actors and principles of the basic neoclassical circular flow model.
4. Understand the broader scope of a contextual model including social and environmental factors
5. Identify the different economic functions of households, communities, governments, non-profit organizations, and private business.

Key Terms

empirical investigation

time-series data

cross-sectional data

negative (or inverse) relationship

positive (or direct) relationship

theoretical investigation

model

ceteris paribus

historical investigation

basic neoclassical model

circular flow diagram

utility

factor markets

product markets

core sphere

business sphere

public-purpose sphere

public good

regulation

direct public provision

informal sphere

Active Review

Fill in the Blank

1. The observation and recording of specific phenomena of concern is called _____ investigation, whereas the analysis based in abstract thought is called _____ investigation.
2. When researchers study past events, they are conducting a(n) _____ investigation.
3. The Latin phrase that means “all else constant” or “other things equal” is _____.
4. The two actors in the basic neoclassical (or traditional microeconomic) model of economics are _____ and _____.
5. The contextual model places economic activities within the _____ and _____ context.
6. Institutions in the core sphere include _____ and _____.
7. The public purpose sphere includes _____ as well as _____.
8. The business sphere is mainly concerned with _____.
9. The informal sphere is especially significant in _____.
10. Cooking family dinner at home is an activity of the _____ sphere.
11. Retailers such as Walmart, Target and Amazon are categorized under the _____ sphere.
12. The two main economic functions of the public-purpose sphere are _____ and _____.

True or False

13. If two variables are correlated (tend to move together), changes in one can be said to be causing changes in the other.
14. Economic models are generally based on historical evidence
15. The assumption of *ceteris paribus* means that variables other than those being directly considered are assumed to be constant
16. The basic neoclassical model includes environmental and social contexts
17. A public good is defined as a good that is consumed by the public.
18. Business interests are aligned with maximizing both financial profits and social well-being.
19. The neoclassical model assumes that households make consumption decisions with the goal of maximizing utility and that businesses make production decisions with the goal of maximizing profits.

Short Answer

20. What kinds of investigation would be used to examine the record of the economy during the recession of 2007-2009?
21. A classmate asserts that “Economic models are useless because they cannot fully describe reality”. How would you respond?
22. Name the two actors in the basic neoclassical (or traditional microeconomic) model of economics, and identify the assumptions the model makes of these two actors.
23. What contributes to full social and economic efficiency in the basic neoclassical model?
24. Discuss the two key features of the contextual model.
25. What is the distinguishing characteristic of institutions in the public purpose sphere?
26. What are some of the strengths of the business sphere?
27. Describe some of the key activities conducted in the core sphere.

Problems

1. Given the following data:

Year	Unemployment Rate (percent)	Inflation Rate (percent per year)
1984	7.5	3.8
1985	7.2	3.0
1986	7.0	2.2
1987	6.2	2.7

Source: Economic Report of the President

a. Plot the unemployment data on a time series graph:

b. Plot the inflation data on a time series graph:

c. Now plot the unemployment and inflation data using a scatter diagram. Over any period of years is there a positive relationship between the two variables? Over any period is there a negative relationship?

Self Test

1. Suppose an investigator has 50 years of data on rates of industrial production and annual accumulations of CO₂, and discovers a positive relationship between the two variables. This is an example of what type of investigation?
 - a. Theoretical investigation
 - b. Empirical investigation
 - c. Historical investigation
 - d. Both A and B.
 - e. A, B, and C.

2. Suppose an economist develops a theory that prices of houses will rise when interest rates fall. A study of data over a twenty-year period seems to confirm the theory. This is an example of what type of investigation?
 - a. Theoretical investigation
 - b. Empirical investigation
 - c. Historical investigation
 - d. Both a and b.
 - e. a, b and c.

3. Which one of the following is *not* an assumption of the basic neoclassical model?
 - a. The actors in the economy are assumed to be households and firms
 - b. Firms are assumed to maximize profits
 - c. Households are assumed to maximize utility
 - d. Markets are assumed to be perfectly competitive, with prices determined by supply and demand
 - e. Communities are assumed to look after resource management and environmental protection

4. Which of the following statements below best fits the basic neoclassical model's perspective?
 - a. Adam thinks that self-interested maximizing behavior and free markets lead to the best of all possible worlds.
 - b. Karl thinks that workers are squeezed by greedy, profit-hungry bosses.
 - c. Joseph experiences the booms and busts of the economy as if it were a rollercoaster ride.
 - d. John thinks the economy is like an elevator that can get stuck in the basement, and can only be fixed by an elevator repairman.
 - e. Julie values the work of volunteers and non-profit organizations in their communities that keeps the economy strong and vibrant.

5. Which of the following statements below best fits the contextual model's perspective?
- Markets are always perfectly competitive.
 - Non-market production such as cooking, cleaning and caring for children should be included in our economic model
 - The government should focus on helping businesses maximize profits.
 - The core sphere is primarily responsible for all resource management activities.
 - All of the above.
6. Which of the following statements is FALSE?
- The neoclassical model identifies firms and households as the two main economic actors.
 - The neoclassical model assumes that firms always maximize profits.
 - The contextual model focuses only on market activity.
 - The contextual model considers the environmental costs of economic activity.
 - There is some overlap between the neoclassical and the contextual model.
7. What are the three spheres of economic activity?
- The core, business, and government spheres
 - The monetary, core, and government spheres
 - The public, private, and social spheres
 - The core, business, and monetary spheres
 - The core, business, and public purpose spheres
8. Which one of the following is an example of an organization in the public purpose sphere?
- A family
 - A supermarket chain
 - A local grocery store
 - A state environmental protection agency
 - A child selling lemonade
9. Which one of the following is an example of a public good?
- A clean house
 - A city park
 - A lawnmower shared by several neighbors
 - Cable television
 - A doctor's services

10. Which one of the following statements is FALSE?
- a. Public purpose sphere organizations tend to conduct economic activities at a larger scale than core sphere organizations.
 - b. Core sphere organizations can respond to needs as well as wants.
 - c. The primary place where good social relations are established is in the business sphere.
 - d. One critique of public purpose sphere organizations is that they can be inefficient.
 - e. Business sphere organizations may pursue motives other than making a profit.
11. A city government maintains local roads. This service is an example of:
- a. A factor market
 - b. A public good
 - c. A positive externality
 - d. A business sphere activity
 - e. A core sphere activity
12. Which of the following is *not* one of the main legal forms of enterprises in the business sphere?
- a. Proprietorships
 - b. Partnerships
 - c. Corporations
 - d. Non-profit organizations
 - e. Cooperatives
13. Why are public goods often provided through government agencies and supported by taxes?
- a. Because they are goods that the public generally believes are valuable and important for the smooth functioning of the economy.
 - b. Because the goods would not be well-provided by the private sector, since they are non-excludable.
 - c. Because consumers of the goods have little incentive to pay for them, since they are non-excludable.
 - d. Because of the problem of free riders, who would otherwise benefit from the public good without paying for it.
 - e. All of the above.

14. The informal sphere
- Exists only in low-income countries.
 - Involves mainly non-profit production.
 - Is not generally subject to government oversight and regulation.
 - Is not significant as a component of economic production.
 - All of the above.
15. Which of the following is an example of a core sphere activity?
- James plays a game of catch with his nephew.
 - Martha works at a bank.
 - A local fire department responds to local emergencies.
 - A national government purchases weapons.
 - A publicly funded state college provides education.
16. The activities of the U.S. Environmental Protection Agency would be characterized as part of
- The core sphere
 - The free rider sphere
 - The public purpose sphere
 - The business sphere
 - The informal sphere
17. Which of the following is an activity in the business sphere?
- The government increases funding for public schools.
 - Tina sells home-made jam at the local market.
 - John helps a neighbor with yard work.
 - Martha volunteers to organize a community clean up event.
 - The local police department leads a training session on ensuring public safety.
18. Regulating the activities of financial institutions occurs in the
- public purpose sphere
 - the informal sphere
 - the banking sphere
 - the core sphere
 - the business sphere

19. In the United States, the monetary value of the annual production of goods and services was largest in:

- a. the core sphere
- b. the informal sphere
- c. the public purpose sphere
- d. the business sphere
- e. the free rider sphere

20. Which of the following is not a characteristic of the informal sphere?

- a. It is often dependent on family and community connections
- b. It operates under government regulation and oversight
- c. It is comprised of small scale market enterprises
- d. It may include illegal activities and services provided “off the books”
- e. The relative size of informal sphere tends to be larger in less developed countries

Answers to Active Review Questions

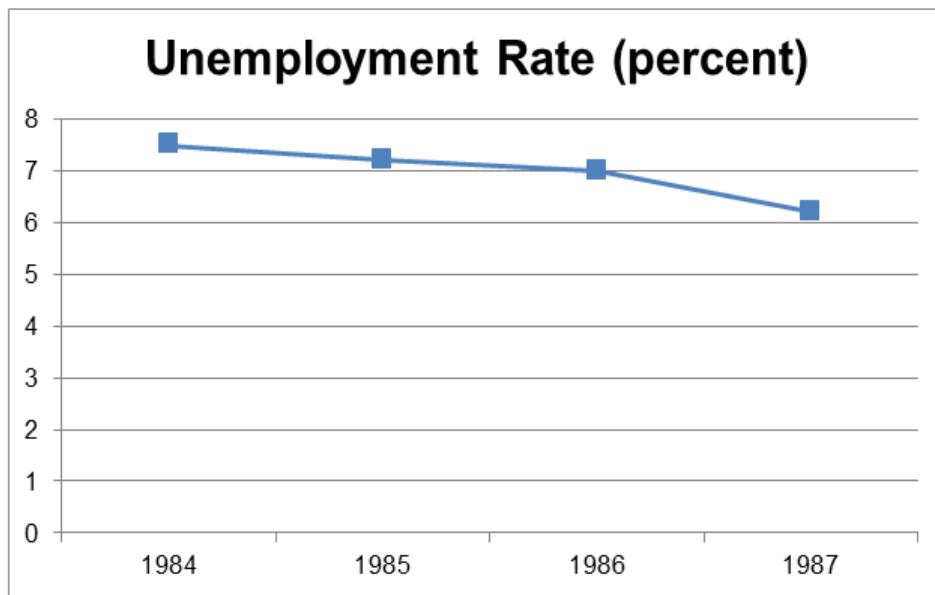
1. Empirical, theoretical
2. Historical
3. Ceteris paribus
4. Firms and households. Firms are assumed to maximize profits, and households are assumed to maximize their utility (or satisfaction).
5. Environmental and social contexts
6. Families and communities
7. Government agencies and non-profit organizations
8. Producing for profit
9. Developing countries
10. Core
11. Business
12. Regulation and private provision
13. False. Correlation between two variables does not necessarily imply causation.
14. False. Most economic models are generally theoretical tools for analysis, which highlight some aspects of reality while ignoring others. Historical evidence can, however, be used to test aspects of economic models.
15. True.
16. False. The contextual model considers social and environmental contexts, while these are generally absent from the neoclassical model.
17. False. A public good is a good that is non-diminishable (use by one person does not diminish usefulness to others), and non-excludable (it would be difficult to exclude anyone from benefiting. There are many examples of goods consumed by the public that are not public goods.
18. False. Some of the decisions made by businesses with the goal of maximizing profits may come at the cost of social well-being. For example, cost-cutting measures such as reducing pay or benefits to workers by hiring temporary workers, or dodging environmental regulations to reduce production costs could have adverse impacts on social well-being.
19. True. These are the key assumptions of the neoclassical model.
20. All three major techniques could be relevant: empirical (such as measures of excessive debt), historical (such as analysis of government regulatory policy) and theoretical (such as applying macroeconomic models to see how well they describe the performance of the economy during this period).
21. No model can fully describe reality, but just as a model plane can give engineers insight into the performance of a real plane, an economic model can help economists to understand actual economic activity.
22. Households, who are assumed to maximize their utility, or satisfaction; and firms, who are assumed to maximize their profits under competitive conditions.
23. Market price coordination, the profit motive, and the assumption that consumers maximize
24. The contextual model places economic activity in the environmental and social contexts. This model specifies economic activity as occurring within three spheres: core, public purpose, and business.
25. The distinguishing characteristic of institutions in the public purpose sphere is that

they exist to serve the common good for a group larger than an individual or family, and do not have the goal of making a profit.

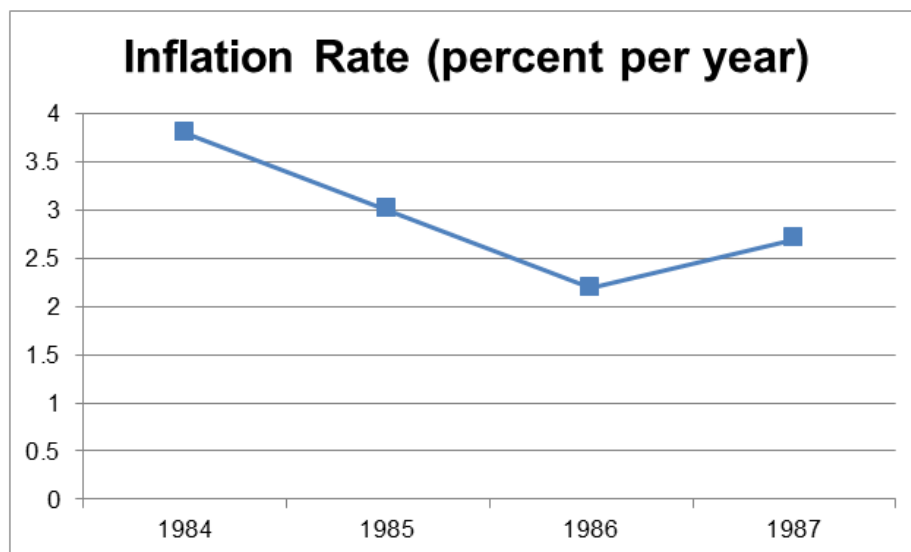
26. Because business sphere is focused on profit maximization, they are likely to encourage innovation and have higher efficiency.
27. Some of the key activities in the core sphere include producing of goods and services (such as cooking, lawn mowing, and providing care to dependent members), organizing savings and investment, allocating consumption spending, making labor supply decisions, and organizing of the use of leisure time.

Answers to Problems

1.a.



b.



c.



There appears to be a positive (direct) relationship between unemployment and inflation from 1984 to 1986 (both are falling), but an negative (inverse) relationship between them from 1986 to 1987 (unemployment falls while inflation rises).

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. B | 11. B |
| 2. D | 12. D |
| 3. E | 13. E |
| 4. A | 14. C |
| 5. B | 15. A |
| 6. C | 16. C |
| 7. E | 17. B |
| 8. D | 18. A |
| 9. B | 19. D |
| 10. C | 20. B |

Chapter 3

MARKETS AND SOCIETY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter introduces you to the structure and workings of markets (leaving the more formal analysis of supply and demand to the next chapter.). Three different definition of markets are discussed, as well as the institutional requirements for smoothly-functioning markets. Markets are further classified according to what is sold and how prices are determined. The chapter ends with a brief discussion of the advantages and disadvantages of markets, a topic that will be discussed frequently throughout the book.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Understand the three different meanings of “markets.”
2. Describe the institutional requirements for well-functioning markets.
3. Classify markets according to what is sold.
4. Classify markets according to how prices are determined.
5. Understand advantages and disadvantages of markets, as well as market outcomes

Key Terms

market (first meaning)
market (second meaning)
market (third meaning)
institution
private property
explicit contract
implicit contract
physical infrastructure
money
retail markets
wholesale markets
intermediate goods market
resale market

commodities market
labor market
financial market
underground market
posted prices
market price
auction market
bargaining
transaction costs
market power
static analysis
dynamic analysis

Active Review Questions

Fill in the blank

1. “The real estate market in Los Angeles” is an example of the definition of markets _____.
2. Markets for raw materials such as agricultural products and minerals are known as _____.
3. Markets for goods and service purchased from businesses, generally in small quantities, are known as _____.
4. A market in which a good is sold to the highest bidder is known as _____.
5. You decide to buy a used car. You discover that it is hard to get information on the quality of the used cars that are available. You have trouble communicating with the car dealer. It takes a considerable amount of time to get the information you need to successfully get the car you had in mind. In other words, buying a used car turns out to be an activity with high _____ costs.
6. A new factory begins discharging pollutants into a previously pristine river. Fish in the river begin to die, and people who make their living through fishing have trouble maintaining their catch. This factory is generating negative _____.

True or false

7. When we speak of a “laissez-faire economy” we are referring to a market based on product categories.
8. An implicit contract is an example of a social institution of trust.
9. Intermediate goods markets involve the sale of used products between households.
10. Markets with bargaining involve the interaction of a single buyer with a single seller.
11. Public goods, externalities, transactions costs, market power, the difficulty of getting information, and concern for human needs and equity are all examples of issues that lead to market failure.

Short answer

12. What are the three definitions of markets?

13. What are the four institutional requirements for smoothly functioning markets?

14. List five different markets classified according to what is sold.

Self Test

1. Which one of the following is an example of a market based on product categories?

- a. The stock market
- b. A grocery store
- c. A market-based capitalistic economy
- d. A used car dealership
- e. An on-line bookseller

2. Which one of the following is an example markets as an economic system?

- a. The stock market
- b. A grocery store
- c. A market-based capitalistic economy
- d. A used car dealership
- e. An on-line bookseller

3. Laws that define which goods can be owned are considered ...

- a. social institutions of trust.
- b. individualist institutions of property and decision making.
- c. infrastructure for the flow of information.
- d. unnecessary for market functioning.
- e. part of implicit contracts.

4. An implicit contract is an example of ...
 - a. an individualist institution of property and decision making.
 - b. an economic activity in the core sphere.
 - c. a social institution of trust.
 - d. infrastructure for the flow of information.
 - e. a market as an economic system.

5. Which one of the following is not a requirement for something to be considered money?
 - a. A durable store of value
 - b. A unit of account
 - c. Minimal handling costs
 - d. Backed by government-held assets
 - e. Acceptance as a medium of exchange

6. Markets for unfinished goods sold between businesses are referred to as ...
 - a. intermediate goods markets.
 - b. commodity markets.
 - c. resale markets.
 - d. wholesale markets.
 - e. retail markets.

7. Markets for goods and services sold by businesses to consumers, generally in small quantities are referred to as ...
 - a. intermediate goods markets.
 - b. commodity markets.
 - c. resale markets.
 - d. wholesale markets.
 - e. retail markets.

8. The prices of goods sold at a convenience store tend to be determined by ...
 - a. bargaining.
 - b. posted prices.
 - c. a Dutch auction.
 - d. a double auction.
 - e. social institutions.

9. Illegal drugs are sold primarily in which type of markets?
- a. Labor markets
 - b. Underground markets
 - c. Commodity markets
 - d. Intermediate goods markets
 - e. Wholesale markets
10. The sale of crude oil would most likely occur in which type of market?
- a. A resale market
 - b. A retail market
 - c. A labor market
 - d. A commodity market
 - e. An underground market
11. Bargaining involves the interactions of ...
- a. numerous buyers and sellers.
 - b. one buyer and one seller.
 - c. one seller and numerous buyers.
 - d. one buyer and numerous sellers.
 - e. buyers and sellers with equal market power.
12. Which one of the following is not a potential drawback of markets?
- a. A failure to account for environmental degradation.
 - b. A loss of certain community values.
 - c. The tendency to over-provide public goods.
 - d. An inability to correct for excessive market power.
 - e. A failure to address economic inequalities.
13. Which one of the following statements is false?
- a. Markets involve implicit and explicit contracts.
 - b. Markets require physical and communications infrastructure.
 - c. Markets provide feedback between buyers and sellers.
 - d. Markets encourage sellers to respond to buyer preferences.
 - e. Markets discourage economic actors from increasing efficiency.

14. Which of the following could lead to market failure?

- a. The existence of externalities.
- b. Transactions costs
- c. Market power on the part of large corporations.
- d. All of the above.
- e. (a) and (c) only.

Answers to Active Review Questions

1. based on product categories
2. commodity markets
3. retail markets
4. an auction market
5. transaction costs
6. externalities
7. False. We are referring to a market as an economic system.
8. True
9. False. Intermediate goods markets involve the sale of unfinished products between businesses.
10. True
11. True. These are all cases in which the market form of organization can lead to inefficient or harmful results.
12. Markets as place to buy and sell, markets defined by product categories, markets as economic systems.
13. Individualist institutions of property and decision making, social institutions of trust, infrastructure for the flow of goods and information, and money as a medium of exchange.
14. Retail markets, wholesale markets, intermediate goods markets, resale markets, commodities markets, labor market, financial markets, underground markets.

Answers to Self Test Questions

- | | |
|------|-------|
| 1. a | 8. b |
| 2. c | 9. b |
| 3. b | 10. d |
| 4. c | 11. b |
| 5. d | 12. c |
| 6. a | 13. e |
| 7. e | 14. d |

Chapter 4

SUPPLY AND DEMAND

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

In this chapter, you'll find the basics of supply and demand analysis. As you work through this chapter, you will start learning how to manipulate supply and demand curves as a way to analyze the relationships among prices, volume of production, and other factors. You will learn about the various factors that can shift a supply or demand curve up or down, and the concepts of equilibrium and market adjustment.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Interpret supply and demand curves.
2. Understand the difference between a change in supply (demand) and a change in the quantity supplied (demanded).
3. List the nonprice determinants of supply by businesses and demand by households.
4. Explain how price adjusts due to changes in supply and demand.
5. Understand topics of market analysis including scarcity, shortage, inadequacy, and equity.
6. Explain the difference between accuracy and precision.

Key Term Review

demand	supply
market price	market quantity sold
individual supply	market (or aggregate) supply
supply schedule	supply curve
change in quantity supplied	change in supply
nonprice determinants of supply	demand schedule
demand curve	market (or aggregate) demand
individual demand	change in quantity demanded
change in demand	nonprice determinants of demand
substitute good	complementary good
surplus	shortage
market equilibrium	theory of market adjustment
market disequilibrium	markup (or cost-plus) pricing
market value	social value
inadequacy	precise
accurate	

Active Review

Fill in the Blank

1. A curve indicating the quantities that buyers are willing to purchase at various prices is known as a(n) _____ curve.
2. Mark would like to buy a new car for \$20,000. However, he doesn't have any savings and he doesn't qualify for a loan. Thus, his desire for a car does not translate into _____ demand.
3. Tabitha needs furniture for her room. She is deciding between a medium-sized couch and a large armchair. Either the couch or the armchair could fulfill her need for sitting space in the room. The couch and the armchair can be referred to as _____ goods.
4. When people eat french fries, they like to put ketchup on them. Due to an increase in the price of french fries, total sales of french fries decrease. At the same time, ketchup sales also decrease. This phenomenon can be explained by noting that french fries and ketchup are _____ goods.
5. Surplus and shortage are both instances of _____.
6. In general, in a basic model showing supply and demand, if the supply curve shifts to the right, equilibrium price will _____ and equilibrium quantity supplied will _____.

True or False

7. The price of limes could be a nonprice determinant of the supply of lemons.
8. The demand curve for a good shows the same information as the demand schedule.
9. Tastes and preferences act as nonprice determinants of demand.
10. In general, an increase in demand tends to increase equilibrium price and decrease equilibrium quantity.
11. If both supply and demand increase, the price of the good will also increase.
12. If demand increases and supply decreases, the price of the good will increase.
13. The more precise a model is, the more likely it is to be accurate.

Short Answer

14. There are ten restaurants in your town. On a given night, each restaurant has the ability to produce up to twenty full course dinners at a price of \$20 each. What is the total market supply of full course dinners tonight, at a price of \$20?

15. Name six nonprice determinants of supply, for a producing business.

16. Why do demand curves generally slope downward?

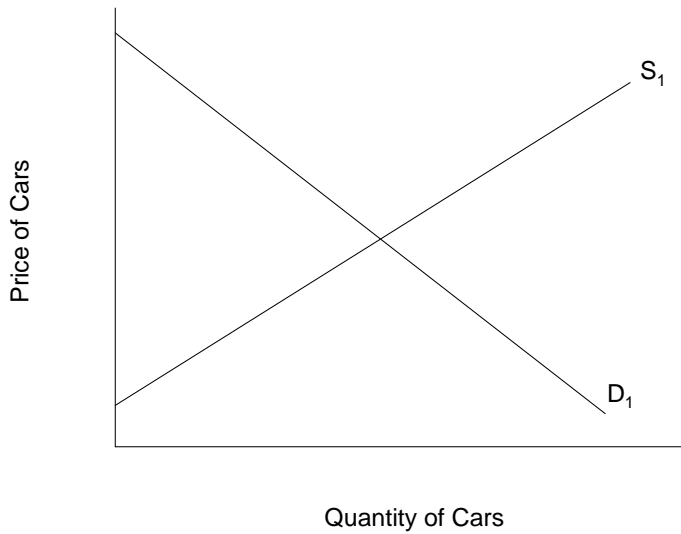
17. Suggest a possible exception to the "law of demand," in which people buy less of a good as its price increases.

18. Explain the difference between a *change in quantity demanded* and a *change in demand*.

19. Describe a possible case in which adjustment to equilibrium may take many years, or not happen at all.

20. A new movie is released after having been heavily promoted to teenagers. On the first night, the tickets sell out and there are still teenagers waiting outside theaters, desperate to see the movie and unable to get a ticket. Is this market in equilibrium? Explain.

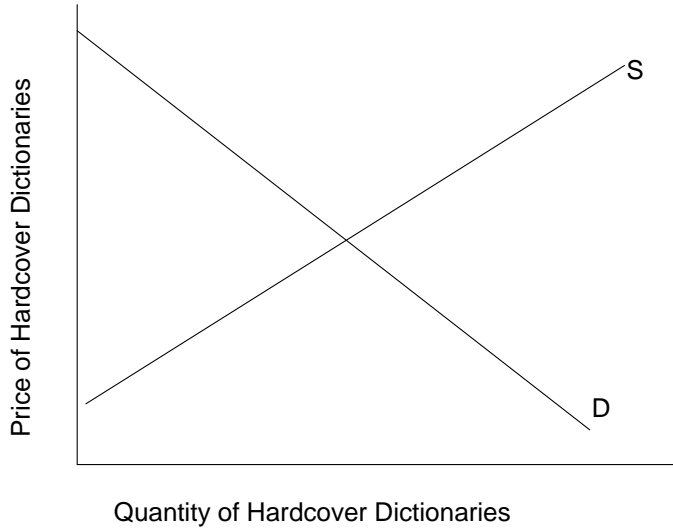
Problems



1. For the following questions, refer to the graph shown above.

- a. Label the equilibrium point as E_1 , the equilibrium quantity as Q_1 , and the equilibrium price as P_1 .
- b. Show how the supply curve will change if car manufacturers achieve a technological breakthrough that allows them to produce cars more cheaply.
- c. If the price stayed at P_1 , would a surplus or a shortage result from the technological breakthrough described in part (b)? Answer in words, and show on the graph.

- d. Assuming market forces work quickly, show the new equilibrium price to which the market will adjust. Label this point as E_2 . Label the new equilibrium quantity as Q_2 , and the new equilibrium price as P_2 .
- e. In words, summarize the information that you have shown in your adjustments to the graph in parts (a) through (d).



2. The graph above shows supply and demand for hardcover English dictionaries. Suppose that a new dictionary resource is created on the Internet, decreasing people's interest in buying large dictionaries in book form. For the questions below, state the answer in words and, where relevant, diagram your answer.

- a. What happens to the demand curve for hardcover dictionaries, as a result of this Internet innovation? (Answer in words and diagram.)

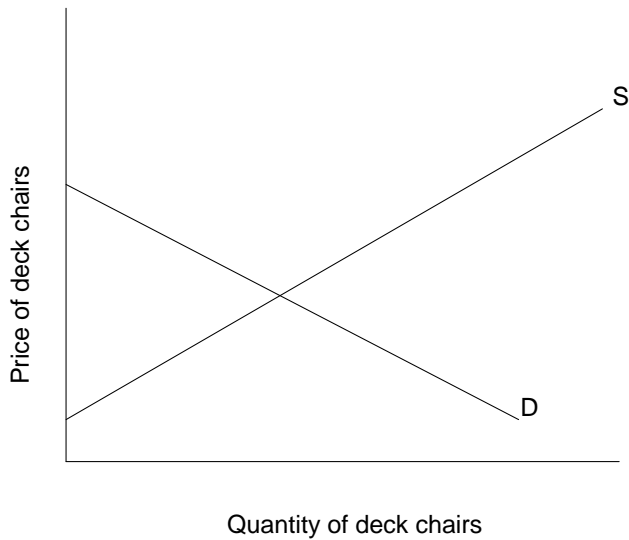
- b. What happens to the supply curve as a result of the Internet innovation? (Answer in words and diagram.)

- c. What happens to the price of hardcover dictionaries as a result of the innovation? Show the new price level on the graph you drew for part (b).

- d. Suggest one or more factors that could prevent this market from adjusting to equilibrium.

3. Refer again to the graph above, showing the market for hardcover dictionaries. What are the two types of change in this market that would lead the equilibrium price to *rise*?

4. In a popular new movie, a central character spends much of his time sitting on a white deck chair. Suddenly, white deck chairs come into fashion and everybody wants one. The graph below shows the market for deck chairs *before* the movie came out.



- On the diagram above, show what happens to the market for deck chairs as a result of the movie.
- Show the size of the shortage that exists in the short term, before the market adjusts to equilibrium.
- Label the new equilibrium point as E₂.

5. Using the same example of the market in white deck chairs, describe and, on separate graphs, show the changes in equilibrium price and quantity that would occur in response to the following events.

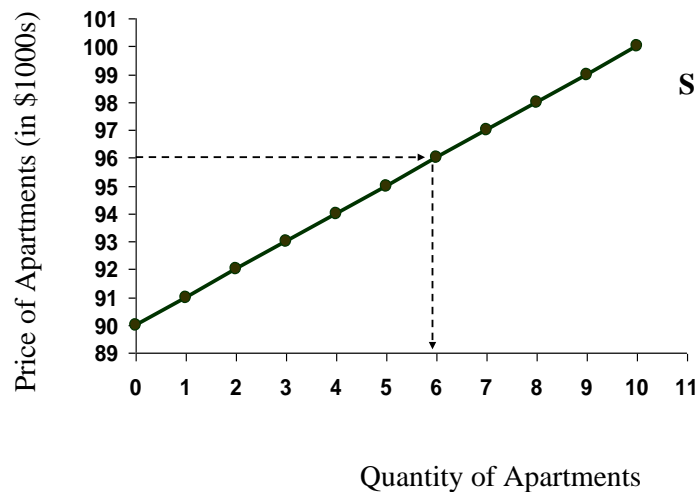
- A key input for making deck chairs becomes more expensive (*ceteris paribus*).
- In a highly publicized event, someone falls off a poorly constructed deck chair and sustains a serious head injury (*ceteris paribus*).

Self Test

1. Suppose when the price of shirts increases from \$20 to \$25, the quantity supplied increases. This change is best described as ...
 - a. movement along a supply curve.
 - b. a change in supply.
 - c. movement along a demand curve.
 - d. a change in demand.
 - e. none of the above.
2. Which one of the following statements is false?
 - a. Demand curves tend to slope downward.
 - b. The relationship between price and quantity demanded is generally positive.
 - c. The relationship between price and quantity supplied is generally direct.
 - d. At equilibrium, the quantity demanded equals the quantity supplied.
 - e. A shortage occurs when the quantity demanded exceeds the quantity supplied.

Questions 3 to 5 refer to the following graph:

The Supply Curve for Apartments



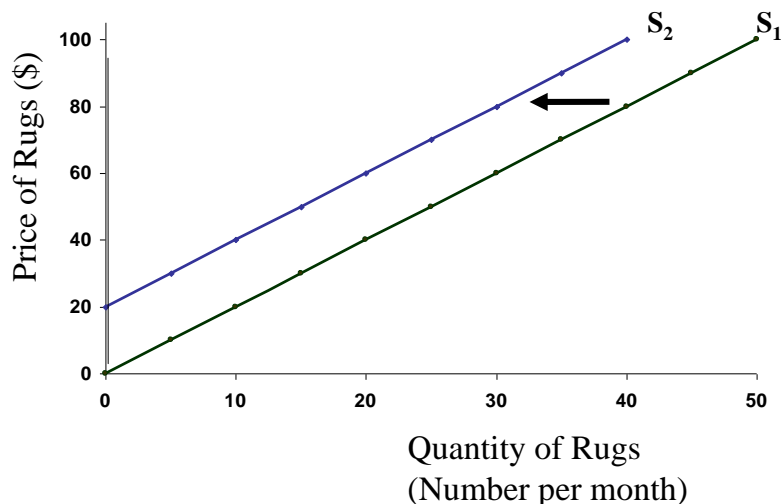
3. Based on the figure above, how many apartment owners would be willing to sell their apartments for \$91,000?
 - a. None
 - b. One
 - c. Two
 - d. Six
 - e. Ten

4. In the graph above, up to ten apartments may be available for sale. Suppose that ten more apartment owners enter the market, for a total of twenty available apartments. These new entrants into the market would be willing to sell their apartments for any price above \$90,000. Which of the following statements accurately describes the resulting change in the supply curve?
 - a. The supply curve shifts upward.
 - b. The supply curve shifts to the right.
 - c. The supply curve shifts to the left.
 - d. The supply curve becomes longer.
 - e. The supply curve can no longer be represented by a straight line.

5. In the situation described in Question #4, how many apartment owners would be willing to sell their apartments for \$91,000?
 - a. None
 - b. One
 - c. Two
 - d. Ten
 - e. Eleven

6. Which of the following statements is true, regarding the supply of a particular good, and that good's own price?
 - a. A price increase shifts the supply curve to the right.
 - b. A price decrease shifts the supply curve to the right.
 - c. A price increase shifts the supply curve downward.
 - d. A price change alone does not shift the supply curve.
 - e. A price change is the only way to shift the supply curve.

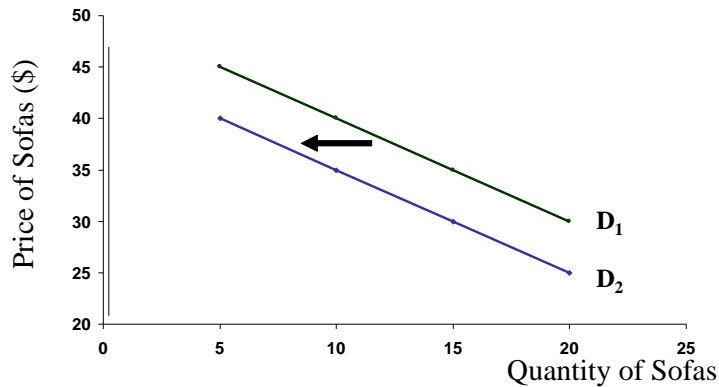
Question #7 refers to the following graph.



7. The graph shown above depicts two possible supply curves for production of handmade rugs. S_1 is the initial supply curve, and S_2 is the new supply curve after a change has occurred in the market. Which of the following events could have caused this shift?
- Several rug makers have left the market, making handmade rugs more scarce.
 - Several new rug makers have entered the market, making handmade rugs more plentiful.
 - The price of thread used in rugs has dropped, making it cheaper to produce rugs.
 - Rugs have come into fashion, so buyers want more of them.
 - Rugs have gone out of fashion, so buyers want fewer of them.
8. Which of the following is *not* an example of a “nonprice determinant of supply” of handmade rugs?
- Available technology for making rugs.
 - The price of looms for weaving rugs.
 - Number of rug producers.
 - Price of related goods and services.
 - Price of handmade rugs.
9. Which of the following is an example of movement *along* a supply curve?
- The quantity of apples offered for sale increases as the price of apples rises.
 - An apple orchard burns down in an accidental fire, decreasing the number of suppliers on the market.
 - Thanks to good weather conditions, apple growers enjoy a bumper crop this year.
 - The price of pears doubles, increasing demand for apples.
 - The price of fertilizer increases, making it more expensive to produce apples.
10. Which of the following statements is true?
- Markets respond to both effective and latent demand.
 - Markets respond to demand, even if that demand is not backed up by cash.
 - Markets respond only to wants or needs that are backed up by the ability to pay.
 - Demand curves represent "effective demand" only.
 - Both c and d are true.

11. Suppose the number of engineers graduating from college increases at the same time as the demand for engineers increases. Which one of the following is true?
- The number of engineers employed will increase, and engineer wages will increase.
 - The number of engineers employed will increase, and engineer wages will decrease.
 - The number of engineers employed will increase, but the effect on engineer wages is ambiguous.
 - Engineer wages will increase, but the effect of the number of engineers employed is ambiguous.
 - The effect on both engineer wages and the number of engineers employed is ambiguous.

Question #12 refers to the following graph.

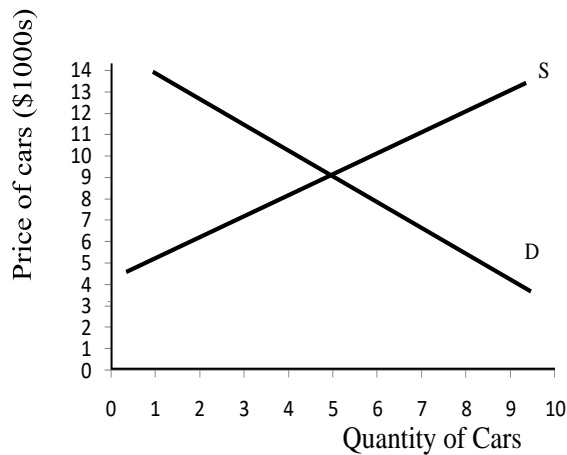


12. Assume that sofas and arm chairs are substitute goods. The graph shown above illustrates the demand curve for sofas. Which of the following events could have triggered the shift in demand from D₁ to D₂, as shown above?

- The price of sofas increased.
- The price of armchairs increased.
- The price of labor for making sofas increased.
- The price of sofas decreased.
- The price of armchairs decreased.

13. A bike shop in a small town has received a shipment of 10 new bicycles. The shop offers the bikes for sale at a price of \$300 each. At this price, however, there are only two people in town who are willing to buy a bicycle. This situation can be described as
- disequilibrium
 - shortage
 - surplus
 - equilibrium
 - both a and c are correct

Questions 14 to 16 refer to the graph below.



14. When the price of cars is \$5000, which of the following terms is not an accurate description of the situation?
- Quantity demanded exceeds quantity supplied.
 - A shortage exists.
 - The market is in disequilibrium.
 - Fewer than five cars are available for sale.
 - The market is in equilibrium.
15. Beginning from the price of \$5000, which of the following events would be predicted by the theory of market adjustment?
- Some buyers who are willing to pay more will bid the price of cars up.
 - The market will remain in disequilibrium.
 - Prices will fall.
 - All buyers will remain in the market.
 - The supply and demand curves will shift to achieve equilibrium.

16. Now suppose that the local government invests in a new, very efficient fleet of buses. Now, it is easy and affordable to get from one place to another without having your own car. What change in the graph shown above is most likely to result from the new bus service?
- The supply curve shifts to the right.
 - The supply curve shifts to the left.
 - The demand curve shifts to the right.
 - The demand curve shifts to the left.
 - None of the above.
17. At the end of a hot day, ten people want to buy a glass of lemonade. However, the local lemonade stand only has five glasses of lemonade left. The lemonade stand operator sells the remaining five glasses to the five people who are willing and able to pay the most. This is an example of ...
- a surplus
 - rationing by price
 - disequilibrium
 - a shift in the demand curve
 - a lottery
18. Suppose there is a drought that reduces the harvest of corn. At the same time, the demand for corn increases due to expanded use of ethanol fuels. Which one of the following statements is true?
- The price of corn will increase, but the effect on the quantity of corn sold is ambiguous.
 - The price of corn will decrease, but the effect on the quantity of corn sold is ambiguous.
 - The quantity of corn sold will increase, but the effect on the price of corn is ambiguous.
 - The quantity of corn sold will decrease, but the effect on the price of corn is ambiguous.
 - The effect on both the quantity of corn sold and the price of corn is ambiguous.
19. Which one of the following would be most likely to increase (shift to the right) the demand curve for public transportation?
- Increasing the frequency of bus stops
 - Lower fares for bus tickets
 - Lower prices for airline tickets
 - Higher gasoline prices
 - Lower automobile prices

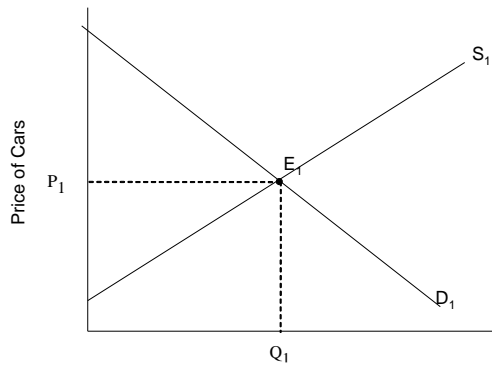
20. When the supply of a good increases, what happens to equilibrium price and quantity?
- a. They both increase
 - b. They both decrease
 - c. Price increases, quantity decreases
 - d. Price decreases, quantity increases
 - e. The effect is ambiguous

Answers to Active Review Questions

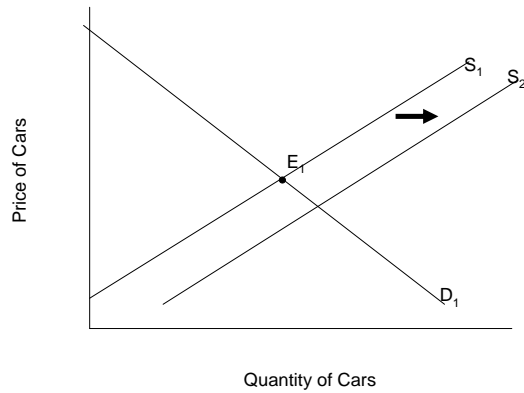
1. demand
2. effective
3. substitute
4. complementary
5. disequilibrium
6. decrease, increase
7. True. For example, if limes command a high price, lemon producers might switch to lime production, thus decreasing the total supply of lemons available.
8. True.
9. True.
10. False. In general, an increase in demand tends to increase both equilibrium price and equilibrium quantity.
11. False. The impact of these changes on equilibrium price is ambiguous.
12. True.
13. False. The more precise a model is, the less likely it is to be accurate.
14. Market supply is 200.
15. Available technology of production; resource prices; number of producers; producer expectations about future prices and technology; prices of related goods and services; physical supply of a natural resource.
16. The demand curve slopes downward because in general, the higher the price of the good, the fewer people will want to buy it.
17. Occasionally, people will want more of a good if it is sold as a "prestige" good at a high price. This phenomenon might sometimes be observed with specialty foods, clothes, or cars.
18. "Change in quantity demanded" refers to movement *along* the demand curve. For example, if the price of apples rises, all other things being equal, people will buy fewer apples; thus, the quantity demanded will decrease. A "change in demand" refers to a situation in which the entire demand curve shifts. For example, if a large number of new people move into your neighborhood, there will be a larger pool of people interested in buying apples at the local grocery store.
19. One example is the shortage of nursing staff in health care settings, a shortage that has existed for decades. You may come up with other real-life or hypothetical examples. For example, adjustment to equilibrium might take a long time in a housing market; sellers might keep prices high for a period of time, hoping to find takers, even though few people are willing to purchase homes at those prices.
20. No, this market is not in equilibrium; there is a shortage of movie tickets.

Answers to Problems

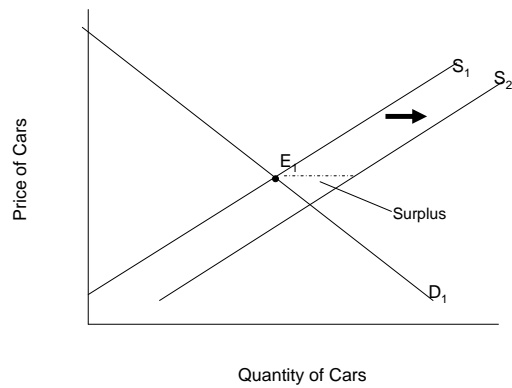
1. a.



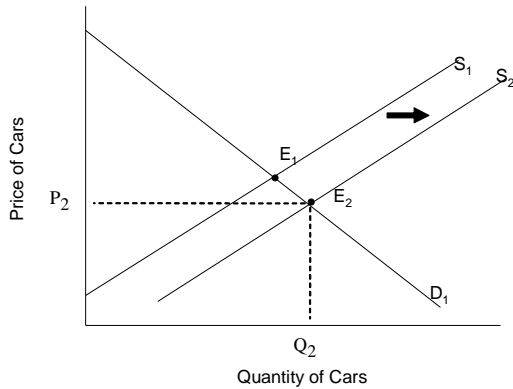
1. b.



1. c. The shift in the supply curve creates a temporary surplus.

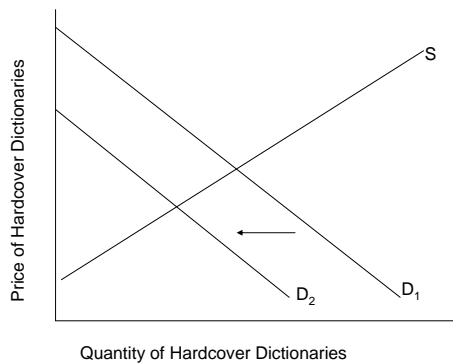


1. d.



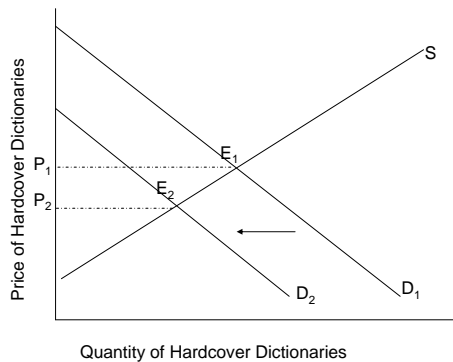
1. e. The supply curve has shifted to the right. The equilibrium price has fallen, and equilibrium quantity has risen.

2. a. The demand curve shifts to the left.



2. b. The supply curve does not shift.

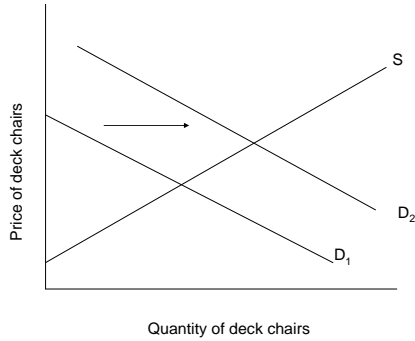
2. c. The price of hardcover dictionaries at the new equilibrium, E_2 , is lower.



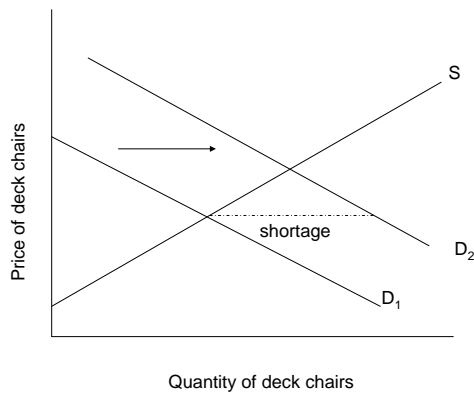
d. Many answers are possible here. For example, dictionary producers might continue charging high prices out of habit, failing to recognize – or not wanting to admit – that demand has changed significantly.

3. The equilibrium price could rise as a result of the supply curve shifting to the left (i.e. a decrease in supply), or as a result of the demand curve shifting to the right (i.e. an increase in demand).

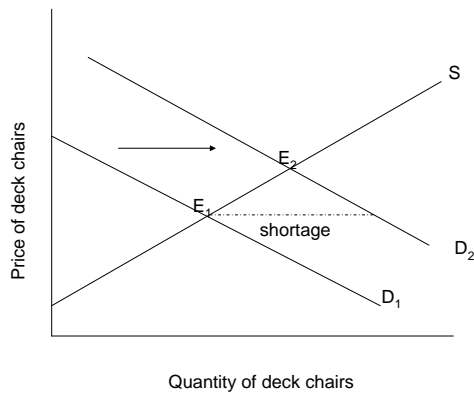
4. a.. The demand curve shifts to the right, as shown below.



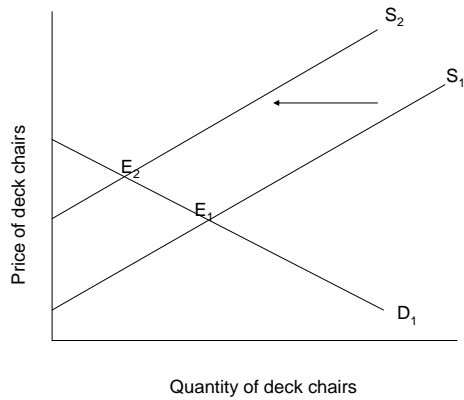
4. b.



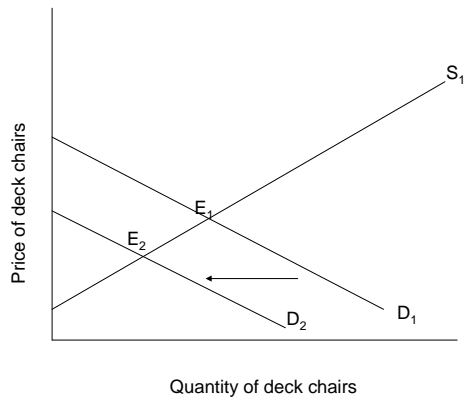
4. c.



5. a. The supply curve shifts to the left, leading to a higher equilibrium price and lower equilibrium quantity.



5. b. The demand curve shifts to the left, leading to a lower equilibrium price and lower equilibrium quantity.



Answers to Self Test Questions

- | | |
|-------|-------|
| 1. a | 11. c |
| 2. b | 12. e |
| 3. b | 13. e |
| 4. b | 14. e |
| 5. e | 15. a |
| 6. d | 16. d |
| 7. a | 17. b |
| 8. e | 18. a |
| 9. a | 19. d |
| 10. e | 20. d |

Chapter 5

ELASTICITY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter continues dealing with the demand and supply curves we learned about in Chapter 3. You will learn about the notion of *elasticity* of demand and supply, the way in which demand is affected by income, and how a price change has both income and substitution effects on the quantity demanded.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Define elasticity of demand and differentiate between elastic and inelastic demand.
2. Calculate the elasticity of demand.
3. Understand how to apply an elasticity of demand to a business seeking to maximize revenues as well as to a policy situation.
4. Define elasticity of supply and differentiate between elastic and inelastic supply.
5. Understand the income and substitution effects of a price change.
6. Discuss the differences between short-run and long-run elasticities.

Key Terms

elasticity
price-inelastic demand
price-inelastic demand (technical definition)

perfectly inelastic demand
unit-elastic demand
income elasticity of demand
inferior goods
income effect of a price change
long-run elasticity

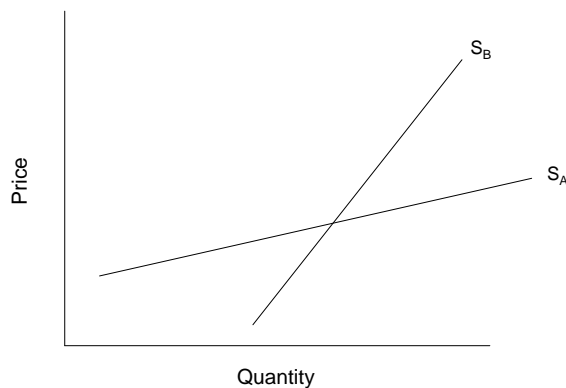
price elasticity of demand
price-elastic demand
price-elastic demand (technical definition)
perfectly elastic demand
price elasticity of supply
normal goods
substitution effect of a price change
short-run elasticity

Active Review Questions

Fill in the blank

1. When you drop by the only coffee shop in your neighborhood, you notice that the price of a cup of coffee has increased considerably since last week. You decide it's not a big deal, since coffee isn't a big part of your overall budget, and you buy a cup of coffee anyway. Most of the other coffee drinkers who frequent the coffee shop make a similar calculation. Thus, the demand for coffee in your neighborhood is relatively _____.
2. You sell muffins for one dollar each. If you raise your price by even one penny, you will lose all your customers. The demand curve for your muffins is thus _____.
3. The responsiveness of demand to income is known as the _____ of demand.
4. The income elasticity of demand is _____ for inferior goods and _____ for normal goods.
5. When demand is _____, revenue to the seller is unaffected by a price change.

For Question #6, refer to the following graph:



6. For a given price range, which of the supply curves in the graph shown above is characterized by a relatively greater elasticity of supply? _____
7. The elasticity of demand is calculated as the percent change in _____ divided by the percent change in _____.
8. When quantity demanded does not respond at all to price, demand is perfectly _____.

9. If the price elasticity of demand is greater than one, then demand is _____.
10. Suppose tangerines are an inferior good. This means that if your income decreases, you will buy (more/fewer) _____ tangerines.

True or False

11. Perfectly elastic demand refers to a situation in which any price change for the good in question, no matter how small, will produce an "infinite" change in quantity demanded.
12. When the seller increases the price charged for a good with an elastic demand, the seller's revenues will go up.
13. Elasticity is the same as the slope of the demand curve.
14. Income elasticity of demand is always expressed as a positive number (absolute value).
15. When the income elasticity of demand is positive but less than 1, demand is called "income elastic."
16. If a good is inferior and its price rises, the income effect will encourage greater expenditures, at the same time as the substitution effect pushes toward lower expenditures.

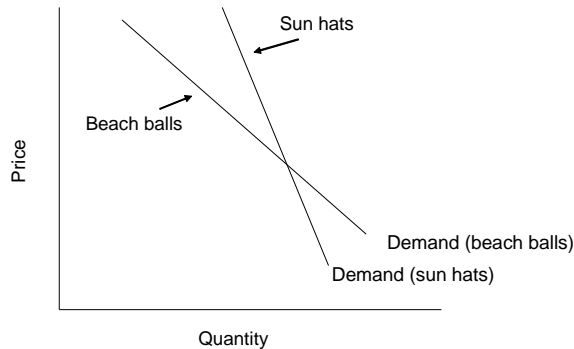
Short Answer

17. Name the three main reasons why demand for a good or service might be inelastic.

18. You run the only lemonade stand in Central Park. If people don't buy lemonade from you, their only other option is to buy orange juice from a nearby vendor. One day, you decide to raise the price of your lemonade from \$1 per glass to \$1.25 per glass. As a result, half of your usual customers decide to get orange juice instead of lemonade that day. What does this experience tell you about the demand for lemonade in Central Park?

19. A 20% increase in the price of milk leads to a 10% reduction in the quantity of milk demand. What is the price elasticity of demand for milk?

For Question #20, refer to the graph below.



20. The graph shown above illustrates the demand curves for two goods: Sun hats and beach balls. Which demand curve is relatively more elastic?

Problems

1. Draw a diagram of a perfectly inelastic demand curve. Suggest an example of a good for which demand might be perfectly elastic.

2. A limited number of Civil War uniforms have been preserved. No matter how much buyers are willing to pay for these uniforms as collectors items, there's no way to increase the quantity of uniforms in existence. Show the supply curve for authentic Civil War uniforms.

For Problems #3 and #4, refer to the following graph:



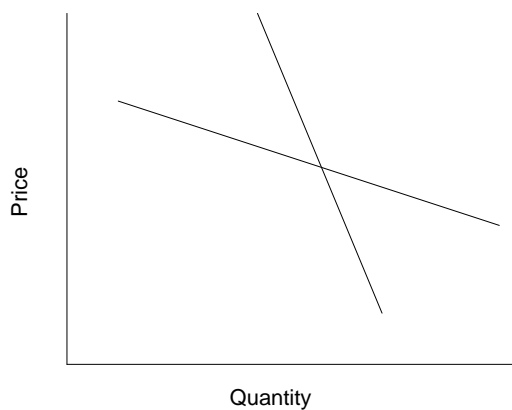
3. The graph above shows the demand curve for pineapples.

a. Calculate the amount of revenue the seller would receive if the price is set at \$3.

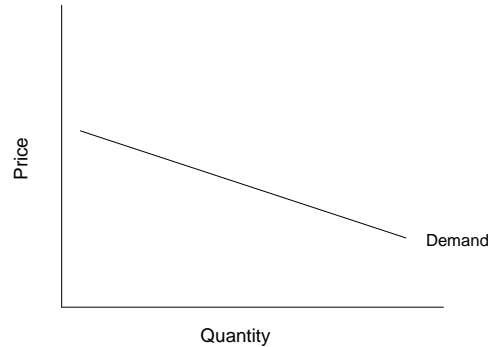
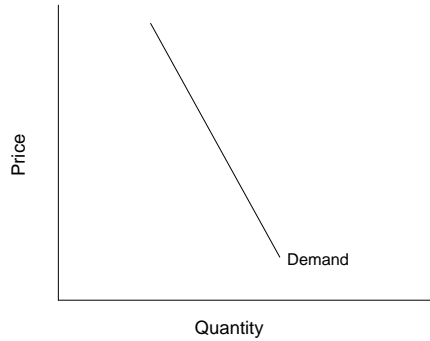
b. Calculate the amount of revenue the seller would receive if the price is set at \$5.

c. Reasoning from the results you just calculated, is the demand for bananas elastic or inelastic, in this range of prices? How do you know?

4. Continuing with the above example of pineapples,
- Calculate the percent change in price that occurs in moving from point A (the “base” case) to point B, using the midpoint formula.
 - Calculate the percent change in quantity that occurs in moving from point A to point B, using the midpoint formula.
 - Calculate the price elasticity of demand for pineapples.
5. Suppose the demand for oranges is more price elastic in the demand for chocolate. On the graph below, indicate which line represents the demand for oranges, and which represents the demand for chocolate.



6. Which of the following demand curves is more elastic?

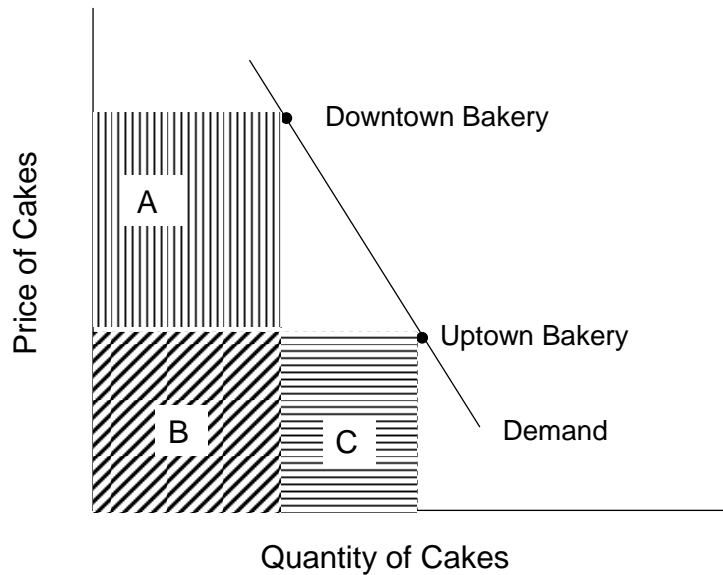


Self Test

1. The price of milk doubles, but the quantity demanded changes very little. Which of the following would *not* be a likely explanation for this phenomenon?

- a. There isn't a good substitute for milk.
- b. People feel they need milk, rather than just wanting it.
- c. Demand for milk is highly price elastic.
- d. Milk is not a very big part of most people's budget.
- e. All of the above are likely explanations for this phenomenon.

Questions 2 and 3 refer to the following scenario and graph. Bob's Bakery has two locations. The bakery decides to experiment with charging different prices at the two bakeries, to find out which price will bring in higher total revenues. The results of the experiment are shown in the graph below.



2. The revenue earned at Downtown Bakery is equal to
- area A
 - area B
 - area C
 - area A + B
 - area B + C
3. Area A is bigger than area C. This means that
- Demand for chocolate cake is highly price elastic.
 - Demand for chocolate cake is price inelastic.
 - The quantity demanded of chocolate cake exceeds the quantity supplied.
 - The quantity supplied of chocolate cake exceeds the quantity demanded.
 - None of the above.
4. Suppose a study finds that as people's incomes rise, they tend to buy fewer subway tokens because they are more likely to have a car. This would mean that subway tokens are
- normal goods
 - inferior goods
 - price elastic goods
 - price taker goods
 - supply elastic goods
5. The more money people make, the more pairs of shoes they buy. We can conclude that
- Shoes are a normal good.
 - Shoes are an inferior good.
 - Demand for shoes is highly price elastic.
 - Demand for shoes has an elasticity between 0 and 1.
 - All of the above.

Questions #6 and #7 refer to the following scenario: A 4% increase in the price of tomatoes leads to a 1% reduction in the quantity of tomatoes demanded.

6. The price elasticity of demand for tomatoes is:
- 0.5
 - 0.6
 - 0.25
 - 1.25
 - 4.0

7. Which of the following statements about the market in tomatoes is *false*?
- Demand for tomatoes is price inelastic.
 - A price increase will lead to a revenue increase.
 - Demand for tomatoes is unit elastic.
 - Price elasticity of demand equals percent change in quantity demanded, divided by percent change in price.
 - All of the above are true.
8. Which of the following statements is *true*?
- Elasticity is identical to the slope of the demand curve.
 - A single, straight-line demand curve can be elastic in one region and inelastic in another.
 - Perfectly inelastic demand can be represented by a horizontal line.
 - When demand is unit elastic, revenue is strongly affected by price changes.
 - You can always determine the relative elasticity of demand for two products by comparing the slope of their demand curves.
9. Suppose a 50% increase in the price of a drug results in no change in the quantity demanded. What is the price elasticity of the drug?
- 0
 - 0.05
 - 0.5
 - 1
 - Infinite
10. Suppose the price elasticity of demand for a good is -0.6. When the price of the good decreases by 10%, what would we expect to happen to the quantity demanded?
- It will increase by 60%
 - It will increase by 6%
 - It will increase by 0.6%
 - It will decrease by 0.6%
 - It will decrease by 6%
11. Which one of the following goods is most likely to have a perfectly elastic demand?
- cigarettes
 - shoes
 - rice, in a developing country
 - a particular brand of butter
 - airline travel

12. Which of the following income elasticities could correspond to a *normal good* that is *income inelastic*?
- a. 0.5
 - b. 1.5
 - c. -1.5
 - d. 2.0
 - e. -0.5
13. Every week you buy rice, wheat, and oatmeal. Suddenly the price of rice rises. You decide to cut down on your rice purchases and get more wheat and oatmeal instead. This is an illustration of ...
- a. an income effect
 - b. a substitution effect
 - c. a normal good effect
 - d. a Giffen good
 - e. a price inelastic good
14. A population subsists largely on potatoes, plus small amounts of dairy products and vegetables. The price of potatoes rises, driving many poor families deeper into poverty. As a result, these families are forced to eliminate dairy products and vegetables from their daily diet and start eating even more potatoes than they did before. In this example potatoes are ...
- a. normal goods
 - b. inferior goods
 - c. Giffen goods
 - d. both a and c are correct.
 - e. both b and c are correct.
15. You get a notice in the middle of the semester stating that your monthly dorm fee is being doubled, effective immediately. You don't want to pay the higher fee, but it's not practical for you to move out of the dorm mid-semester. You decide to pay the extra charge now, and look for new housing option after exams are over. Which of the following statements best describes your situation?
- a. The dorm room is a Giffen good.
 - b. The dorm room is an inferior good.
 - c. Your short run demand for dorm housing is relatively inelastic.
 - d. Your long run demand for dorm housing is less elastic than your short run demand.
 - e. None of the above.

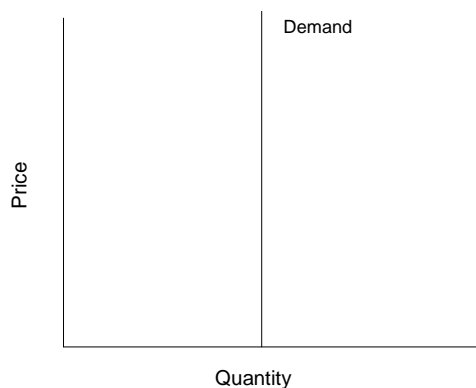
16. Which of the following goods is most likely to have high price elasticity of demand?
- a. A staple food.
 - b. A good that forms a very small part of a person's total budget.
 - c. A good for which there are many close substitutes.
 - d. A vital medicine.
 - e. None of the above.
17. Jake sells hot dogs at an outdoor stand. There are several other hot dog stands in the vicinity. There is a going price in the market for hot dogs. Which of the following statements is true about the demand for Jake's hot dogs?
- a. Demand for Jake's hot dogs is perfectly inelastic.
 - b. Demand for Jake's hot dogs is perfectly elastic.
 - c. Demand for Jake's hot dogs can be represented as a vertical line.
 - d. Demand for Jake's hot dogs can be represented as a downward sloping line.
 - e. None of the above.
18. Suppose that the price elasticity of supply for toothpaste is 0.2. If the price of toothpaste increases by 30%, what would we expect to happen to the quantity of toothpaste supplied?
- a. increase by 3%
 - b. decrease by 5%
 - c. increase by 60%
 - d. decrease by 15%
 - e. increase by 6%
19. Suppose a grocery store normally sells 100 cartons of milk per day and the price elasticity of demand for milk is 1.7. If the store lowers the price of milk by 10%, about how many cartons of milk will it then sell per week?
- a. 117
 - b. 83
 - c. 85
 - d. 100
 - e. 101.7
20. Which of the following is most likely to be an inferior good?
- a. eyeglasses
 - b. airplane tickets
 - c. caviar
 - d. opera tickets
 - e. discount bus tickets

Answers to Active Review Questions

1. price inelastic
2. perfectly price elastic
3. income elasticity
4. negative, positive
5. unit elastic
6. S_A (the flatter curve)
7. quantity demanded; price
8. inelastic
9. elastic
10. more
11. True.
12. False.
13. False.
14. False.
15. False.
16. True.
17. There are very few good, close substitutes for the good or service; it is a good or service that people feel they need, rather than just want; or the good or service is a very small part of a buyer's budget.
18. The demand for lemonade in Central Park is price elastic.
19. -0.5
20. The demand curve for beach balls is relatively more elastic.

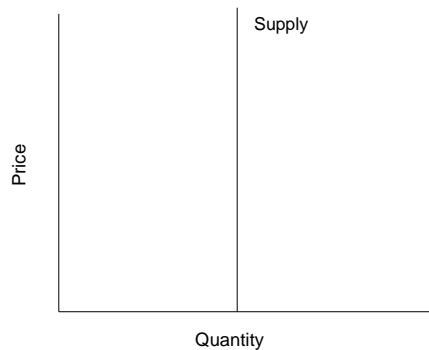
Answers to Problems

1.



The textbook suggests the example of a medication that you must take every day in order to survive. Provided that you have the money to pay for it, your demand is likely to be perfectly inelastic over a range of prices, since skipping a pill would mean losing your life.

2.



3.

a. Revenue (at point A) = Price \times Quantity = \$3 \times 3 = \$9

b. Revenue (at point B) = \$5 \times 2 = \$10

c. In this case, an increase in price from \$3 to \$5 raises revenues from \$9 to \$10. When a price increase leads to higher revenues (that is, when revenues move in the same direction as the price), demand is **inelastic**.

4.

a. % change in price = $[(5-3) / ((5+3)/2)] \times 100 = (2/4) \times 100 = + 50\%$

b. % change in quantity = $[(2-3) / ((2+3)/2)] \times 100 = (1/2.5) \times 100 = - 40\%$

c. Price elasticity of demand = % change in quantity demanded / % change in price
= $-40\% / 50\% = -.8$

5. We cannot tell which demand curve is more elastic, because the scale is not shown. To compare the elasticities of the two curves based on their appearance, they would have to be on the same scale and passing through the same point.

Answers to Self Test Questions

1. c
2. d
3. b
4. b
5. a
6. c
7. c
8. b
9. a
10. b
11. d
12. a
13. b
14. e
15. c
16. c
17. b
18. e
19. a
20. e

Chapter 6

WELFARE ANALYSIS

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter presents welfare analysis, including the topics of consumer and producer surplus. This chapter also includes a close examination of different ways of understanding efficiency. Consideration of what is efficient—and for whom—is followed by a first look at policy conclusions that have been drawn from this approach and at the requirements for “perfect markets” that underlie traditional welfare analysis.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Understand how economists define and quantify social welfare.
2. Define consumer surplus, and be able to understand it in relation to a demand curve.
3. Define producer surplus, and be able to understand it in relation to a supply curve.
4. Explain why a market at equilibrium maximizes the net social welfare to market participants.
5. Discuss why a price floor or a price ceiling creates a deadweight loss.
6. Discuss the policy implications of welfare analysis, including the basis for laissez-faire economics and the problem of market failure.

Key Term Review

welfare economics
third-party effects
consumer surplus
marginal benefit (for consumers)
net benefits
market consumer surplus
marginal cost
social efficiency (in welfare economics)
deadweight loss
laissez-faire

social welfare
maximum willingness to pay (WTP)
marginal change
marginal benefits curve
aggregate (or market) benefits
producer surplus
market producer surplus
price ceiling
price floor
market failure

Active Review Questions

Fill in the blank

1. The difference between a consumer's maximum willingness to pay for something and price is known as _____.
2. Another name for a demand curve is _____.
3. Producer surplus is essentially the same thing as _____.
4. The area above the supply curve but below price is known as _____.
5. An allocation of resources that maximizes the net benefits to society is known as _____.
6. A minimum price set above the market equilibrium price is known as _____.
7. A reduction in net benefits as a result of a market intervention is known as _____.
8. A minimum wage law is an example of _____.
9. The perspective that government regulation in markets should be kept to a minimum is known as _____.
10. Situations in which unregulated markets fail to maximize social welfare are known as _____.

True or False

11. Suppose Solange is willing to pay \$50 for a particular pair of shoes. The price of the shoes is \$30. She would obtain a consumer surplus of \$20 if she purchases the shoes.
12. Consumer surplus is the area above a demand curve but below price.
13. Another name for a demand curve is a marginal cost curve.
14. The producer surplus for a particular unit is equal to the vertical distance between price and the supply curve.
15. Social efficiency is an allocation of resources in which consumer and producer surplus are equal.

16. Under certain assumptions, the market equilibrium is socially efficient.
17. Rent control is an example of a price ceiling.
18. A deadweight loss results when resources are allocated in an unequal manner.
19. Laissez-faire economics means that resources should be allocated in an equal manner.
20. Market failure occurs when unregulated markets fail to maximize net social benefits.

Short Answer

21. What area in a market graph is equal to market consumer surplus?

22. What is social efficiency?

23. What is a deadweight loss?

24. What is a price ceiling?

Problems

1. In Figure 5.11 the price floor appears to increase producer surplus. Draw a graph illustrating a price floor that clearly decreases producer surplus. Be sure to indicate which areas represent producer surplus before and after the price floor.

2. Illustrate in a graph how a price ceiling creates a deadweight loss.

Self Test

1. Social welfare is defined as ...
 - a. the aggregate well-being of society.
 - b. consumer surplus minus producer surplus.
 - c. producer surplus minus consumer surplus.
 - d. total net benefits.
 - e. total benefits minus deadweight loss.
2. The difference between maximum willingness to pay and price is known as ...
 - a. producer surplus.
 - b. total benefits.
 - c. consumer surplus.
 - d. deadweight loss.
 - e. market failure.
3. Consumer surplus for a particular unit sold is equal to ...
 - a. the vertical distance between price and the demand curve.
 - b. the vertical distance between the demand curve and the supply curve.
 - c. the vertical distance between price and the supply curve.
 - d. the vertical distance between the demand curve and the x-axis.
 - e. the vertical distance between the supply curve and the x-axis.

4. What is another name for a demand curve?
 - a. A marginal benefits curve
 - b. A total benefits curve
 - c. A marginal cost curve
 - d. An aggregate benefits curve
 - e. A total cost curve

5. Market producer surplus is equal to what area?
 - a. The area below the demand curve but above price
 - b. The area between the demand and supply curves
 - c. The area below the demand curve but above the x-axis
 - d. The area above the supply curve but below price
 - e. The area below the supply curve but above the x-axis

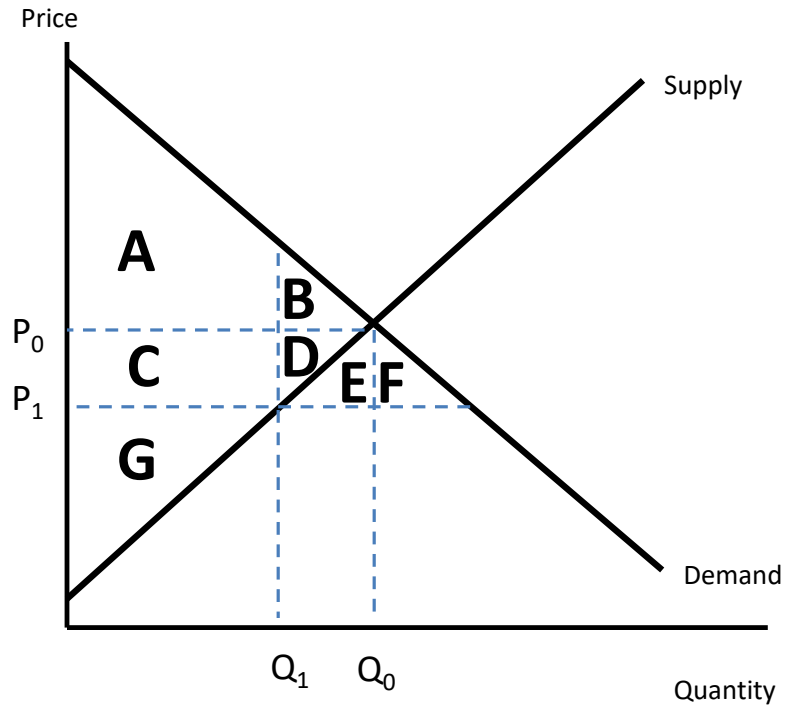
6. Market net benefits are equal to what area?
 - a. The area below the demand curve but above price
 - b. The area between the demand and supply curves
 - c. The area below the demand curve but above the x-axis
 - d. The area above the supply curve but below price
 - e. The area below the supply curve but above the x-axis

7. What is another name for profits?
 - a. Deadweight loss
 - b. Market failure
 - c. Consumer surplus
 - d. Producer surplus
 - e. Aggregate benefits

8. Social efficiency is defined as an allocation of resources that ...
 - a. maximizes consumer surplus.
 - b. maximizes producer surplus.
 - c. maximizes social well-being.
 - d. maximizes social welfare.
 - e. maximizes market failure.

9. A price ceiling is defined as ...
- a price set to maximize producer surplus.
 - a price set to maximize consumer surplus.
 - a regulation that specifies a maximum price.
 - a regulation that specifies a minimum price.
 - a regulation that sets the quantity sold.
10. A price floor will ...
- clearly increase both consumer and producer surplus.
 - clearly decrease both consumer and producer surplus.
 - clearly increase consumer surplus but have an ambiguous effect on producer surplus.
 - clearly decrease consumer surplus but have an ambiguous effect on producer surplus.
 - clearly increase producer surplus but have an ambiguous effect on consumer surplus.
11. Laissez-faire economics states that ...
- government regulation should be kept to a minimum.
 - government regulation should promote equity.
 - government regulation can eliminate market failure.
 - government regulation should be limited to taxation.
 - government regulation can maximize social welfare.
12. A deadweight loss is defined as ...
- a reduction in social welfare due to equity considerations.
 - a reduction in social well-being due to equity considerations.
 - a reduction in social welfare due to laissez-faire policies.
 - a reduction in social welfare due to market failure.
 - a reduction in social welfare due to market interventions.
13. The policy implication of market failure is that ...
- government intervention is not warranted.
 - government intervention should be undertaken to increase equity.
 - government intervention may be necessary to increase well-being.
 - government intervention is warranted only to protect property rights.
 - government intervention may be necessary to increase social welfare.

For Questions 14-17, refer to the graph below.



14. In the graph above, setting a maximum price of P_1 is an example of ...
- laissez-faire economics.
 - a price floor.
 - a price ceiling.
 - a market failure.
 - an inequitable policy.
15. In the graph above, if the maximum price is set at P_1 , what area(s) represent consumer surplus after the implementation of this policy?
- Area A
 - Areas A+B
 - Areas A+C
 - Areas A+B+C
 - Areas A+B+C+D

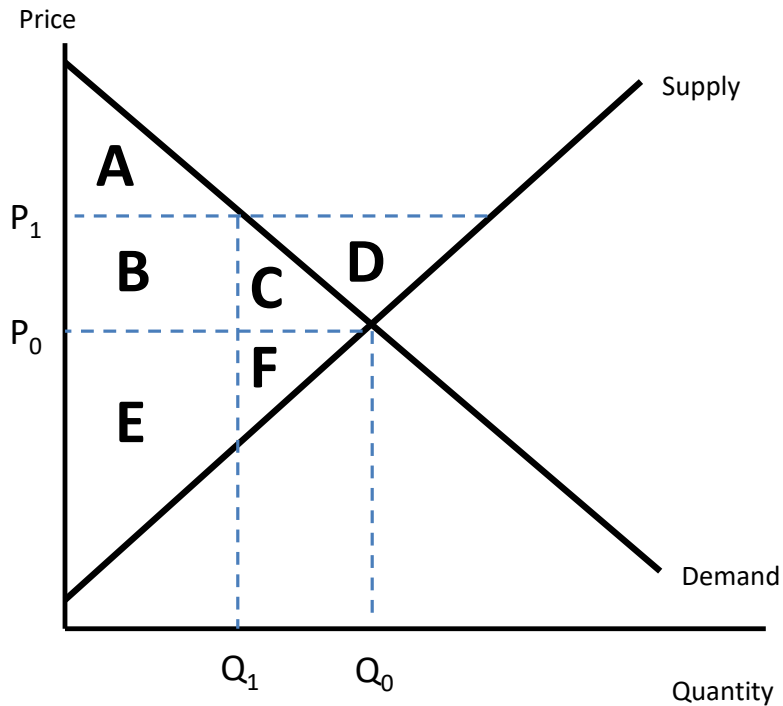
16. In the graph above, if the maximum price is set at P_1 , what area(s) represent the deadweight loss as a result of this policy?

- a. Areas A+C+G
- b. Area B
- c. Areas E+F
- d. Areas C+D
- e. Areas B+D

17. In the graph above, if the maximum price is set at P_1 , what area(s) represent the producer surplus after the implementation of this policy?

- a. Areas C+D+G
- b. Area G
- c. Areas G+D
- d. Area C
- e. Area D

For Questions 18-20, refer to the graph below.



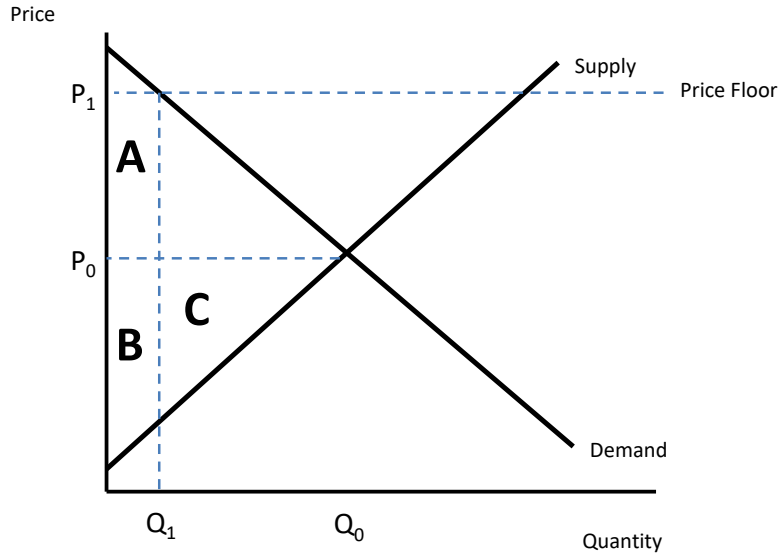
18. In the graph above, if the minimum price is set at P_1 , what area(s) represent the producer surplus after the implementation of this policy?
- Areas B+C+E+F
 - Areas B+E
 - Areas E+F
 - Area E
 - Area B
19. In the graph above, if the minimum price is set at P_1 , what will limit the quantity of the good that is sold?
- Demand
 - Supply
 - A government quota
 - Consumer surplus
 - Producer surplus
20. In the graph above, if the minimum price is set at P_1 , what area(s) represent the consumer surplus after the implementation of this policy?
- Area A
 - Areas A+B
 - Areas A+C
 - Areas A+B+C
 - Area B

Answers to Active Review Questions

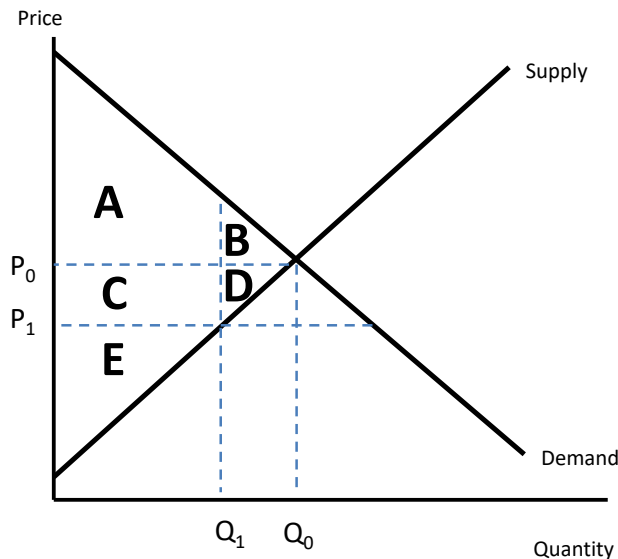
1. consumer surplus
2. a marginal benefits curve
3. profits
4. producer surplus
5. social efficiency
6. a price floor
7. a deadweight loss
8. a price floor
9. laissez-faire economics
10. market failure
11. True
12. False. Consumer surplus is the area below a demand curve but above price.
13. False. Another name for a demand curve is a marginal benefit curve.
14. True
15. False. Social efficiency is an allocation of resources that maximizes net benefits.
16. True
17. True
18. False. A deadweight loss is created when a market intervention reduces net benefits.
19. False. Laissez-faire economics means that government intervention in markets should be kept to a minimum.
20. True
21. The area above price but below the demand curve.
22. Social efficiency is the maximization of net social benefits.
23. A deadweight loss is a reduction in net social benefits as a result of a market intervention, such as a price floor or a price ceiling.
24. A price ceiling is a maximum price set below the market equilibrium.

Answers to Problems

1. If a price floor is set very high, it will clearly decrease producer surplus. This is illustrated in the graph. Before the price floor, producer surplus is areas (B+C). After the price floor, producer surplus is areas (A+B). Area A is clearly smaller than area C. Thus producer surplus has decreased.



2. The initial price in the graph below is P_0 . Consumer surplus is areas (A+B). Producer surplus is areas (C+D+E). So total market benefits are (A+B+C+D+E). The price ceiling is set at P_1 . Consumer surplus is now areas (A+C). Producer surplus is now area E. Total market benefits are now (A+C+E). Thus the reduction in social welfare is equal to areas (B+D), which is the deadweight loss.



Answers to Self Test Questions

1. d
2. c
3. a
4. a
5. d
6. b
7. d
8. d
9. c
10. d
11. a
12. e
13. e
14. c
15. c
16. e
17. b
18. b
19. a
20. a

Chapter 7

INTERNATIONAL TRADE AND TRADE POLICY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter presents different perspectives on the important subject of international trade. It begins by presenting the classical economic contributions to economic theory of Adam Smith and David Ricardo. It shows the reasoning behind why free markets promote specialization and, in turn, efficiency and comparative advantage. As will be shown, comparative advantage, is the logical argument behind why free trade is desirable—it is beneficial to both countries.

The chapter then discusses other important advantages of trade, but also equally important disadvantages. These illustrate that trade is a much more complex topic than may appear just from looking at the logic of the comparative advantage model. Next, the idea of protectionism—or restrictions on trade—is introduced, with examples such as tariffs and quotas. We look at some reasons why countries sometimes pursue protectionist policies, and also briefly discuss some of today’s trade institutions like the World Trade Organization, the European Union, and the North American Free Trade Agreement. Finally, the chapter discusses some political economy considerations that influence the “fairness” of free trade or protectionism.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Describe how specialization, productivity, and trade are related.
2. Discuss how trade can expand a society’s consumption opportunities.
3. Explain the law of comparative advantage.
4. List the advantages and disadvantages of free trade.
5. Describe the likely effects of protectionism.
6. Explain why countries sometimes follow protectionist policies.
7. Discuss how trade and protectionism relates to issues of fairness.

Key Terms

absolute advantage
comparative advantage
capital-intensive production
race to the bottom
globalization
import substitution
tariffs
trade-related subsidy
World Trade Organization (WTO)

free trade
labor-intensive production
factor-price equalization
exporting pollution
protectionism
infant industry
trade quotas
administrative obstacles
dumping

Active Review Questions

Fill in the Blank

1. According to Adam Smith, free trade led to specialization, which in turn increased _____.
2. Comparative advantage refers to a country's ability to produce some good or service at a lower _____ than other countries.
3. A productive method that employs a high ratio of labor to capital is known as _____ production.
4. A race to the _____ refers to when countries compete with each other by providing low-cost business environment.
5. Tariffs and quotas are both examples of _____ policies.
6. A government policy undertaken to reduce reliance on inputs and encourage development of domestic industry can be referred to as an import _____ policy.
7. The principle of comparative advantage says that a producer should specialize in producing goods for which its opportunity costs are relatively _____.
8. The practice of selling products at prices below production costs is known as _____.

True/False

9. Suppose Costa Rica and Panama both produce two goods: bananas and beans. According to the principle of comparative advantage, if Costa Rica produces both bananas and beans less efficiently than Panama, it should simply buy both goods from Panama.
10. The principle of comparative advantage applies only to decisions concerning international trade.
11. Increasing capital mobility decreases the likelihood of a "race to the bottom" in social, health, and environmental standards among countries.
12. Adam Smith is known for having promoted the principle of comparative advantage.
13. Specialization in production always increases the prosperity of a country.

14. Relying excessively on other countries for petroleum imports increases vulnerability to free trade.

15. Relying excessively on other countries for pistachio imports increases vulnerability to free trade.

16. Lock-in is one of the key strategies followed by countries to achieve prosperity.

17. The chief mandate of the World Trade Organization is to provide lending assistance and grants to countries with poor terms of trade.

18. Exporting pollution is when all countries increase their pollution levels in order to gain a competitive advantage over trading partners.

Short Answer

19. Explain Adam Smith's reasoning for why free trade would lead to economic prosperity.

20. List and describe at least three disadvantages of free trade.

Problem

21. Suppose that by devoting all its resources to coffee production, Ethiopia can produce 6 tons of coffee, while if it devotes all its resources to peanut production, it can produce 2 tons of peanuts. Senegal can produce 2 tons of coffee if it devotes all its resources there, or 4 tons of peanuts if it grows only peanuts.

a. Draw the PPFs for Ethiopia and Senegal. (Put the quantity of coffee on the vertical axes.)

b. Which country is the more efficient producer of coffee? Explain how you got your answer.

c. Suppose that Ethiopia would like to consume 4 tons of coffee and 1 ton of peanuts, while Senegal would like to consume 2 tons of coffee and 3 tons of peanuts. Could either country consume their desired consumption bundle, without trade? Show on your graphs above.

d. If the countries trade, could they each get their desired consumption bundle?
If so, how?

Self Test

1. Adam Smith referred to specialization in production as...

- a. the division of labor.
- b. laissez-faire.
- c. sweat and toil.
- d. the invisible hand.
- e. the essence of comparative advantage.

2. According to Adam Smith, productivity gains could be brought about through...

- a. factor-price equalization.
- b. labor-intensive production.
- c. diversification.
- d. market expansion.
- e. protectionism.

3. David Ricardo is most well-recognized for his...

- a. advocacy of the GATT and the WTO.
- b. theory of comparative advantage.
- c. theory of absolute advantage.
- d. development of capital-intensive modes of production.
- e. Slavonic approaches to trade.

4. According to the principle of comparative advantage:
- Each country should specialize in the good it can produce most efficiently compared with its trading partner.
 - Buyers should compare goods before signing a contract.
 - Wealthier countries have significant advantages compared to poorer countries.
 - Each country should produce at least some quantity of every important consumer good.
 - Some countries should act strictly as consumers and not as producers.

Use the table below, showing the maximum quantities of two items that two countries could produce if they each specialized entirely in one good or the other, to answer Questions 5-8.

<u>Country</u>	<u>Industry</u>	
	Wheat	Copper
United States	5 bushels	7 tons
Zambia	1 bushel	2 tons

5. The opportunity cost of a bushel of wheat in the United States is...
- $7/5$ ton of copper.
 - 7 tons of copper.
 - 5.7 tons of copper.
 - $7/5$ bushels of wheat.
 - $5/7$ tons of copper.
6. The opportunity cost of a bushel of wheat in Zambia is...
- $1/2$ ton of copper.
 - $1/2$ ton of wheat.
 - 2 bushels of wheat.
 - 2 tons of copper.
 - None of the above.
7. Which country has the comparative advantage in producing copper?
- The United States
 - Zambia
 - both
 - neither
 - you can't tell from the information given

8. If it follows the principle of comparative advantage, which item should the United States specialize in producing?
- a) wheat
 - b) copper
 - c) both
 - d) neither
 - e) you can't tell from the information given
9. Which of the following is not cited as an advantage of specialization and exchange?
- a. incentives to be productive
 - b. gains from trade
 - c. non-coercion
 - d. power differentials
 - e. creation of common interests
10. According to the infant industry argument:
- a. Government should sometimes protect domestic firms from foreign competition until they can compete on their own.
 - b. Tariffs may be justified to protect an industry until it becomes more competitive.
 - c. Quotas are never justified in an international trade situation.
 - d. Both a and b
 - e. Both b and c
11. Which of the following is a disadvantage of import substitution policies?
- a. Decreased likelihood of lock-in
 - b. Loss of potential gains from trade in the short run
 - c. Loss of infant industry advantages
 - d. Loss of long run comparative advantage
 - e. Diversification of production
12. Which of the following is not a potential drawback to specialization and exchange in international markets?
- a. Creation of common interests.
 - b. Excessive dependence on another nation for crucial inputs.
 - c. Loss of domestic food security.
 - d. A "race to the bottom" in environmental standards.
 - e. Wars sparked by the need for products or raw materials provided by another country.

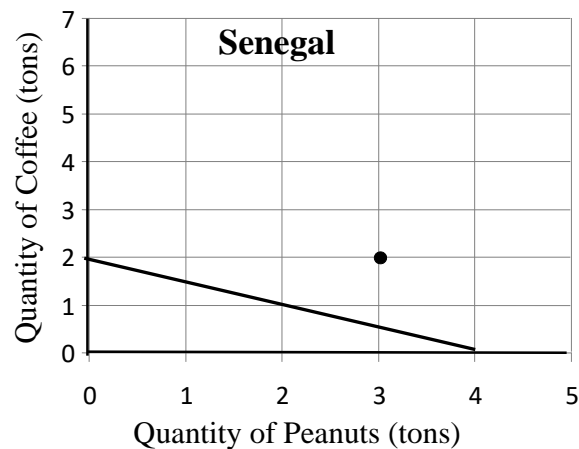
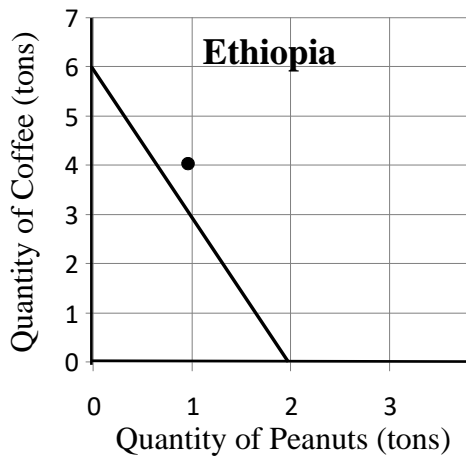
13. Which of the following is an example of a protectionist policy?
- Ensuring equal pay for men and women.
 - Social Security.
 - An excise tax on cigarette consumption.
 - A quota on imports of sugar.
 - None of the above.
14. In theory, free trade enables countries to...
- consume at points within their production possibilities frontiers.
 - consume at points on their production possibilities frontiers.
 - consume at points beyond their production possibilities frontiers.
 - shift their production possibilities frontiers outward.
 - Trade has nothing to do with production possibilities.
15. Which of the following is *not* among the listed advantages of free trade?
- Efficiency
 - Fairness
 - Incentive for hard work
 - Non-coerciveness
 - Promotes common interests
16. A tariff is...
- a tax paid by suppliers in the exporting country.
 - a subsidy paid to suppliers in the exporting country.
 - a subsidy paid to importers.
 - a tax paid by importers.
 - a tax paid by consumers from the exporting country.
17. The World Trade Organization...
- provides emergency assistance to countries in financial crisis.
 - issues project-specific loans to developing countries.
 - rules on trade disputes between countries.
 - (b) and (c)
 - None of the above are true.
18. Which one of the following statements is false?
- A “race to the bottom” can lead to lower environmental standards.
 - By “exporting pollution” a country can reduce its domestic pollution levels.
 - Currently about 50% of world economic output is traded internationally.
 - Expanded trade can exacerbate existing inequalities in a country.
 - Tariffs have generally been declining in recent decades.

19. Economists say that a process that is highly automated is...
- a. capital intensive.
 - b. labor intensive.
 - c. labor scarce.
 - d. capital abundant.
 - e. None of the above are true.
20. The theory of factor-price equalization states that...
- a. for both trading partners to benefit, factor prices should be equalized.
 - b. free trade tends to equalize returns on productive factors across countries.
 - c. returns on all of a country's productive factors should be the same in the long run.
 - d. specialization inhibits the equalization of factor price.
 - e. None of the above are true.
21. The issue of trade in genetically-modified organisms is fundamentally one about...
- a. efficiency.
 - b. global governance.
 - c. tariffs.
 - d. comparative advantage.
 - e. fairness.

Answers to Active Review Questions

1. productivity or efficiency
2. opportunity cost
3. labor intensive
4. bottom
5. protectionist
6. substitution
7. low
8. dumping
9. False
10. False
11. False
12. False
13. False
14. True
15. False
16. False
17. False
18. False
19. Smith believed that free trade increased the extent of the market, which would increase gains to specialization, which would motivate a greater degree of specialization, leading to greater economic productivity and, in the long run, greater national prosperity.
20. Vulnerability, lock-in, coercion and power differentials, tension between government and corporate interests, race to the bottom, inequality, and commodification of fundamental social needs are among potential disadvantages of free trade.

21.
a.



b. Ethiopia is the more efficient producer of coffee. Ethiopia can produce 1 ton of coffee at an opportunity cost of only 1/3 ton of peanuts, while the opportunity cost of a ton of coffee in Senegal is 2 tons of peanuts.

- c. No. (See the points marked on the graphs above—they are outside the PPFs.)
- d. Yes. If Ethiopia produces 6 tons of coffee and sells 2 tons to Senegal in exchange for 1 ton of peanuts, while Senegal produces only peanuts (keeping 3 tons, and using the fourth to buy 2 tons of coffee from Ethiopia), both countries will get their desired consumption bundle.

Answers to Self Test Questions

1. a
2. d
3. b
4. a
5. a
6. d
7. b
8. a
9. d
10. d
11. b
12. a
13. d
14. c
15. b
16. d
17. c
18. c
19. a
20. b
21. e

Chapter 8

ECONOMIC BEHAVIOR AND RATIONALITY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

The first part introduces and briefly discusses the classical view of human rationality – which goes back to Adam Smith – and the neoclassical model, which is based upon classical thinking. The next section is on economic behavior, and it presents some examples of how humans often do not behave “rationally” as defined by the neoclassical model. This part explores what rationality truly means, and includes discussion of the extent to which neoclassical economics has it correct. Experimental examples such as the availability heuristic, framing, and anchoring are presented. The section also discusses the importance of time, emotions, and influence in the making of economic decisions, factors not previously considered in neoclassical theory.

The next section presents the model of economic behavior used in the text. It first presents alternatives to maximizing behavior, drawing on the work of Herbert Simon and others. It then presents a model of human behavior whereby people try to make good economic decisions but are sometimes led astray. The final section considers the policy inferences of behavioral economics, focusing on predictably irrational behavior and nudges.

After reading and reviewing this chapter, you should be able to:

1. Explain the neoclassical economic model of human behavior.
2. Describe in what key ways behavioral economic is a departure from neoclassical theory.
3. Explain the roles that time, emotions, and influence play in economic decisions.
4. Discuss economic behavior “in context”—that is, from a substantially more complex “real world” perspective.
5. Discuss the policy implications from the “in context” model of economic behavior.

Key Terms

neoclassical model
availability heuristic
anchoring effect
altruism
neuroeconomics
meliorating
loss aversion

behavioral economics
framing
time discount rate
the common good
satisfice
bounded rationality
libertarian paternalism

Active Review

Fill in the Blank

1. The theoretical approach that has come to dominate economics is known as the _____ model.
2. _____ economics is a subfield of microeconomics concerned with how economic decisions are made.
3. The deliberate changing of the presentation of choices in order to influence the final economic decision is known as _____.
4. We say that people with a low _____ place relatively high value on possible outcomes in the distant future.
5. People that _____ generally do so because they possess insufficient information with which to make optimal decisions.
6. We label _____ situations in which a choice depends on what has happened in the past.
7. The idea that people consider some, but not all, relevant information when making a decision is included in a broad concept of _____ rationality.
8. We are being _____ if our actions are focused on the well-being of others instead of our own well-being.

True or false

9. Economics is a “pure” science.
10. The neoclassical model of human behavior is consistent with the behavioral economics approach.
11. The deliberate change in the way in which available information is presented is known as the availability heuristic.
12. When we place less economic importance on the future than on the present, we are engaging in discounting.
13. It is possible to think about a choice among alternatives to an inefficiently excessive degree.

- 14. Satisficing is a better strategy than optimizing when the decision to be made is highly complex.
- 15. Meliorating refers to the act of engaging in bounded rationality.
- 16. According to neoclassical economics, people combine self-interest with altruism in pursuit of their economic goals.

Short answer

- 17. In *An Inquiry into the Nature and Causes of the Wealth of Nations*, Adam Smith expounds on the concept of the invisible hand. Did Smith believe that humans were characterized by blatant self-interest? Explain.

- 18. Briefly explain how neoclassical and behavioral economics differ from each other.

- 19. Discuss in what way rationality is related to self-interest. Are the two concepts synonymous?

- 20. Give a few examples of how we sometimes behave in a seemingly irrational manner. Is such behavior uncommon? Discuss.

- 21. Is our time discount rate typically the same for all types of choices or decisions? Should it be? Explain.

- 22. Is it improper or “inefficient” for us to rely on our emotions for some economic decisions instead of our reasoning ability? Discuss.

23. Describe a more broad-based definition of rationality than the one provided by neoclassical theory.

Self Test

1. Which of the following statements about Adam Smith is false?
 - a. Smith is the author of *The Theory of Moral Sentiments*.
 - b. Smith is the author of *The Wealth of Nations*.
 - c. Smith believed that there is no need for altruistic behavior.
 - d. Smith's work has been used to justify views that are not necessarily supported by his writing.
 - e. Smith wrote about both economic and ethical issues.

2. Some people have argued that if everyone simply follows his or her own self-interest, societal well-being will automatically result. This view overlooks ...
 - a. the fact that people may not have all the information they need to make good decisions.
 - b. the fact that people almost always work to advance the common good.
 - c. the fact that people optimize.
 - d. the fact that people have high discount rates.
 - e. the role of markets.

3. Which of the following is *not* considered a hallmark of neoclassical economics?
 - a. Rationality
 - b. Utility maximizing households
 - c. Availability heuristics
 - d. Firms that maximize profit
 - e. All of the above *are* hallmarks of neoclassical economics.

4. The author of *Economics: An Introductory Analysis*, the economics textbook that would become the best-selling textbook ever, was ...
 - a. John Stuart Mill
 - b. Adam Smith
 - c. Milton Friedman
 - d. Paul Samuelson
 - e. Alan Greenspan

5. According to neoclassical economics, irrational behavior is ...
- a. not uncommon.
 - b. that which is not consistent with self-interest.
 - c. not necessary for information to be perfect.
 - d. related to people's emotions.
 - e. misunderstood.
6. The term "rational behavior" is used in neoclassical economic models to describe behavior that *best* moves a person toward his or her goals. This behavior is known as ...
- a. bounded rationality
 - b. satisficing
 - c. meliorating
 - d. organizational savvy
 - e. maximizing
7. The subfield of microeconomics that studies how economic decisions are made is known as ...
- a. situational economics
 - b. meso-economics
 - c. rationality economics
 - d. altruistic economics
 - e. behavioral economics
8. When people alter their choices based on how the relevant information is presented to them, this is an example of ...
- a. behavioral economics
 - b. an availability heuristic
 - c. framing
 - d. anchoring
 - e. optimizing
9. When people over-rely on information that may or may not be relevant to the decision at hand, it is called ...
- a. neoclassical economics
 - b. satisficing
 - c. framing
 - d. anchoring
 - e. optimizing

10. During her first year of college, Jean lived in a small dorm room with an annoying roommate. In her second year, she was happy because she got a room of her own, although it was still small. In her third year, she moved into a spacious apartment with a good friend. Jean's process of finding a better place to live each year could be described as ...

- a. discounting
- b. custom
- c. exchange
- d. meliorating
- e. production

11. The concept that describes the relative weighting of present versus future benefits and costs is known as the ...

- a. time value factor.
- b. time discount rate.
- c. analysis of variance.
- d. quotient of quotidian time.
- e. None of the above are correct.

12. Emotions ...

- a. have no relevance in economics.
- b. are always rational.
- c. are at the foundation of optimization behavior.
- d. sometimes provide wisdom in decision making.
- e. must be balanced with reasoning when conducting neoclassical analysis.

13. Which of the following do *not* play any role in decision-making?

- a. Time
- b. Money
- c. Media influence
- d. Advertising
- e. All of the above play a role.

14. The neoclassical economic model assumes perfect rationality and perfect information. Which of the following situations is most consistent with this model?

- a. You need to buy a pair of shoes. You find out what store sells the best shoes for the lowest prices, and you go shopping there.
- b. You need to buy a pair of shoes, so you buy them at the nearest store.
- c. You get drunk at a fraternity party because you want to impress your friends.
- d. You don't study the night before your economics exam because your roommate is sick and needs your help.

- e. You buy a used car without doing research beforehand, and end up paying more than the car is worth.
15. Which statement about the neoclassical economic model is false?
- a. It assumes the economy is composed entirely of households and firms.
 - b. It treats households as organizations with potentially complex internal dynamics.
 - c. It assumes that exchange is performed in markets.
 - d. It assumes that all economic actors possess perfect information.
 - e. It omits consideration of resource maintenance activities.
16. The experiment that asks participants to decide what share of a \$20 payout to give to a partner is known as the ...
- a. prisoner's dilemma game.
 - b. chicken game.
 - c. path dependence game.
 - d. satisficing game.
 - e. ultimatum game.
17. Which of the following statements is true?
- a. Anchoring can occur when we pay insufficient attention to information that could be vitally important.
 - b. The notion of bounded rationality is central to the neoclassical model.
 - c. Following intuition is often a good idea when economic decisions involve a high level of complexity.
 - d. The neoclassical model relies heavily on the notion of melioration.
 - e. A person who does not care much about the future is said to have a low time discount rate.
18. Bounded rationality ...
- a. is a euphemism for highly irrational behavior.
 - b. is always path dependent.
 - c. usually does not lead to the "optimal" choice.
 - d. was discussed extensively in *The Theory of Moral Sentiments*.
 - e. None of the above are true.
19. Which of the following exemplifies a high time discount rate?
- a. Making sure to save money for your child's college education, even though your child is still young.
 - b. Deciding to take an expensive vacation now, even if it means not taking a vacation next year.

- c. Taking steps to avoid water pollution, because the pollution could decrease fish yields next year.
 - d. Planting an acorn with the intention that your grandchildren will enjoy the full-grown oak tree.
 - e. Putting money away for a rainy day.
20. Which of the following situations best illustrates the concept of satisficing?
- a. Claudillo looks for a job that will pay better than his last job.
 - b. Johanna researches every possible option before she chooses what model of car she will buy.
 - c. Albert eats a peanut butter sandwich for lunch every day because that's all he can afford.
 - d. Juan wants an affordable three-bedroom apartment. He rents the first one he finds.
 - e. Carla saves her money carefully so she can take a year off from work and write a novel.

Answers to Active Review Questions

1. neoclassical
2. behavioral
3. framing
4. time discount rate
5. satisfice
6. path dependent
7. bounded
8. altruistic
9. False. Economics is a “social” science. It is not a pure science since the economy is far more difficult to analyze using the traditional scientific method than controlled laboratory experiments.
10. False. These are very different; in fact, weaknesses in neoclassical economics with regard to how people make decisions are what have given rise to behavioral economics.
11. False. It is known as framing.
12. True.
13. True.
14. True.
15. False. Meliorating is continuously attempting to improve upon one’s situation.
16. False. According to neoclassical economics, people only pursue self-interest, never altruism.
17. No, he did not. He believed that people often were motivated by self-respect, and having the respect of others.
18. Neoclassical economics narrowly holds that all economic decisions are dictated by rationality, which is the pursuit of self-interest. Behavioral economics offers a more nuanced approach to economic decision making, which maintains that rationality in a neoclassical sense is practically impossible (given existing real-world constraints) and that people are sometimes altruistic instead of self-interested.
19. Discuss in what way rationality is related to self-interest. Are the two concepts synonymous? According to the neoclassical model, the two are indistinguishable, since rationality is defined as the incessant pursuit of self-interest. The broader behavioral model, however, believes that rationality neither requires nor is required by self-interest. It allows for bounded rationality or satisficing (which it deems rational), as for altruistic behavior. Moreover, according to this model, self-interest can also be pursued irrationally.
20. One example is where we allow ourselves to be confused by the framing of a problem requiring a decision. “Lives saved” and “deaths averted” mean the same thing, but which is used often influences the choices people make. Another example is where we allow, say, one video transmission influence our thinking to a greater extent than a summary of many responses that contradicts the video. Such behavior is “irrational” according to the neoclassical model, but it is actually quite common and *not* irrational according to the behavioral model.
21. No, it generally is not, nor should it be. For example, we tend to value the future to a significant degree when it comes to our finances, meaning that many save a fair share

of their income for future use. On the other hand, many of us tend to be more shortsighted when it comes to making decisions (often related to consumption of products, energy, or materials) that have an adverse impact on the natural environment. For a variety of reasons, we tend to prefer pushing these “costs” on to future generations.

22. It is not necessarily inefficient to rely on our emotions; in fact, the opposite might be the case. For especially complicated economic decisions, it is almost impossible to obtain enough information that could be relevant to our ultimate choice. So wasting too much time gathering enough information might end up being inefficient in such situations (hence irrational), and it often is more efficient to rely on our intuition or emotions by “satisficing.”
23. A more broad-based definition would involve goals that are well-being enhancing but also that pursuit of the goals themselves contributes to well-being. More important, naked self-interest is not required. Altruism might often also contribute to well-being by, for example, strengthening the local community. Finally, a more broad-based definition would presume – more realistically than the neoclassical model – that it is often not possible to be rational (even though people mostly *try* to act rationally) on account of lack of relevant information in making decisions.

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. d | 11. b |
| 2. a | 12. d |
| 3. c | 13. e |
| 4. d | 14. a |
| 5. b | 15. b |
| 6. e | 16. e |
| 7. e | 17. c |
| 8. c | 18. c |
| 9. d | 19. b |
| 10. d | 20. d |

Chapter 9

CONSUMPTION AND THE CONSUMER SOCIETY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter presents the standard economic model of consumer behavior. We explain the notion of consumer sovereignty, show how to graph a budget line, and explain the rule for utility maximization derived from marginal thinking.

We set this standard material in context by then moving on to different perspectives on consumer behavior. First, we consider the historical context of consumer behavior. Then we consider the social and environmental contexts of modern consumer society. Finally, we explore the relationship between consumerism and well-being, and discuss options for public policy.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Draw a budget line and a utility function.
2. Discuss how marginal thinking can be used to maximize consumer utility.
3. Discuss the historical and international contexts of consumer society.
4. Explain the implications of the social context for consumer behavior.
5. Describe the link between consumption and the environment.
6. Evaluate the relationship between consumption and well-being.
7. Discuss policy options for influencing consumer behavior.

Key Term Review

consumer sovereignty

budget line

utility function (total utility curve)

consumer society

absolute deprivation

reference group

ecological footprint

ecolabeling

voluntary simplicity

living standard (or lifestyle) goals

utility

diminishing marginal utility

consumerism

relative deprivation

aspirational group

green consumerism

subjective well-being (SWB)

Active Review

Fill in the blank

1. The idea of consumer sovereignty holds that _____ is the ultimate economic goal.
2. A group to which a consumer wishes he or she could belong to is a(n) _____ group.
3. A _____ line shows all the combinations of two goods that a consumer can purchase, given his or her monetary resources and the prices of the two goods.
4. The idea that a consumer's additional utility from successive units of a good tends to decrease is known as _____.
5. The feeling of lack that comes from comparing oneself with someone who has more is known as _____.
6. Annual advertising expenditures in the United States are equivalent to \$ _____ per person.
7. The practice of reducing one's overall level of consumption in order to reduce their environmental impacts is referred to as _____.
8. A conscious decision to live with a limited or reduced level of consumption is known as _____.

True or False

9. Economic research has shown that one's income level has no effect on one's happiness.
10. Shallow green consumerism means a consumer will choose ecofriendly products, but not necessarily reduce his or her overall level of consumption.
11. Renee allocates her income between soup and nuts. If the price of soup increases while the price of nuts remains constant, Renee's budget line will shift inward to a new, parallel budget line.
12. John allocates his income between bows and arrows. Suppose that a graph of his budget line shows quantity of bows on the horizontal axis and quantity of arrows

on the vertical axis. If the price of bows decreases, John's budget line pivots outward to a new line with a shallower slope.

13. According to the traditional model, consumers maximize utility by purchasing an equal amount of each good that provides utility.
14. Having aspirational groups tends to reduce people's level of consumerism.
15. People in countries with higher incomes tend to be happier, on average, than people who live in poorer countries.

Short Answer

16. Explain why a utility curve becomes flatter as consumption levels increase.

17. What is the difference between absolute and relative deprivation?

18. Summarize the evidence on whether money buys happiness.

Questions #19 and #20 are based on material covered in the Appendix to Chapter 8.

19. Briefly define the concept of an "indifference curve," and illustrate it with an example.

20. Explain why indifference curves are generally drawn as a curve that is bowed in toward the origin.

Problems

1. Joel has \$10 to spend on some combination of roses and daisies. Roses cost \$1 each, and daisies cost \$2 each.

a. Draw Joel's budget line, putting daisies on the vertical axis.

b. If Joel buys four daisies, how many roses can he buy?

2. Continuing the example from above, now suppose that Joel's income increases from \$10 to \$12. Sketch the budget line from Problem #1 and then show the change to the new budget line.

3. Continuing with the same example, suppose that Joel takes his \$12 to the flower shop and discovers that someone else just bought almost all the roses and daisies in the shop. Only 4 roses and 2 daisies remain in the shop, so that's all Joel can buy.
 - a. Show this consumption combination on the graph. Does it fall to the left or right of the budget line?

 - b. The next day, Joel goes back to the store with his \$12 and this time there are plenty of roses and daisies available for purchase. However, the price of roses has increased to \$2. Show the budget line before the price change, and then the resulting change in Joel's budget line.

4. Jenny divides her income between corn and beans. She has a total of \$100. Beans cost \$10 per sack, and corn costs \$20 per sack.
- Draw Jenny’s budget line, with beans on the vertical axis.
 - The price of both beans and corn decreases by 50%, to \$5 and \$10 respectively. Draw the change in Jenny’s budget line on the graph in part (a).
 - What other event could have produced the change you diagrammed in your answer to part b?

Self Test

1. The other consumers whose consumption choices help you decide what to buy are
 - a. your reference group
 - b. your support group
 - c. your self-actualization group
 - d. your budget reference
 - e. your reference point

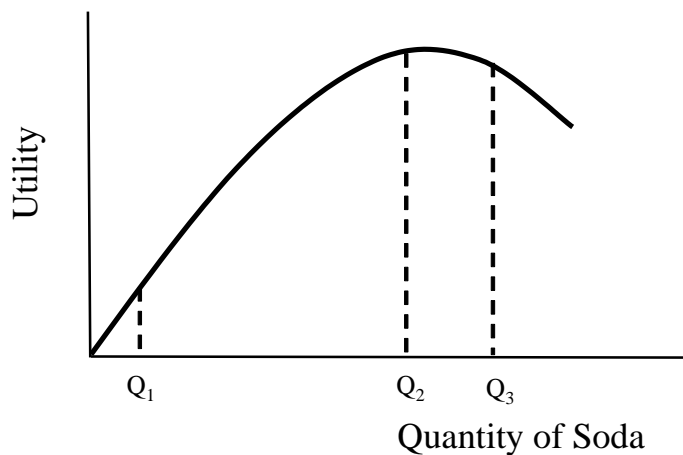
Questions # 2 and # 3 refer to the budget line graph below.



2. Dorothea has to allocate her budget between groceries and rent. Which of the following combinations can Dorothea afford?
 - a. 6 weeks of rent and 20 bags of groceries
 - b. 6 weeks of rent and 10 bags of groceries
 - c. 1 week of rent and 25 bags of groceries
 - d. 5 weeks of rent and 18 bags of groceries
 - e. 6 weeks of rent and no groceries
3. Dorothea has to pay for a trip to the emergency room when her niece has an asthma attack. Now she has less money for groceries and rent. What happens to her budget line?
 - a. The slope increases.
 - b. The slope decreases.
 - c. The budget line does not change.
 - d. The budget line shifts toward the origin while the slope does not change.
 - e. The budget line pivots to the right.

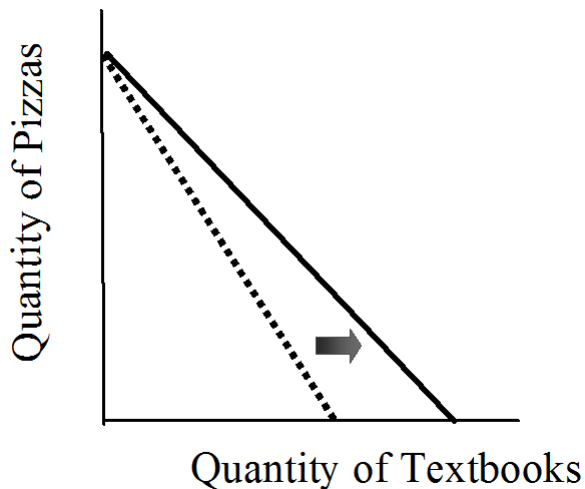
4. Which of the following is an example of relative deprivation?
- Three teenagers spend their allowances on new clothes.
 - Sam can't afford to get trendy clothes like his 9th grade classmates.
 - A child gets sick because he doesn't have enough to eat.
 - A wealthy donor withdraws support from the local school system.
 - A community cannot afford to obtain vaccines against yellow fever.
5. Jane allocates her income between candy and soda. Something happens that causes her budget line to shift toward the origin without a change in slope. What could have caused this change?
- Jane's income decreased.
 - The price of both candy and soda increased by the same percentage.
 - The price of candy increased.
 - Jane decided to buy more of both goods.
 - Both a and b are true.
6. Consumer sovereignty is the idea that
- Businesses should be consumer-oriented.
 - Consumers should be independent of the government.
 - Consumer satisfaction is the ultimate economic goal.
 - It's important to the economy for consumers to be employed independently.
 - Both a and c.

Question #7 refers to the following graph.



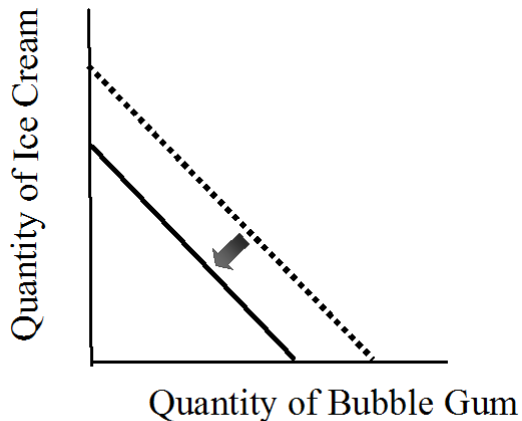
7. The graph above shows the utility function of a student consuming bottles of soda. Which of the following statements is *false*, based on the information in this graph?
- The marginal utility of an additional can of soda in the region from Q_1 to Q_2 is positive.
 - Diminishing marginal utility first occurs at Q_3 .
 - Soda consumption is characterized by diminishing marginal utility.
 - Marginal utility is greater at Q_1 than at Q_2 .
 - At Q_3 , an additional bottle of soda makes the student feel worse, not better.

Question #8 refers to the following graph.



8. Marnie allocates her income between pizzas and textbooks. The graph above shows Marnie's budget line. Which of the following events could produce the shift from the dotted line to the solid line?
- A decrease in the price of textbooks
 - An increase in the price of textbooks
 - An increase in the price of pizzas
 - A decrease in the price of pizzas
 - Marnie signing up for a class that requires her to buy more textbooks

Question #9 refers to the following graph.



9. James allocates his income between bubble gum and ice cream. The graph above shows James' budget line. Which of the following events could cause James' budget line to shift inward, from the dotted line to the solid line?
- A decrease in James' income.
 - An increase in James' income.
 - An increase in the price of bubble gum relative to ice cream.
 - An increase in the price of one good and a decrease in the price of the other.
 - None of the above.
10. According to the textbook, which of the following changes has tended to accompany and facilitate increased consumption?
- Increase in consumer credit.
 - Decrease in advertising revenues.
 - Increase in labor union power.
 - Increase in political freedom.
 - Reduction in government spending.
11. A consumer society is best described as one in which ...
- people have enough money to buy consumer goods and services.
 - people form reference and aspirational groups.
 - people derive their sense of identity largely through consumer goods and services.
 - consumer institutions such as credit, advertising, and regulations are fully developed.
 - consumer impacts are environmentally unsustainable.

12. Suppose someone from a middle-class neighborhood feels poor driving through an upscale neighborhood. This is an example of ...
- shallow green consumerism
 - deep green consumerism
 - absolute deprivation
 - relative deprivation
 - subjective well-being
13. Which one of the following is not an institution that promotes greater levels of consumerism?
- Advertising
 - Department stores
 - Consumer credit
 - Higher incomes
 - Consumption taxation
14. The consensus is that the origins of the consumer society as a mass phenomenon can be identified as ...
- the United States in the 18th century
 - Western Europe in the 18th century
 - the United States in the early 20th century
 - Western Europe in the 16th century
 - Asia in the 19th century
15. Suppose a consumer decides not to purchase an automobile to reduce her environmental impacts. This is an example of ...
- shallow green consumerism
 - deep green consumerism
 - absolute deprivation
 - relative deprivation
 - subjective well-being
16. Which statement below best describes the relationship between money and happiness?
- Higher income is associated with lower levels of happiness, at an increasing rate
 - Higher income is associated with lower levels of happiness, at a decreasing rate
 - Higher income is associated with higher levels of happiness, at an increasing rate
 - Higher income is associated with higher levels of happiness, at a decreasing rate
 - Income is unrelated to levels of happiness

17. Reducing one's level of consumption in order to increase the quality of life is known as ...
- a. relative deprivation
 - b. absolute deprivation
 - c. emotional well-being
 - d. self-conceptualization
 - e. voluntary simplicity
18. Which one of the following statements is false?
- a. Within one country people with higher incomes tend to be happier.
 - b. In general, over time as a country becomes richer average happiness levels tend to increase.
 - c. People who live in richer countries tend to be happier, on average, than people who live in poorer countries.
 - d. The relationship between income levels and subjective well-being tends to be linear.
 - e. People who are materialistic tend to have lower happiness levels.
19. (Appendix) What is the slope of an indifference curve?
- a. $-P_x / P_y$
 - b. $-MU_x / MU_y$
 - c. $-MU_x / P_y$
 - d. $-MU_y / P_x$
 - e. $-P_y / P_x$
20. (Appendix) The rule for utility maximization states that consumers maximize their utility when ...
- a. The marginal utility spent on the last unit of each good is equal to price.
 - b. The marginal utility of all goods is equal.
 - c. The marginal utility on all goods is diminishing per dollar.
 - d. The marginal utility per dollar is equal across all goods.
 - e. The marginal utility per dollar is maximized across all goods.

Answers to Active Review Questions

1. consumer satisfaction
2. aspirational
3. budget
4. diminishing marginal utility
5. relative deprivation
6. 600
7. deep green consumerism
8. voluntary simplicity
9. False
10. False
11. False. Her budget line will rotate, not shift.
12. True
13. False
14. False
15. True
16. A utility curve becomes flatter as consumption levels increase because of diminishing marginal utility. Each successive unit of consumption provides a smaller increase in utility. Thus the utility curve rises by a smaller amount with each additional unit of consumption.
17. Absolute deprivation is an inability to meet basic needs. One –third of humanity suffers from absolute deprivation, most of them in developing countries. Relative deprivation is a feeling of lack that comes from comparing oneself to others who have more, and can occur even among those with relatively high incomes.
18. Higher income levels tend to be associated with higher subjective well-being, but at a decreasing rate. This is consistent with the idea of diminishing marginal utility. Research indicates that “emotional well-being” – focusing on the positive and negative emotions people experience on a daily basis – also increases with income, at a decreasing rate, but only up to a point. At an income level of \$75,000, in the United States, further increases in income did not improve emotional well-being.
19. An indifference curve shows the combination of two goods with which a consumer would be equally satisfied. For example, a consumer might theoretically be equally satisfied with one ice cream cone and seven cookies, or with three cookies and two ice cream cones.
20. The shape of the indifference curve reflects the assumption that the consumer experiences diminishing marginal utility for both goods in question.

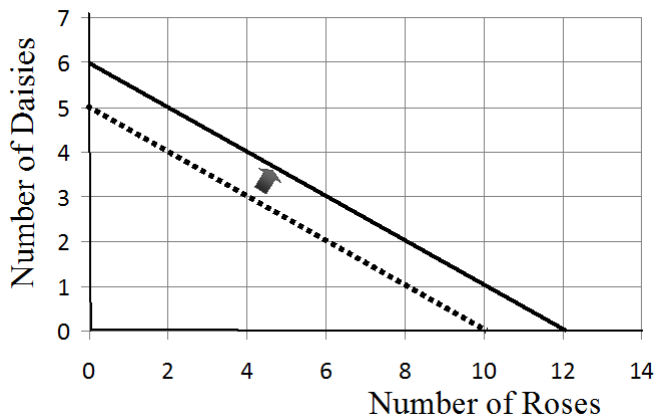
Answers to Problems

1. a.

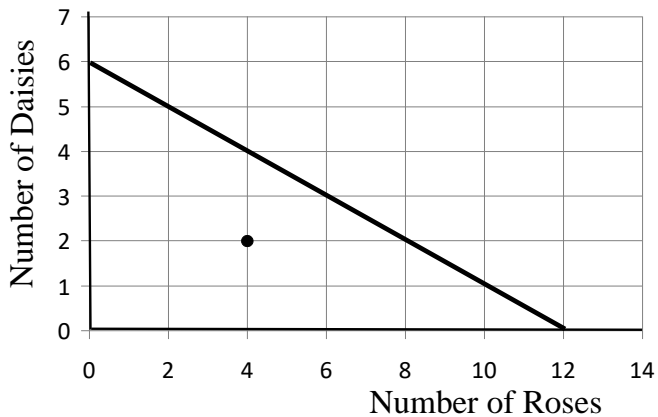


1. b. After spending \$8 ($= 4 \times \2) on daisies, Joel has enough left to buy 2 roses.

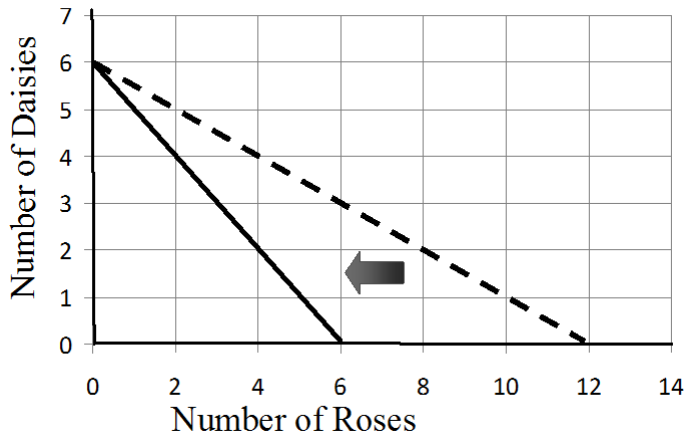
2.



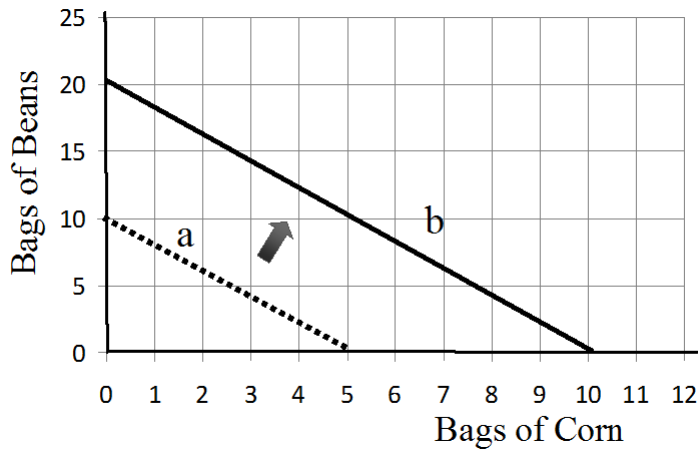
3. a. This consumption combination, shown as a point, falls well to the left of the budget line.



3. b.



4. a and b



4. c. An increase in Jenny's income from \$100 to \$200 would have produced the same change.

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. a | 11. c |
| 2. e | 12. d |
| 3. d | 13. e |
| 4. b | 14. b |
| 5. e | 15. b |
| 6. c | 16. d |
| 7. b | 17. e |
| 8. a | 18. d |
| 9. a | 19. b |
| 10. a | 20. d |

Chapter 10

MARKETS FOR LABOR

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter deals with supply and demand for labor. You will learn about why the supply curve for paid labor is generally depicted as sloping upward, and why the labor supply curve for an individual worker may bend backward. Also included are topics such as market power in labor markets, the notion of compensating wage differentials, and labor market discrimination. Also highlighted are the ways in which historical and social factors can influence wage patterns over long periods of time.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Discuss how individuals make decisions about entering the market for paid labor.
2. Understand the concepts of labor demand and labor supply, including the ambiguity regarding the slope of the labor supply curve at the individual level.
3. Describe the interaction of supply and demand in the aggregate labor market.
4. Explain variations in wages among workers, as well as how these are determined in the market.
5. Discuss recent changes in jobs and the labor force, particularly the notion of employment “flexibility,” annual work hours, and the impact of immigration.
6. Understand other explanations for wage determination not explained by the neoclassical model, such as compensating wage differentials, bargaining and unions, efficiency wages, and dual markets.
7. Discuss wage discrimination based on race and gender.

Key Terms

marginal revenue product of labor
backward-bending individual paid
screening methods
compensating wage differentials
oligopsony
efficiency wage theory
labor market discrimination
gender wage gap

marginal factor cost of labor
labor force participation rate
signaling theory
monopsony
labor unions
dual labor markets
occupational segregation
worker cooperatives

Active Review

Fill in the blank

1. The upward-sloping supply curve for labor reflects the _____ effect of a change in the wage.
2. The higher wages are, the more leisure people may want to “buy”. This phenomenon can be described as the _____ effect of rising wages.
3. If a variation in wages produces little change in the quantity of labor supplied, we can say that the market labor supply is relatively _____.
4. The _____ theory of education suggests that the value of an advanced degree lies in the information it provides about how good a worker and learner the person holding the degree is likely to be.
5. A situation in which there is only one buyer for a good is known as _____.
6. A situation in which there is only one buyer and one seller is known as a _____ monopoly.
7. Suppose there are many talented musicians hoping to sell their music, and just a few record label buyers of musical works. This situation, in which there are just a few buyers, is known as _____.
8. A profit-maximizing firm will hire workers up to the point where the marginal revenue product of labor is equal to the _____.
9. If a firm brings labor in a perfectly competitive labor market, it will maximize profits at the point where _____ is equal to wage.
10. Paying workers a premium in order to induce harder work is covered by the theory of _____ wages.
11. The situation in which a segment of the labor market is specialized and earns high pay and benefits while another earns little and has slim chance of advancement is known as _____ markets.
12. Occupational _____ refers to the tendency of men and women to be employed in different occupations.

True or False

- 13. According to the theory of compensating wage differentials, non-unionized workers are more likely to take low-paying, unpleasant jobs.
- 14. In a dual labor market, each worker either holds two jobs or is qualified to hold two possible jobs.
- 15. Any given worker's wage can be taken as an accurate representation of that worker's contribution to wellbeing in the economy.
- 16. If a firm is a monopsonist in a labor market, it will pay wages above the marginal factor cost of labor.
- 17. Oligopsonistic employers will tend to hire fewer workers than firms operating in a perfectly competitive labor market.

Short Answer

- 18. If the wages of car mechanics rise, would you expect a movement along the supply curve for car mechanics, a shift in the supply curve for car mechanics, or both?

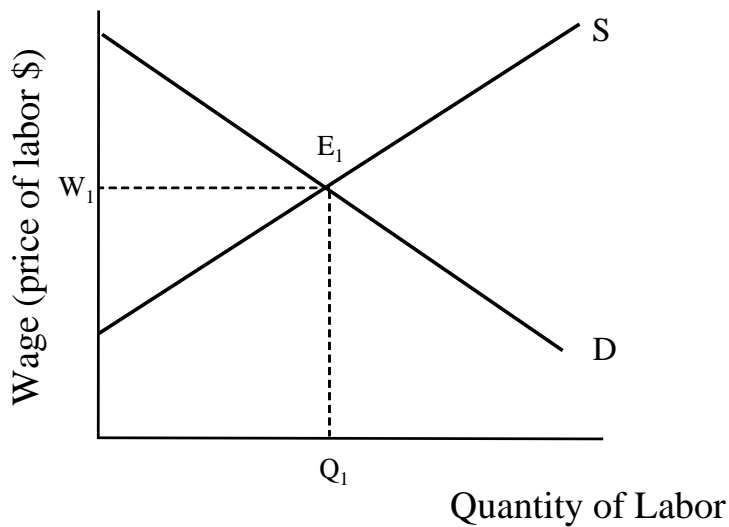
- 19. Explain the concept of "efficiency wage."

- 20. What conditions are necessary in order for the theory of compensating wage differentials to operate in reality?

Problems

1. Sketch a backward-bending individual labor supply curve, and indicate where on the curve the income effect is stronger than the substitution effect.

2. The following graph shows the labor market for pastry chefs.



Suppose a popular new diet book is published that says people should eat at least one fancy French pastry per day, for optimum health. Show the change that might result in the labor market for pastry chefs and indicate the new quantity of labor supplied and the new equilibrium wage.

3. Suppose Amy's Applesauce company produces jars of applesauce. The chart below shows the total number of applesauce jars produced for a given number of workers.

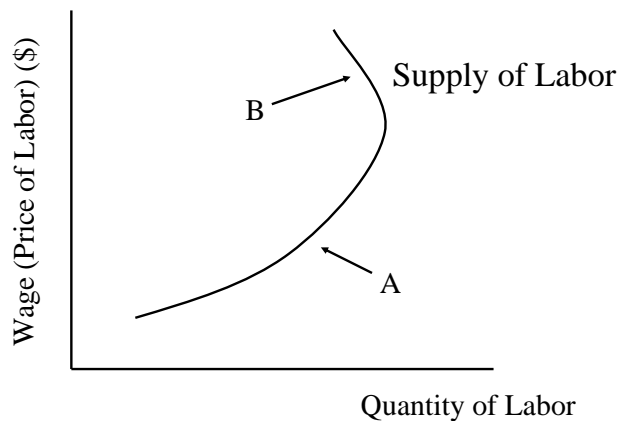
Number of Workers	Number of Jars	Marginal physical product of labor	Marginal revenue product of labor
1	30		
2	70		
3	120		
4	140		
5	150		

- Fill in the marginal physical product of labor for each level of production.
- Now suppose each jar of applesauce sells for \$5. Fill in the marginal revenue product of labor for each level of production.

Self Test

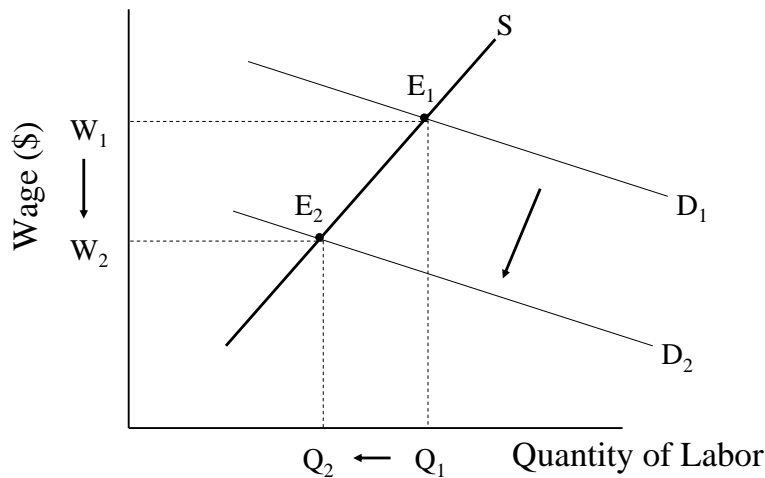
- Which of the following would *not* be considered an opportunity cost of paid employment?
 - Caring for an elderly relative
 - Education
 - Self-employment
 - Leisure
 - Transportation costs of commuting to work

Question #2 refers to the following graph.



2. Which of the following statements is true?
- The income effect is stronger than the substitution effect at point A.
 - The income effect is stronger than the substitution effect at point B.
 - This graph represents the market supply of labor.
 - An individual labor supply curve like that shown in the graph above could not occur in the real world.
 - The shape of the curve is determined by the average cost of production.

Question #3 refers to the graph shown below.



3. Suppose that the graph shown above depicts a change in the labor market for graphic designers. Which of the following events could have produced the change we see in this graph?
- A new computer program allowed people to complete graphic designs automatically, without the aid of a trained designer.
 - Many new graphic designers graduated from a top training program.
 - The wage offered for specialized graphic design services rose.
 - The market for graphic designers expanded.
 - None of the above.
4. A situation in which there are many sellers of labor but only one employer (i.e. buyer of labor) can be referred to as
- Monopolistic labor
 - Monopoly
 - Monopsony
 - Competitive equilibrium
 - Labor equilibrium

5. Suppose there is only one company that hires skilled machinists, and all skilled machinists belong to one union. This situation, in which a single employer faces a single seller of labor, is known as
- Monopsony
 - Oligopsony
 - Oligopoly
 - Bilateral monopoly
 - Monopolistic competition
6. Factors that might make one job more appealing than another include
- working conditions
 - wages
 - amount of vacation offered
 - both a and c are true
 - a, b, and c are all true
7. The notion that, all else equal, workers will accept lower wages for jobs with better characteristics is known as the theory of
- social contribution
 - consumer sovereignty
 - market power
 - compensating wage differentials
 - employee morale
8. Efficiency wage theory holds that
- Workers will work harder when they know their current employer is paying them more than they could get elsewhere.
 - Workers work less when they know they are being overpaid.
 - Employee morale is not a factor influencing total productivity.
 - Raising wages is the best way to increase output per worker.
 - All of the above.
9. A situation in which some workers get high wages, job security, and other benefits while other workers, doing similar jobs, get low wages, no job security, and few other benefits, is known as
- An efficiency wage situation
 - A wage contour
 - A dual labor market
 - A price discriminating labor force
 - A high monitoring costs employment structure

10. The tendency of men and women to be employed in different occupations is referred to as
- a. occupational segregation.
 - b. gender inequality.
 - c. racial segregation.
 - d. contour segregation.
 - e. occupational dysphoria.
11. The neoclassical model of the labor market assumes that
- a. firms are relatively powerless.
 - b. workers are sometimes irrational.
 - c. the firm faces multiple equilibria.
 - d. workers maximize profits.
 - e. All of the above are true
12. When a firm hires an additional worker, all else being equal, which of the following statements is false?
- a. Costs rise by the amount of the additional wages paid.
 - b. Revenue increases.
 - c. Revenue only increases if the firm makes a positive profit.
 - d. Profits may or may not increase.
 - e. Output increases.
13. A profit-maximizing firm should keep hiring more labor until the point where the marginal revenue product of labor is equal to
- a. Marginal productivity of capital.
 - b. Factor cost of capital.
 - c. Monopolistic wage.
 - d. Marginal factor cost of labor.
 - e. Marginal factor cost of fixed assets.
14. If a firm can maximize profit simply by setting $MRP_L = \text{wage}$, then we know that the firm must be
- a. A monopolist.
 - b. A monopsonist.
 - c. An oligopolist.
 - d. A monopolistic producer.
 - e. Operating in a perfectly competitive labor market.

15. Which of the following statements is true regarding monopsonistic employers?
- a. They hire more workers than firms that operate in perfectly competitive markets.
 - b. They pay workers more than their marginal revenue product of labor.
 - c. They pay workers less than firms that compete in labor markets.
 - d. They reward workers better than oligopsonistic firms.
 - e. Both a and c are true.
16. According to United States data for 2015, the median wage for women of all races was _____ of that of men.
- a. 20%
 - b. 50%
 - c. 71%
 - d. 83%
 - e. 93%
17. From the perspective of an individual, the upward-sloping labor supply curve reflects the _____ effect of changes in wages.
- a. income
 - b. substitution
 - c. downward
 - d. backward-bending
 - e. upward
18. Which of the following jobs is most likely to have a relatively inelastic labor supply curve?
- a. cashier
 - b. garbage collector
 - c. janitor
 - d. nuclear physicist
 - e. none of the above
19. Suppose a firm manufactures bags of peanuts. A single worker can produce 20 bags of peanuts, but adding a second worker makes it possible to produce 45 bags of peanuts. The marginal physical product of the second worker is
- a. Equal to \$20.
 - b. Equal to \$25.
 - c. 20 bags of peanuts.
 - d. 25 bags of peanuts.
 - e. Measured in dollars but unknown from the information given in this problem.

20. Which one of the following statements is false?

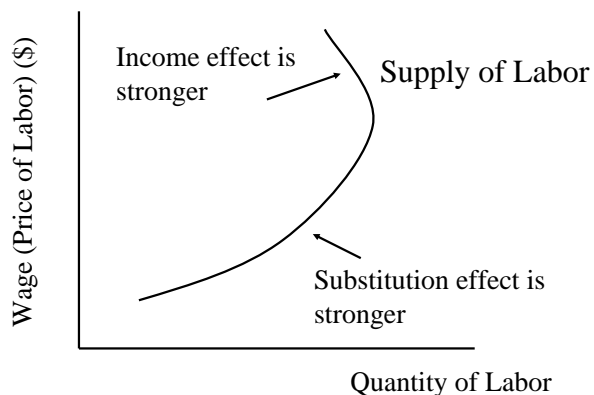
- a. The gender wage gap in the United States is larger than it is in most other industrialized nations.
- b. In the United States, the wage gap based on gender is larger than the wage gap based on race.
- c. Research evidence indicates that at least a portion of the wage gap based on race in the United States is based on discrimination.
- d. Research evidence indicates that immigration into the United States does not have a negative impact on the wages of U.S.-born workers.
- e. Labor force participation rates in the United States have generally been declining over the last several decades.

Answers to Active Review Questions

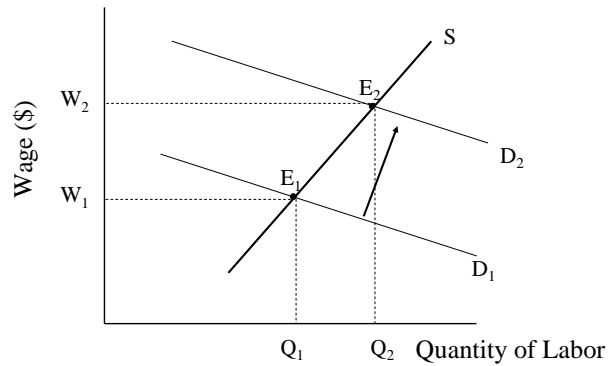
1. substitution
2. income
3. wage inelastic
4. signaling
5. monopsony
6. bilateral
7. oligopsony
8. Marginal factor cost of labor
9. Marginal revenue product of labor
10. efficiency
11. dual
12. segregation
13. False. It is true that non-unionized workers are more likely to be found in low-paying, unpleasant jobs, but this is not the focus of the theory of compensating wage differentials. The theory of compensating wage differentials holds that workers will be willing to accept lower wages for jobs with better characteristics and will demand higher wages for jobs with unappealing characteristics, all else being equal.
14. False.
15. False.
16. False.
17. Rising wages for car mechanics will produce movement along the supply curve only.
18. Efficiency wage theory suggests that workers perform better when they know their current employer is paying them more than they would receive elsewhere. Efficiency wages may be profit maximizing since the cost to the firm may be counterbalanced by superior work effort and loyalty on the part of the employees.
19. Workers must have very good information about job conditions and risks, and must be able to move freely to alternative jobs.

Answers to Problems

1.



2.



3.

Number of Workers	Number of Jars	Marginal physical product of labor	Marginal revenue product of labor
1	30	30	\$150
2	70	40	\$200
3	120	50	\$250
4	140	20	\$100
5	150	10	\$50

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. e | 11. a |
| 2. b | 12. c |
| 3. a | 13. d |
| 4. c | 14. e |
| 5. d | 15. c |
| 6. e | 16. d |
| 7. d | 17. b |
| 8. a | 18. d |
| 9. c | 19. d |
| 10. a | 20. b |

Chapter 11

ECONOMIC AND SOCIAL INEQUALITY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Summary

This chapter starts by defining economic inequality, deriving a Lorenz curve and then using it to calculate a Gini coefficient. It then presents data on income and wealth inequality in the United States, along with international comparisons. The third section considers the causes and consequences of inequality. The final section presents various philosophical perspectives in inequality and potential policies to address inequality.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Interpret a Lorenz curve, and construct one based on income distribution data.
2. Explain how a Gini coefficient is derived.
3. Comment on inequality trends in the United States.
4. State how the United States compares to other countries in terms of economic inequality.
5. Discuss the causes and consequences of rising inequality.
6. Discuss different policy proposals to address inequality.

Key Terms

Lorenz curve
capital gains
labor income
rent
market income

Gini ratio (or Gini coefficient)
economic mobility
capital income
Kuznets curve hypothesis
disposable income

Active Review Questions

Fill in the Blank

1. The graph that is used to depict income inequality, showing the percent of households along one axis and the percent of income along the other, is known as the _____ curve.
2. If income were perfectly equally distributed within a country, the value of the Gini ratio for that country would be _____.
3. The distribution of wealth tends to be _____ (more/less) unequal than the distribution of income.
4. Economists refer to payments for the direct or indirect use of any capital asset as _____.

True/False

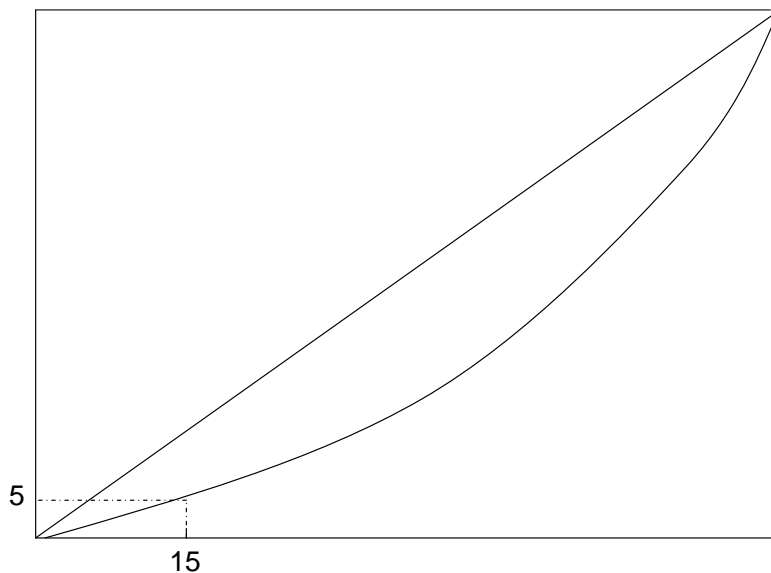
5. The richest fifth of American households receive more than half of all income.
6. The closer a Lorenz curve is to a 45-degree straight line, the more unequal the distribution of income.
7. A Gini coefficient of 0.80 would be considered a highly unequal distribution of income.
8. The income Gini coefficient for the United States is currently around 0.80.
9. A capital gain is the income from renting out personal property.
10. The highest Gini coefficient in United States history occurred in 1968.
11. The top 1% of American households own more than one-third of all wealth.
12. The global income Gini coefficient is around 0.90.
13. The median assets of white households in the United States are more than ten times higher than the median assets of black and Hispanic households.
14. Most economists view technological change as a factor which decreases levels of economic inequality.
15. While global income inequality is decreasing, income inequality in most individual countries is increasing.

16. According to the Kuznets curve hypothesis, inequality is expected to first increase, then decrease, as a country develops economically.
17. The main reason the income Gini coefficient for the United States is higher than other developed countries is that the U.S. has a high Gini coefficient based on market income.
18. The economic consensus is that raising the minimum wage will significantly reduce income inequality in the United States.
19. The Bosa Familia program in Brazil has reduced income inequality by providing families with cash transfers as long as children stay in school and receive preventative health care.

Short Answer

20. Briefly described the trends in income inequality in the United States over the last 100 years.

Problem



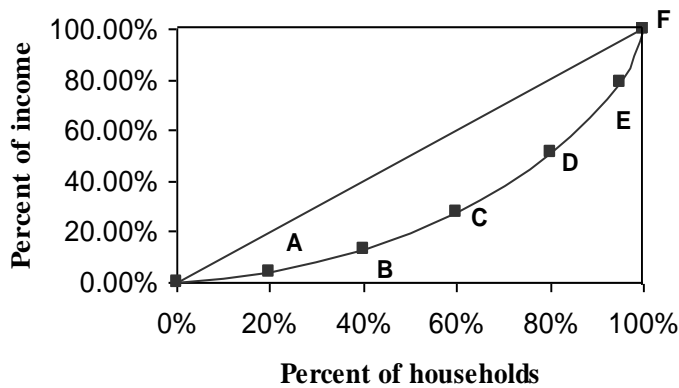
1. The graph above shows a Lorenz curve for income distribution in the country of Utopia.
 - a. Label the horizontal and vertical axes on this graph.
 - b. In words, explain what information is communicated by the numbers shown on this graph.

 - c. Suppose that the government of Utopia introduces a new tax on the richest 10% of society, and uses the proceeds to supplement the income of the poorest members of society. On the graph, show the direction in which the Lorenz curve will change as a result of the new policy.

Self Test

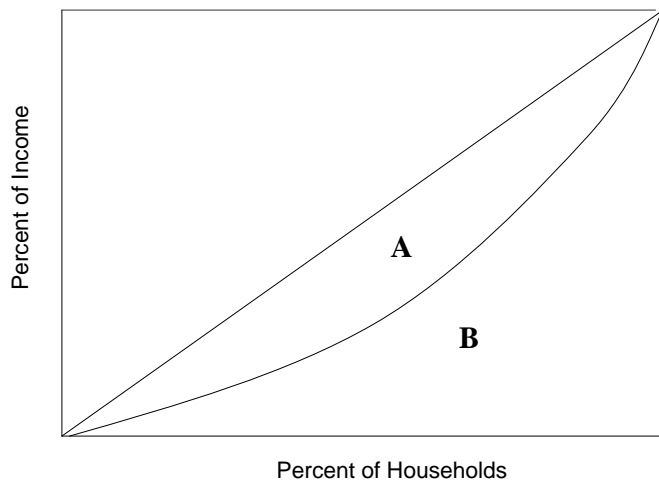
1. The graph used to describe inequality in a country is called ...
 - a. a Kuznets curve
 - b. a Gini curve
 - c. a Lorenz curve
 - d. a production possibilities frontier
 - e. a comparative advantage function
2. The richest fifth of Americans receive about what percent of all income?
 - a. 35%
 - b. 43%
 - c. 52%
 - d. 63%
 - e. 75%

Question #3 refers to the graph below.



3. According to the Lorenz curve above, which of the following statements is true?
- The bottom 40% of households earn less than 20% of all income
 - The bottom 20% of households earn 20% of all income
 - The society shown here has complete income equality
 - The more the curve sags downward, the greater income equality
 - Both a and d are true

Question #4 refers to the graph below.



4. Referring to the graph shown above, the Gini ratio is equal to ...
- $A/(A+B)$
 - $(A+B)/A$
 - $B/(A+B)$
 - A/B
 - B/A

5. In the year 2010, suppose the Gini ratio for Canada was 0.30 and the Gini ratio for the US was 0.50. In the year 2015, suppose the Gini ratio for Canada rises to 0.35. Which of the following statements is true?
- Canada has greater inequality than the US.
 - Canada has greater inequality in 2015 than it did in 2010.
 - The US has greater equality than Canada.
 - Between 2010 and 2015, Canada's Lorenz curve has become straighter (closer to the diagonal).
 - All of the above are false.
6. Which one of the following Lorenz curves represents a country with perfect equality?
- A horizontal line
 - A vertical line
 - An L-shaped curve
 - A 45-degree line sloping downward
 - A 45-degree line sloping upward
7. About what is current income Gini coefficient in the United States?
- 0.25
 - 0.36
 - 0.48
 - 0.62
 - 0.80
8. In what year did the income Gini coefficient in the United States reach its historic low?
- 1929
 - 1947
 - 1955
 - 1968
 - 1979
9. The top 1% of households in the United States own about what percent of all wealth?
- 26%
 - 36%
 - 42%
 - 55%
 - 63%

10. Which one of the following statements is false?
- a. Median household income in the United States can vary significantly by race.
 - b. The median income of married couples is higher than the median income of single-adult households.
 - c. Median household assets tend to increase with higher levels of education.
 - d. Median household assets are nearly twice as high for white households as compared to black and Hispanic households.
 - e. Median household assets tend to increase as the age of the householder increases.
11. Which of the following statements is true?
- a. The U.S. has the lowest Gini ratio of all major industrialized countries.
 - b. The U.S. has the highest Gini ratio of all major industrialized countries.
 - c. The U.K. has a higher Gini ratio than the U.S.
 - d. Countries with high levels of equality have high Gini ratios.
 - e. The U.S. has a straighter Lorenz curve (closer to the diagonal) than any other major industrialized country.
12. Which of the following statements about income inequality in the U.S. is true?
- a. Income distribution was most equal in 1968.
 - b. Income distribution was most equal in 1947.
 - c. Income inequality has declined steadily from 1947 to the present.
 - d. Income inequality has risen steadily from 1947 to the present.
 - e. The U.S. has greater income equality than most industrialized countries.
13. The term economists use for payments for the use of any capital asset is ...
- a. rent.
 - b. capital gains.
 - c. Lorenz payments.
 - d. economic mobility.
 - e. factor equalization.
14. Which one of the following impacts is most accepted by economists to be a consequence of increasing inequality?
- a. Greater economic growth
 - b. Lower economic growth
 - c. Higher homicide rates
 - d. Greater social cohesion
 - e. Greater public investment

15. Which one of the following policy proposals would not be expected to reduce inequality at least somewhat?
- a. More powerful labor unions
 - b. A higher minimum wage
 - c. Fewer job protections for part-time employees
 - d. An increase in public education spending
 - e. An increase in the tax rates on high-income households
16. Which one of the following factors has not contributed to increasing inequality in the United States?
- a. The declining power of labor unions
 - b. An increase in labor income
 - c. Rapid technological change
 - d. Globalization
 - e. An increase in single-parent households
17. Which of the following countries has the lowest Gini coefficient?
- a. The United States
 - b. China
 - c. The United Kingdom
 - d. Sweden
 - e. Brazil
18. What is the Kuznets curve hypothesis?
- a. That economic inequality increases with economic development.
 - b. That economic inequality decreases with economic development.
 - c. That economic inequality first increases, then decreases, with economic development.
 - d. That economic inequality first decreases, then increases, with economic development.
 - e. None of the above.
19. Which one of the following statements is false?
- a. The global income Gini coefficient is likely higher than the Gini coefficient for any individual country.
 - b. Global income inequality has been increasing, while the Gini coefficient in most individual countries is decreasing.
 - c. The growth of the global middle class is largely responsible for the decline in global income inequality.
 - d. Median wealth in the United States is less than in Japan, the United Kingdom, and Canada.

e. The global wealth Gini coefficient is around 0.80.

20. Market income includes all of the following except ...

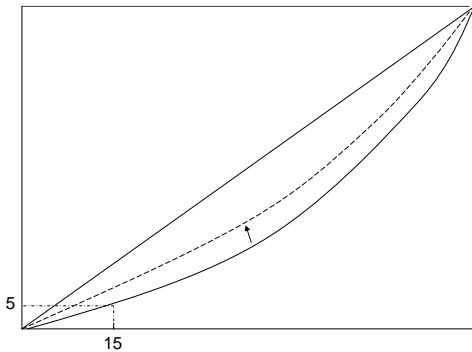
- a. wages.
- b. salaries.
- c. capital income.
- d. self-employment income.
- e. taxes.

Answers to Active Review Questions

1. Lorenz
2. zero
3. more
4. rent
5. True
6. False
7. True
8. False
9. False
10. False
11. True
12. False
13. True
14. False
15. True
16. True
17. False
18. False
19. True
20. Income inequality was relatively high leading up to the Great Depression. Then inequality decreased for several decades, until the late 1960s. Since then, inequality has generally increased. Current levels of inequality are similar to, or greater than, the levels observed in the early 20th century.

Answer to Problem

1. a. The horizontal axis should be labeled as “Percent of Households,” and the vertical axis should be labeled as “Cumulative Percent of Income.”
1. b. Based on this graph, we can see that the poorest 15% of households in Utopia receive 5% of total household income.
1. c. The curve will shift upward, toward the diagonal:



Answers to Self Test Questions

1. c
2. c
3. a
4. a
5. b
6. e
7. c
8. d
9. c
10. d
11. b
12. a
13. a
14. b
15. c
16. b
17. d
18. c
19. b
20. e

Chapter 12

TAXES AND TAX POLICY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Summary

This chapter starts out with a theory of taxes using the supply-and-demand model. Referring back to the chapter on welfare analysis (Chapter 5), it shows how economists may easily deduce the inefficiency of most taxes, based solely on economic efficiency. Moving then to discuss taxation specifically in the United States, data are presented on the structure of various federal taxes, and their impacts. International tax data are then presented to provide context to the U.S. data. The chapter concludes with a discussion of current tax policy issues.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Illustrate the impacts of an excise tax on a supply-and-demand graph.
2. Illustrate the welfare impacts of an excise tax, also on a supply-and-demand graph.
3. Explain what is meant by tax progressivity.
4. Discuss the structure of the federal income tax in the United States.
5. Discuss the structure of social insurance taxes in the United States.
6. Briefly discuss the structure of other U.S. taxes (e.g., corporate taxes, state and local taxes).
7. Define recent trends in U.S. tax data.
8. Compare tax data from the United States to data from other countries.
9. Discuss the relationship between taxes and economic growth.
10. Define tax incidence analysis.
11. Discuss the distribution of the U.S. tax burden.

Key Term Review

excise tax
regressive tax
marginal propensity to consume
taxable income
effective tax rate
estate taxes
supply-side economics

progressive tax
proportional tax
total income
marginal tax rate
social insurance taxes
gift taxes
tax incidence analysis

Active Review Questions

Fill in the Blank

1. If a tax is placed on a good with an inelastic demand, the tax revenues will be relatively _____ (large or small) and the change in the quantity sold will be relatively _____ (large or small).
2. A tax in which the proportion of income paid in taxes tends to rise as one's income increases is known as a _____ tax.
3. Total taxes paid divided by income is known as one's _____.
4. The macroeconomic theory that low marginal tax rates lead to higher rates of economic growth is known as _____.
5. In the United States, the top 1% paid about _____ percent of their total income in taxes in 2016.

True/False

6. An excise tax can be represented on a supply-and-demand graph as an upward shift in the supply curve.
7. A government looking to generate a significant amount of tax revenue should tax goods and services with elastic demand curves.
8. An excise tax will result in a deadweight loss only if the good being taxed has a perfectly inelastic demand curve.
9. Instituting an excise tax on a product will result in a reduction of producer surplus.
10. Suppose Josh has an income of \$50,000 and pays \$10,000 in total taxes. Corrine has an income of \$30,000 and pays \$6,000 in taxes. This is an example of a progressive tax system.
11. For the U.S. federal income tax, one's effective tax rate is generally higher than their marginal tax rate.
12. The U.S. federal estate and gift taxes are considered to be complementary taxes.
13. The main reason overall taxes in the United States, as a percentage of GDP, have increased in recent decades is that federal tax rates have increased.

14. The primary reason that total tax receipts in the United States have fluctuated in recent decades is macroeconomic factors.
15. Overall tax receipts in the United States, as a percentage of GDP, are average when compared to other OECD countries.
16. Supply-side economics argues that having a lower overall tax rate than other countries is the key to economic growth.
17. The top marginal tax rate in the United States has generally declined over the last several decades.
18. In 2016, households in the bottom quintile in the United States paid an average of about 19% of their total income in taxes.

Short Answer

19. Explain the difference between a marginal tax rate and an effective tax rate.

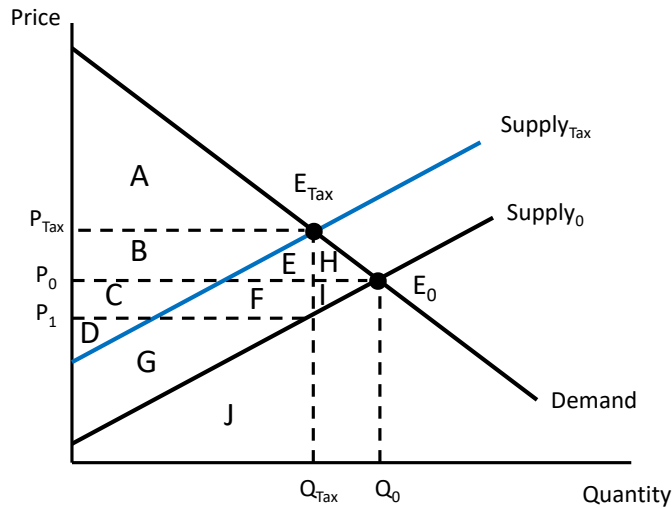
20. Briefly discuss the empirical findings regarding the current progressivity of the overall U.S. tax system.

Self Test

1. How will an excise tax imposed on a good impact the market equilibrium?
 - a. Price will rise, and quantity will fall
 - b. Price and quantity will both rise
 - c. Price will fall, and quantity will rise
 - d. Price and quantity will both fall
 - e. It cannot be determined without information about elasticities

2. Suppose an excise tax of \$0.30 per gallon is placed on gasoline. The price of gasoline will increase by \$0.30 only if ...
 - a. the supply curve is perfectly inelastic.
 - b. the demand curve is perfectly elastic.
 - c. the demand curve is perfectly inelastic.
 - d. both the supply and demand curves are perfectly elastic.
 - e. the market is in a situation of shortage.

For Questions 3 – 6, refer to the graph below.



3. In the graph above, which area(s) represent the consumer surplus in the market before any excise taxes are imposed on the good?
 - a. Area A
 - b. Areas A + B
 - c. Areas B + E + H
 - d. Areas A + B + E + H
 - e. Areas A + B + C + D

4. In the graph above, which area(s) represent the loss in consumer surplus as a result of imposing an excise tax on the good?
 - a. Area A
 - b. Areas A + B
 - c. Areas B + E + H
 - d. Areas A + B + E + H
 - e. Areas A + B + C + D

5. In the graph above, which areas represent the tax revenue once an excise tax is imposed on the good?
 - a. Areas B + E + H
 - b. Areas C + F + I
 - c. Areas H + I
 - d. Areas B + E + C + F
 - e. Areas A + B + E + H
 - f. Areas B + E + H + C + F + I

6. In the graph above, which areas represent the deadweight loss as a result of imposing an excise tax on the good?
 - a. Areas B + E + H
 - b. Areas C + F + I
 - c. Areas H + I
 - d. Areas B + E + C + F
 - e. Areas A + B + E + H
 - f. Areas B + E + H + C + F + I

7. A tax which impacts high-income taxpayers more than low-income taxpayers, expressed as a percentage of their income, is known as what kind of tax?
 - a. A flat tax
 - b. A regressive tax
 - c. A wealth tax
 - d. A proportional tax
 - e. A progressive tax

8. A tax which impacts all taxpayers equally regardless of income, is known as what kind of tax?
 - a. A social insurance tax
 - b. A regressive tax
 - c. A wealth tax
 - d. A proportional tax
 - e. A progressive tax

For Questions 9 and 10, consider the following marginal tax table:

Taxable Income Range	Marginal Tax Rate
\$0 - \$10,000	10%
\$10,001 - \$30,000	15%
Above \$30,000	25%

9. Suppose Tahira has an income of \$16,000. She is able to deduct \$5,000 of her income as non-taxable. How much would she owe in taxes based on the table above?
- a. \$0
 - b. \$1,100
 - c. \$1,150
 - d. \$1,500
 - e. \$1,650
10. Suppose Michal has an income of \$50,000. She has is able to deduct \$10,000 of her income as non-taxable, and she also contributes \$2,000 to a non-taxable IRA. How much would she owe in taxes based on the table above?
- a. \$4,200
 - b. \$6,000
 - c. \$8,500
 - d. \$12,500
 - e. \$14,000
11. How would we expect one's effective tax rate to compare with their top marginal tax rate for the U.S. federal income tax?
- a. As long as one pays federal income taxes, their top marginal tax rate should always be higher.
 - b. One's top marginal tax rate should be higher, but only if the taxpayer has income above the bottom marginal rate.
 - c. One's top marginal tax rate should be higher, but only if one can claim extra tax deductions.
 - d. One's top marginal tax rate should be higher, but only if they are taxed at more than one marginal rate.
 - e. One's top marginal tax rate should be higher, but only if one's taxable income is higher than their total income.

12. Federal social insurance taxes in the United States are best described as ...
- a. A progressive tax at lower income levels, and then a proportional tax at higher income levels.
 - b. A proportional tax at lower income levels, and then a regressive tax at higher income levels.
 - c. A proportional tax at lower income levels, and then a progressive tax at higher income levels.
 - d. A regressive tax at lower income levels, and then a proportional tax at higher income levels.
 - e. A progressive tax at lower income levels, and then a regressive tax at higher income levels.
13. Which one of the following statements is false?
- a. Federal tax receipts in the United States, expressed as a percentage of GDP, reached a historical high in 2010.
 - b. U.S. federal tax receipts tend to fluctuate more over time than do state and local tax receipts.
 - c. The overall tax rate in the U.S., expressed as a percentage of GDP, is lower than in most other OECD countries.
 - d. The majority of U.S. states levy a state income tax.
 - e. The majority of U.S. states levy a state sales tax.
14. What is the primary reason overall U.S. tax receipts vary over time?
- a. Changes in federal tax laws
 - b. Changes in state tax laws
 - c. Changes in local tax laws
 - d. Macroeconomic fluctuations
 - e. Changes in consumer preferences
15. Which of the following countries has the lowest overall tax rate, expressed as a percentage of GDP?
- a. Japan
 - b. United States
 - c. Canada
 - d. United Kingdom
 - e. Germany

16. What is the main principle of supply-side economics?
- That the majority of economic benefits will accrue to lower-income households
 - That low top marginal tax rates will spur economic growth
 - That government subsidies should be targeted at high-growth industries
 - That a flat tax will produce the highest economic growth rates
 - That reduction of regulations on raw material extraction will spur economic growth
17. About what was the top marginal federal income tax rate in 2018 in the United States?
- 50%
 - 37%
 - 30%
 - 22%
 - 14%
18. Which one of the following is not a generally-accepted conclusion from tax incidence analysis?
- Property taxes on landlords are generally passed on to renters.
 - Social insurance taxes are borne almost entirely by workers.
 - Excise taxes are mostly paid by consumers.
 - Sales taxes are split about equally between consumers and producers.
 - The burden of corporate taxes falls primarily on the owners of capital investments.
19. About what percentage of total income do U.S. households in the bottom quintile pay in taxes?
- 3%
 - 10%
 - 19%
 - 27%
 - 33%
20. About what percentage of total income do U.S. households in the top 1% pay in taxes?
- 3%
 - 10%
 - 19%
 - 27%
 - 34%

Answers to Active Review Questions

1. large, small
2. regressive
3. effective tax rate
4. supply-side economics
5. 34
6. true
7. false
8. false
9. true
10. false
11. false
12. true
13. false
14. true
15. false
16. false
17. false
18. true
19. A marginal tax rate only applies on one's additional income above a certain amount. An effective tax rate is obtained by dividing one's total taxes paid by total income, expressed as a percentage. One's effective tax rate tends to be much less than one's top marginal tax rate.
20. The overall U.S. tax system is progressive, but rather modestly. For example, households in the bottom income quintile paid an average of 19% of their total income in taxes in 2012. Households in the middle income quintile paid 27% of their income in taxes. Households in the top 1% paid an average of 33% of their income in taxes.

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. a | 11. a |
| 2. c | 12. b |
| 3. d | 13. a |
| 4. c | 14. d |
| 5. e | 15. b |
| 6. c | 16. b |
| 7. e | 17. b |
| 8. d | 18. d |
| 9. c | 19. c |
| 10. b | 20. e |

Chapter 13

THE ECONOMICS OF THE ENVIRONMENT

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Summary

This chapter has three sections. The first section presents the standard economic theory of externalities, demonstrating the need for a tax (in the case of a negative externality) or a subsidy (in the case of a positive externality) to correct the market failure. The second section discusses economists' methods to value environmental services and natural capital, as well as cost-benefit analysis. The final section summarizes environmental policies in theory and practice.

After reading and reviewing this chapter, you should be able to:

1. Use a supply-and-demand graph to illustrate why the unregulated market equilibrium is inefficient in the presence of externalities.
2. Discuss how a negative externality can be internalized with a Pigovian tax.
3. Define what is meant by total economic value.
4. List and define the four nonmarket valuation methodologies.
5. Describe how a cost-benefit analysis is conducted, including discounting and valuing human lives.
6. List and define the four main types of environmental policies.
7. Briefly describe a few major environmental laws, and the relationship between environmental protection and the economy.

Key Term Review

Pigovian tax	internalizing negative externalities
subsidy	upstream taxes
revenue-neutral (taxes)	willingness-to-pay (WTP) principle
intrinsic value	ecosystem services
nonuse benefits	total economic value
nonmarket valuation techniques	cost of illness method
lower-bound estimate	replacement cost methods
revealed preference methods	travel cost models
defensive expenditures approach	stated preference methods
contingent valuation	contingent ranking
cost-benefit analysis	discounting
present value	discount rate
value of a statistical life (VSL)	precautionary principle
pollution standards	market-based approaches (to pollution
tradable pollution permits	regulation)

Active Review Questions

Fill in the Blank

1. A negative externality can be incorporated into a supply-and-demand graph as a _____ (upward / downward) shift of the _____ (supply / demand) curve.
2. The common policy recommendation in a market with a positive externality is to implement a _____.
3. The _____ states that something has economic value only according to the maximum amount people are willing to pay for it.
4. Nonmarket valuation techniques that base estimates on the cost of substitutes for ecosystem services are known as _____.
5. Using surveys to elicit respondents' willingness to pay for hypothetical scenarios is known as _____.
6. A discount rate is used in cost-benefit analysis to convert a future cost or benefit into its equivalent _____.
7. The main advantage of _____, compared to other environmental policy options, is that enforcement and monitoring costs are relatively low.
8. The first attempt to use tradable pollution permits in the United States was implemented to reduce emissions of _____.

True/False

9. A Pigovian tax is shown in the supply-and-demand model as an upward shift of the demand curve.
10. Instituting a Pigovian tax will increase the equilibrium price and decrease the equilibrium quantity.
11. A tax on coal extracted from a coal mine is an example of an upstream tax.
12. An example of a nonuse benefit would be the welfare gain a person gets who visits a lake but doesn't go swimming or boating.
13. The cost-of-illness method provides an upper-bound estimate to the true willingness to pay to avoid diseases.

14. Economists generally prefer revealed preference methods over other approaches to nonmarket valuation.
15. Contingent valuation has been criticized for producing willingness to pay estimates that tend to be exaggerated.
16. The higher the discount rate, the lower the present value of a future cost or benefit.
17. The main advantage of pollution standards is that they are cost effective.
18. When faced with a pollution tax, a firm will reduce its pollution as long as the marginal cost of pollution reduction is lower than the tax.

Short Answer

19. Explain in your own words why the unregulated market outcome in a market with a negative externality is economically inefficient.

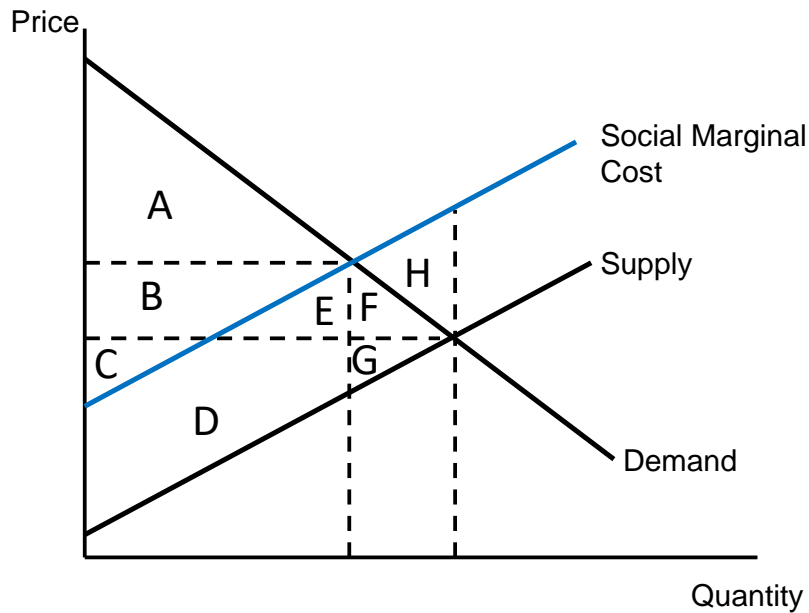
20. What are the four main environmental policy options? List one advantage and one disadvantage of each.

Self Test

1. How will imposing a Pigovian tax normally affect a market that produces a negative externality?
 - a) Price and quantity will both increase
 - b) Price will increase and quantity will decrease
 - c) Price and quantity will both decrease
 - d) Price will decrease and quantity will increase
 - e) We can't determine the impacts in advance

2. Which one of the following statements is false?
- A Pigovian tax will reduce the negative externality damage in a market.
 - The equilibrium outcome in an unregulated market with a negative externality will not be economically efficient.
 - The damage from a negative externality can be incorporated into a supply-and-demand graph as an upward shift of the supply curve.
 - Setting a Pigovian tax at the “correct” level reduces the negative externality damage in a market to zero.
 - A Pigovian tax does not ensure that those suffering the negative externality damage are directly compensated.

For Questions 3-4 refer to the following graph.



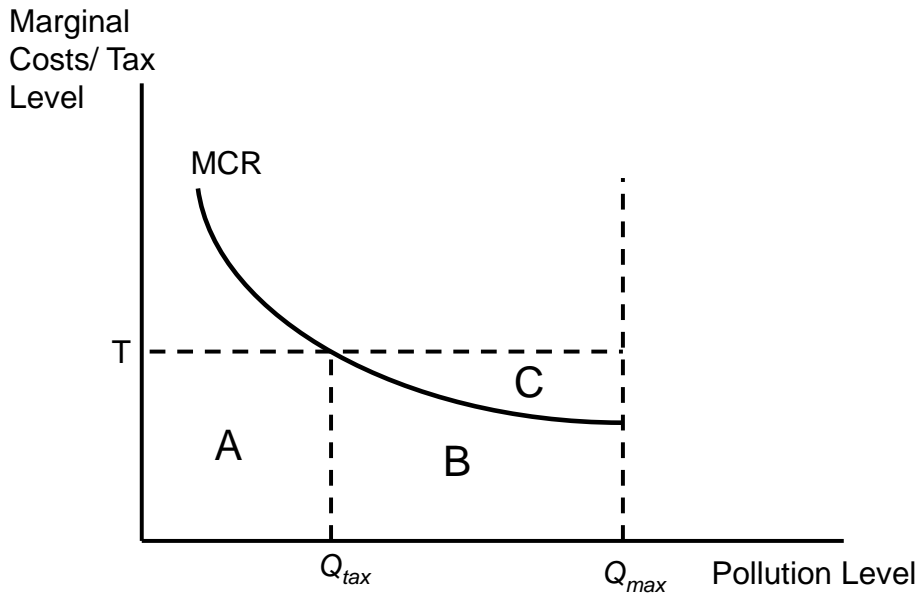
3. In the graph above, what area(s) represent the negative externality damage in an unregulated market (i.e., with no Pigovian taxes)?
- D+E
 - D+E+F+G
 - H
 - F+G+H
 - D+E+F+G+H

4. In the graph above, what area(s) represent the tax revenue if a Pigovian tax is implemented which fully internalizes a negative externality?
- a) B+E+F
 - b) C+D+G
 - c) C+D
 - d) D+E
 - e) B+E+F+H
5. How can the social benefits from a positive externality be represented in a supply-and-demand graph?
- a) As an upward shift of the supply curve
 - b) As an upward shift of the demand curve
 - c) As a downward shift of the supply curve
 - d) As a downward shift of the demand curve
 - e) None of the above
6. What is an upstream tax?
- a) A tax placed on consumer goods
 - b) A tax on pollution dumped into rivers
 - c) A tax placed on raw materials
 - d) A tax placed primarily on high income households
 - e) A tax placed primarily on low income households
7. About how much are environmental taxes in the United States, expressed as a percentage of total tax revenue?
- a) 3%
 - b) 7%
 - c) 12%
 - d) 18%
 - e) 25%
8. Total economic value excludes which one of the following components?
- a) Profits
 - b) Nonuse benefits
 - c) Ecosystem services
 - d) Recreation benefits
 - e) Intrinsic value

9. Which one of the following is not a nonmarket valuation technique?
- a) Revenue-neutral methods
 - b) The cost of illness method
 - c) Replacement cost methods
 - d) Revealed preference methods
 - e) Stated preference methods
10. Suppose a household purchases a water purification system to avoid exposure to contaminated drinking water. Estimating the value of safe drinking water by measuring the cost of the purification system is an example of what valuation method?
- a) The replacement cost method
 - b) The travel cost method
 - c) Contingent valuation
 - d) The defensive expenditures approach
 - e) Contingent ranking
11. Using a survey to elicit people's willingness to pay for a hypothetical scenario is known as ...
- a) contingent ranking.
 - b) contingent valuation.
 - c) replacement cost methods.
 - d) revealed preference methods.
 - e) the defensive expenditures approach.
12. Which of the following methods would be most likely to produce an accurate estimate of the recreation benefits of a National Park?
- a) Replacement cost methods
 - b) Defensive expenditures approach
 - c) Travel cost models
 - d) Contingent valuation
 - e) Cost of illness method
13. What is considered to be the main advantage of contingent valuation?
- a) Responses can be validated by comparison to market behavior
 - b) Results are unbiased
 - c) Surveys can be done at low cost
 - d) Values can be obtained for any type of benefit
 - e) Results are easily replicated

14. The present value of a benefit of \$50 that occurs 10 years from now, at a discount rate of 3%, is obtained by which of the following formulas?
- a) $\$50 * (1.03)^{10}$
 - b) $\$50 / (0.97)^{10}$
 - c) $\$50 / (1.03)^{10}$
 - d) $\$50 - (0.97)^{10}$
 - e) $\$50 - (1.03)^{10}$
15. Which one of the following statements is false?
- a) The higher the discount rate, the lower the present value of a future benefit.
 - b) The further a benefit occurs in the future, the lower the present value.
 - c) The precautionary principle states that policies should err on the side of caution when there is a risk of a catastrophic outcome.
 - d) The value of a statistical life can be used in cost-benefit analysis to determine the benefits of policies that reduce environmentally-related deaths.
 - e) The accepted approach among economists for choosing a discount rate is to set it equal to the rate of return on U.S. corporate stocks.
16. What is the main advantage of a pollution standard?
- a) It can specify a definite result.
 - b) It is a cost-effective policy.
 - c) It encourages innovation.
 - d) The cost is known in advance.
 - e) Monitoring costs are minimized.
17. What is considered to be the main advantage of a technology-based regulation?
- a) It is a market-based approach to regulation.
 - b) It encourages innovation.
 - c) It is a cost-effective policy.
 - d) Technology is always improving.
 - e) Monitoring costs are minimized.
18. Which one of the following statements is false?
- a) The economic benefits of environmental laws in the U.S. are unknown because no federal regulations must be analyzed using cost-benefit analysis.
 - b) The benefits of the U.S. Clean Air Act significantly exceed the costs.
 - c) The European Union has implemented a tradable permit system for carbon emissions.
 - d) The United States has implemented a tradable permit system for sulfur dioxide emissions.
 - e) Environmental protection can be compatible with economic growth.

For Questions 19 and 20, refer to the following graph.



19. In the graph above showing the marginal cost of pollution reduction for a firm, what area(s) represent the tax revenue the firm pays if a tax is set at T?

- a) A
- b) B
- c) C
- d) A+B
- e) B+C

20. In the graph above, showing the marginal cost of pollution reduction for a firm, what area(s) represent the expenditures the firm makes to reduce its pollution level if a tax is set at T?

- a) A
- b) B
- c) C
- d) A+B
- e) B+C

Answers to Active Review Questions

1. upward; supply
2. subsidy
3. willingness-to-pay principle
4. replacement cost methods
5. contingent valuation
6. present value
7. technology-based regulations
8. sulfur dioxide
9. False
10. True
11. True
12. False
13. False
14. True
15. True
16. True
17. False
18. True
19. At the unregulated market equilibrium, the social marginal cost (including the externality) exceeds the marginal benefits (the demand curve). Thus the market equilibrium results in over-production of the good or service causing the externality. The efficient level of production occurs where the social marginal costs just equal the marginal benefits.
20. See the table below:

Policy Option	Advantages	Disadvantages
Pollution standards	Can specify a definite result	Not cost-effective; little incentive for further reduction
Technology-based regulation	Relatively low enforcement and monitoring costs; cost savings due to standardization	Not cost-effective; little incentive for further reduction
Pigovian (or pollution) taxes	Cost effective; incentive for further reduction; price of pollution is known	Resulting pollution levels difficult to predict
Tradable pollution permits	Cost effective; incentive for further reduction; resulting pollution level specified in advance	Price of permits difficult to predict

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. b | 11. b |
| 2. d | 12. c |
| 3. e | 13. d |
| 4. d | 14. c |
| 5. b | 15. e |
| 6. c | 16. a |
| 7. a | 17. e |
| 8. e | 18. a |
| 9. a | 19. a |
| 10. d | 20. b |

Chapter 14

COMMON PROPERTY RESOURCES AND PUBLIC GOODS

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Overview and Objectives

This chapter provides a classification of different types of goods based on the properties of rivalness and excludability. Non-private goods include artificially scarce goods, common property resources, and public goods. For each of these types of goods, government interventions may be warranted for reasons of efficiency and fairness. The chapter concludes with a discussion of global climate change, which incorporates many of the issues raised in Chapter 12 and earlier in this chapter.

After reading and reviewing this chapter, you should be able to:

1. Classify goods into four categories based on the properties of rivalness and excludability.
2. Indicate why markets for artificially scarce goods are economically inefficient.
3. Describe why an unregulated outcome for a common property resource will be inefficient, and how policies can be used produce a more efficient outcome.
4. Discuss why private markets don't exist for public goods, and how a government can determine the efficient provision level for a public good.
5. Describe the causes and consequences of global climate change.
6. Summarize the results of economic analyses of global climate change.
7. Summarize some of the policy responses to global climate change.

Key Term Review

private good
rival good
nonexcludable good
common property resource
congestion
individual transferable quota (ITQ)
free riders
greenhouse gases

excludable good
public good
nonrival good
artificially scarce good
price discrimination
tragedy of the commons
climate change

Active Review Questions

Fill in the Blank

1. A public good is defined as one that is _____ and _____.
2. An artificially scarce good is defined as one that is _____ and _____.
3. The supply curve in the case of an artificially scarce good is _____.
4. Those who benefit from a public good without paying for it are known as _____.
5. Most of the growth in future global carbon dioxide emissions will come from _____ (developed/developing) countries.
6. The _____ was drafted in 2015 as an international treaty to reduce greenhouse gas emissions.

True/False

7. A common property resource is nonexcludable and nonrival.
8. An ocean fishery is an example of a public good.
9. An uncrowded health club is an example of a private good.
10. Market failure tends to occur in the market for artificially scarce goods.
11. The marginal cost of supply for an artificially scarce good is infinite.
12. Price discrimination can potentially increase social welfare in the case of an artificially scarce good.
13. For a common property resource, inefficiency occurs because each user of the resource fails to account for the impact of his or her actions on other resource users.
14. Individual transferable quotas for common property resources would work in theory, but have never been used in actual national policies.
15. The social marginal benefits of a public good can be obtained by the horizontal addition of individual demand curves.

16. Projections indicate that per capita carbon dioxide emissions will be the same in developed and developing countries by 2050.
17. The Stern Review's main conclusion was that the benefits of strong action on climate change far outweigh the costs of not acting.

Short Answer

18. Explain in your own words why markets for artificially scarce goods tend to be inefficient.

19. Explain in your own words why the marginal benefits of a public good differ from the willingness to pay for it.

Self Test

1. What does it mean to say that a good is "nonrival"?
 - a) It doesn't face any competition
 - b) It has a non-zero price
 - c) Owners can exclude others from consuming it or enjoying its benefits
 - d) It can be consumed by more than one person at a time
 - e) It suffers from congestion
2. Which one of the following is the best example of a common property resource?
 - a) Free radio
 - b) A dentist's office
 - c) Satellite radio
 - d) A community swimming pool
 - e) National defense

3. Which one of the following is the best example of a private good?
 - a) Free radio
 - b) A dentist's office
 - c) Satellite radio
 - d) A community swimming pool
 - e) National defense

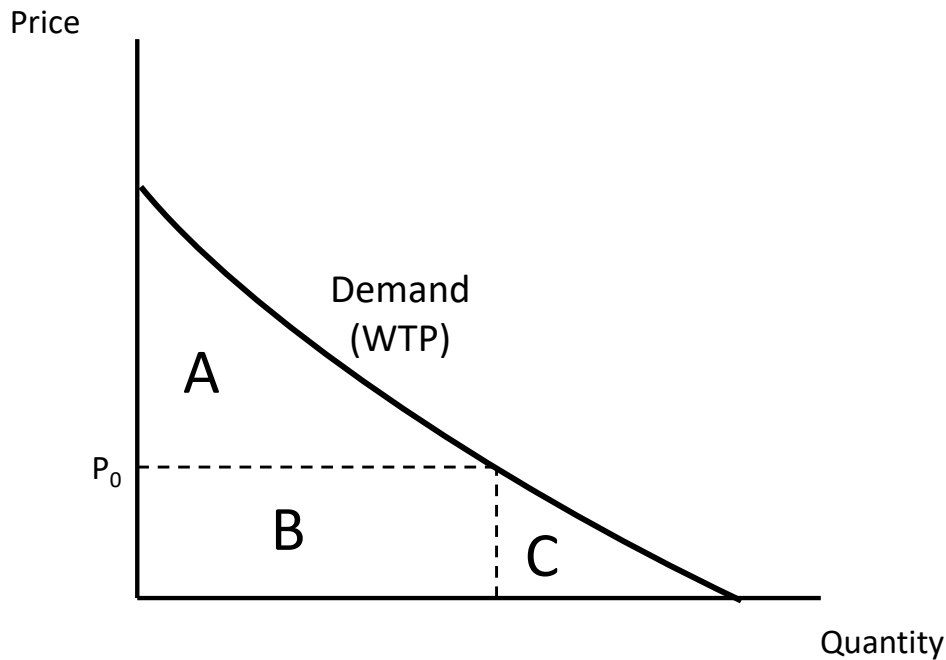
4. Which one of the following is the best example of an artificially scarce good?
 - a) Free radio
 - b) A dentist's office
 - c) Satellite radio
 - d) A community swimming pool
 - e) National defense

5. If a public good suffers from congestion, then it would be re-classified as what type of good?
 - a) A common property resource
 - b) A private good
 - c) A nonrival good
 - d) A nonexcludable good
 - e) An artificially scarce good

6. The supply curve for an artificially scarce good is ...
 - a) A vertical line at a price of zero
 - b) A vertical line at the market price
 - c) A horizontal line at a price of zero
 - d) A horizontal line at a price of infinity
 - e) A horizontal line at the market price

7. Social benefits for an artificially scarce good are maximized at what price?
 - a) A price equal to average cost
 - b) It will depend on the particular market
 - c) A price of zero
 - d) A price of infinity
 - e) A price somewhere between zero and infinity

For Questions 8 and 9 refer to the following graph.



8. In the graph above showing the market for an artificially scarce good, what area(s) represent the revenue obtained by the firm supplying the good?
- a) A
 - b) B
 - c) C
 - d) A+B
 - e) B+C
9. In the graph above showing the market for an artificially scarce good, what area(s) represent the potential welfare gain if the good were sold at a price of zero instead of a price of P_0 ?
- a) A
 - b) B
 - c) C
 - d) A+B
 - e) B+C

10. At the unregulated outcome for a common property resource, which statement best describes the profits at this point?
- a) Profits for each firm equal the difference between their revenues and social costs
 - b) The unregulated outcome maximizes total profits in the industry
 - c) Social costs are equal to total industry profits
 - d) Profits are sufficient to attract additional firms into the industry
 - e) Industry profits are equal to zero
11. Which one of the following statements is false?
- a) The tragedy of the commons is a likely outcome when a common property resource is unregulated.
 - b) The unregulated outcome with a common property resource is inefficient.
 - c) Each user of a common property resource creates a positive externality for other resource users.
 - d) Private markets are not suited for the allocation of public goods.
 - e) Individual transferable quotas can increase social welfare in the allocation of a common property resource.
12. The social marginal benefits of a public good are obtain by ...
- a) vertical addition of individual marginal benefit curves.
 - b) horizontal addition of individual marginal benefit curves.
 - c) vertical addition of individual willingness to pay curves.
 - d) horizontal addition of individual willingness to pay curves.
 - e) None of the above
13. What is generally considered the most appropriate method for funding the provision of a public good?
- a) Provide a subsidy to firms
 - b) Implement a system of individual transferable quotas
 - c) Allow price discrimination
 - d) Taxation
 - e) Voluntary donations
14. A free rider is defined as someone who ...
- a) accesses a common property resource without paying for it.
 - b) accesses an artificially scarce good without paying for it.
 - c) obtains a private good without paying for it.
 - d) avoids paying taxes that used to provide public goods.
 - e) receives the benefits of a public good without paying for them.

15. Which one of the following is not considered to be one of the likely effects of global climate change?

- a) Warmer average temperatures in most, but perhaps not all, regions
- b) Increased economic output
- c) On average, more frequent precipitation
- d) Rising sea levels
- e) An increase in species extinction

16. Which one of the following statements is false?

- a) Climate change will increase economic activity, primarily because it will increase agricultural production.
- b) Burning fossil fuels generates emissions of carbon dioxide.
- c) Greenhouse gases can remain in the atmosphere for decades, or even longer.
- d) Global average temperatures have already increased by about one degree Celsius.
- e) Climate change can be considered to be the result of a market failure.

17. Which one of the following statements is true?

- a) Emissions of carbon dioxide per capita will be about equal in developing and developed countries within 30 years.
- b) Most of the growth in global carbon dioxide emissions in the next few decades will be from the United States.
- c) The Paris Climate Agreement sets binding emissions targets for developed, but not developing, countries.
- d) The Paris Climate Agreement is not sufficient to meet the 2 degree temperature increase target.
- e) There is considerable disagreement among climate scientists about whether humans are impacting the global climate.

18. What is the primary difference between economic analysis of climate change that recommend significant policy action, and those that recommend only a modest policy response?

- a) Whether the impacts in developing countries are calculated as a percent of total income or in absolute dollars
- b) The assumption about the extent of melting in Greenland and Antarctica
- c) The choice of the discount rate
- d) The choice of the price elasticity of demand for fossil fuels
- e) The assumption about the adoption of renewable energy

19. Which one of the following energy sources currently produces electricity at the lowest average cost?

- a) Coal
- b) Nuclear
- c) Geothermal
- d) Residential PV solar
- e) Utility-scale PV solar

20. Which one of the following statement is false?

- a) An advantage of a carbon tax over a cap-and-trade policy is that the tax provides certainty about the price of emissions.
- b) The European Union has implemented a tradable permit system for carbon emissions.
- c) The United States has indicated that it intends to withdraw from the Paris Climate Agreement.
- d) Investment in renewable energy is nearly 20% of total global energy investment.
- e) Each country is free to set their own emissions targets under the Paris Climate Agreement.

Answers to Active Review Questions

1. nonexcludable; nonrival
2. excludable; nonrival
3. a horizontal line at a price of zero (or essentially nonexistent)
4. free riders
5. developing
6. Paris Climate Agreement
7. False
8. False
9. False
10. True
11. False
12. True
13. True
14. False
15. False
16. False
17. True
18. In an efficient market, equilibrium occurs where the marginal benefits are just equal to the marginal costs. In a market for an artificially scarce good, the marginal cost of providing it is zero. But a private company can't sell its products for a price of zero. So the market price will be above marginal cost and equilibrium will be determined by the intersection of price with the demand curve (marginal benefits). But there are still consumers willing to pay a positive price for the good, but not the market price. The company could increase its profits and additional consumers could obtain a consumer surplus if these additional consumers were able to purchase the good at a lower-than-market price. In other words, if the price discrimination were possible, overall social welfare could be increased.
19. For a typical good, one's marginal benefits are equal to his or her willingness to pay for it. But with a public good, one can receive the benefits of it without paying. In other words, one can be a free rider. So one's willingness to pay for the public good may be considerably less than his or her willingness to pay, and may even be zero.

Answers to Self Test

- | | |
|-------|-------|
| 1. d | 12. a |
| 2. d | 13. d |
| 3. b | 14. e |
| 4. c | 15. b |
| 5. a | 16. a |
| 6. c | 17. d |
| 7. c | 18. c |
| 8. b | 19. e |
| 9. c | 20. d |
| 10. e | |
| 11. c | |

Chapter 15

CAPITAL STOCKS AND RESOURCE MANAGEMENT

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter deals with the concepts associated with resource maintenance and capital stocks. The text examines the five types of capital that underlie economic activity: natural, human, social, manufactured, and financial capital. This chapter focuses primarily on definitions and concepts, rather than on graphic or numerical problems.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Define the difference between stocks and flows.
2. Define the five types of capital.
3. Discuss the limitations of substitutability with respect to natural capital.
4. Describe why social capital is important for economic activities.
5. Distinguish between the two types of financial capital.
6. Understand the importance of sustaining capital stocks.

Key Term Review

capital
investment
stock-flow diagram
manufactured (or produced) capital
social capital
physical capital
renewable resource
substitutability
depreciation
social organization
debt finance
principal

stock
flow
natural capital
human capital
financial capital
intangible capital
nonrenewable resource
fixed manufactured capital
inventories
equity finance
loan
interest

Active Review

Fill in the Blank

1. Assets that are tangible are known as _____ capital.
2. Manufactured goods that yield a flow of productive services over an extended period of time are known as _____ manufactured capital.
3. Gary's Gasoline Station is for sale. Gary hopes to get a good price for the station in part because he has built up a good reputation with customers. The good will of Gary's customers is a form of _____ capital.
4. Financial capital exists in two forms: _____ finance and _____ finance.
5. New technology is considered a type of _____ capital.
6. Stocks of materials or goods that are not currently being used or sold but are expected to be used or sold in the foreseeable future are known as _____.

True or False

7. A stock-flow diagram shows how flows change over time.
8. The stock of relationships that facilitate economic transactions is known as human capital.
9. A fishery is an example of a renewable natural resource.
10. An obsolete computer is an example of depreciation.
11. Eating nutritious food can be considered an investment in human capital.
12. Buying furniture using cash is an example of equity finance.
13. Social capital can only increase over time.
14. The number of fish sold per day at Big City Fish Shop is an example of a stock.
15. The principal is the original amount of a loan plus interest.
16. Planting trees can be considered investment.
17. The number of students enrolled in your economics class is an example of a stock.

Short Answer

18. Name the five forms of capital.

19. Alice is good at learning foreign languages, and has already studied Latin and Greek. She decides to sign up for an intensive summer course in intermediate German. Describe the scenario using the terms " human capital stock" and "investment."

20. Describe the difference between equity and debt finance.

Self Test

1. Which of the following is an example of a stock?

- a. The number of haircuts you got last year
- b. The amount of water that passes over a waterfall per second
- c. The number of screwdrivers sold by a hardware store each week
- d. The number of fish produced at a hatchery each day
- e. The number of goldfish in the pet store's aquarium

2. Which of the following is an example of investment?

- a. A business sponsors an educational program for its employees.
- b. A farmer sets aside seeds to plant next year.
- c. A group of neighbors construct a new day care facility.
- d. A worker puts half her paycheck into a savings account.
- e. All of the above.

3. Which of the following statements is *false*?
- A nonrenewable resource is a stock that diminishes as it is used over time.
 - Renewable resources can be eliminated through over-use.
 - Financial capital refers to purchasing power, or money.
 - Natural capital refers to both renewable and nonrenewable resources.
 - Human capital refers to buildings, machines, and inventories of produced goods.
4. Which of the following would be referred to as social capital?
- money in the bank
 - heavy machinery
 - one person's training in engineering
 - a forest
 - trust and mutual understanding
5. Which of the following activities would be described as a resource maintenance effort?
- Limiting use of fossil fuels in an effort to limit global warming
 - Harvesting fish at a high rate
 - Extracting oil from known oil reserves
 - Using a well-designed machine to process leather for shoes
 - Selling seeds on the international market
6. Which of the following is *not* an example of manufactured capital?
- roads
 - computers
 - a plow
 - a primitive digging stick
 - a fresh-water spring
7. A city government builds a new road. After five years the road develops some potholes, making it less useful. This decline in the value of the road over time is an example of
- fixed inventory
 - flows of capital services
 - depreciation
 - substitutability
 - a renewable resource

8. Hal's Hardware has a backup supply of 100 cans of paint thinner in its warehouse. The cans of paint thinner, which Hal's Hardware is holding until they can be used, are
- an inventory
 - a flow
 - fixed manufactured capital
 - renewable resources
 - financial capital
9. Which of the following is an example of fixed manufactured capital?
- A delivery truck.
 - Oil reserves.
 - A chemical compound that will be incorporated into a product.
 - Nails that will be used to build a playground.
 - Both a and d are correct.
10. Which of the following would be considered a type of social capital?
- technology
 - good nutrition
 - roads
 - factories
 - financial assets
11. Which of the following statements is *false*?
- Crude oil stocks are natural capital.
 - Mutual understanding is a type of social capital.
 - Knowledge about how to operate a machine is intangible capital.
 - Physical capital is synonymous with natural capital.
 - Education is an investment in human capital.
12. A farmer takes a course to learn about crop rotation methods. In taking this course, she is investing in
- substitutable capital
 - human capital
 - natural capital
 - nonrenewable resources
 - fixed manufactured capital

13. Which of the following is an example of a stock of natural capital?
- The number of trucks owned by a company.
 - The new growth in a forest over a year.
 - The knowledge you have gained from your past education.
 - The amount of oil in an underground reserve.
 - Efforts to remove the effects of pollution from a river.
14. A diagram that shows how flows change the level of a stock over time is known as a(n)
- flow chart
 - flow diagram
 - stock-flow diagram
 - input-output model
 - capital stock diagram
15. Which of the following forms of capital would be likely to increase if there is an influx of new funding for literacy training?
- human capital
 - social capital
 - stock capital
 - financial capital
 - physical capital
16. Which of the following activities is an example of maintaining a capital stock?
- Replenishing soil quality through crop rotation.
 - Harvesting a crop of corn.
 - Withdrawing money from a checking account.
 - Paying a phone bill.
 - None of the above.
17. Which of the following is an example of an inventory?
- A freezer full of ice cream to be served at a party next week.
 - Taking out a loan from a bank.
 - A shopping cart.
 - A house that is for sale by the owner.
 - Both a and b are true.

18. The possibility of using one resource instead of another is known as
- the precautionary principle
 - substitutability
 - sustainability
 - manufacturing advantage
 - comparative advantage
19. Manufactured goods that yield a flow of productive services over an extended period of time are referred to as
- capital services
 - capital flows
 - fixed manufactured capital
 - manufactured flows
 - inventories
20. Suppose you buy a new printer for your business using money you've earned as profits. What is this an example of?
- inventory finance
 - fixed finance
 - debt finance
 - flow finance
 - equity finance

Answers to Active Review Questions

1. physical
2. fixed
3. social
4. equity; debt
5. intangible human
6. inventories
7. False
8. False
9. True
10. True
11. True
12. True
13. False
14. False
15. False
16. True
17. True
18. Natural, manufactured, human, social, financial.
19. Alice's innate abilities and prior training, which contribute to her ability to learn a new language, are part of her *human capital stock*. Taking the German course is an *investment* that will increase her stock of knowledge.
20. Equity finance is using one's own funds to make productive investments. Debt finance is taking out a loan (i.e., temporarily borrowing another's funds, on the condition that it be paid back with interest) to make investments.

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. e | 11. d |
| 2. e | 12. b |
| 3. e | 13. d |
| 4. e | 14. c |
| 5. a | 15. a |
| 6. e | 16. a |
| 7. c | 17. a |
| 8. a | 18. b |
| 9. a | 19. c |
| 10. a | 20. e |

Chapter 16

PRODUCTION COSTS

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

Chapter 15 begins by exploring the nature of different kinds of production costs. A numerical and graphical example is presented concerning how production levels, and production costs, change as the use of a variable input is increased. You will learn about total product curves, total cost curves, marginal cost curves, and the long-run average cost curve.

After reading and reviewing this chapter, you should be able to:

1. Understand the economist's notion of production.
2. Define the difference between economic and accounting costs.
3. Distinguish between private and external costs.
4. Understand an economic production function.
5. Describe the relationship between patterns of returns and patterns of (total and marginal) production costs.
6. Discuss economies of scale

Key Term Review

triple bottom line

outputs

variable costs

accounting costs

production function

variable input

limiting factor

total product curve

diminishing marginal returns

increasing marginal returns

total cost curve

constant marginal costs

average cost (average total cost)

economies of scale

diseconomies of scale

maximum efficient scale

inputs

marginal analysis

fixed costs (sunk costs)

economic costs

fixed input

short run

long run

marginal product

constant marginal returns

total cost

increasing marginal costs

decreasing marginal costs

long-run average cost

constant returns to scale

minimum efficient scale

input substitution

Active Review

Fill in the Blank

1. Costs of production that are not borne by persons or entities directly involved in the production are known as _____ costs.
2. Annika opens a riding stable. She factors in the cost of buying horses, buying riding tackle, and renting space. However, she does not consider the opportunity cost of her time. Annika is considering only the _____ costs of her project.
3. A cost that can be easily adjusted is known as a(n) _____ cost.
4. An equation or graph that shows the relationship between types or quantities of inputs and quantity of the output is known as a(n) _____.
5. In the short run, a factor that creates a constraint to increasing production is known as a(n) _____ factor.
6. When we consider a time scale long enough to allow fixed inputs to become variable, it becomes relevant to consider the long run _____ cost of production.
7. Applying fertilizer to a crop of beans is associated with diminishing marginal returns. From this fact, we can deduce that applying fertilizer to beans has _____ marginal costs.
8. When a company's long-run average cost increases with increasing output, that company is experiencing _____ of scale.
9. A lawn service decides to get rid of its leaf blowing machines and increase its number of workers, who will gather and move leaves using regular, nonautomated rakes. This decision is an example of input _____.

True or False

10. The harmful effects of the pesticide DDT on human health can be considered an external cost.
11. The costs of fixed inputs can only be adjusted in the long run.
12. The social costs of production include opportunity costs, accounting costs, and external costs.

13. A process exhibits economies of scale when long run average cost increases with increasing output capacity.
14. A paper mill pollutes a local river by discharging waste containing chlorine and other toxic chemicals. The cost of treating diseases that result from this pollution would be considered an accounting cost of production.
15. A company signs a contract for five years, under which it will pay the same amount every month for property insurance. This cost, which is independent of the level of production in any given month, is referred to as a variable cost.
16. In the long run, all inputs are variable.

Short Answer

17. Suggest a situation in which the economic costs of a project would be lower than the accounting costs.

18. Which is a better guide in making decisions about what projects to undertake: accounting cost or economic cost?

19. The relationship between hours spent studying (input) and knowledge of economics (output) is positive. However, once you have done 20 hours of studying, an additional hour does not add as much to your knowledge as the first hour did. When you graph the relationship between studying and knowledge, is the resulting line straight or curved? Why?

20. Explain the difference between fixed and variable costs.

Problems

1. As Augusta's Hair Salon increases its staff from 1 to 15 hairdressers, it experiences increasing marginal returns, because the hairdressers work faster and better when they are in a larger group. Illustrate this situation on a total product curve graph.

2. A shoe factory has 500 employees and produces a thousand pairs of shoes per hour.

a. What is the shoe factory's productivity per worker per hour? _____

b. The factory hires one new worker. Now, the factory produces 1,002 shoes per hour. Then the factory hires one more worker. Production rises to 1,004 per hour. Does the factory have diminishing, constant, or increasing marginal returns at this level of production?

c. Graph the production function (total product curve) of the shoe factory at these levels of production, carefully labeling all lines and points.

3. Production at Julia's call center shows the following relationship between the number of workers and the number of phone calls handled (per day).

Quantity of Variable Input: Labor	Quantity of Output: Calls	Marginal Return to Additional Labor	Fixed Cost (\$)	Variable Cost (\$)	Total Cost (\$)
0	0	--			
1	100				
2	180				
3	240				

- a. Calculate the marginal return gained from the addition of each worker, filling in the column in the table.
 - b. Suppose Julie has entered a long term lease for an office space and telephones, and this is her only fixed cost. The lease costs her \$50 (per day). Fill in the Fixed Cost column in the table.
 - c. Julia pays each worker she hires \$80 per day, and this is her only variable cost. Fill in the Variable Cost column in the table.
 - d. Fill in the column for the Total Cost corresponding to each level of production.
4. Producing umbrellas requires inputs of fabric, metal, and labor. Umbra's Umbrella Factory experiences increasing returns to inputs of labor up to a certain point, and constant returns for all levels of production thereafter. There is no range of diminishing returns at Umbra's Umbrella Factory.
- a. What is the shape of the production function for Umbra's Umbrella Factory? Sketch (and fully label) it below.

b. Sketch the total cost curve for Umbra's Umbrella Factory.

c. Sketch the marginal cost curve for Umbra's Umbrella Factory.

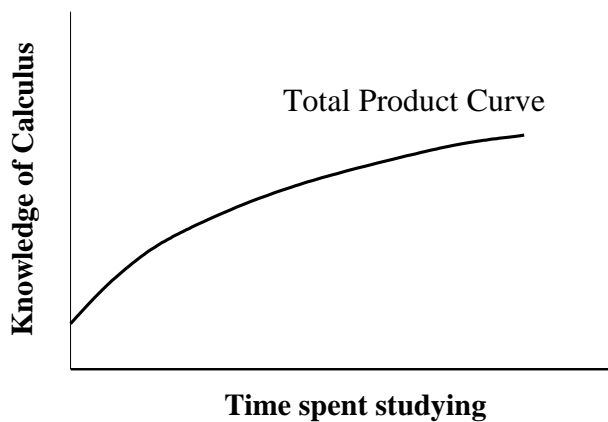
5. Coretta can build three chairs in her first week of work. In the second week, she starts to get tired and has to take time out to clean the workshop, so she can only make two additional chairs. In the third week, she settles into a pattern of one additional chair per week, which she can maintain for a fourth, fifth, and sixth week. In the seventh week, she's exhausted and can only finish half an additional chair.

a. Make a table showing the number of weeks worked and the marginal and total number of chairs produced.

- b. Sketch Coretta's total product curve for chairs, where the variable input is the time she spends, and the output is the total number of chairs produced.

Self Test

For Question # 1, refer to the graph shown below.

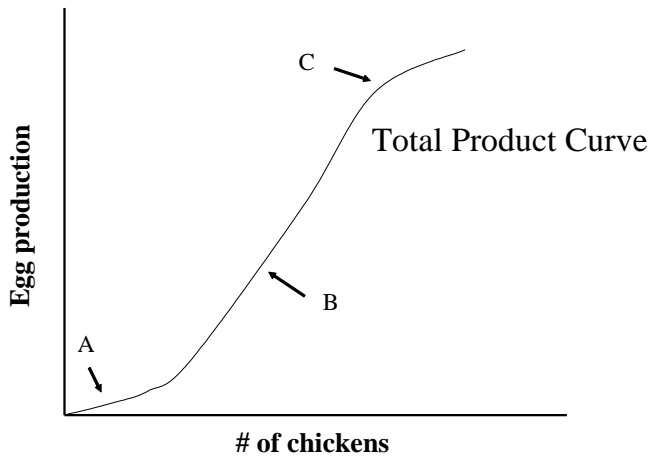


1. You are taking a calculus course. The graph above shows the relationship between the time spent studying calculus (input) and knowledge of calculus (output). Based on the graph, you can see that ...
- studying calculus is characterized by increasing marginal returns.
 - studying calculus is characterized by diminishing marginal returns.
 - studying calculus is characterized by constant marginal returns.
 - studying calculus has a synergistic effect on calculus knowledge.
 - the slope of the studying production curve is constant.

2. A hat maker pays \$500 per month in rent for his production facility. This cost is best described as ...

- a. an opportunity cost.
- b. an external cost.
- c. a variable cost.
- d. a fixed cost.
- e. a marginal cost.

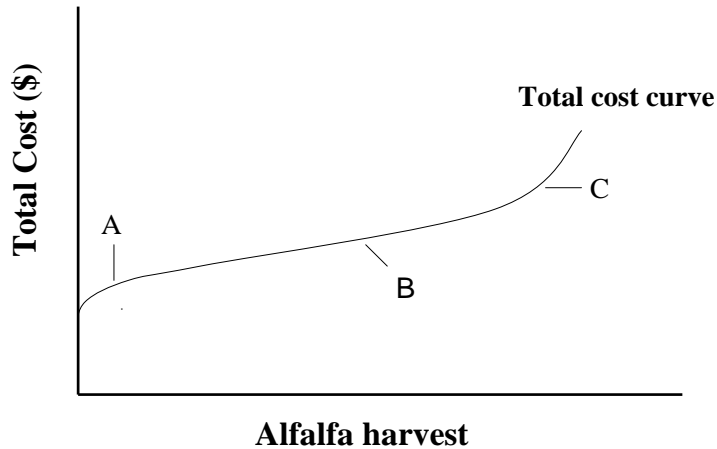
For Question #3, refer to the graph shown below.



3. Babette's Barn produces eggs. The production function for Babette's Barn is shown above. Based on the graph (not on your knowledge of chicken biology), which of the following statements is likely to be false?

- a. In region A, there's lots of space in the barn and the chickens are lonely. In this region, adding one additional chicken makes all the chickens happier and more likely to lay eggs.
- b. In region B, the barn is overcrowded and each additional chicken increases stress, decreasing the number of eggs laid per chicken.
- c. In region C, the barn is overcrowded and each additional chicken increases stress, decreasing the number of eggs laid per chicken.
- d. Throughout the range of production shown here, the number of chickens has a positive relationship to egg production.
- e. Throughout the range of production shown here, the number of chickens has a direct relationship to egg production.

For Question # 4, refer to the graph shown below.



4. The graph above shows the total cost curve for the alfalfa harvest on Alf's Alfalfa Farm. Based on this graph, which of the following statements about Alf's Alfalfa Farm must be false?
- In region A, marginal costs are increasing.
 - In region B, marginal costs are constant.
 - Total costs increase as production rises.
 - The marginal cost curve is flat in region B.
 - In region A, the production function is characterized by increasing marginal returns.
5. Jim decides to start a business manufacturing toothpaste. Which of the following would be included in the *accounting* costs of the undertaking?
- \$100,000 of Jim's own money that he invests to start up the business.
 - Interest Jim could have made if he put the \$100,000 into a savings account instead.
 - Money Jim could make if he got a job at a local shampoo factory instead.
 - Costs of toothpaste ingredients Jim needs to purchase each week.
 - Both a and d are true.
6. Albert is interested in opening a bicycle repair shop, but to do so will require getting information about other bike shops in the city, getting a permit to open a new business, and interviewing applicants for the positions of shop manager and accounts manager. All of these factors, which will slow down the process considerably, are
- extra costs
 - external costs
 - equity costs
 - accounting costs
 - transaction costs

7. Which of the following is an example of external costs?
- a. Mark purchases 10 books and pays 10% tax on the entire purchase.
 - b. Aurelio sells an acre of land but has to pay to have the land surveyed before the sale is completed.
 - c. Marty opens a chocolate factory and offers free samples to neighborhood children every Friday.
 - d. Gustave buys a new piece of equipment for his factory.
 - e. Georgette operates a noisy machine every morning, and scares away the birds from the local wildlife refuge.
8. Suppose in the short run a factory cannot increase its production output without adding more workers. What term would best describe the workers in this example?
- a. A fixed input
 - b. An external cost
 - c. A limiting factor
 - d. An opportunity cost
 - e. A marginal product
9. You have signed a two-year lease on a building in which you are planning to open a day care center. You have no choice about how much money you spend on rent for the next two years, because you are already committed to this agreement. This is an example of ...
- a. a variable input
 - b. a short run input
 - c. a long run input
 - d. a fixed input
 - e. a marginal input
10. Suppose that adding fertilizer always increases corn growth. The relationship between fertilizer application and corn growth would be
- a. positive
 - b. direct
 - c. fixed
 - d. efficient
 - e. both a and b are true.

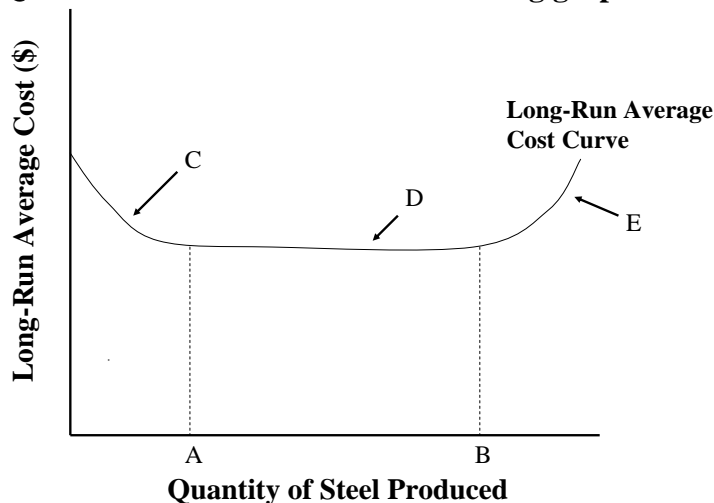
11. Charlie initially leased a one-room space and started a small day care center with only 4 children and one staff member. But he found that the costs per child were very high. When he leased a larger space, and expanded the center to have more children and staff, the cost per child fell. Which of the following factors came into play when Charlie expanded the center?

- a. economies of scale
- b. diseconomies of scale
- c. increasing returns to the labor inputs
- d. decreasing returns to the labor inputs
- e. input substitution

12. Which of the following statements is true?

- a. Long-run average cost is calculated by multiplying marginal cost by the unit of time in question.
- b. In computing marginal cost, we can ignore fixed costs.
- c. Constant returns to scale result from increasing marginal returns to production.
- d. Diseconomies of scale occur when long-run average cost declines with rising output.
- e. Increasing factory size always leads to decreasing marginal costs.

Questions 13 to 16 refer to the following graph.



13. The graph above shows the long-run average cost curve for a steel foundry. On this graph, point A is ...

- a. the minimum efficient scale.
- b. the maximum efficient scale.
- c. the point where economies of scale begin.
- d. the point where diseconomies of scale begin.
- e. the optimal level of output.

14. The region marked D is characterized by ...
- economies of scale.
 - increasing returns to scale.
 - constant returns to scale.
 - diseconomies of scale.
 - maximum average long-run cost.
15. Which of the following statements is true regarding the graph?
- Returns to scale are constant throughout.
 - As production increases, the amount used of all inputs--including the quantity of labor and the size of the factory--increases.
 - In region E, there isn't enough space for all the workers required to produce at this level and they are getting in one another's way.
 - The minimum efficient scale is at a production level of zero.
 - The maximum efficient scale is marked by point A.
16. Which of the points or regions on this graph is associated with diseconomies of scale?
- A
 - B
 - C
 - D
 - E
17. A self-employed accountant spends a lot of money identifying clients and advertising her services. These activities are an example of ...
- external costs
 - transaction costs
 - fixed inputs
 - marginal returns
 - opportunity costs
18. In economics, the "long run" is a time period in which ...
- all inputs are variable.
 - all inputs are paid for.
 - all outputs are determined.
 - all loans are repaid.
 - all interest is paid.

19. In the case of constant marginal costs, the total cost curve will be ...

- a. a flat line
- b. a straight line sloping upward
- c. a straight line sloping downward
- d. a curved line sloping upward
- e. a curved line sloping downward

20. A production function with diminishing marginal returns ...

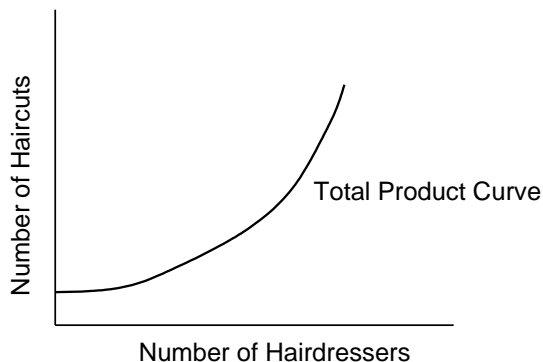
- a. can continue to slope upward indefinitely.
- b. is very unlikely in the real world.
- c. is quite common in the real world.
- d. must eventually display increasing marginal returns.
- e. Both B and D

Answers to Active Review Questions

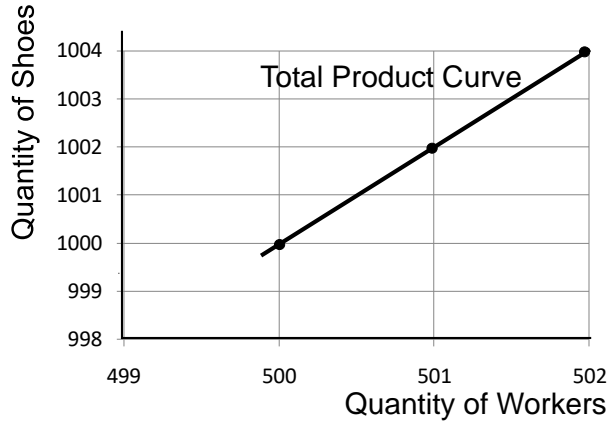
1. external
2. accounting
3. variable
4. production function or total product curve
5. limiting
6. average
7. increasing
8. diseconomies
9. substitution
10. True.
11. True.
12. True.
13. False. Economies of scale are present when long-run average cost *declines* with increasing output capacity.
14. False.
15. False. This is a fixed cost.
16. True.
17. A project that hires people who would otherwise be unemployed, and pays them the legal minimum wage or union negotiated wage, has economic costs below the accounting costs because it is bringing otherwise unused resources into valuable activity.
18. Economic cost is a better guide, because it takes into account the real value of whatever is given up in order to undertake the project.
19. The resulting line is curved, because marginal returns diminish with increasing time spent studying.
20. Fixed cost is the cost associated with using fixed inputs, which is the same no matter what quantity of output is produced. For example, if you have signed a lease on a factory building, you have to pay the same amount each month regardless of what you produce. A variable cost is the cost of using variable inputs (e.g. raw materials, energy, labor), which rise with quantity of output.

Answers to Problems

1.



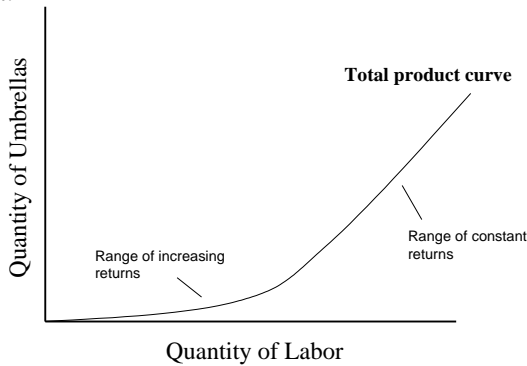
- 2. a. 2
- 2. b. constant
- 2. c.



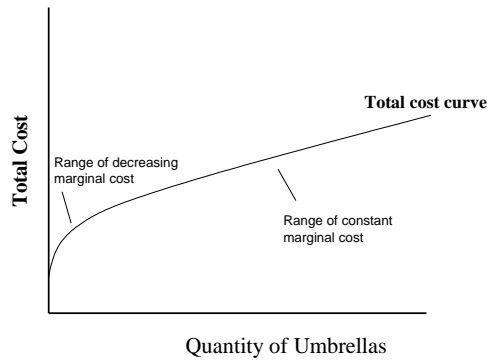
3. The completed table is:

Quantity of Variable Input: Labor	Quantity of Output: Calls	a. Marginal Return to Additional Labor	b. Fixed Cost (\$)	c. Variable Cost (\$)	d. Total Cost (\$)
0	0	--	\$50	0	\$50
1	100	100	\$50	\$80	\$130
2	180	80	\$50	\$160	\$210
3	240	60	\$50	\$240	\$290

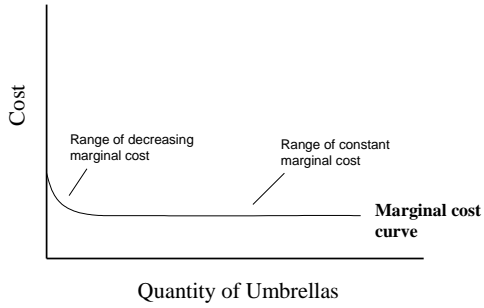
4. a.



4. b.



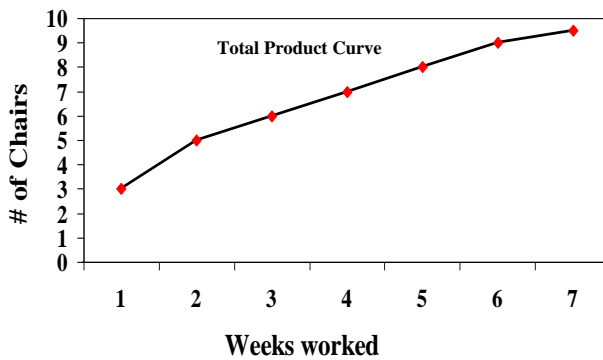
4. c.



5. a.

Number of Weeks worked	Marginal return to additional week of work (number of chairs)	Total Quantity of Chairs Produced
1	3	3
2	2	5
3	1	6
4	1	7
5	1	8
6	1	9
7	1/2	9 1/2

5.b.



Answers to Self Test Questions

1. b
2. d
3. b
4. a
5. e
6. e
7. e
8. c
9. d
10. e

11. a
12. b
13. a
14. c
15. b
16. e
17. b
18. a
19. b
20. c

Chapter 17

PERFECTLY COMPETITIVE MARKETS

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Summary

This chapter presents the traditional, idealized model of perfect competition. In it, you will learn how perfectly competitive firms theoretically make production decisions to maximize their profits. Perhaps the most surprising concept in the chapter is the idea that perfectly competitive firms make zero *economic* profit. The chapter will end with some real-world considerations that indicate even perfectly competitive markets may not always produce economically efficient outcomes.

After reading and reviewing this chapter, you should be able to:

1. Describe the four different views of market power.
2. List the assumptions behind the traditional model of perfectly competitive markets.
3. Describe how a perfectly competitive firm maximizes its profits, based on analysis of total revenue and total cost curves.
4. Describe how a perfectly competitive firm maximizes its profits, based on marginal analysis.
5. Describe how the situation facing the individual firm relates to the overall market situation, in perfect competition.
6. Describe why economic profits are driven to zero under perfect competition.
7. Discuss why inefficiencies may persist in markets, even under conditions approaching perfect competition.

Key Term Review

market power

price taker

accounting profits

marginal revenue

perfectly competitive market equilibrium

path dependence

appendix: average variable cost (AVC)

perfect competition

total revenues

economic profits

profit maximization (under perfect competition)

sunk cost

network externality (in production)

Active Review Questions

Fill in the Blank

1. The ability to affect the terms and conditions of the exchanges in which you participate is referred to as _____.
2. In the perfect competition model, buyers and sellers have _____ information.
3. The demand curve facing a perfectly competitive firm is _____.
4. The difference between total revenues and accounting costs is known as _____.
5. Under conditions of perfect competition, a profit-maximizing firm will choose a level of production such that marginal cost is equal to _____.
6. At competitive equilibrium, all firms make (positive/zero/negative) _____ economic profit.
7. In a perfectly competitive market, the entrance of new firms into the market will drive prices (up, down) _____.
8. There are (many/few) _____ real world examples of perfectly competitive markets.
9. The economists view generally considers market power to be (good/bad) _____ and competition to be (good/bad) _____.
10. The term implying that “history matters” is known as _____.

True or False

11. Under conditions of perfect competition, all firms make positive economic profits.
12. Under perfect competition, individual economic actors have no market power.
13. If a perfectly competitive firm wants to sell a larger quantity of goods, it must lower its selling price.
14. A perfectly competitive firm maximizes its profits at the point where its total cost curve intersects its total revenue curve.
15. Economic profit is equal to the difference between total revenues and economic costs.

16. The “citizen perspective” is that market power and competition can both be undesirable.

17. An example of a network externality is when the widespread adoption of a particular technology results in environmental damages.

18. A perfectly competitive firm should shut down in the short run whenever it is unable to recover its fixed costs.

Short Answer

19. What are the four key assumptions of the traditional model of perfect competition?

20. Describe an example of a network externality. (The textbook describes several examples; try to think of a different one from those presented in the book.)

Problems

1. Suppose that manufacturers of laptop computers are price takers operating in a perfectly competitive market. Each laptop can be sold for \$2,000.
 - a. Sketch the total revenue curve for laptop computers, and explain why it looks the way it does.

- b. Sketch the marginal revenue curve for laptop computers, and explain why it looks the way it does.

2. Suppose that the cost of production of laptop computers shows initially a brief span of decreasing marginal costs, followed by increasing marginal costs.

- a. On the same graph as the total revenue curve you drew for Problem #1a, draw a possible total cost curve for laptop computer production. For a given quantity Q_1 (placed at any location you choose on the horizontal axis), show the corresponding profit.
- b. On the same graph as the marginal revenue curve you drew for Problem #1b, draw a possible marginal cost curve for laptop computer production. Indicate the profit maximizing output level.

3. A flashlight manufacturing company has the following cost structure (some columns are intentionally left blank):

Quantity	Marginal Cost (\$)			
0				
1	12			
2	8			
3	10			
4	13			
5	17			

- a. Supposing that the firm is a price taker and can sell each flashlight it makes for \$13, graph the Marginal Cost and Marginal Revenue curves for this flashlight manufacturer.
- b. If you apply marginal analysis, what does the figure you drew in part (a) imply is the profit-maximizing output level for the firm?
- c. Assume that the firm has fixed costs of \$10. Calculate Total Cost, Total Revenue and Total Profit for the firm at the various production levels, using the blank columns in the table above.
- d. With flashlights selling for \$13, what is maximum profit the firm can make? What should it do? Explain.

Self Test

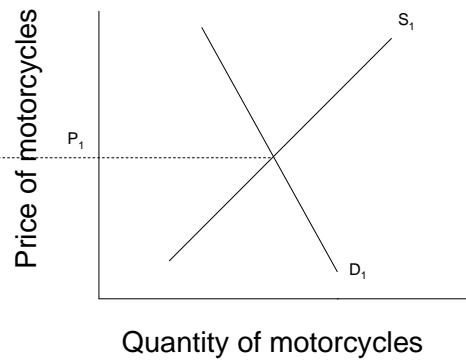
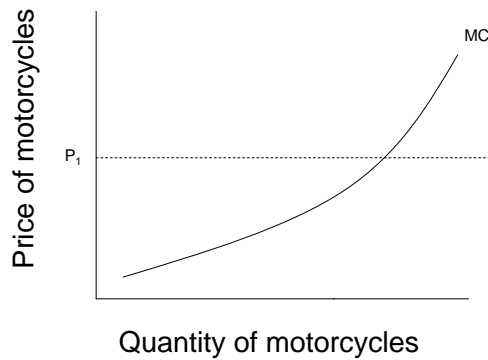
1. In the market structure known as perfect competition, which of the following statements is assumed to be true all the time?
 - a. All economic actors have market power.
 - b. Big business has significant influence on public policy.
 - c. Competition is considered a harmful force.
 - d. Economic actors are concerned citizens.
 - e. Individual economic actors have no market power.

2. Which of the following is *not* a condition of the model of perfect competition?
 - a. Each individual buyer can affect the market price.
 - b. Within a given market, only one kind of good or service is traded.
 - c. Producers can freely enter the industry.
 - d. Producers can freely exit the industry.
 - e. Sellers all have perfect information.

3. The individual price-taking firm faces ...
 - a. A perfectly inelastic demand curve.
 - b. A horizontal demand curve.
 - c. A perfectly elastic demand curve.
 - d. A vertical demand curve.
 - e. Both b and c are true.

4. Over the long run, which of the following statements is true about profit-maximizing firms in a perfectly competitive market?
 - a. Economic profits are zero.
 - b. Economic profits are negative.
 - c. Economic profits are positive.
 - d. Accounting profits are zero.
 - e. Both c and d are true.

Questions #5 to #7 refer to the following graphs:



5. Suppose that at price P_1 , motorcycle manufacturers are making positive economic profits. Assuming the market in motorcycles is perfectly competitive, which of the following will occur in the long run?
 - a. The supply curve will shift to the right.
 - b. The demand curve will shift to the right.
 - c. Price will rise.
 - d. Price will remain constant.
 - e. Marginal costs will increase.

6. Suppose now that motorcycle producers are making economic losses. Which of the following will happen in the long run?
 - a. Competitive pressures will drive economic profits toward zero.
 - b. Some firms will exit the market.
 - c. The supply curve will shift to the right.
 - d. Both a and b are true.
 - e. Both b and c are true.

7. Suppose that competitive pressures drive the price of motorcycles downward. Which of the following statements is an accurate description of the situation that results?
 - a. Revenues and profits are reduced.
 - b. Revenues fall, while profits remain constant.
 - c. The supply curve shifts to the left.
 - d. Marginal cost rises.
 - e. The demand curve shifts to the right.

Questions 8 – 10 refer to the following scenario.

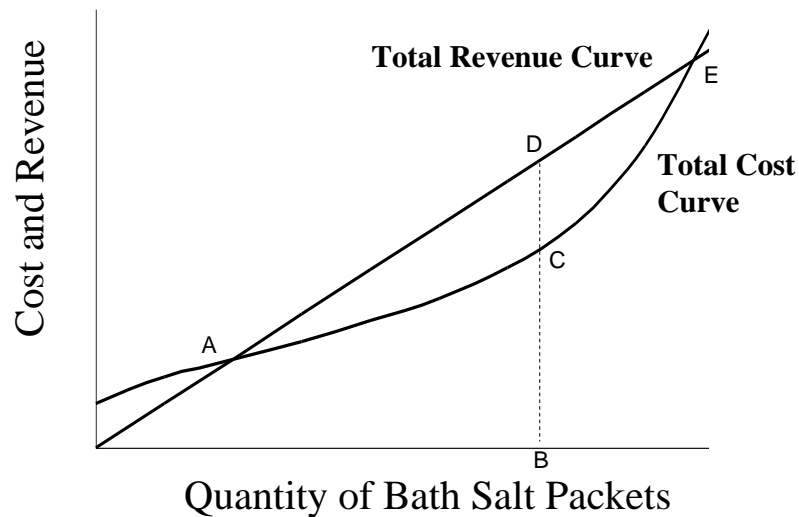
Handy Hardware Factory produces desk lamps, according to the following cost structure. They are a price taker, and can sell any number of lamps for \$8 each.

Quantity of Lamps	Marginal Cost (\$)	Total Cost (\$)	Marginal Revenue (= Price) (\$)	Total Revenue (\$)	Total Profit (\$)
0	--	50	--		
1	15		8		
2	5		8		
3	6		8		
4	8		8		
5	12		8		

8. What is the total cost of producing 3 lamps?
- a. \$ 6
 - b. \$ 26
 - c. \$ 50
 - d. \$ 76
 - e. None of the above.
9. What level of total profit will Handy Hardware make, if it produces 3 lamps?
- a. less than \$ 0 (that is, a loss)
 - b. between \$ 0 and \$20
 - c. between \$20 and \$50
 - d. more than \$50
 - e. Cannot be determined from the information given.
10. What is the profit-maximizing level of output for Handy Hardware?
- a. 0 lamps
 - b. 1 lamp
 - c. 3 lamps
 - d. 4 lamps
 - e. None of the above.

Questions 11 – 12 refer to the following scenario.

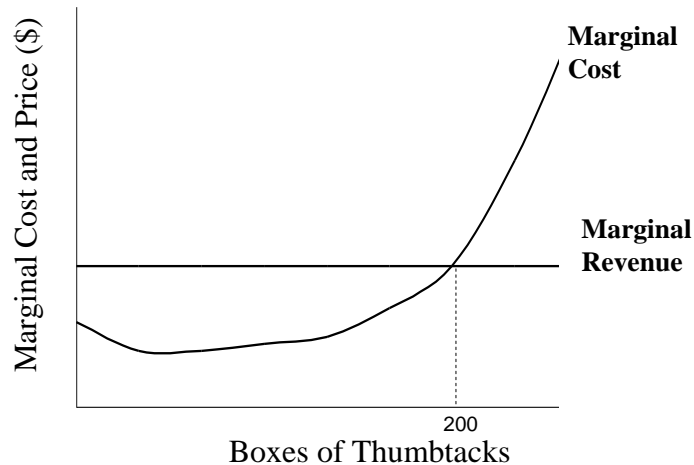
Bertha's Bath Supplies produces packets of bath salts, which are sold for \$5 each. Bertha's Bath Supplies is a price-taking firm. Total revenue and total cost curves for the firm are shown in the graph below.



11. Which of the following statements is true regarding the graph shown above?
- Profits are maximized at point E.
 - The distance from B to C represents profit earned.
 - The distance from B to D represents profit earned.
 - The distance from C to D represents profit earned.
 - At point B, marginal revenue is designated by point D.
12. Which of the following statements about Bertha's Bath Supplies do you know to be true, based on the information provided above?
- Profits are maximized when production reaches 100 packets.
 - Profits are maximized at point E.
 - Profits are maximized when marginal costs equal \$5 per packet.
 - Point B represents a production level yielding zero accounting profit.
 - Point E represents a production level yielding positive economic profit.
13. Another name for marginal revenue is ...
- externalities.
 - price.
 - economic profits.
 - accounting profits.
 - sunk cost.

Questions 14 and 15 refer to the scenario below.

Tillie's Tack Place manufactures thumb tacks and sells them for \$2.00 per box of tacks. The graph below shows marginal cost and marginal revenue for Tillie's Tack Place.



14. When Tillie's Tack Place is producing 200 boxes of thumbtacks, which of the following statements must be true?
- Tillie's Tack Place is not yet making a profit.
 - Producing more tacks would reduce total profits.
 - Producing more tacks would increase total profits.
 - Total costs exceed total revenues at this point.
 - Producing one more box of tacks would mean that total accounting costs would exceed total revenues.
15. When Tillie's Tack Place is producing 200 boxes of thumbtacks, the marginal cost per box is equal to ...
- \$50
 - \$25
 - \$5
 - \$2
 - The marginal cost cannot be determined from the information given here.
16. What type of cost should not affect the short-run production decisions of a perfectly competitive firm?
- Variable costs
 - Sunk costs
 - Fixed costs
 - Both a and b
 - Both b and c

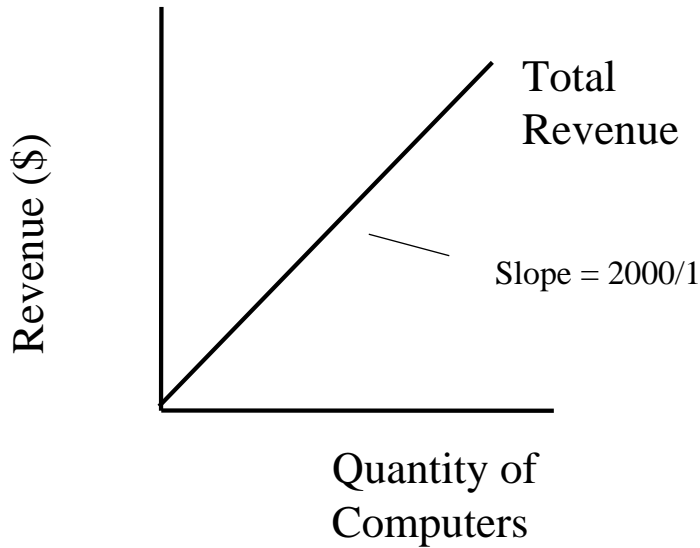
17. In the short run, a perfectly competitive firm should keep producing as long as ...
- it is making an economic profit.
 - it is making an accounting profit.
 - its total revenues are greater than its fixed costs.
 - its total revenues are greater than its variable costs.
 - its marginal revenues are positive.
18. If positive economic profits are being made in a perfectly competitive market, what two changes are likely to occur?
- The market supply curve will shift to the left and each firms' production quantity will fall.
 - The market supply curve will shift to the right and each firms' production quantity will rise.
 - The market supply curve will shift to the left and each firms' production quantity will rise.
 - The market supply curve will shift to the right and each firms' production quantity will fall.
 - None of the above
19. If negative economic profits are being made in a perfectly competitive market, what two changes are likely to occur?
- The market supply curve will shift to the left and each firms' production quantity will fall.
 - The market supply curve will shift to the right and each firms' production quantity will rise.
 - The market supply curve will shift to the left and each firms' production quantity will rise.
 - The market supply curve will shift to the right and each firms' production quantity will fall.
 - None of the above
20. Suppose that businesses tend to locate in areas that already have a high concentration of businesses. This is an example of ...
- path dependence.
 - sunk costs.
 - market equity.
 - marginal analysis.
 - perfect competition.

Answers to Active Review Questions

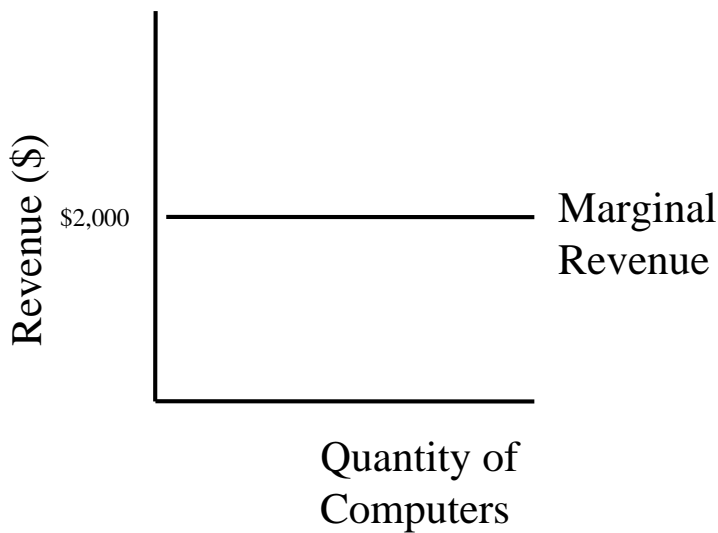
1. market power
2. perfect
3. perfectly elastic (or horizontal)
4. accounting profits
5. price (or marginal revenues)
6. zero
7. down
8. few
9. bad; good
10. path dependence
11. False
12. True
13. False
14. False
15. True
16. True
17. False
18. False
19. 1. There are numerous small sellers and buyers, so small that no individual seller or buyer can affect the market price. 2. Within any particular market, only one kind of good or service is traded, and all units are identical. 3. Producers can freely enter or exit the industry. 4. Buyers and sellers all have perfect information.
20. One example could be the difficulties you might face if you tried to maintain an old model of car that few other people were using. Over time, you would probably find it difficult to get the parts you needed, or even to find a mechanic who understood how to maintain this kind of car. Another example would be trying to get around with a horse and buggy. You would probably find that because cities are set up for traveling by cars and other automated forms of transport, you would have trouble navigating modern city streets with your horse and buggy.

Answers to Problems

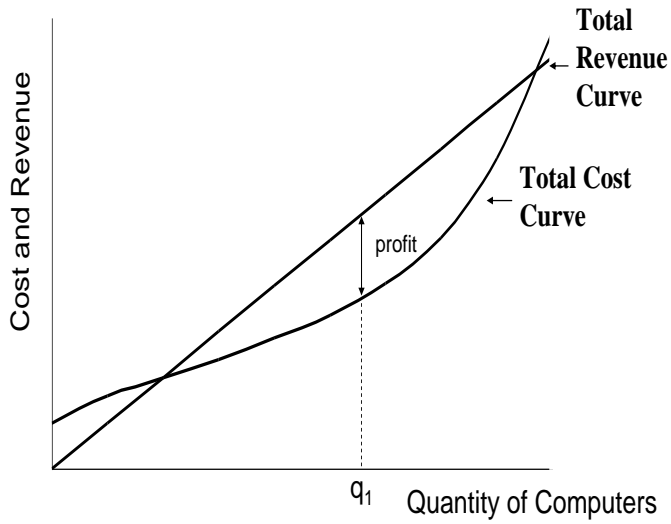
1.a. The total revenue curve for laptop computers is a straight upward-sloping line because in a perfectly competitive market, every laptop will sell for the same price. The slope of the line is +2000.



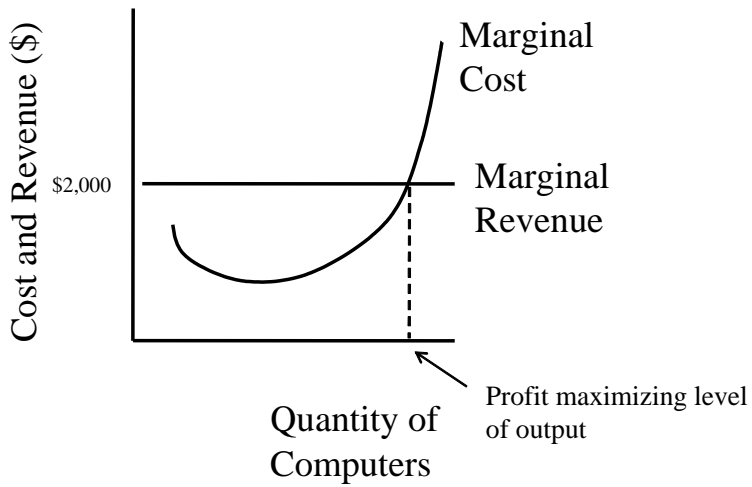
1.b. The marginal revenue curve is a straight line, horizontal at the market price (\$2,000). Each additional laptop sold brings in the same amount.



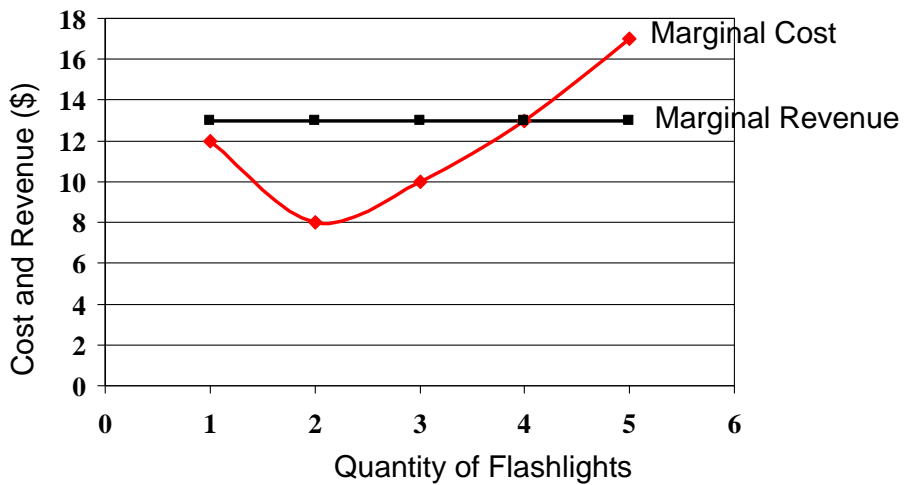
2. a.



2.b.



3. a.



3. b. 4 flashlights (where marginal cost = marginal revenue)

3. c.

Quantity	Marginal Cost (\$)	Total Cost (\$)	Total Revenue (Price = \$13)	Total Profit
0		10	0	-10
1	12	22	13	-9
2	8	30	26	-4
3	10	40	39	-1
4	13	53	52	-1
5	17	70	65	-5

3. d. At a price of flashlights of \$13, the firm's maximum profit is a *loss* of \$1 (achievable at a production level of 3 or 4 lamps). The firm should continue to produce (in the short run), since losing \$1 is better than losing \$10, which is what it would lose if it shuts down.

Answers to Self Test Questions

1. e
2. a
3. e
4. a
5. a
6. d
7. a
8. d
9. a
10. a
11. d
12. c
13. b
14. b
15. d
16. e
17. d
18. d
19. c
20. a

Chapter 18

MARKETS WITH MARKET POWER

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Summary

Now that you understand the model of a perfectly competitive market, this chapter complicates the picture by adding the element of market power. You will be introduced to the traditional models of monopoly, monopolistic competition, and oligopoly. You will learn about how firms maximize profits in these more complicated theoretical situations, and also about some of the ways in which firms may negotiate with one another—either explicitly or implicitly—to attain their preferred outcomes.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Define a monopoly and describe how a monopolist maximizes profits.
2. Understand why a monopoly may or may not be efficient.
3. Define monopolistic competition and describe how profits are maximized in these markets.
4. Define oligopoly and discuss firm behavior under conditions of oligopoly.

Key Terms

pure monopoly

oligopoly

natural monopoly

predatory pricing

local monopoly

price maker

nonprice competition

duopoly

price war

tacit collusion

price leadership

monopolistic competition

barriers to entry

exclusionary practices

dumping

regulated monopoly

price discrimination

industrial concentration ratio

payoff matrix

collusion

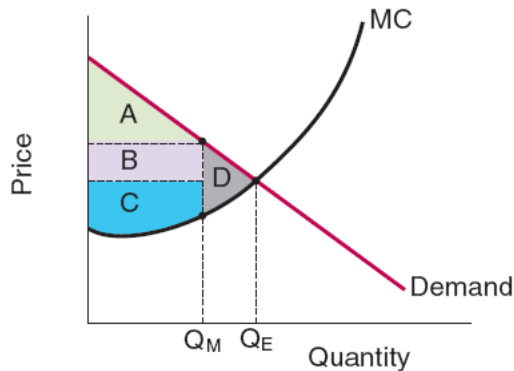
price fixing

Active Review Questions

Fill in the Blank

1. A monopoly that emerges because of economies of scale is called a _____ monopoly.
2. Joe's Superstore prevents competitors from entering the market by temporarily pricing its goods below cost, thus driving new entrants out of business. This practice is known as _____ pricing.
3. Selling goods to another country at a price below the cost of production is known as _____.
4. The marginal revenue curve for a monopolist is (flat/downward-sloping/upward-sloping) _____.
5. Market power in the form of a monopoly creates benefits for the (buyer/seller) _____ at the expense of the (buyer/seller) _____.

Questions #6, #7, and #8 refer to the graph below. In this graph, Q_E refers to the quantity of a good that would be provided under conditions of perfect competition, and Q_M refers to the quantity of the same good that is provided under conditions of monopoly.



6. Area A shows the magnitude of _____.
7. Area D shows the magnitude of _____.
8. Area B represents a transfer from _____ to _____.
9. A firm that charges different prices to different buyers depending on their ability and willingness to pay is referred to as a _____ seller.

True/False

- 10. In a hypothetical case of perfect price discrimination, producer surplus is completely eliminated.
- 11. In a hypothetical case of perfect price discrimination, deadweight loss is completely eliminated.
- 12. “Monopolistic competition” includes some characteristics of perfect competition and some characteristics of monopoly.
- 13. In a situation of monopolistic competition, no close substitutes are available.
- 14. Monopolistically competitive firms have higher unit costs than would occur in a perfectly competitive market.

Short Answer

- 15. Describe one way in which monopolistically competitive firms work to protect their “miniature monopoly.”

- 16. List three conditions of the idealized market structure of monopoly.

- 17. Explain how network externalities can lead to monopolization.

- 18. Briefly describe the pros and cons of allowing drug companies to enjoy substantial market power (e.g. through the use of patents).

19. Briefly explain how monopolistic competition differs from perfect competition.

20. Describe the main characteristics of oligopoly.

21. Explain in what ways markets for food are not as competitive as they could be.

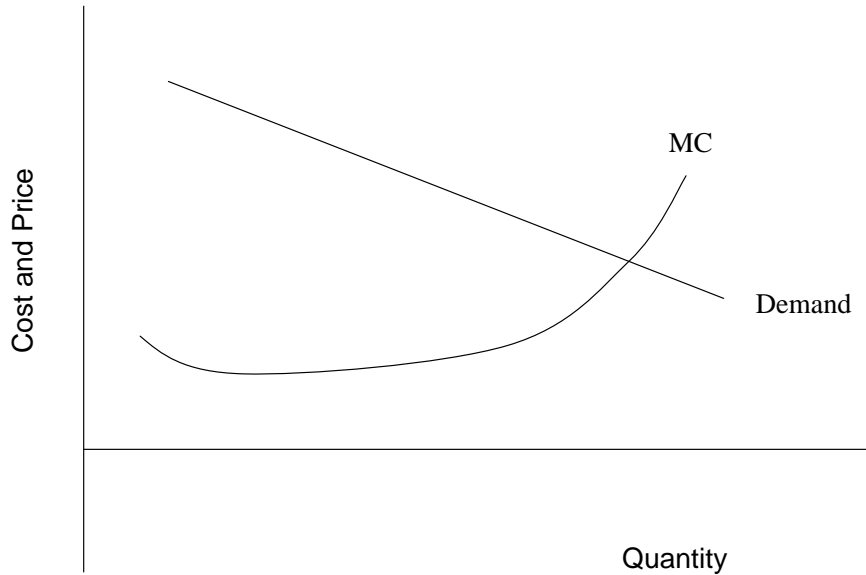
Problems

1. Suppose that a monopolistic firm produces hair dryers. The chart below shows the quantities of hair dryers that can be sold at various prices.

Quantity of Hairdryers	Price of Hairdryers	Total Revenue	Marginal Revenue
1	\$100		
2	\$90		
3	\$80		
4	\$70		
5	\$60		
6	\$50		

- a. Fill in the total and marginal revenue columns in the chart shown above.
- b. If marginal cost is equal to marginal revenue at $MC=MR=\$20$, what is the profit maximizing level of production (assuming that the firm should produce at all)?

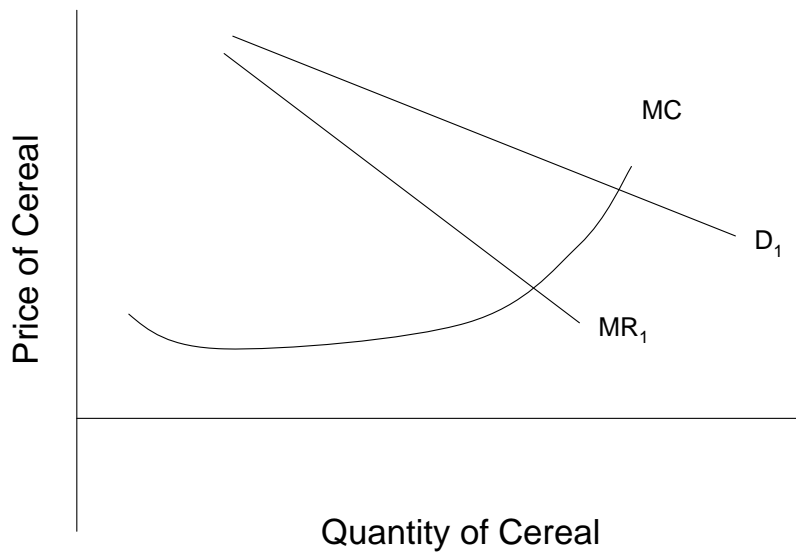
2. The following graph shows the demand curve and the marginal cost curve for a monopolistic firm producing electric cars.



- Sketch a possible marginal revenue curve for this firm.
- On the horizontal axis, label the profit-maximizing level of production as Q_1 . On the vertical axis, label the price P_1 that the firm will charge at the profit maximizing level of production.
- Label the area of deadweight loss in the graph you draw for part (b).
- How do the monopolistic price and quantity compare to those of competitive market equilibrium?

- Harry's Auto Shop is a perfectly price discriminating seller. Harry has an uncanny ability to assess how much people are willing to pay for a car, and he sets prices accordingly.
 - Sketch the demand curve and the marginal cost curve for Harry's Auto Shop.
 - Show the area that represents consumer surplus on the graph you drew for part (a).
 - Show the area of the producer surplus on the same graph.

4. Ten breakfast cereal producers operate in a market characterized by monopolistic competition. The demand, marginal revenue, and marginal cost curves faced by an individual breakfast cereal producer are shown below.



Suppose that five new breakfast cereal producers enter the market. Show the new demand curve and the new marginal revenue curve that result on the graph above.

5. Suppose the market for cookbooks is a duopoly. The chart below shows a payoff matrix for the two cookbook producers.

		Producer 2's options	
		Low Price	High Price
Producer 1's options	Low Price	\$20 / \$20	\$80 / \$1
	High Price	\$1 / \$80	\$100 / \$100

- a. Based on the information shown in the payoff matrix above, how much profit would each firm make if the firms were non-cooperative?

- b. If producer 2 charged a high price and producer 1 charges a low price, how much profit would producer 1 make?

- c. If the firms colluded and set prices together, how much profit would each producer make?

Self Test

1. Which of the following is a condition of monopoly?
 - a. Two or more sellers.
 - b. Only one buyer.
 - c. A good with several close substitutes.
 - d. Barriers to entry.
 - e. None of the above.

2. A “natural monopoly” is
 - a. An oligopoly.
 - b. A monopoly characterized by diseconomies of scale.
 - c. A monopoly that emerges because of economies of scale.
 - d. A monopoly on a scarce natural resource.
 - e. A monopoly that solves the problem of diseconomies of scale.

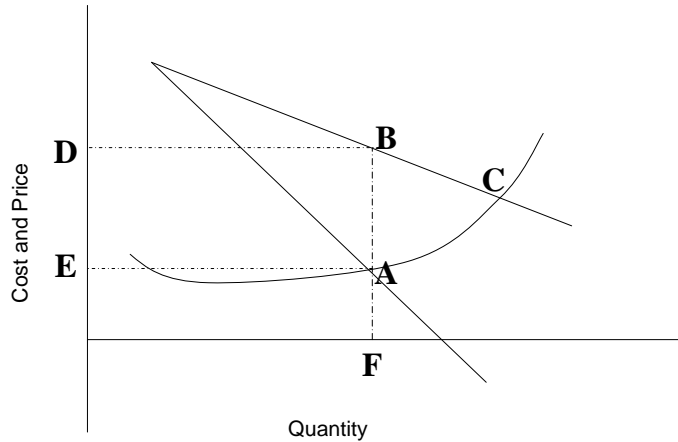
3. In international trade, “dumping” refers to
 - a. Exclusionary practices.
 - b. Charging unfairly high prices.
 - c. Providing unwanted goods free of charge.
 - d. Selling goods at a price below the cost of production.
 - e. Selling goods above market price.

4. Which of the following statements is *false*?
 - a. Monopolistic firms maximize profits at the point where $MC=MR$.
 - b. Monopolistic firms are price takers.
 - c. Monopolistic firms face a downward sloping demand curve.
 - d. Monopolistic firms face a downward sloping marginal revenue curve.
 - e. All of the above are true.

5. The demand curve for the output of a monopolistic firm is equal to
- The marginal revenue for the product in question.
 - The market supply curve for the product in question.
 - The market demand curve for the product in question.
 - The demand curve for a firm in a perfectly competitive market.
 - The concentration ratio of the firm.
6. A monopolistic firm can sell more by
- Advertising its product successfully.
 - Competing effectively with other firms.
 - Lowering the price of its product.
 - Both a and c are true.
 - Options a, b, and c are all true.
7. Suppose a firm can sell five units of output at a price of \$10 each. To sell six units of output, the firm must lower its price to \$9 per unit. To sell seven units, the firm must lower its price to \$8 per unit. Which of the following statements is *true*?
- The firm can maximize profits at all of the production levels listed above.
 - The firm faces an upward sloping demand curve.
 - Based on the information given above, we can conclude that seven units is the profit maximizing level of production.
 - Based on the information given above, we can conclude that this firm faces net losses at the levels of production considered here.
 - The firm can be described as a “price maker.”
8. Suppose a firm can sell one unit of product for \$50, two units for \$45 each, three units for \$40 each, or four units for \$35 each. When the firm sells four units, marginal revenues is equal to
- \$5.
 - \$20.
 - \$25.
 - \$30.
 - \$35.
9. Which of the following statements is *true*?
- Monopolistic firms face zero profits in the long run.
 - Monopolistic situations do not involve any inefficiencies.
 - The monopolistic firm always faces a downward sloping marginal cost curve.
 - The perfectly competitive firm faces a horizontal marginal revenue curve.

- e. The monopolistic firm faces a horizontal marginal revenue curve.

Questions #10 and #11 refer to the graph below.



The graph shown above depicts the demand, marginal revenue, and marginal cost curves faced by a monopolistic firm.

10. Point A indicates

- Total cost.
- The point where $MR=MC$.
- The price buyers are willing to pay at equilibrium.
- The point where $MC=P$.
- Total revenue.

11. Which of the following statements is *false*?

- When the firm chooses a level of production F, buyers will pay a price E.
- Point A is on the marginal cost curve.
- Point B shows the level of demand that corresponds to the profit maximizing level of production.
- Point C indicates the price and quantity of production that would exist in a competitive equilibrium.
- Because the firm described by this graph is a monopoly, production is lower and price is higher than they would be at competitive equilibrium.

12. Rent-seeking behavior is

- An effort to find affordable housing.
- An effort to get transfers or favors.
- A behavior of all monopolists.
- A behavior of governments only.

- e. A behavior that facilitates creation of a perfectly competitive market.
13. Which of the following statements is *false*?
- a. In some cases, monopoly can be a preferable option for society as a whole compared with a situation of perfect competition.
 - b. For some services, such as passenger rail transportation, government subsidies to a monopolist may produce the most socially beneficial outcome.
 - c. Government regulation of an industry characterized by natural monopoly can help to reduce the inefficiencies associated with market power.
 - d. Optimally efficient pricing always leads to self-sustaining revenues.
 - e. All of the above are true.
14. Which of the following is an example of a price discriminating seller?
- a. Frank sells condominiums only to buyers of a certain ethnic background.
 - b. Ellen charges different prices to different buyers, depending on their ethnic or religious background.
 - c. Amelia charges different prices to different buyers depending on their ability or willingness to pay.
 - d. An airline charges the same price to all travelers.
 - e. Both a and b are correct.
15. When you go shopping you discover that you can choose among twenty different brands of breakfast cereal, all with about the same nutritional content. The proliferation of cereal options is an example of
- a. product differentiation
 - b. oligopoly
 - c. perfect competition
 - d. a price war
 - e. monopoly
16. Which of the following statements is *true* of a monopolistically competitive firm?
- a. It faces a downward sloping demand curve.
 - b. It earns positive economic profits in the long run.
 - c. It produces more than a perfectly competitive firm.
 - d. It charges lower prices than a perfectly competitive firm.
 - e. Its profits are protected by significant barriers to entry.

17. Under conditions of oligopoly, firms may collude in order to
- Avoid the outcome associated with the prisoner's dilemma.
 - Increase competition.
 - Solve the concentration ratio problem.
 - Create a prisoner's dilemma for buyers.
 - Initiate a price war with one another.
18. Which of the following is a form of implicit collusion?
- Duopoly
 - Price wars
 - Non-price competition
 - Prisoner's dilemma
 - Price leadership
19. Which of the following statements about oligopoly is *false*?
- Under conditions of oligopoly, entry into the market is difficult.
 - The amount of long-run economic profit made by oligopolistic firms is variable.
 - Each firm in an oligopoly makes decisions without regard for the actions of other firms.
 - Game theory is used to analyze the behavior of firms in an oligopoly.
 - Firms in an oligopolistic market often have an incentive to collude.
20. Which one of the following statements is false?
- One of the reasons that markets are becoming more concentrated in the U.S. is lax enforcement of existing antitrust laws.
 - The existence of "exceptional" profits by companies is a sign that a market economy is functioning well.
 - Most lobbying organizations in the U.S. represent business interests.
 - Many retiring members of the U.S. Congress take new jobs as lobbyists.
 - Net neutrality requires that internet providers treat all online content the same.

Answers to Active Review Questions

1. natural
2. predatory
3. dumping
4. downward-sloping
5. seller; buyer
6. consumer surplus
7. deadweight loss
8. consumer; producer
9. price discriminating
10. False. In a hypothetical case of perfect price discrimination, *consumer* surplus is completely eliminated.
11. True.
12. True.
13. False.
14. True.
15. Monopolistically competitive firms often engage in non-price competition (e.g. advertising, using attractive packaging, etc.).
16. (a) There is only one seller. (b) The good being sold has no close substitutes. (c) Barriers to entry prevent other firms from starting to produce the good in question.
17. Network externalities can “lock in” one technology, product, or system, making it hard for other options to gain a foothold in the market. The textbook discusses the example of computer operating systems: once a large number of people have adopted one operating system, the firm producing that system has a significant advantage over new entrants that might attempt to compete.
18. Offering patents can create an incentive to develop new drugs. On the other hand, the high prices of patented drugs can mean that life-saving drugs are denied to thousands or even millions of people who need them. (It is worth noting that other options are available to motivate research and development in pharmaceuticals.)
19. In monopolistic competition, products are differentiated instead of identical. Also, more important, while there is only one seller for monopoly, there are generally many in a monopolistically competitive market structure. We can say that each has a “mini-monopoly” for its own niche (i.e., differentiated) product.
20. Oligopoly is a structure where a few sellers dominate the market, and at least some control enough of the market to be able to influence price; and entry by competitors is very difficult.
21. Markets for food are not especially competitive, given that farmers have for decades enjoyed government subsidies. The markets have grown increasingly distorted over time, as relatively few farms have grown immense in size, resulting in disproportionate subsidies accruing to them (the payments are often in relation to farm size). Many argue that such a generous policy does nothing to promote efficiency in food production—quite the contrary!

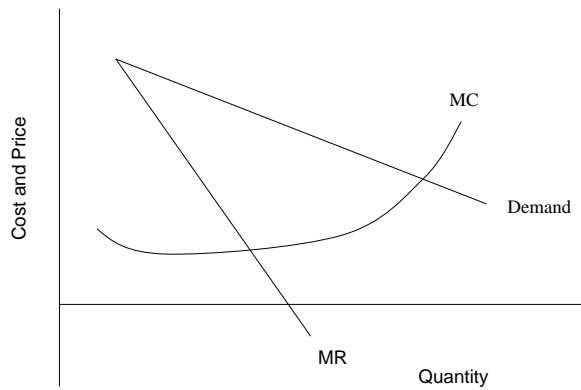
Answers to Problems

1. a.

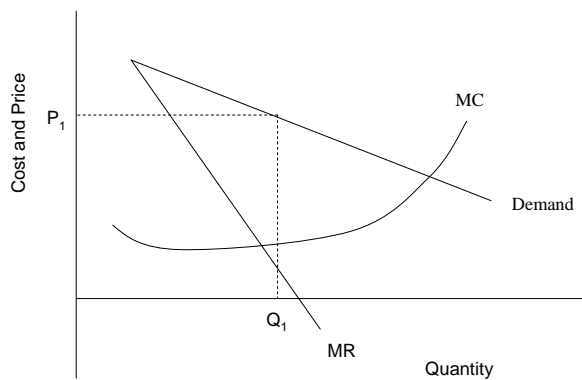
Quantity of Hairdryers	Price of hairdryers	Total Revenue	Marginal Revenue
1	\$100	\$100	\$100
2	\$90	\$180	\$80
3	\$80	\$240	\$60
4	\$70	\$280	\$40
5	\$60	\$300	\$20
6	\$50	\$300	\$0

b. 5 hairdryers

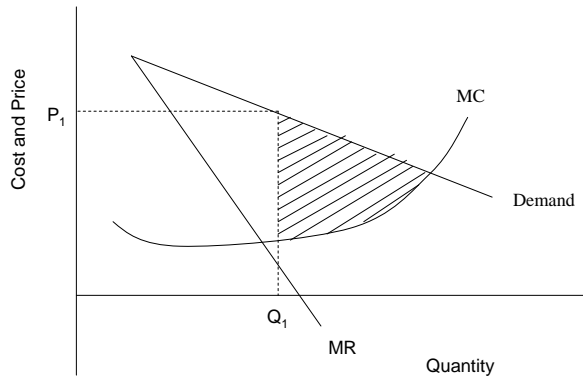
2. a.



2.b.

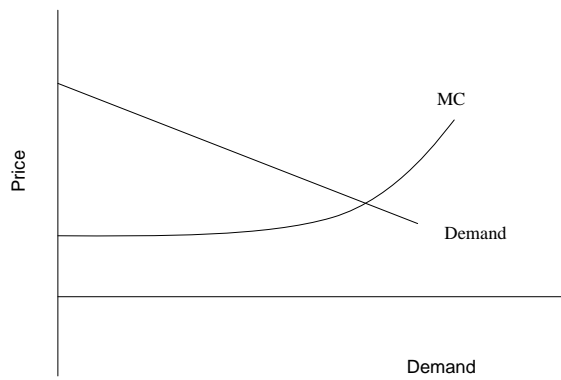


2. c.



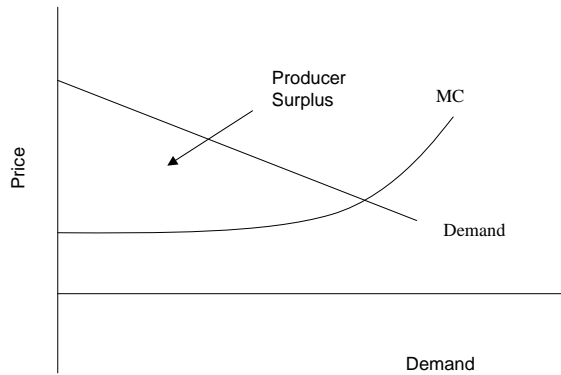
2. d. The quantity sold by the monopolist is lower, and the price charged is higher, than in perfect competition.

3. a.

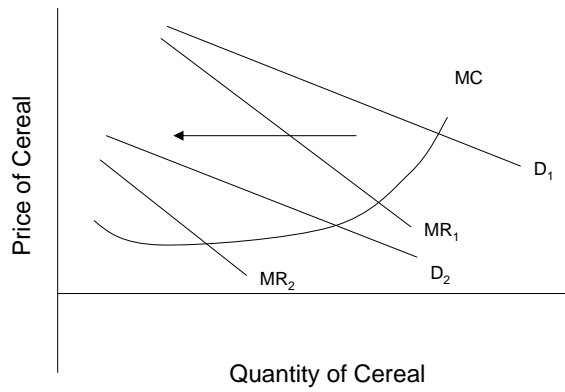


3.b. There is no area of consumer surplus on this graph.

3. c.



4.



- 5. a. They will each make \$20.
- 5. b. Producer 1 will make \$80.
- 5. c. Both firms will make \$100.

Answers to Self Test Questions

- 1. d
- 2. c
- 3. d
- 4. b
- 5. c
- 6. d
- 7. e
- 8. b
- 9. d
- 10. b
- 11. a
- 12. b
- 13. d
- 14. c
- 15. a
- 16. a
- 17. a
- 18. e
- 19. c
- 20. b

CHAPTER 19

INTRODUCTION TO MACROECONOMICS

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter introduces you to the basic topics of macroeconomics, and presents the main macroeconomic goals: 1) living standards growth, 2) stability and security, and 3) financial, social, and ecological sustainability. The chapter highlights that the goal of living standards growth may or may not contribute to the general goal of human well-being. The chapter also provides a brief overview of the major historical developments in macroeconomics, from classical economics, to Keynesian and monetarist economics, and finally to the challenges in the 21st century.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Distinguish the concerns of macroeconomics from microeconomics.
2. Discuss the relationship between economics and well-being.
3. Identify and describe the three main macroeconomic goals.
4. Appreciate the usefulness and limitations of the theory of supply and demand in the real world, and its relevance to macroeconomics.
5. Identify and distinguish the major historical traditions of economic thought.

Key Terms

macroeconomics

recession

unemployment

inflation

macroeconomy

global economy

economic actor (agent)

well-being

living standards growth

economic growth

economic development

labor productivity

business cycle

technological progress

conscious

consumption

restorative development

precautionary principle

contextual economics

quantity adjustments

menu costs

speculation

speculative bubble

classical economics

division of labor

specialization

capitalists

laissez-faire economy

Say's Law

aggregate demand

Keynesian economics

monetarism

Active Review

Fill in the Blank

1. While the study of economic activities of individuals, households, and business at the sub-national level is the concern of _____, the study of economic activities of the national and global level is the concern of _____.
2. The three main macroeconomic goals identified in this chapter are _____, _____, and _____.
3. The process of moving from a situation of poverty and deprivation to a situation of increased production and plenty is referred to as _____.
4. The increase in the level of production in a country or region is called _____ growth while improvements in diet, housing, medical attention, education, working conditions, access to care, transportation, communication, entertainment, etc. is called _____ growth.
5. The fluctuations in the level of production, including recessions on the one hand and booms on the other hand, is called _____.
6. The goal that recognizes a serious responsibility to future generations is the goal of _____.
7. When people rush to buy an asset because they expect the price to continue to rise and thereby expect to profit from the asset's appreciation in value, this can cause the emergence of a _____.
8. The school of economics that is associated with the idea that individual self-interest is a positive force and that governments should let markets function without interference is called _____.
9. The economist who argued that the market mechanism can fail by leaving insufficient demand and that governments could intervene by increasing aggregate demand was named _____.
10. The school of thought that argued that governments should aim for steadiness in the money supply rather than play an active role is called _____.

True or False

11. Economic phenomena such as the rate of unemployment and inflation are studied in microeconomics.

12. Living standards growth is defined as increases in the level of production in a country or region.
13. During a recession, the economy often has higher rates of unemployment, whereas during a boom, the economy often has higher rates of inflation.
14. Monetarists believe the government should change money supply to boost aggregate demand during a recession.
15. According to the Keynesians, the government can reduce unemployment through changes in its spending and taxation policies.

Short Answer

16. What types of questions would concern microeconomics, versus macroeconomics?
17. How have economists traditionally defined “economic growth,” and how is that different from “living standards growth”?
18. What are the “three basic economic questions” that economists often address when examining how much economic output is produced?
19. Once countries already have a high level of production, how might they achieve living standards growth?
20. Why is the goal of stability and security important to many people? What problems typically emerge during periods of instability?
21. The goal of sustainability requires that we address what three questions?
22. Provide an example of a market in which prices may adjust very slowly; and an example of a market in which prices may adjust very quickly.
23. Explain how the classical school views the role of markets and government intervention in fighting business cycles.
24. Explain how Keynesian economics views the role of markets and government intervention in fighting business cycles.
25. Explain how Monetarist economics views the role of markets and government intervention in fighting business cycles.
26. Describe some of the key changes that the U.S. economy has undergone since the 1980s.

27. What two developments are demanding new ways of looking at the economic world in the 21st century? What kinds of sustainability questions do they raise?

Self Test

1. With what kinds of topics does macroeconomics concern itself?
 - a. Economic activities of individual firms, households, and other organizations
 - b. Forces of supply and demand in a particular market
 - c. Consumer behavior and firms output decisions
 - d. The labor market, wages, and hiring decisions
 - e. Aggregate economic phenomena like the rate of unemployment and inflation

2. Which of the following is one of the three macroeconomic goals discussed in the text?
 - a. Growth in the size of corporations
 - b. Living standards growth
 - c. Growth in trade and globalization
 - d. Technological innovation
 - e. None of the above

3. Which of the following is *not* an example of one of the three macroeconomic goals discussed in the text?
 - a. Preventing the economy from experiencing too much unemployment.
 - b. Preventing the economy from experiencing too much inflation.
 - c. Keeping living standards high enough for people to live decent, meaningful lives.
 - d. Making sure the economy is sustainable into the future.
 - e. Providing the best environment for corporations.

4. What explains the fact that the value of global production grew by a factor of 6.7 between 1960 and 2015, while the value of global production per capita has grown by a factor of 2.8?
 - a. Global population also grew, though not as fast as total production.
 - b. The increase in global production has occurred simultaneously with a decline in global population.
 - c. The increase in global production has occurred simultaneously with growth in the global workforce.
 - d. The increase in global production has occurred simultaneously with decline in the global workforce.
 - e. The growth in the global population has been greater than the growth in global production.

5. How is labor productivity defined?
 - a. The level of output produced per capita.
 - b. The level of output produced per worker (or worker-hour).
 - c. The level of output produced as a share of GDP.
 - d. The level of human capital in the workforce.
 - e. The level of output produced per capital input.

6. What problems are we most likely to see at which stage of the business cycle?
 - a. High inflation during recessions.
 - b. High unemployment during booms.
 - c. Low inflation during booms.
 - d. High unemployment during recessions.
 - e. Both high unemployment and high inflation during booms.

7. Why is the instability of the business cycle a problem?
 - a. During recessions there is high unemployment, and resources are underutilized.
 - b. High unemployment is associated with individual and social stress, such as suicide, domestic violence, illness and crime.
 - c. During booms, high inflation can erode purchasing power, savings and pensions.
 - d. Unpredictable fluctuations in rates of inflation, interest rates, and foreign exchange rates make it difficult for individuals and organizations to plan for the future.
 - e. All of the above.

8. Which of the following does *not* describe the economic events of the Great Depression?
 - a. Stock markets plummeted in the 1929 stock market crash.
 - b. A lack of confidence in banks led to runs on the banks and bank failures.
 - c. Production dropped by about 30% between 1929 and 1933.
 - d. The unemployment rate peaked to 25% at the height of the depression.
 - e. The economic crises was short lived and markets quickly adjusted back to equilibrium.

9. Which of the following are the three dimensions of sustainability as discussed in the text?
 - a. Ecological, financial, and social sustainability
 - b. Ecological, financial, and political sustainability
 - c. Ecological, financial, and cultural sustainability
 - d. Ecological, technological, and human sustainability
 - e. Ecological, technological, and social sustainability

10. Which of the following is *not* an issue concerning social sustainability?
- The disparities between the “haves” and the “have-nots.”
 - The ability of the next generation to contribute to a healthy economy and society
 - The need for steady growth in production
 - The creation of social disruption and political strife
 - The ability of the next generation to experience social and political participation and inclusion.
11. Which of the following best describes the precautionary principle?
- Clear cause and effect relationships must be established before taking action.
 - We should err on the side of caution when dealing with natural systems or human health.
 - The benefits of economic production and growth outweigh the risks of damage to natural systems or human health.
 - Business should not have to prove a product to be safe before being released on the market; rather a product must be proven unsafe before it is banned and pulled from the market.
 - We should take precautions before engaging in risky business investment.
12. Which of the following best describes the notion of conscious consumption?
- making consumption choices based on advertisements
 - making consumption choices based on price of goods
 - making consumption choices considering the environmental and social consequences of the choices made
 - making consumption choices based on cultural influences
 - making consumption choices based on income levels
13. Which of the following markets have experienced speculative bubbles (somewhere, at some point in history)?
- The stock market
 - The real estate market
 - The market for mortgage-based securities
 - The market for foreign exchange
 - All of the above
14. Which of the following is *not* one of the ideas associated with the school of classical economics?
- Specialization and the division of labor
 - Laissez-faire and the functioning of markets free of government intervention
 - The pursuit of individual self-interest leads to positive economic outcomes.
 - Supply creates its own demand
 - Markets sometimes fail, necessitating government intervention.

15. Which of the following is *not* one of the ideas of Keynesian economics?
- An economy can experience insufficient demand
 - Governments can step in to help boost aggregate demand
 - Changes in government spending and taxation can help keep employment rates up
 - Governments should focus on keeping the money supply steady
 - Lowering interest rates alone may be insufficient if investors lack the confidence to engage in spending.
16. Which of the following was one of Keynes's suggested solutions, *and was not* generally adopted in the U.S. in the post-war era?
- Changes in government spending to stabilize the business cycle.
 - The role of government in keeping interest rates low to stimulate investment.
 - The involvement of government in controlling of the level and direction of national investment.
 - The role of government in purchasing goods and services to stimulate aggregate demand.
 - The role of government in manipulating taxation to stimulate aggregate demand.
17. Which of the following contributed to rising unemployment and increased inflation in the 1970s?
- Declining profits of U.S. firms due to increased competition from other industrialized nations
 - Decline in wages
 - High expenditures by the government
 - (a) and (c) only
 - (a) and (b) only
18. Which of the following is *not* one of the ideas associated with monetarist economics?
- Free-market economy drives out inefficiencies in the economic system.
 - A smaller government is good for the economy as it encourages private initiatives.
 - Efforts by the government to push unemployment too low could lead to inflation.
 - Governments should keep the money supply stable.
 - There are times when the government should take an active role by changing its spending policies.
19. According to the text, which of the following issues, not previously a major concern of macroeconomics, must macroeconomics confront in the 21st century?
- The ecological sustainability of our reliance on fossil-fuel based economic growth
 - The social sustainability of the traditional model of economic development with the persistence of global poverty.
 - The problem of business cycle fluctuations in unemployment and inflation.

- d. (a) and (b) only
- e. None of the above.

20. Which of the following characterizes the environmental challenges of the 21st century?

- a. The impressive growth of global GDP in the 20th century was accompanied by a dramatic increase in CO₂ emissions.
- b. There are limits to the capacity of the environment to absorb the by-products of economic growth.
- c. It is becoming more difficult for technological advancements to keep problems of resource depletion and pollution at bay.
- d. If continued at the current rate, the emissions of CO₂ and other greenhouse gasses may lead to dramatic disturbances to our environment and economy.
- e. All of the above.

Answers to Active Review Questions

1. microeconomics, macroeconomics
2. living standards growth, stability and security, sustainability
3. economic development
4. economic, living standards
5. the business cycle
6. sustainability
7. speculative bubble
8. classical economics
9. John Maynard Keynes
10. monetarist economics
11. False. They are studied in Macroeconomics.
12. False. Economic growth, not living standards growth, is defined as increases in the level of production in a country or region.
13. True.
14. False. Monetarists argued that governments should focus on keeping the money supply steady, even in a recession when unemployment was high.
15. True.
16. Microeconomics concerns itself with decision-making of individual consumers, firms and other organizations, such as how much to consume or produce of a product, while macroeconomics deals with aggregate production and expenditure, the level of unemployment, inflation, and interactions with the global economy.
17. Economists have traditionally defined economic growth in terms of production of goods and services, whereas the concept of “living standards growth” encompasses the improvement in the quality of diet and housing, transportation and communication, health care, education, working conditions, entertainment, and even political freedom and social inclusion.
18. The three basic questions are: what is produced, how is it produced, and for whom is it produced.
19. Once countries achieve a high level of production, they may achieve living standards growth by improving cultural, educational and environmental conditions, raising the quality of work-life, and promoting more equity.
20. The instability over the business cycle can be accompanied by high rates of unemployment, which is associated with falling incomes and social stress, like suicide, domestic violence, illness and crime. Alternatively the instability may result in inflation, which can erode the purchasing power of income, or wipe out the value of savings and pensions.
21. The goal of sustainability requires that we address whether economic activities are financially sustainable, whether they are socially sustainable, and whether they are ecologically sustainable.
22. In retail markets with long supply chains, prices may adjust very slowly. In stock markets, prices may adjust very rapidly.
23. The classical school believes in the smooth functioning of market mechanisms, and that they work best when left alone. They generally do not think governments should intervene, and think that often government intervention makes things worse.
24. Keynesian economics believes markets often fail and governments have a role to

- intervene, especially in boosting aggregate demand during downturns.
25. Monetarist economics believes that the government should pursue a steady money supply and not intervene in the market actively over the course of the business cycle.
 26. Since the 1980s, there have been periods of long economic expansions, though the rate of growth during these expansions have been lower than that in previous decades. Also, the occurrence of large asset bubbles, driven by speculation, has become more common, real wages have remained stagnant, inequality has increased, and big corporations have grown and more powerful.
 27. Two developments that are demanding new ways of looking at the economic world in the 21st century are 1) the environmental impact of long-term fossil-fuel based economic growth, particularly with the dramatic rise in CO₂ emissions; and 2) the persistence of substantial global poverty and its threat to social sustainability.

Answers to Self Test Questions

1. e
2. b
3. e
4. a
5. b
6. d
7. e
8. e
9. a
10. c
11. b
12. c
13. e
14. e
15. d
16. c
17. d
18. e
19. d
20. e

Chapter 20

MACROECONOMIC MEASUREMENT: THE CURRENT APPROACH

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

In this chapter, you will be introduced to a fairly standard examination of the National Income and Product Accounts (the NIPA), but with a “contextual” flavor. You will learn that the accounts have been created for specific purposes. The chapter explains what has been included in the measurement of the GDP, and what has been excluded. The chapter highlights how the production and investment undertaken in the “household and institutions” and government sectors have historically been deemphasized in national accounting, and how these have been completely ignored in common abstract representations of the macroeconomy. You will learn how economic growth, nominal GDP, real GDP, price indices, and national saving are commonly measured. You will also be introduced to the simple representations of the components of GDP that are deployed in the traditional macroeconomic model.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Understand when the U.S. system of national accounts was developed, in the context of the pressing problems of that time.
2. Identify the four sectoral classifications of the U.S. national accounts, and what is included in each sector.
3. Identify what capital stocks are included in the U.S. national accounts.
4. Define the Gross Domestic Product, and identify what is included and excluded in its measurement.
5. Understand and apply the three approaches to measuring GDP.
6. Calculate GDP growth rates, nominal GDP, and real GDP.
7. Identify commonly used price indices, and construct a constant-weight price index.
8. Identify the saving identity in a closed economy, and in an open economy; define the Net Domestic Product (NDP); and define Net Saving.
9. Understand the simplifying assumptions made by the traditional macroeconomic model, and identify the model’s basic identity (taken from the spending approach).
10. (Appendix) Understand the value and limitations of the chained dollar method in measuring real GDP.

Key Terms

National Income and Product Accounts (NIPA)

Bureau of Economic Analysis (BEA)

national accounting conventions

fixed assets

inventories

consumer durable goods

gross investment

net investment

depreciation

gross domestic product (GDP)

final good

intermediate good

value-added

imputation

closed economy

open economy

net exports

national income (NI)

nominal (current dollar) GDP

real GDP

base year

index number

GDP deflator

consumer price index (CPI)

rule of 72

net domestic product (NDP)

From Appendix:

quantity index

Fisher quantity index

chain-type quantity index

Active Review

Fill in the Blank

1. The U.S. government agency that publishes statistics on production, income, spending, prices and employment is the _____.
2. The four sectors into which the U.S. national accounts are divided are the households and institutions sector, the business sector, the government sector, and the _____ sector.
3. The BEA puts non-profit institutions serving households in the _____ sector.
4. Equipment owned by businesses and governments, structures, residences, and software are all forms of _____.
5. Cars, washing machines, refrigerators and other equipment that are purchased by households and that typically lasts for longer than three years are called _____.
6. A newly produced automobile that remains unsold at the end of the year is included as _____ in the manufactured capital stocks.
7. The GDP measures the total _____ of _____ goods and services _____ produced in a _____ over a period of _____.

8. To estimate the value of services from owner-occupied houses, the BEA uses the method of _____ by taking data from the rental housing market.
9. The sum of all the production-related incomes (such as from wages, rents, and profits) earned by all people and organizations located inside the United States is called _____.
10. The measure of GDP that reflects the actual value of goods and service produced by removing the effect of changes in prices is called _____ GDP.

True or False

11. Often referred to as the “national accounts”, the National Income and Product Accounts (NIPA) includes statistics on production, income, and spending.
12. Catholic Hospital, a non-profit hospital, would be included in the national accounts in the households and institutions sector, whereas Hospital Corporation of America, a for-profit hospital chain, would be included in the business sector.
13. A government agency, like the U.S Postal Service, which produces goods and services for sale, would be included in the government sector.
14. In 2003, the BEA began including consumer durable goods in its measure of the U.S. manufactured capital stock and in its measure of investment.
15. Net saving adjusts for what a country must put aside to replace capital goods that are wearing out, by subtracting depreciation from gross saving.

Short Answer

16. When did the idea of creating a system of national accounts first take hold, and for what purpose? What were the concerns of that time? And who created them?
17. How much of GDP (in terms of share of the total) was produced by the different sectors (as defined by the BEA) in 2016? (That is, how much was produced by the business sector, the household and institutions sector, and the government sector?)
18. Where are non-profit organizations put in the BEA’s 4-way classification?

19. What kinds of non-financial capital stocks are included in the accounting of national non-financial assets?
20. What are the two components of manufactured capital stocks?
21. What are the three approaches to measuring GDP?
22. How does the government estimate the value of the services produced by government and nonprofit institutions that are not sold on the market? And the value of the services produced by households?
23. Why in 1996 did the BEA switch to calculate real GDP using the “chained-dollar method” from the “constant-dollar method”?
24. When measuring price levels in the economy (such as when calculating the CPI index), why is a weighted average used?
25. Why does a price index based on constant weights tend to overstate inflation in periods after the base year when the price of one good is rising quickly compared to other goods?
26. What is the saving identity in a closed economy? And in an open economy?

27. What simplifying assumptions does the traditional macroeconomic model make (in addition to those made in the NIPA)?

Problems

1. Determine which of the following would be counted in the spending approach of GDP, and which would not be counted. Identify the category under which it would fall (C, I, G, NX, or not counted).

- a. The housecleaning services of a stay-at-home mom.
- b. The housecleaning services of the “Merry Maids” company.
- c. The babysitting services of a babysitter whose earnings are kept “off the books” and not reported to the tax authorities.
- d. A brand new house built and sold this year.
- e. A new car made by Ford in the U.S., and sold to a household in the U.S.
- f. A new car made by Ford in the U.S, and sold in Mexico.
- g. Sale of a 2012 used Ford car.
- h. 3 shares of Ford Motor Company stock
- i. A new car made by Ford in the U.S. but not sold by the end of the year.
- j. A new car added to the fleet of taxis of Mr. Taxi Company.
- k. A new bridge to accommodate all the new and used cars and taxis on the road.

2.

Use the following table to answer the next question:

Stage of Production	Stage of production	Sales value of material
Stage 1	Grapes produced in the vineyard	10
Stage 2	New wine produced at the winery, stored in oak barrels	15
Stage 3	Fermented wine stored in wine bottles	20
Stage 4	Wine bottles distributed by the wholesaler	25
Stage 5	Retail price of bottled wine sold to consumer	30

- a. Assuming that no intermediate inputs are used other than the ones named, what is the value added at each stage of production – Stage 1-5?
- b. Using the value added approach, what is the total contribution to the GDP of this chain of production?
- c. Using the expenditure approach, what is total contribution to the GDP of this good? Explain why the number you got in part c is (or is not) the same as that from part b.

3. The small economy of the United States of Sustainability has only three companies: a bicycle manufacturer, a wind energy producer, and an organic cheese company. The only costs these companies have are the cost of their inputs and wages. Assume there are no rents, no depreciation, and no net income payments from the foreign sector. Assume all the output is sold to consumers as final goods. The companies' profits = Value of output (total revenues) – total costs.

	Bicycle company	Wind energy company	Organic cheese company
Cost of inputs	\$0	\$0	\$0
Wages	\$50	\$75	\$25
Value of output (total revenues)	\$100	\$150	\$50

- a. Calculate the GDP of the United States of Sustainability using the income approach.
- b. Calculate the GDP of the United States of Sustainability using the spending approach.
- c. Calculate the GDP of the United States of Sustainability using the value-added approach.

4. Assume a simple economy produces only two goods, corn and wheat. In the first year 100 bushels of corn are produced, and sold for \$3 a bushel. Also in the first year, 50 bushels of wheat are produced, and sold for \$5 a bushel. In the second year, 110 bushels of corn are produced, and sold for \$3.50, while 55 bushels of wheat are produced, and sold for \$5.50.

- a. Calculate the nominal GDP in year 1 and 2.
- b. Using the constant-dollar approach, calculate the real GDP in year 1 and 2. Take year 1 as the base year.
- c. Calculate the growth in real GDP between years 1 and 2 (with year 1 as the base year).
- d. Calculate a constant weight price index for the second year, using the first year as the base.
- e. What is the growth rate of prices (inflation rate) from the first to the second year?

Self Test

1. A non-profit charity which provides support to low-income families is included by the BEA in the
 - a. household and institutions sector
 - b. business sector
 - c. government sector
 - d. foreign sector
 - e. both a and c
2. Which of the following would *not* be included in the households and institutions sector?
 - a. A non-profit hospital
 - b. The University of Michigan
 - c. The National Manufacturers Alliance, a non-profit institution serving for-profit manufacturers.
 - d. The Museum of Fine Art
 - e. The United Autoworkers, a trade union for the employees of automobile manufacturers.
3. Which of the following non-financial capital stocks are included in GDP?
 - a. Natural capital, manufactured capital, human capital, and social capital.
 - b. Natural capital, and manufactured capital.
 - c. Human capital, and social capital.
 - d. Manufactured capital only.
 - e. None of the above

4. Which of the following is *not* included as a fixed asset in the national accounts?
- Office equipment
 - Factories and office buildings
 - Houses and apartment buildings
 - Computer software
 - Inventories
5. Which of the following would *not* be included in the measure of U.S. GDP in the current year?
- A new machine, made in the U.S. and purchased that year for the Ford motor company assembly line.
 - A Ford automobile newly produced that year in the U.S.
 - A Ford automobile, newly produced that year in the U.S. but unsold and sitting in a warehouse.
 - Three shares of Ford motor company stock purchased that year in the U.S.
 - The steel produced and sold that year to make a new Ford automobile.
6. Which of the following would *not* be counted as an addition in the measure of the U.S. GDP in the current year?
- A car produced and sold in the U.S. by the Japanese-owned Toyota company.
 - A car produced in the U.S. by the U.S.-owned Ford motor company, and sold in Japan.
 - Restaurant meals in the U.S. sold to Canadian tourists visiting the U.S.
 - Restaurant meals in Canada sold to U.S. tourists visiting Canada.
 - A car produced in the U.S. by the Japanese-owned Toyota company, and sold in Canada.

Use the following table to answer the question #7, assuming that no intermediate inputs are used other than the ones named:

Stage of production	Sales value of material
Wheat grown by a farmer	\$0.50
Wheat milled by the miller	\$0.75
Bread made by the baker	\$1.00
Bread sold by a distributor	\$3.50
Retail price of bread to the consumer	\$4.00

7. What is the value added at all stages of the production process of the bread as described in the accompanying table?

- a. \$0.50
- b. \$1.00
- c. \$4.00
- d. \$7.50
- e. \$9.75

8. Assume the government is trying to measure the value of production of a non-profit institution providing non-market services in a community. The cost of office supplies used per year is \$5,000. The payroll expenses are \$150,000 per year. The institution owns its own building, which if it rented out would cost \$12,000 per year. The value of services production that would be imputed for this non-profit institution would be

- a. \$12,000
- b. \$150,000
- c. \$155,000
- d. at least \$167,000
- e. It is impossible to calculate the value of services produced by this non-profit institution if its services are not sold on the market.

9. Assume the following for a particular owner-occupied household: The value of the services of the house, based on the imputed rental value, is estimated to be \$1500 per month. A gardener is hired for the upkeep of the grounds, and is paid \$200 a month. The cleaning, cooking, and childcare are all done by the mother, who also has a part-time paid job outside the home. If she were to hire a cleaning service she estimates she would have to pay \$500 a month, and if she were to hire a nanny or babysitter she would have to pay \$800 a month. What would be the value of the services produced in this household as currently measured by the BEA?

- a. \$200
- b. \$1,500
- c. \$1,700
- d. \$3,000
- e. None of the value of services produced in this household would be included.

10. In 2016, how much of GDP was produced by the business sector, according to the BEA?

- a. 33%
- b. 50%
- c. 65%
- d. 75%
- e. 90%

11. In order to measure GDP by the spending approach, to highlight the portions that are considered to be consumption vs. investment, which identity should be used?

- a. $\text{GDP} = \text{Household and institution spending} + \text{Business spending} + \text{Net foreign sector spending} + \text{Government spending}$
- b. $\text{GDP} = \text{Personal consumption} + \text{Private investment} + \text{Net exports} + \text{Government consumption}$
- c. $\text{GDP} = \text{Personal consumption} + \text{Private investment} + \text{Net exports} + \text{Government consumption} + \text{Government investment}$
- d. a and c
- e. none of the above.

12. Which of the following would be included in the income approach to measure GDP?

- a. Wages and benefits, profits, rents
- b. Wages and benefits, profits, investment spending
- c. Wages and benefits, rents, investment spending, consumption spending
- d. The value added in production
- e. None of the above.

13. Which of the following would *not* be included in the U.S. GDP, as measured by the income approach?

- a. The wages earned by workers at a German company located in the U.S.
- b. The profits earned by a German company from its plant located in the U.S.
- c. The profits earned by a U.S. company from its plant located in China.
- d. The rents earned by a U.S. landlord with rental properties.
- e. The interest payments earned by a U.S. bank from its loans.

14. Which of the following is a price index?

- a. GPI
- b. HDI
- c. PPI
- d. REI
- e. None of the above

15. The price index that is most frequently reported in the news is the

- a. Consumer price index (CPI)
- b. Producer price index (PPI)
- c. Earnings index
- d. The GDP deflator
- e. Export price index

16. The GDP deflator is measured as:

- a. Nominal GDP divided by real GDP
- b. Real GDP divided by nominal GDP
- c. Real GDP multiplied by nominal GDP
- d. The rate of change of nominal GDP
- e. The rate of change of real GDP

17. The rule of 72 measures

- a. A country's annual growth rate of GDP.
- b. A country's growth rate over a short period of time.
- c. The number of years it will take for a country's GDP to grow by 72 percent.
- d. The number of years it will take for a country's GDP to double if it grows at a constant rate.
- e. How much a country's GDP will grow over a 72 year period.

18. In recent years, which of the following characterizes the U.S.'s economic situation?

- a. The U.S.'s net exports are positive.
- b. The U.S. lends more to foreign countries than what it borrows from them.
- c. The U.S. imports more than it exports, and finances this by borrowing more from foreign countries than what it lends to them.
- d. The U.S. imports more goods from foreign countries, but also provides more lending to foreign countries than what it borrows from them.
- e. None of the above.

19. (from Appendix) The chained dollar method in calculating the growth rate of real GDP uses a

- a. price index
- b. Fisher price index
- c. quality index
- d. Fisher quantity index
- e. none of the above.

20. (from Appendix) The Fisher quantity index and chain-type quantity index for measuring real GDP growth rates

- a. provide a unique average number for estimated growth
- b. use a reference year equal to 100
- c. involve complicated mathematical calculations
- d. are not very accurate for years far away from the reference year
- e. all of the above.

Answers to Active Review Questions

1. The Bureau of Economic Analysis (BEA)
2. foreign
3. households and institutions
4. fixed assets (or fixed manufactured capital)
5. consumer durables
6. inventory
7. value, final, newly, country, time.
8. imputation
9. national income (NI)
10. real (GDP)
11. True.
12. True.
13. False, such an agency would be included in the business sector.
14. False, while the BEA did start including them in the measure of the manufactured capital stock in 2003, consumer durables are still excluded in the measure of investment.
15. True.
16. The idea for the national accounts came during the 1930s depression in the U.S., when decision-makers wanted to get a better sense of by how much economic production had fallen. Simon Kuznets was commissioned to produce the national accounts.
17. The business sector produced about 75.6% of GDP, whereas the household and institutions sector produced about 12.6%, and the government sector produced about 11.8% of the total GDP.
18. It depends on who the non-profit organizations serve. The non-profit organizations serving households are placed in the household and institutions sector. Those non-profit organizations serving business are put in the business sector.
19. Only manufactured capital is included.
20. Fixed assets and inventories.
21. The three approaches are: the production approach, the spending approach, and the income approach.
22. To measure the value of services produced by governments and non-profit institutions, the government usually uses a method of imputation, by measuring the value of inputs used (the cost of intermediate goods, payroll costs, etc.). It does not measure the value of the services produced by households (aside from the services of owner-occupied houses and any services that are paid).
23. The BEA made the switch from the constant-dollar method to the chained-dollar method, because the latter has increased the accuracy of the GDP growth calculations by yielding one unique estimated growth rate between any two years. With the constant-dollar method, the growth estimate depends on which year is used as the base year.
24. Because we want to give greater emphasis to prices at which many transactions are made, and less emphasis to the prices of relatively minor goods and services.
25. Because people tend to buy cheaper substitutes instead of the good whose price is quickly rising. But the constant-weight index includes the same quantities of the expensive goods.

26. In a closed economy, Saving = Investment. In an open economy, Saving = Investment + Net exports.
27. The simplifying assumptions are: 1) the household and institutions sector contains only households. 2) only the business sector invests; the household and institutions sector and the government sectors are assumed to only consume 3) only the business sector produces

Answers to Problems

1.
 - a. Not counted
 - b. Consumption
 - c. Not counted
 - d. Investment
 - e. Consumption
 - f. Net Exports
 - g. Not counted
 - h. Not counted
 - i. Investment
 - j. Investment
 - k. Government investment

2.
 - a. Stage 1 = \$10; stage 2 = \$5; stage 3 = \$5; stage 4 = \$5; stage 5 = \$5
 - b. $\$10 + 5 + 5 + 5 + 5 = \30
 - c. The expenditure approach also yields a value = \$30 (the retail price of the bottled wine sold to the consumer). In a simple economy, the value of GDP from the value added approach = value from the expenditure approach = value from the incomes approach.

3.
 - a. Using the income approach, where $GDP = \text{wages} + \text{profits}$. Calculating the profits for each company: profits for the bicycle company = $\$100 - 50 = \50
 Profits for the wind energy company = $\$150 - 75 = \75
 Profits for the organic cheese company = $\$50 - 25 = \25 .
 So $GDP = (\$50 + \$75 + \$25) + (\$50 + \$75 + \$25) = \$300$.
 - b. Using the spending approach, $GDP = \$100 + \$150 + \$50 = \300 .
 - c. Using the value-added approach: The value added of the bicycle company = $\$100 - 0 = \100 ; the value added of the wind company = $\$150 - 0 = \150 ; and the value added of the cheese company = $\$50 - 0 = \50 . So $GDP = \$100 + \$150 + \$50 = \300 .

4.

a. Nominal GDP in Year 1 = $(100 \times \$3) + (50 \times \$5) = \$550$
Nominal GDP in Year 2 = $(110 \times \$3.50) + (55 \times \$5.50) = \$687.50$

b. The real GDP in year 1 = nominal GDP in year 1 = \$550
The real GDP in year 2 = $(110 \times \$3) + (55 \times \$5) = \$605$

c. Growth in real GDP = 10%

d. The constant weight price index =
 $[(100 \times \$3.50) + (50 \times \$5.50)] / [(100 \times \$3) + (50 \times \$5)] \times 100 = 113.636$

e. The inflation rate = $[(113.636 - 100) / 100] \times 100 = 13.636\%$

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. A | 11. C |
| 2. C | 12. A |
| 3. D | 13. C |
| 4. E | 14. C |
| 5. D | 15. A |
| 6. D | 16. A |
| 7. C | 17. D |
| 8. D | 18. C |
| 9. C | 19. D |
| 10. D | 20. E |

Chapter 21

MACROECONOMIC MEASUREMENT: ENVIRONMENTAL AND SOCIAL DIMENSIONS

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter provides an introduction to economic, social and environmental accounting. It also offers a survey of several different measures of economic well-being and economic performance. You will learn about the economic functions of the environment, and how a measure of and a value for these environmental services could be incorporated into the national accounts. You will also learn about the exclusion of household production in the national accounts, and how this exclusion can be remedied.

Objectives

After reading and reviewing this chapter, the student should be able to:

1. Explain why GDP should not be confused with national welfare.
2. Understand why GDP does not measure well-being.
3. Identify the dimensions of well-being as described by the Stiglitz-Sen-Fitoussi Commission.
4. Explain trends in subjective well-being data across countries and across time.
5. Describe alternative measures of economic well-being including the Genuine Progress Indicator, the Better Life Index and the Human Development Index.
6. Explain and Critique the historical exclusion of household production from the national accounts.
7. Understand the methods used to measure household production and impute a monetary value to it.
7. Identify and provide examples of the three economic functions of the environment.
8. Identify how, conceptually, the depreciation of natural capital can be included in measures of production and saving.
9. Understand the issues involved in assigning monetary values to environmental asset stocks, depreciation, and service flows.

Key Terms

defensive expenditures

satellite accounts

subjective well-being

Better Life Index (BLI)

Human Development Index (HDI)

replacement-cost method

opportunity-cost method

green GDP

damage-cost approach

maintenance-cost approach

Active Review

Fill in the Blank

1. A measure of welfare based on survey questions asking people about their own degree of life satisfaction is called _____.
2. Additional or parallel accounting systems that provide measures of social and environmental factors in physical terms, without necessarily including monetary valuation, are called _____.
3. A town is spending money to raise their dikes and strengthen their levees in order to prevent the neighboring river from flooding the town. Such spending would be considered to be _____.
4. A measure of well-being expressed in monetary terms that has been transformed from the Index of Sustainable Economic Welfare (ISEW) is the _____.
5. The index of well-being developed by the UNDP in 1990 that combines measures of health, education, and income is called the _____.
6. Suppose a policy-maker estimates the value of household production by the expenditure it would take to pay someone else to do the same job. He or she would be using the _____ cost approach.
7. The three types of functions that the natural environment plays in economic life are _____ functions, _____ functions, and _____ functions.
8. The absorption and accumulation of mercury into the food chain would be an example of the _____ function of the environment.
9. The measure of national production that subtracts both the depreciation of manufactured capital and the depreciation of natural capital is called _____.
10. Suppose a policy-maker estimates the value of a forested hillside in preventing floods by the expenditure that would be needed to repair flood damage in the neighboring town. He or she would be using the _____ cost approach.

True or False

11. Satellite accounts are a helpful way of measuring the monetary value of changes in a country's environmental resources.
12. Average subjective well-being grows as rapidly as GDP per capita.
13. The Genuine Progress Indicator and the Gross Domestic Product both exhibit strong upward trends in the United States for the period 1950-2004.
14. The failure to subtract the lost household production as more women entered the paid labor force over the last century means that the GDP growth over this period of time is overstated.
15. The first estimates of the value of household services in the U.S. were produced more than 80 years ago.
16. Water filtration provided by wetlands is an example of a sink function of the environment.

Short Answer

17. Identify and describe five critiques of GDP presented in the chapter.
18. How is the market-based welfare component of GPI estimated?
19. Identify the categories that are added in, and those that are subtracted for, when calculating the GPI.
20. What might account for the deviations of the HDI rankings from the GDP? Why might a country like Sri Lanka have a lower level of GDP per capita than Namibia, and yet have a higher HDI ranking than Namibia?
21. What are the four variables that are used to construct the Happy Planet Index?

22. What have been some justifications given for the historical exclusion of household production from the national accounts?
23. Is it easier or harder to incorporate household production into the national accounts, compared to incorporating environmental assets and services? Explain.
24. What measure has been developed in recent years that subtract for the depreciation of both manufactured capital and natural capital?
25. Why has it been difficult to produce a single estimate of an environmentally adjusted or “greened” GDP? What are the two approaches that can be used to put a value on environmental assets and services?

Problems

1. Suppose Country A (the Ukraine) built a nuclear power plant that had a large accident and led to the release of radioactive iodine that damaged the population’s thyroids. It led to \$1 million in health costs. Country B (Poland) administered potassium iodide pills to the population, to protect the population’s thyroids in the case of an accident. The protection pills cost the country \$100,000. Country C (Germany) decided to ban the building of nuclear power plants. What is the value of the radioactivity-free air in Country C due to this ban of nuclear power plants:

a) measured in terms of the damage cost approach?

b) measured in terms of the maintenance cost approach?

2. According to the results of the 2005 U.S. time use survey, women spent an average of 2.3 hours per day on household activities such as housework, food preparation, yard work, or paying bills, while men spent 1.4 hours per day (when averaged over all responses). Suppose these findings reflect the hours spent in household production for a middle class professional couple, who can each make \$20 an hour in paid work. Suppose they can hire someone else to do these household activities for them for \$10 an hour. Estimate the daily value of these household production activities (assuming no one else in the household is contributing to household production) using:

a) the opportunity cost method

b) the replacement cost method

3. Counting the GPI

Suppose the economists in the country Greenland have been counting the GPI and currently have estimated Personal Consumption Expenditures to be \$1,000. They still need to account for the following entries. Finish the task for them, identifying whether the entries would be added or subtracted (or simply excluded) when measuring the GPI.

Personal Consumption Expenditures = \$1,000

		Added (+)	Subtracted (-)
National defense	\$100		
Spending on new bridges	\$25		
Net foreign borrowing	\$75		
Damage from crime	\$50		
Volunteer work in community centers	\$50		
Oil tanker accident	\$30		
Loss of wetlands	\$20		
Helping kids with homework	\$40		
Cooking of meals at home	\$30		
Cost of commuting	\$15		
Services of household washing machines	\$10		
You clean your own house	\$50		
Working overtime on Saturdays (in your paid job)	\$25		
Value of higher education	\$40		

Column Totals: _____

Total GPI: _____

Self Test

1. According to the textbook, subjective well-being (SWB) tends to...
 - a. increase as GDP per capita decreases.
 - b. increases as GDP per capita increases, but at a diminishing rate.
 - c. does not show any relationship with regard to GDP per capita.
 - d. increase as GDP per capita increases, and does so at an accelerating rate.
 - e. is better understood when contrasted with GDP rather than with GDP per capita.
2. Jane buys a package of cigarettes. While her purchase would show up in the national accounts as an increase in GDP, it is actually an example of
 - a. a purchase of a well-being reducing product
 - b. a defensive expenditure
 - c. loss of leisure
 - d. loss of human and social capital formation
 - e. unequal distribution
3. Nancy has cut back her paid work hours to part-time and spends some of her extra time participating in her local community peace and justice group which engages in important community-building activities. While her decision to reduce her paid labor activities would show up as a decrease in GDP, it may actually increase well-being because it is an example of
 - a. a well-being reducing product
 - b. a defensive expenditure
 - c. loss of leisure
 - d. a gain in human and social capital formation
 - e. a well-being reducing production method
4. Which one of the following items is *not* subtracted when calculating the GPI?
 - a. cost of crime
 - b. lost leisure time
 - c. environmental costs
 - d. net foreign borrowing
 - e. government spending on highways and streets
5. Which one of the following items is added in when calculating the GPI?
 - a. net foreign borrowing
 - b. consumer durable assets
 - c. most government spending on goods and services
 - d. the services of consumer durables
 - e. paid domestic services

6. When tracking the trends in real GDP per capita and real GPI per capita from 1950 to 2004, what are the findings?
 - a. Per capita GPI is lower than per capita GDP, and it has grown more slowly.
 - b. Per capita GPI is lower than per capita GDP, but it has grown more quickly.
 - c. Per capita GPI is higher than per capita GDP, and it has grown more quickly.
 - d. Per capita GPI is higher than per capita GDP, but it has grown more slowly.
 - e. Per capita GPI is about the same as per capita GDP, and they both have grown at about the same rate.

7. Which of the following is not accurate?
 - a. The Better Life Index includes nearly a dozen dimensions of well-being.
 - b. The Better Life Index is more ambitious than the Genuine Progress Indicator.
 - c. The Better Life Index was launched by the Organization for Economic Cooperation and Development.
 - d. The Better Life Index includes life expectancy at birth, years of formal education, and real per-capita GDP.
 - e. All of these are accurate.

8. The HDI aggregates which three indicators in its index of well-being?
 - a. GDP, adult literacy and education, life expectancy.
 - b. GDP, income inequality, and access to medical care.
 - c. GDP per capita, adult literacy and education, income inequality.
 - d. GDP per capita, adult literacy and education, life expectancy.
 - e. GDP per capita, access to medical care, life expectancy.

9. Which of the following best reflects the trends found in the HDI rankings?
 - a. There is a strong correspondence between HDI and GDP per capita, as a high GDP per capita is always associated with a high HDI ranking, and vice versa
 - b. Although there is a rough correspondence between HDI and GDP per capita, some countries have low GDP per capita, yet high HDI rankings, and vice versa.
 - c. There is a weak correspondence between HDI and GDP per capita.
 - d. There is an inverse correspondence between HDI and GDP per capita, as countries with high GDP per capita have low HDI rankings, and vice versa.
 - e. There is no correspondence between HDI and GDP per capita.

10. Comparisons between GDP and HDI reveal that
 - a. GDP is a good measure of well-being
 - b. GDP has significant shortfalls as a measure of well-being
 - c. The HDI has significant shortfalls as a measure of well-being
 - d. The GDP is a better measure of well-being than is the HDI
 - e. Neither the GDP nor the HDI can serve as measures of well-being

11. Which of the following would *not* be an example of household production that is currently excluded from in GDP?
- childcare
 - housecleaning
 - meal preparation
 - landscaping by a paid gardener
 - taking kids to afterschool activities
12. According to the most conservative estimates, what is the total value of household production in the U.S.?
- about 5 - 10% of GDP
 - about 15 - 20% of GDP
 - about 25 - 35% of GDP
 - about 40 – 50% of GDP
 - about 100% of GDP
13. Approximately what percent of all U.S. workers were full time homemakers in the U.S. in 2000?
- about 5%
 - about 16%
 - about 35%
 - about 40%
 - about 56%
14. Which of the following is used to measure (or estimate) the quantity of unpaid, non- market core sector production?
- Satellite accounts
 - Time use surveys
 - Value added
 - The precautionary principle
 - The maintenance cost method
15. Which of the following best characterizes the shares of time women vs. men spent on the household production activities of housework, food preparation, yard work, or paying bills, when averaged over all responses, according to 2016 BLS survey?
- Women and men spent an equal amount of time per day on household activities.
 - Women spent on average 2.2 hours per day, while men spent 1.4 hours per day.
 - Women spent on average 4.2 hours per day, while men spent 3.3 hours per day.
 - Women spent on average 1.5 hours per day, while men spent 0.5 hours per day.
 - Women did all the household activities, while men did none.
16. A lawyer decides to scale back her hours to part-time, in order to raise her small children and care for her elderly parents. She takes a cut in her annual salary of \$40,000, and lays off her nanny who she was paying \$25,000 per year. Her unpaid caring labor would be valued at _____, according to the _____ approach.
- \$25,000, opportunity cost
 - \$40,000, replacement
 - \$40,000, damage cost

- d. \$25,000, maintenance cost
 - e. \$25,000, replacement cost
17. Hiking on a beautiful mountain to enjoy nature is an example of what kind of function provided by the environment?
- a. resource function
 - b. environmental service function
 - c. sink function
 - d. all of the above
 - e. none of the above
18. Which of the following is not an economic function of the natural world?
- a. Environmental service functions
 - b. Capital functions
 - c. Sink functions
 - d. Resource functions
 - e. All of these are economic functions of the natural world.
19. Suppose Town A has a factory that spews out heavy pollution and causes \$2 million in health costs to the population. Town B also has such a factory, but requires it to invest \$50,000 in a new scrubber on its smokestack that cleans up most of its pollution. The value of the unpolluted air would be \$2 million according to the ...
- a. maintenance cost approach.
 - b. damage cost approach.
 - c. replacement cost approach.
 - d. opportunity cost approach.
 - e. spending approach.
20. Suppose Town A does not chop down the forest on the hillside above it. Town B does chop down its forested hillside, and a flood results in \$1 million worth of damage to the town. Town C also chops down its forested hillside, but spends \$500,000 in raising and strengthening its dikes and levees to guard itself from flood-damage. The value of the forest's services to Town A would be _____ approach according to the _____ approach.
- a. \$500,000, maintenance cost
 - b. \$500,000, damage cost
 - c. \$1 million, maintenance cost
 - d. \$1 million, replacement cost
 - e. \$1 million, opportunity cost

Answers to Active Review Questions

1. Subjective well-being
2. Satellite accounts
3. defensive expenditures
4. Genuine Progress Indicator (GPI)
5. Human Development Index (HDI)
6. Replacement
7. resource, environmental service, sink
8. sink
9. Green GDP
10. damage
11. False. Satellite accounts only measure changes in the *quantities* of environmental resources, not changes in their monetary *values*.
12. False
13. False
14. True
15. True
16. False. It is an environmental service function.
17. The text identifies: household production, volunteer work, leisure, human & social capital formation, interactions with the natural world, defensive expenditures, products that reduce well-being, financial debt, and increases in inequality.
18. Starting with the category of Personal Consumption Expenditures (or Household Budget Expenditures), defensive and regrettable expenditures and long-term household investments are subtracted from HBE. Then, an adjustment is made for income inequality by subtracting the cost of inequality. Finally, the value of provision of public goods and services that households benefit from is added to estimate the total market-based welfare.
19. The GPI adds in services from human, social, manufactured, and natural capital such as unpaid housework and parenting, higher education, volunteer work, the services of consumer durables, and net capital investment. It also adds the value of public goods and services such as the services of highways and streets. It subtracts defensive and regrettable expenditures and the social and environmental costs of economic activities including the cost of crime, lost leisure time, underemployment, commuting, automobile accidents, household pollution abatement, water pollution, air pollution, noise pollution, loss of wetlands, loss of farmland, loss of primary forests, resource depletion, carbon dioxide emissions damage, cost of ozone depletion, net foreign borrowing, and the cost of consumer durables.
20. The deviations between the HDI and GDP rankings might be due to what is being produced in the country (e.g. spending on weapons that are used in wars rather than spending on health and education), and the unequal distribution of goods and services within a country. A country like Sri Lanka might have better social infrastructure and less of a gap between rich and poor than does Namibia.
21. Average life expectancy, average subjective well-being, inequality of outcomes, and ecological footprint.
22. Some reasons have included: a. households are not producing economic goods; b. it's too difficult to distinguish household production from consumption; c. GDP measures just market production; d. including household production would make too big of a change in the accounts.

23. It is easier, as one can follow the existing procedures already used to impute a value for government production. It does not require the development of new techniques.
24. The Green GDP.
25. Because there is more than one way to put a measure on the value of environmental services. The two approaches to measure environmental services are the damage cost approach and the maintenance cost approach.

Answers to Problems

1. The value of the unpolluted air would be
 a) \$1 million in terms of the damage cost approach
 b) \$100,000 in terms of the maintenance cost approach

2. The couple spends a total of 3.7 hours per day on household activities. The value of these household activities using
 a) the opportunity cost method would be \$74 per day
 b) the replacement cost method would be \$37 per day

3. Counting the GPI
 Personal Consumption Expenditures = \$1,000

		Added (+)	Subtracted (-)
National defense	\$100	Neither added nor subtracted. Excluded.	
Spending on new bridges	\$25	+25	
Net foreign borrowing	\$75		-75
Damage from crime	\$50		-50
Volunteer work in community centers	\$50	+50	
Oil tanker accident	\$30		-30
Loss of wetlands	\$20		-20
Helping kids with homework	\$40	+40	
Cooking of meals at home	\$30	+30	
Cost of commuting	\$15		-15
Services of household washing machines	\$10	+10	
You clean your own house	\$50	+50	

Working overtime on Saturdays (in your paid job)	\$25		-25 (loss of leisure)
Value of higher education	\$40	+40	

Column Totals: +245 -215

Total GPI: \$1,030 (\$1,000 + 245 – 215 = \$1,030)

Answers to Self-Test Questions

1. B
2. A
3. D
4. E
5. D
6. A
7. E
8. D
9. B
10. B
11. D
12. C
13. B
14. B
15. B
16. E
17. B
18. B
19. B
20. A

Chapter 22

THE STRUCTURE OF THE U.S. ECONOMY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter will help you put macroeconomics in its “real world” context. The chapter will provide you with some basic economic literacy, such as understanding the different sectors in the U.S. economy, and the major industries within those sectors. It examines the historical trends within these sectors, providing an overview of the changing economic landscape of the U.S. economy. It also investigates several economic debates, such as the loss of manufacturing jobs, the role of financialization in our economy and the rising costs of health care.

Objectives

After reading and reviewing this chapter, the student should be able to:

1. Explain what is meant by the primary, secondary, and tertiary sectors of an economy.
2. Describe the relative magnitude of these sectors in the United States, and how this has changed over time.
3. Describe some major characteristics of agriculture, energy, and other primary sector industries in the United States.
4. Describe some major characteristics of construction, textile manufacturing, and automobile manufacturing industries in the United States.
5. Discuss various explanations given for the decline in manufacturing employment in the United States.
6. Describe some major characteristics of service industries in the United States, especially health care, education, finance, and retail services.

Key Terms

output sectors
primary sector
secondary sector
tertiary sector
labor productivity

manufacturing productivity
financial assets
financial institution
financialization

Active Review

Fill in the Blank

1. The harvesting of forest products would be a component of the _____ sector.
2. Whereas the extraction of oil would fall under the _____ sector, the refining of petroleum would fall under the _____ sector.
3. Utilities, such as electricity production, are a component of the _____ sector.
4. Marketing and retailing are a component of the _____ sector.
5. The tertiary sector is also called the _____ sector.
6. The sector that dominates the U.S. economy, comprising about 68% of all output, is the _____ sector.
7. While the U.S. has less than _____ percent of the world's population, it uses about _____ percent of the world's energy.
8. _____ energy is the fastest-growing source of renewable energy in the United States, followed by _____ energy.
9. Stocks, bonds, and money mutual funds are examples of _____ assets.
10. Much of the non-monetized economic activity in the core sphere, if counted, would be part of the _____ sector.

True or False

11. The rudimentary processing of raw materials would fall under manufacturing in the secondary sector.
12. The products produced in the primary sector are generally sold to consumers in households.
13. The primary sector is no longer of great importance to the U.S. economy, given that it represents less than 3% of the U.S. private economy and employs only 1% of U.S. workers.
14. There has been evidence of adverse impacts of hydraulic fracturing on human health and the natural environment.

15. The absolute number of manufacturing jobs peaked years ago in virtually all industrial countries.

Short Answer

16. Briefly define the primary, secondary, and tertiary sectors.

17. How have the shares of the U.S. private economy attributed to each of the three sectors in the U.S. changed over the last few decades of the 20th century?

18. How have employment patterns in these three sectors changed since the 1960s?

19. What factor(s) explains the relative decline of the primary sector in the U.S.?

20. What are the current threats to agricultural productivity in the U.S.?

21. How does agriculture, an activity primarily in the primary sector, spill over into the secondary and tertiary sectors?

22. The US energy output has increased significantly since 2012. What is one of the key factors contributing to this increase?

23. Why is the manufacturing sector in the U.S. losing jobs?

24. Critics of the service sector complain that service jobs pay poorly. Is this true?

25. What are the four categories of the tertiary sector in the alternative categorization developed by the authors of the textbook? What kinds of activities are included in each?

26. Why have services become such a significant part of the U.S. economy?

Problems

1. Suppose the table below represents the simple economy of Peaceland.

Industry	Value Added (in millions of dollars)	Percent of GDP
Agriculture	21	5.3
Transportation	34	8.5
Trade	50	12.5
Health care and social assistance	21	5.3
Education	20	5
Construction	44	11.0
Arts and Recreation	11	2.8
Diplomacy & peacekeeping	80	20
Textile manufacturing	65	16.3
Waste management and environmental stewardship	54	13.5
Economy Total	400	100%

- a. Determine the size of the primary sector (in terms of value added and percent of GDP).
 - b. Determine the size of the secondary (in terms of value added and percent of GDP).
 - c. Determine the size of the tertiary sector (in terms of value added and percent of GDP).
2. Suppose the simple economy of Peaceland, above, has decided to cut out some of the activities of the “middlemen” – the people and organizations that are involved in moving products from the producer to the final consumer. They have set up Fair Trade initiatives and have established local farmers’ markets, in order to encourage more of the value of the product to flow directly to the producer, rather than flowing into the pockets of the middlemen. Suppose the table below represents the simple economy of Peaceland after these changes.

Industry	Value Added (in millions of dollars)	Percent of GDP
Agriculture	21	5.6
Transportation	25	6.7
Trade	30	8
Health care and social assistance	21	5.6
Education	24	6.4
Construction	44	11.7
Arts and Recreation	11	2.9
Diplomacy & peacekeeping	80	21.3
Textile manufacturing	65	17.3
Waste management and environmental stewardship	54	14.4
Economy Total	375	100%

Determine the size of the primary, secondary, and tertiary sectors, in terms of percent of GDP. How have the respective sizes changed compared to your answer in problem 1?

3. The oil (petroleum) industry plays an important role in our economy. Using the supply and demand model from Chapter 4, determine how each of the following events would affect the price of oil on the world market. Identify if the event would cause a shift in supply or a shift in demand (*ceteris paribus*), in which direction, and whether the equilibrium price of oil would increase or decrease.
- OPEC engages in an oil embargo in 1973
 - Consumers in the U.S. and Europe start driving more fuel efficient cars in the late 1970s and early 1980s
 - Saudi Arabia departs from the OPEC agreement and increases its supply of oil in the early 1980s
 - Consumers in the U.S. start driving more fuel inefficient SUVs and light trucks with low gas mileage in the 1990s
 - The economies of China and India grow more rapidly in the early 2000s and consumers buy and drive more cars
 - Oil production in Iraq, one of the three countries with the largest reserves of oil, is disrupted after the U.S.-led war, invasion and occupation

Self Test

- How large is the U.S. economy?
 - The largest in the world.
 - The second largest in the world, after China.
 - The third largest in the world, after China and India.
 - The fourth largest in the world, after China, India and Japan.
 - The fifth largest in the world, after China, India, Japan, and Germany.
- Which of the following would be a primary sector activity?
 - Utilities
 - Construction
 - The selling of houses
 - A household growing food in their garden
 - A household whose members clean their house

3. Which of the following would *not* be an activity in the primary sector?
- a. Agriculture
 - b. Commercial fishing
 - c. Mining
 - d. The timber industry
 - e. The food processing industry
4. Maria is a farmworker. Jose is a medical doctor. Robin is a construction worker. Which of them works in the secondary sector?
- a. Maria
 - b. Jose
 - c. Robin
 - d. All of them do.
 - e. None of them do.
5. Which of the following would *not* be an activity of the secondary sector?
- a. Automobile manufacturing
 - b. Utilities
 - c. Construction
 - d. Food processing
 - e. Transportation of goods to market
6. Sami works on an oil rig. Luis works at an oil refinery. Indira works as a gas station attendant. Which of them works in the tertiary sector?
- a. Sami
 - b. Luis
 - c. Indira
 - d. All of them do
 - e. None of them do
7. Which of the following would *not* be an activity of the tertiary sector?
- a. Cooking home-cooked meals
 - b. Home construction and renovation
 - c. Education
 - d. Services provided by the Red Cross
 - e. Firefighting services

8. Which of the following best characterizes the historical trends of the secondary sector and its share of the U.S. private economy?
- The share of the secondary sector continued to grow steadily throughout the 20th century.
 - The share of the secondary sector started to decline in the early 1980s with the growth of globalization.
 - The share of the secondary sector started to decline in the late 1960s.
 - The share of the secondary sector started to decline in the Great Depression of the 1930s.
 - None of the above.
9. Which of the following best captures how “value added” is distributed among the sectors?
- 3% in the primary sector, 68% in the secondary sector.
 - 68% in the secondary sector, 17% in the tertiary sector.
 - 68% in the primary sector, 17% in the tertiary sector.
 - 3% in the primary sector, 68% in the tertiary sector.
 - 68% in the primary sector, 17% in the secondary sector.
10. Which of the following is *not* one of the trends in agriculture in the U.S.?
- The total farm population has declined.
 - The total number of farms has decreased.
 - The average farm size has decreased.
 - Output per acre has increased.
 - Output per worker has increased.
11. Which of the following is *not* one of the characteristics of agriculture in the U.S.?
- Farms occupy about 42% of the land area in the U.S.
 - There are about 2 million farms in the U.S.
 - Over 90% of the farms are small family farms.
 - Large corporate farms account for about 66% of the value of agricultural output.
 - Almost all farm receipts come from selling crops.
12. Which of the following about energy in the U.S. is *false*?
- As of 2017, the U.S. is the world’s second largest consumer of energy.
 - As of 2017, the U.S. is the world’s second largest producer of energy.
 - The U.S. has one of the highest per capita energy usage rates in the world.
 - The U.S. has one of the highest energy efficiency rates (energy used per dollar of GDP) in the world.

- e. The U.S. is heavily dependent on carbon-based fossil fuels for its energy use.
13. Which of the following accurately describes energy consumption in the United States?
- a. In percentage terms, natural gas is the biggest category of consumption.
 - b. In percentage terms, coal is the biggest category of consumption.
 - c. In percentage terms, nuclear power is the biggest category of consumption.
 - d. Over 80% of energy consumed in the U.S. comes from fossil fuels.
 - e. None of these are accurate.
14. “Fracking” is ...
- a. a non-toxic technique used to boost oil and gas production using water.
 - b. a relatively new technology that has the potential to dramatically boost biomass production.
 - c. a cutting-edge technology under development in places like France to reduce their dependence on foreign oil.
 - d. only useful for extracting oil and gas deposits relatively close to the surface.
 - e. none of the above.
15. Which of the following regarding trends in manufacturing is *true*?
- a. The value of manufacturing output has remained fairly constant since 1960.
 - b. The U.S. demand for manufacturing goods increased by 257% between 1980 and 2016, after adjusting for inflation.
 - c. Manufacturing productivity increased by around 4.7% between 2000 and 2007, and has fallen to an average of about 1.6% since then.
 - d. All of the above
 - e. B and C only
16. Which of the following explanations for the decline in employment in U.S. manufacturing is *true*?
- a. Americans are demanding fewer manufactured goods.
 - b. Americans are demanding more manufactured goods produced abroad.
 - c. Advances in productivity have enabled more output to be produced by fewer workers.
 - d. All of the above
 - e. B and C only
17. What factor helped boost employment in U.S. automobile manufacturing, after the employment decline in the 1970s?
- a. Foreign producers have a cost disadvantage of shipping their products to the U.S.
 - b. The greater productivity of skilled workers enabled U.S. workers to compete against lower skilled low wage workers abroad.

- c. Foreign companies increasingly located production facilities in the U.S.
 - d. Falling gas prices after the 1970s oil price shocks shifted demand back to larger U.S. made vehicles.
 - e. All of the above.
18. Which of the following about the service sector is *false*?
- a. The average pay of service sector jobs is less than the average pay of manufacturing jobs.
 - b. Trade in services is expanding rapidly, and increased more rapidly than trade in goods between 1995 and 2014.
 - c. Service sector jobs are more homogenous than jobs in manufacturing.
 - d. The U.S. currently exports more services than it imports.
 - e. None of the above.
19. Which of the following services is a U.S. export?
- a. A U.S. citizen uses the financial services of a bank in Switzerland.
 - b. A German tourist comes to Disneyland for summer entertainment.
 - c. An American student studies abroad at a British university.
 - d. An American obtains medical attention in Mexico for a lower price than attainable in the U.S.
 - e. None of the above.
20. Which of the following is not a financial asset as identified in the chapter?
- a. Stocks
 - b. Bonds
 - c. Foreign currencies
 - d. Certificates of deposit
 - e. All of these are identified as financial assets in the chapter.

Answers to Active Review Questions

1. primary
2. primary, secondary
3. secondary
4. tertiary
5. service
6. tertiary
7. five, twenty
8. solar, wind
9. financial
10. tertiary
11. False. It would fall under the primary sector.
12. False. They are generally sold as inputs to manufacturers.
13. False. The primary sector still plays an important role in the economy.
14. True.
15. True.
16. The primary sector involves the extraction and simple processing of raw materials which are sold as inputs into the production process. The secondary sector transforms these inputs into final products to consumers. The tertiary sector involves the provision of services, rather than tangible goods.
17. While the tertiary sector's share of the private economy has grown over the last decades of the 20th century, both the primary and secondary sectors have declined.
18. Since the 1960s, employment in the secondary sector started to decline, as employment in the primary sector continued its decline. Employment in the tertiary sector increased.
19. Primarily it has been due to technological improvements and the rise in agricultural productivity, which has allowed the products of the primary sector to be obtained with fewer workers.
20. The threats include: the depletion of groundwater supplies, and soil depletion.
21. Much of the processing of food is a manufacturing activity in the secondary sector. The marketing, retailing, and provisioning of food in restaurants are service sector activities in the tertiary sector.
22. One of the key factors contributing to the increase in U.S. energy production since 2012 is the introduction of novel extraction techniques such as hydraulic fracturing (fracking).
23. The U.S. manufacturing sector is losing jobs for two reasons: manufactured products can be produced more cheaply abroad, and productivity advances (automation) are reducing the overall employment in manufacturing.
24. Yes, on average the pay of service sector jobs are lower than manufacturing, for instance. However, some service sector workers (such as doctors and lawyers) are paid very well.

25. The four categories are: ownership transactions (e.g. homeownership and activities involved in ownership transfers such as: transportation, warehousing, wholesale and retail trade, and real-estate rental and leasing), information and management (information, finance and insurance, and professional, scientific, and technical services, administration, waste management and management of companies.), private social services (education, health care, and social services), and entertainment (which includes arts, entertainment, recreation, accommodation and food services).
26. As our economy has become so much more complex, the service sector has grown to organize and manage this huge complex system, e.g. making connections between buyers and sellers, collect and processing information, etc.

Answers to Problems

1.

a. For the Primary sector:

Industry	Value Added (in millions of dollars)	Percent of GDP
Agriculture	21	5.3
Primary Sector Total	21	5.3%

b. For the Secondary sector:

Industry	Value Added (in millions of dollars)	Percent of GDP
Construction	44	11.0
Textile manufacturing	65	16.3
Secondary Sector Total	109	27.3%

c. For the Tertiary sector:

Industry	Value Added (in millions of dollars)	Percent of GDP
Transportation	34	8.5
Trade	50	12.5
Health care and social assistance	21	5.3
Education	20	5
Arts and Recreation	11	2.8
Diplomacy & peacekeeping	80	20
Waste management and environmental stewardship	54	13.5
Tertiary Sector Total	270	67.6%

2. Now the primary sector is 5.6% of GDP, the secondary sector is 29%, and the tertiary sector is 64.5%. The tertiary sector has declined while the primary and

secondary sectors have increased in size (as percent of GDP).

3.
 - a. Supply shifts left; the oil price rises.
 - b. Demand shifts left; the oil price falls.
 - c. Supply shifts right; the oil price falls.
 - d. Demand shifts right; the oil price rises.
 - e. Demand shifts right; the oil price rises.
 - f. Supply shifts left; the oil price rises.

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. A | 11. E |
| 2. D | 12. D |
| 3. E | 13. D |
| 4. C | 14. E |
| 5. E | 15. D |
| 6. C | 16. E |
| 7. B | 17. E |
| 8. C | 18. C |
| 9. D | 19. B |
| 10. C | 20. E |

Chapter 23

EMPLOYMENT, UNEMPLOYMENT, AND WAGES

Principles of Economics in Context (Goodwin et al.), 2nd Edition

Chapter Overview

This chapter introduces you to standard macro labor topics such as the definition of the unemployment rate, the different types of unemployment, and theories of the causes of unemployment. You will learn about labor market institutions and aggregate demand issues. The final section discusses the future of work based on the changing structure of the labor market due to technological advances, increased flexibility for workers and employers, and the rise of “dual labor markets” wherein the lucky few have well-paying jobs, while the rest are employed in jobs with little security.

After reading and reviewing this chapter, the student should be able to:

1. Explain how employment and unemployment are officially measured.
2. Explain why some analysts prefer measures of labor force utilization that differ from the official unemployment rate.
3. Understand economists’ notions of frictional, structural, and cyclical unemployment.
4. Describe the classical theory of unemployment.
5. Describe alternative theories of labor market including “sticky-wage” theories, efficiency wage theory, and the dual labor market theory.
6. Describe the various policy responses to address unemployment.
7. Describe the role of technological change in determining the current and future employment levels.
8. Discuss the impacts of the changing labor market structures, such as the organization and management of work and increasing flexibility in the labor market, on the future of work.

Key Terms

Bureau of Labor Statistics (BLS)
civilian noninstitutional population
employed person
unemployed person
labor force
“not in the labor force”
unemployment rate
marginally attached workers
discouraged workers
underemployment
labor force participation rate
frictional unemployment
cyclical unemployment

recession
structural unemployment
technological unemployment
full employment
“sticky wage” theories
efficiency wage theory
dual labor market theory
aggregate demand

Active Review

Fill in the Blank

1. The U.S. agency that collects data on employment and unemployment is the _____.
2. Joe performed 15 hours of unpaid work on his family farm. He would be considered to be an _____ person, according to the BLS.
3. Bill lost his job as an airline mechanic, and has been sending out his resume to other potential employers. He would be willing to start working in a new job immediately. Bill would be counted as an _____ person, according to the BLS.
4. Rachael says she wants to work and is available for work. She has recently looked for work but is currently not doing so. The BLS would call Rachael a _____ worker. If she gives as her reason that she is no longer looking for work because there are no jobs for her, she would be considered a _____ worker.
5. The unemployment that arises due to transitions between jobs is called _____ unemployment, whereas the unemployment that arises due to skills mismatches or geographic mismatches is called _____ unemployment.
6. The theories developed by Keynesian-oriented economists explaining why wages may remain above equilibrium even when there's a surplus of labor are called _____ theories.
7. People working at jobs that underutilize their abilities, as well as those who work fewer hours than they wish to, are said to be _____.
8. Paying your workers higher than the market wage rate in order to improve productivity is an example of _____ theory.
9. _____ is unemployment due to macroeconomic fluctuations.
10. _____ sector of good jobs, or a secondary sector where workers are taken on an "as needed" basis.

True or False

11. The unemployment rate is the percentage of the population that does not have paid employment, but is immediately available and actively looking for work.
12. Almost all of the people who are unemployed are so because they have involuntarily lost their jobs.
13. Structural unemployment arises because people's skills, experience, education, or location do not match what employers need.

14. The peak level of unemployment following the 1981-1982 recession was higher than the peak level of unemployment following the Great Recession of 2007-2009.

15. Jake is applying for jobs in medical research, while also working as a bartender a few times a week. The BLS counts him as being underemployed.

Short Answer

16. Why is high unemployment considered a bad thing?

17. Describe the two surveys the BLS uses to gather unemployment data.

18. How does the BLS classify people who are “not in the labor force,” and what people are often in this category?

19. Why is it often said that the official unemployment rate tends to underestimate the true extent of unemployment in the economy?

20. What are the three major types of unemployment? Which of these three types of unemployment tends to be spread broadly throughout the entire economy, as occurs as a result of a drop-off in aggregate demand?

21. What is the classical model’s explanation for involuntary unemployment?

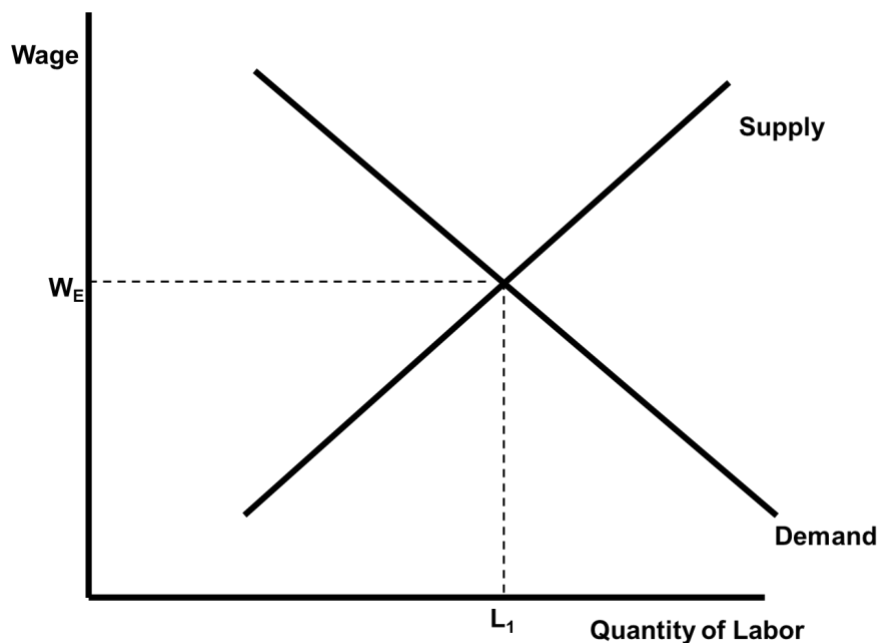
22. Identify two theories that explain why wages might be “sticky” at a higher than market equilibrium level.

23. Describe Keynes’s theory of aggregate demand, as it relates to wage levels and employment. Did Keynes believe that unemployment is caused by “sticky wages”?

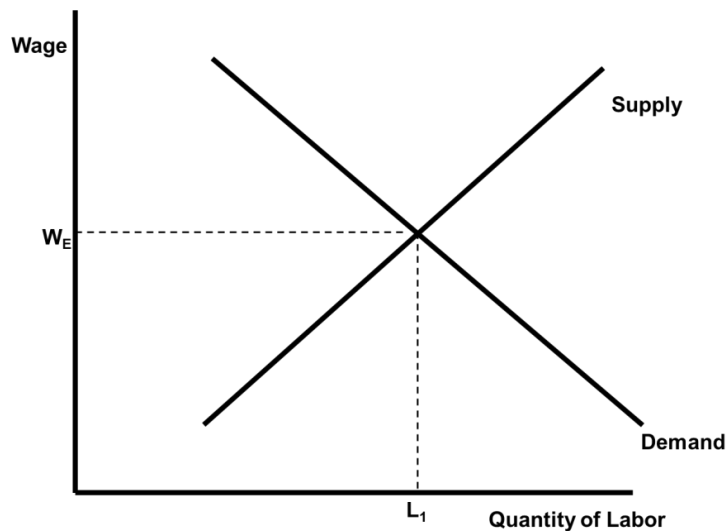
24. The chapter describes flexibility in the labor market for the workers and for the employers. Explain these in detail. What kinds of flexibility might workers benefit from?

Problems

- The U.S. labor force as of December 2016 was 159.7 million. There were 152.2 million employed, and 7.5 million unemployed. There were about 1.51 million in prison.
 - Calculate the official unemployment rate.
 - If those 1.51 million people were not in prison, but were in the labor force and unemployed, calculate what the unemployment rate would be.
- Assume the labor market is represented by the graphs below. Illustrate the following scenarios, showing the shift in supply or demand for labor, *ceteris paribus*. On your graph, identify the new wage, quantities of labor supplied and demanded, and any unemployment that exists. Note: This question draws on more than the graphs actually shown in Chapter 23. You will need to draw on some concepts from Chapter 4 (Supply and Demand).
 - As the economy goes into recession, the demand for labor falls. Illustrate according to the classical model with smoothly functioning labor markets.



- b. As the economy goes into recession, the demand for labor falls. Illustrate according to the Classical-Keynesian synthesis with sticky wages.



Self Test

1. Which of the following is a problem associated with high unemployment?
 - a. underutilization of national resources
 - b. loss of income
 - c. depression, suicide, and domestic violence
 - d. social unrest and loss of social cohesion
 - e. all of the above

2. The labor force participation rate is
 - a. the number of people in the labor force divided by the population
 - b. the number of people in the labor force divided by the civilian, noninstitutionalized age 16 and over population
 - c. the number of people in the noninstitutionalized age 16 and over population divided by the labor force.
 - d. the number of unemployed divided by the labor force
 - e. the number of unemployed divided by the civilian, noninstitutionalized age 16 and over population

3. To be considered employed by the BLS, you need to
 - a. have worked for pay or profit at least 10 hours per week.
 - b. have worked for pay or profit at least 10 hours per week, or unpaid in a family-run business for at least 15 hours a week.
 - c. have worked for pay or profit for at least one hour per week.
 - d. have worked for pay or profit for at least one hour per week, or unpaid in a family-run business for at least 15 hours a week.
 - e. be registered at an employment agency.

4. Nabiha is currently not employed, but is thinking about getting a job and is browsing through the want ads to see what kinds of jobs are available. The BLS would consider Nabiha to be:
 - a. unemployed
 - b. in the labor force
 - c. not in the labor force
 - d. a discouraged worker
 - e. none of the above

5. Rebecca lost her real estate agent job after the housing bubble burst, and after several months of an unsuccessful job search, she has stopped looking and entered a job retraining program to become a nurse. The BLS would currently count Rebecca as:
 - a. employed
 - b. unemployed
 - c. in the labor force
 - d. not in the labor force
 - e. seasonally unemployed

6. Assume a very small economy comprised of the following people, all of whom are civilians, 16 years and older. Amir is happily employed. Bert does not have work, but is actively sending out his resume to employers. Miguel has not had work for quite a while, and occasionally flips through job ads to see what kinds of jobs are available. Marlana has just graduated from college and is starting her job search. Marijka has left her job to care for her newborn child. The labor force participation rate in this economy would be:
 - a. 20%
 - b. 40%
 - c. 60%
 - d. 80%
 - e. 100%

7. Suppose the population is 300 million. There are 146 million employed, and 7.2 million unemployed. Then the unemployment rate is:
- 2.4%
 - 4.7%
 - 4.9%
 - 5.3%
 - There's insufficient data to determine the unemployment rate.
8. Suppose the population is 300 million. There are 146 million employed, and 7.2 million unemployed. Suppose that 1 million of the 7.2 million unemployed become so discouraged that they drop out of the labor force. The unemployment rate is:
- 2.1%
 - 2.4%
 - 4.1%
 - 4.7%
 - There's insufficient data to determine the unemployment rate.
9. Which of the following groups has *not* historically and consistently experienced unemployment rates significantly higher than the average worker?
- African Americans
 - Hispanics and Latinos
 - Teenagers
 - People with less than a high school diploma
 - Women
10. Fernando lost his job as a computer programmer during the last recession, and could only find part-time work for a couple hours a week at lower pay as a grocery store cashier. Fernando is:
- unemployed
 - underemployed
 - a discouraged worker
 - not in the labor force
 - a marginally attached worker
11. Khaled used to work as an autoworker, and due to the decline of the U.S. auto industry, is now unemployed and thinking about retraining as a bicycle assembler. What type of unemployment is he experiencing?
- frictional unemployment
 - structural unemployment
 - cyclical unemployment
 - natural unemployment
 - seasonal unemployment

12. Prasad lost his job during the last recession. What type of unemployment is he experiencing?
- a. frictional unemployment
 - b. structural unemployment
 - c. cyclical unemployment
 - d. natural unemployment
 - e. seasonal unemployment
13. After raising two children, Mona has started looking for a job and sent out a few job applications. What type of unemployment is she experiencing?
- a. frictional unemployment
 - b. structural unemployment
 - c. cyclical unemployment
 - d. natural unemployment
 - e. Mona would not be counted as unemployed as she is not in the labor force.
14. Kimberly has finally had enough of her supervisor's incompetence. She just left her job feeling confident that she will have little difficulty finding another paid position using her skills which are in great demand right now. What type of unemployment is she experiencing?
- a. frictional unemployment
 - b. structural unemployment
 - c. cyclical unemployment
 - d. natural unemployment
 - e. seasonal unemployment
15. Jolly works as a department store Santa Claus. As Christmas day comes to a close he finds himself out of work yet again. What type of unemployment is he experiencing?
- a. frictional unemployment
 - b. structural unemployment
 - c. cyclical unemployment
 - d. natural unemployment
 - e. seasonal unemployment

16. According to the classical model of smoothly functioning labor markets, if the demand for labor falls, for instance due to a drop in aggregate demand,
- wages will fall and labor markets will return to full employment equilibrium, eliminating the surplus of labor.
 - wages will remain unchanged, leading to the persistence of unemployment.
 - wages will remain unchanged, and the supply of labor will drop and thereby eliminate the surplus of labor (unemployment).
 - wages and the quantity of labor will remain unchanged.
 - none of the above.
17. Which of the following have been proposed as explanations for sticky wages?
- psychological resistance to wage cuts
 - minimum wages and long term contracts
 - efficiency wages
 - people receiving higher wages holding out for a long time against other forces
 - all of the above
18. Bob the boss is paying his workers a bit higher than the market going wage, because he wants them to put in more effort on the job, and to reduce employee turnover. His actions would be an example of which labor market theory?
- low-turnover theory
 - efficiency wage theory
 - classical theory
 - unemployment theory
 - none of the above
19. The possible benefits of having more democratic work place include ...
- better working conditions and greater bargaining power for workers
 - more equal distribution of work and income levels among the workers
 - increased productivity and motivation for workers
 - All of the above
 - None of the above
20. Which of the following is not an element of the Keynesian critique of the classical model?
- unemployment is NOT due to wages being “too high.”
 - faith in market forces will be rewarded with a tendency towards full employment.
 - an emphasis on aggregate demand is important for macroeconomic analysis.
 - government policies can be an effective response to economic downturns.
 - all of these are elements of the Keynesian critique of the classical model.

Answers to Active Review Questions

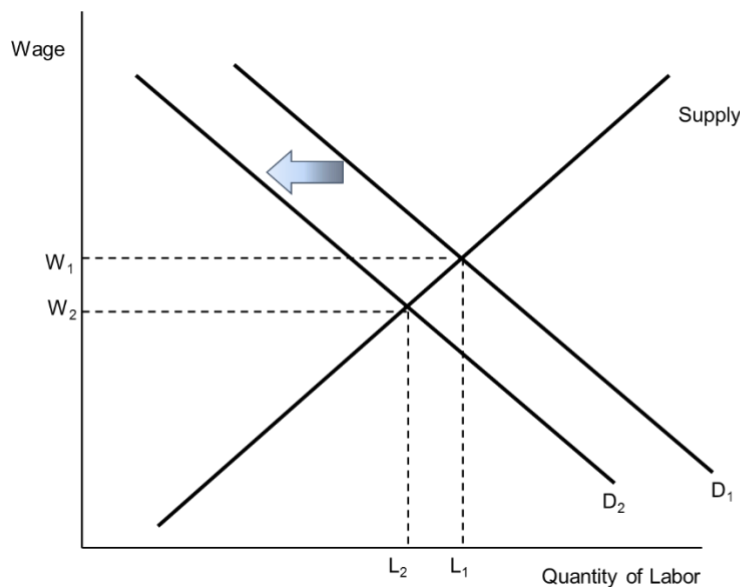
1. Bureau of Labor Statistics (BLS)
2. employed
3. unemployed
4. marginally attached, discouraged
5. frictional, structural
6. sticky wage
7. underemployed
8. efficiency wage
9. cyclical unemployment
10. dual labor market
11. False. It is not the percentage of the population, but the percentage of the *labor force* who do not have paid jobs but are immediately available and actively looking for work.
12. False. Only on average about half of the unemployed have involuntarily lost their jobs. Others have voluntarily quit, or are just entering the labor force, or re-entering it.
13. True.
14. True.
15. False. While Jake is underemployed because of underutilization of his skills, he is counted as being employed by the BLS.
16. High unemployment means that a nation's resources are being underutilized. It also poses great economic, psychological, and social costs on unemployed individuals, as well as their families and their communities. It is associated with higher rates of depression, suicide, domestic violence, and lack of social cohesion.
17. The household survey questions 60,000 households on a monthly basis, asking whether the individual household members are working or not, and if not, if they are looking for work. The employer survey collects employment data from 400,000 employers.
18. If an individual surveyed (that is, who is age 16 or over and not institutionalized) is neither employed nor unemployed, that individual is considered "not in the labor force" according to the BLS. Often people in this category are in school, retired, disabled, or taking care of people in their households and communities.
19. Because discouraged workers and underemployed workers (involuntary part-time or workers not making use of their skills) are not counted among the unemployed in the official unemployment statistic.
20. Frictional, structural, and cyclical unemployment. Cyclical unemployment is broadly spread through an economy during a downturn.
21. According to the classical model, involuntary unemployment only arises when there is something impeding market forces, like a minimum wage law, public safety net policies, regulations on business, or union activity.

22. Efficiency wage theory and dual labor market theory.
23. For Keynes, the problem with a drop in the demand for labor was not that wages would get stuck at a rate too high and fail to drop to a lower equilibrium rate, but that a drop in the wage would make the unemployment problem even worse. As workers experienced lower wages, they would cut back on spending, which lead to a drop in aggregate demand and output.
24. Flexibility for workers includes job sharing, having more flexible work hours or being able to work remotely. Workers could benefit from such work arrangements. Participating in the gig economy, where workers work under short-term contracts or work when the want to and are needed, also provides some flexibility to the workers—though many workers may be taking up such work only because they cannot find “regular” jobs. Flexibility for employers involves firms having greater power over hiring and firing workers and being able to hire workers on “as needed” basis and with little job protection.

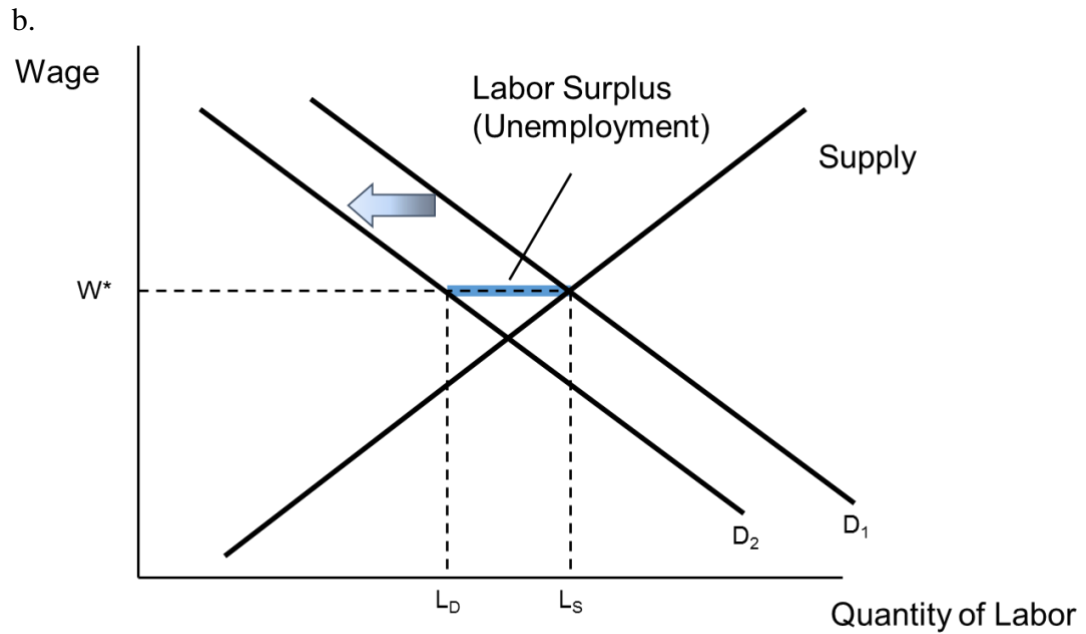
Answers to Problems

1. a. 4.7% b. 5.6%

2. a.



The equilibrium wage drops to W_2 . The new quantity supplied and quantity demanded are equal, at L_2 . There is an equilibrium situation, with no unemployment.



The wage, being “sticky,” stays at W^* , its original level. The quantity of labor demanded drops to L_D , while the quantity of labor supplied remains at L_S . There is unemployment, as shown by the shaded difference between L_S and L_D on the graph.

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. E | 11. B |
| 2. B | 12. C |
| 3. D | 13. A |
| 4. C | 14. A |
| 5. D | 15. E |
| 6. C | 16. A |
| 7. B | 17. E |
| 8. C | 18. B |
| 9. E | 19. D |
| 10. B | 20. B |

Chapter 24

AGGREGATE DEMAND AND ECONOMIC FLUCTUATIONS

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter first introduces the analysis of business cycles, and introduces you to the two stylized facts of the business cycle. The chapter then presents the Classical theory of savings-investment balance through the market for loanable funds. Next, the Keynesian aggregate demand analysis in the form of the traditional "Keynesian Cross" diagram is developed. You will learn what happens when there's an unexpected fall in spending, and the role of the multiplier in moving to a new equilibrium.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Describe how unemployment and inflation are thought to normally behave over the business cycle.
2. Model consumption and investment, the components of aggregate demand in the simple model.
3. Describe the problem that "leakages" present for maintaining aggregate demand, and the classical and Keynesian approaches to leakages.
4. Understand how the equilibrium levels of income, consumption, investment, and savings are determined in the Keynesian model, as presented in equations and graphs.
5. Explain how, in the Keynesian model, the macroeconomy can equilibrate at a less-than-full-employment output level.
6. Describe the workings of "the multiplier," in words and equations.

Key Terms

Okun's "law"
"full-employment output" (Y^*)
aggregate expenditure (AE)
accounting identity

behavioral equation
marginal propensity to consume
marginal propensity to save
paradox of thrift

Active Review

Fill in the Blank

1. The macroeconomic goal that involves keeping the rate of unemployment and inflation at acceptable levels over the business cycle is the goal of _____.
2. The _____ economists believe that aggregate expenditure needs active guidance, whereas the _____ economists believe that aggregate expenditure can take care of itself.
3. The recurrent fluctuations in the level of national production is called the _____.
4. When economic activity declines, usually measured by a fall of real GDP for two consecutive quarters, the economy is said to be in a _____.
5. The equation that expresses the inverse relationship between the unemployment rate and the rapid growth of real GDP is known as _____.
6. The level of output that occurs when the economy is not suffering from an unemployment problem (that is, when any unemployment that exists is just transitory), is called _____ output.
7. In the traditional macro model (with no government or foreign sector), what households and firms intend to spend on consumption and investment is called _____.
8. The equation $AE = C + I$ is a(n) _____, because it reflects a theory about the behavior of one or more economic agents or sectors. The equation $Y = C + I$ is a(n) _____, because it represents the actual level of aggregate spending that in fact occurs.
9. In the Keynesian consumption function, $C = \bar{C} + mpc Y$, \bar{C} represents _____, the mpc is the _____, and Y represents _____.
10. The _____ is the portion of every dollar of aggregate income that is saved, and can be expressed as $\Delta S/\Delta Y$.
11. The formula $1/(1-mpc)$ is the formula for the “income/spending _____” in a simple closed economy with no government.

True or False

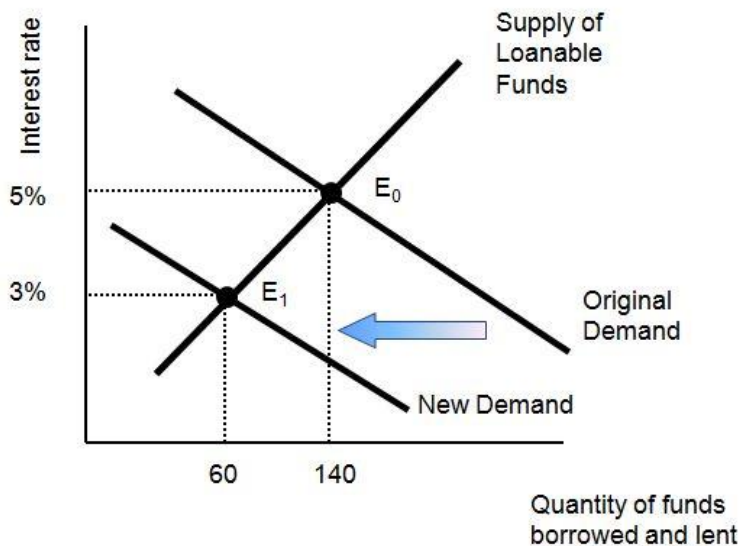
12. The two “stylized facts” of the business cycle are always corroborated by the historical evidence.
13. According to Okun’s Law, as originally formulated in the early 1960s, a 1% drop in the unemployment rate is associated with an approximately 3% increase in real GDP.
14. $Y = AE$ only when actual investment equals intended investment.

15. In a situation with insufficient aggregate expenditure, $C + I_t < C + I$
16. According to the classical economists, a sudden fall in investment spending would cause a fall in the interest rate, and the lower interest rate would then stimulate investment spending again and return it to its original level.

Short Answer

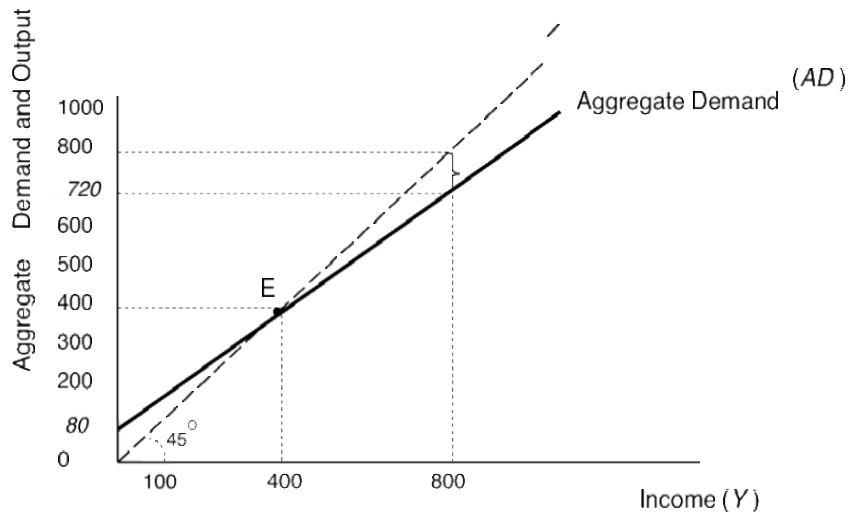
17. Explain the two “stylized facts” of the business cycle.
18. What was the response to the Great Depression of economists trained in the classical school?
19. Explain the difference between the behavioral equation $AE = C + I_t$, and the accounting identity $Y = C + I$ (in a simplified economy with no government or foreign sector).

20. Given the following Figure below (Figure 24.8 in your textbook), explain what the classical school predicts will happen when there is a sudden drop in intended investment spending.



21. What are the determinants of investment spending in the Keynesian model, and which factor plays the most important role (especially in a recession)?
22. In the Keynesian model, what happens to investment and inventories when there is insufficient aggregate expenditure?

23. In the figure below:



- a. What is this diagram called?
- b. What does the 45 degree line represent?
- c. At an income level of 800, what is the level of spending? Is there any unintended investment? If so, what will be the response of producers?

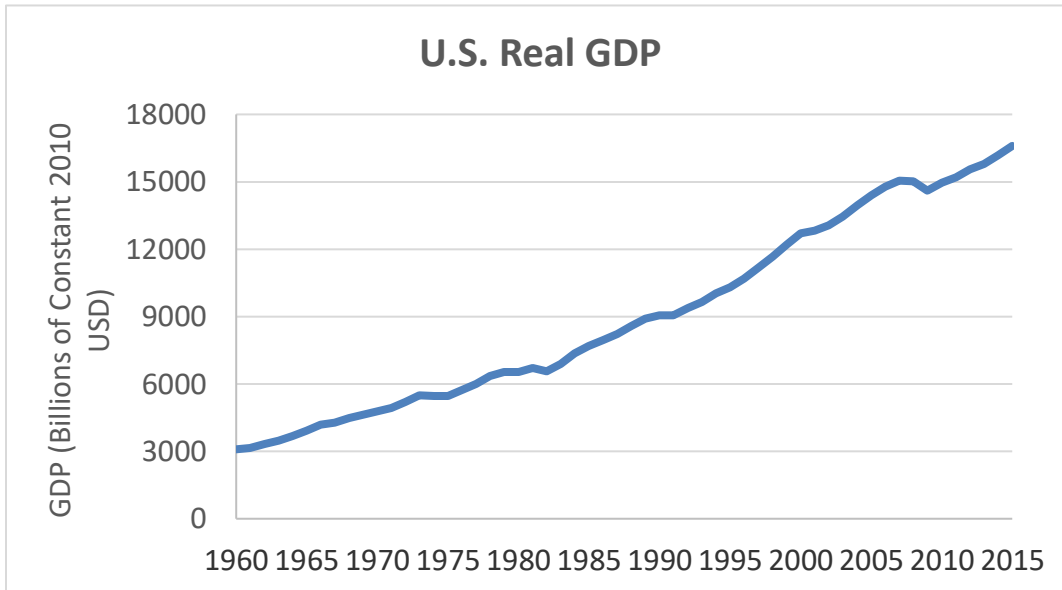
24. In the figure in the above question, if 800 represents full employment output, would the equilibrium where income = 400 be desirable? Is there unemployment at this equilibrium? And according to Keynes, would there be forces automatically moving the economy back to the full employment output level?

25. Explain what is meant by “the multiplier,” and describe it in words.

26. (In appendix): What are the basic steps to deriving the multiplier algebraically?

Problems

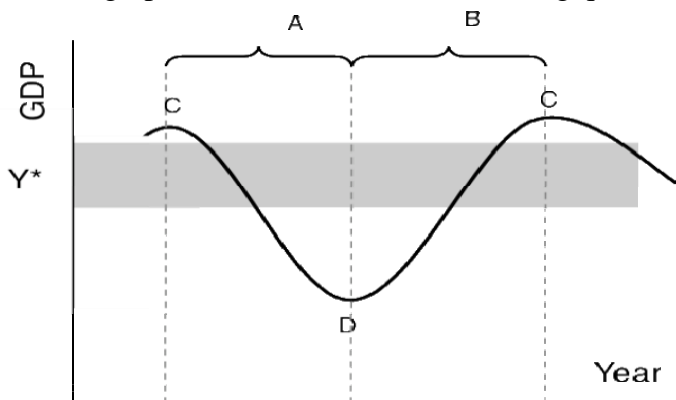
1. Given this graph of real GDP for the U.S. in the years 1960 – 2015:



Source: www.bea.gov

Identify approximately what years the economy went into a recession.

2. Use the graph below to answer the following questions:



a. Label the phases of the “stylized” business cycle graph.

- A: _____
B: _____
C: _____
D: _____

b. What does Y^* refer to?

3. Use the table below (for a simple economy with no foreign sector or government) to answer the questions that follow.

(1) Income (Y)	(2) Consumption (C)	(3) Intended Investment (I_i)	(4) Aggregate Expenditure $AE = C + I_i$ $= \text{column (2)} + \text{column (3)}$
0	30	(a)	50
300	300	20	(b)
400	(c)	20	410
500	480	20	500
600	(d)	20	(e)

Fill in the missing numbers in the spaces marked (a)-(c).

Determine the consumption function, and use the result to fill in the remaining missing numbers (d)-(e).

(f) Determine the equilibrium output level.

4. Use the Keynesian cross diagram, and illustrate how the AE would shift in each scenario. Indicate whether the economy would end up at a higher or lower equilibrium output.

a. Households experience a decline in wealth as the value of housing drops when the housing bubble bursts.

b. The nation's leaders tell consumers it is their patriotic duty to save the economy by consuming more, and consumers do so

c. The same national leaders pass policies favoring the wealthy, which leads to a more unequal distribution of income.

- 5.
- a. Assume a simple, closed economy with no government. The marginal propensity to consume (mpc) = 0.8. Assume that firms expect the future sales and profits to fall, and they suddenly cut back (unintended) investment spending (I) by 50 million. By how much will output eventually fall?

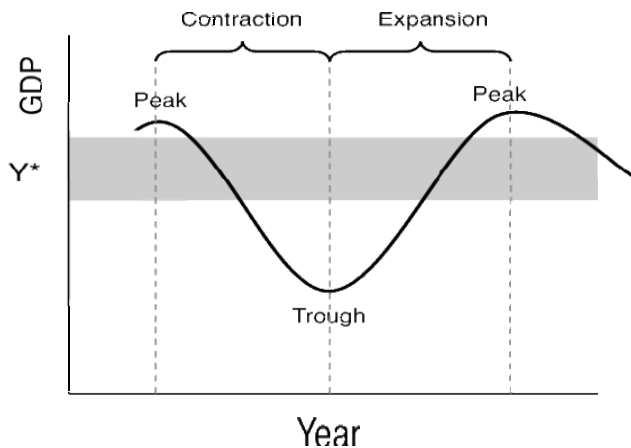
 - b. Now assume the same as above, except that now the $mpc = 0.9$. How much will output fall when unintended investment spending drops by 50 million?

Self Test

1. Keeping the economy balanced with acceptable levels of unemployment and inflation is the key aspect of the goal of:
 - a. growth in living standards
 - b. stabilization
 - c. sustainability
 - d. trade expansion
 - e. equal income distribution

2. Two stylized facts of the business cycle are that:
 - a. during an economic contraction, unemployment falls and inflation rises, while during an expansion, unemployment rises and inflation falls.
 - b. during an economic contraction, unemployment rises and inflation falls, while during an expansion, unemployment falls and inflation rises.
 - c. during an economic contraction, both unemployment and inflation fall, while during an expansion, both unemployment and inflation rise.
 - d. during an economic contraction, both unemployment and inflation rise, while during an expansion, both unemployment and inflation fall.
 - e. none of the above

Refer to the Figure below for the next two questions.



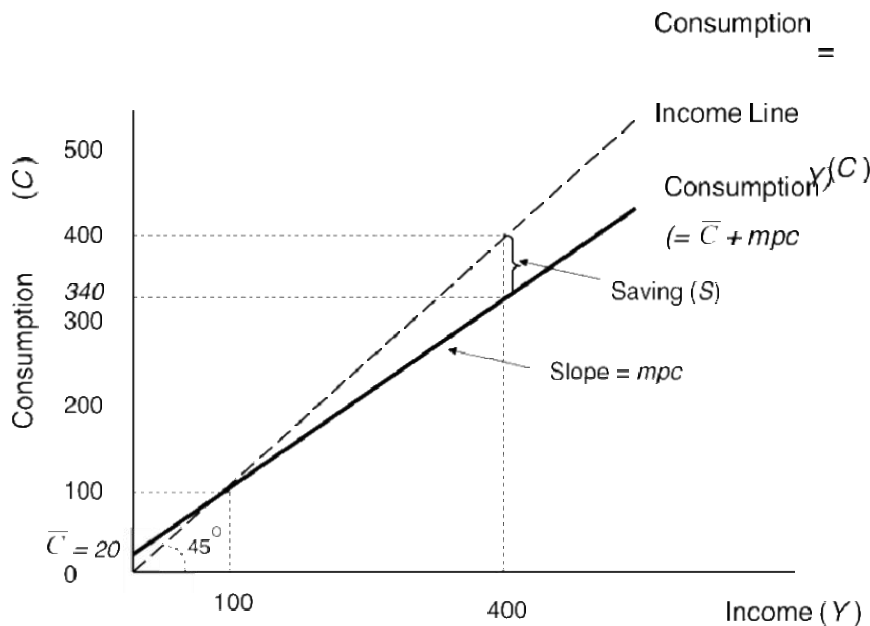
3. When is inflation and unemployment most likely to be a problem?
 - a. Inflation and unemployment will be a problem in the grey area representing the range of full employment output.
 - b. Inflation will be a problem during the peak of an expansion, and unemployment will be a problem during the trough of the contraction.
 - c. Inflation will be a problem during the trough of the contraction, and unemployment will be a problem during the peak of the expansion.
 - d. Inflation will be a problem during both the peak and the trough of the business cycle.
 - e. Unemployment will be a problem during both the peak and trough of the business cycle.

4. What is the goal of stabilization policy?
 - a. To keep the economy as close to the peak as possible, where unemployment remains very low.
 - b. To keep the economy as close to the trough as possible, where inflation remains low.
 - c. To keep the economy in the grey area, to avoid the threats of both excessive unemployment and inflation.
 - d. To enable the economy to move freely from peak to trough.
 - e. None of the above.

5. Which of the following best describes the meaning of aggregate expenditure in the traditional macro model (with no government and a closed economy)?
- The amount firms and households intend to spend on consumption and investment.
 - The actual level of spending done in the economy by firms and households on consumption and investment.
 - The summing up of all the spending on goods and services in the economy by firms and households.
 - The average level of demand for all goods and services in the economy by firms and households.
 - The average level of spending on all goods and services in the economy by firms and households.
6. According to the simplified macro model (with no government and no foreign sector), which of the following characterizes an economy in equilibrium?
- When leakages = injections
 - When saving (S) = intended investment (I)
 - When $Y = AE$
 - When actual consumption and investment spending equals the intended consumption and investment spending.
 - All of the above
7. In the classical model:
- flexible markets will keep the economy at a full-employment level of spending and output.
 - both households' saving activity and firms' investment activity are quite sensitive to changes in the interest rate.
 - adjustments in the interest rates quickly correct any imbalances between saving and investment.
 - a sudden fall in investment spending would cause a fall in the interest rate, which would dampen saving and stimulate consumption, quickly returning the economy to full employment.
 - all of the above.
8. Which of the following can describe the meaning of autonomous consumption?
- The part of consumption that is not related to income.
 - That which, when it changes, shifts the consumption schedule up or down.
 - A minimum level of income that people feel required to spend for survival.
 - The amount of consumption spending people will undertake no matter what their current incomes are, reflecting their long-term plans, their commitments and habits, and their place in the community.
 - All of the above.

9. The marginal propensity to consume (mpc):
- stands for the portion of every additional dollar of aggregate income that goes to consumption spending.
 - is equal to the change in consumption (C) divided by the change in aggregate income (Y).
 - is equal to $1 - mps$.
 - theoretically should be less than 1
 - all of the above.

Use the Figure below to answer the next two questions:



10. In the figure above, what is the level of autonomous consumption?
- 0
 - 20
 - 100
 - 340
 - 400
11. In the figure above, when income = 400, what is the level of saving?
- 400
 - 340
 - 60
 - 20
 - 0

12. Which of the following factors will *not* cause a shift in the consumption function (or schedule)?

- a. Wealth
- b. Consumer confidence
- c. Cultural attitudes toward spending and saving
- d. A change in income
- e. Changes in the distribution of income

13. In the Keynesian model:

- a. Households only save and lend, and do not borrow.
- b. Consumption spending is more sensitive to the interest rate than to income.
- c. Investment spending, especially in a recession, is highly sensitive to the interest rate.
- d. Investment spending is highly sensitive to investors' confidence and expectations of future sales and profits (or "animal spirits").
- e. All of the above

14. Which of the following will not cause a shift in the investment function (or schedule) in the Keynesian model?

- a. A change in investors' confidence and expectations of the future
- b. A change in the interest rate
- c. A change in household disposable income
- d. A change in prices of investment goods
- e. A change in the willingness of lenders to lend

15. If aggregate expenditure falls below aggregate output ($AE < Y$), according to the Keynesian model, what happens to unintended inventories?

- a. There is a depletion of unintended inventories.
- b. There is an accumulation of unintended inventories.
- c. Unintended inventories remain unchanged.
- d. Unintended inventories fall to zero (0).
- e. None of the above.

16. Unlike the Classical economists, Keynes thought that after a sudden fall in investment spending:

- a. the economy would quickly return to full-employment equilibrium.
- b. the economy could contract by even more than the initial fall in spending, and get stuck there.
- c. the market mechanism would automatically pull an economy out of a recession.
- d. a rise in consumption spending would counteract the fall in investment spending, keeping the economy at full employment.
- e. None of the above.

17. Which of the following expresses the value of the income/spending multiplier (in a simple closed economy with no government)?

- a. $1/mpc$
- b. $1/(1+mpc)$
- c. $1/(1-mpc)$
- d. $1+mpc$
- e. $1-mpc$

18. Assume a simple, closed economy with no government. The marginal propensity to consume (mpc) = 0.75. Then the value of the multiplier is:

- a. 1.34
- b. 0.57
- c. 4
- d. 1.75
- e. 0.25

19. Which of the following best describes the relationship between the mpc and the multiplier?

- a. The higher the mpc , the higher the multiplier.
- b. The higher the mpc , the lower the multiplier.
- c. The lower the mpc , the higher the multiplier.
- d. There is no relationship between the mpc and the multiplier.
- e. There is a one to one relationship between the mpc and the multiplier – the multiplier will increase by the same amount as the increase in the mpc .

20. Assume a simple, closed economy with no government. The marginal propensity to consume (mpc) = 0.8. Assume there's a sudden drop in investment spending by 100 million. By how much will output eventually fall?

- a. 20 million
- b. 100 million
- c. 125 million
- d. 500 million
- e. None of the above.

Answers to Active Review Questions

1. stabilization
2. Keynesian, classical
3. business cycle
4. recession
5. Okun's "Law"
6. full employment output
7. aggregate expenditure
8. behavioral equation, accounting identity
9. autonomous consumption, the marginal propensity to consume, aggregate income.
10. the marginal propensity to save
11. multiplier
12. False. The two stylized facts are not always true. There are periods when the economy has gone into recession and the inflation rate has increased. And there are periods when the economy has gone into an expansion, and the inflation rate has not increased.
13. True.
14. True.
15. True
16. False. The lower interest rate would primarily dampen saving and stimulate consumption spending, and the economy would return to equilibrium with a higher composition of consumption spending and less investment spending than before.
17. As GDP falls during a contraction, unemployment rises because producers are producing less goods and services and need fewer workers. And during an expansion, producers need more workers as they increase production, so the unemployment rate falls (stylized fact #1). As producers increase their production, however, there's more competition for the limited supply of workers and other inputs, which bids up wages and prices and results in an increase in the rate of inflation. Whereas during an economic contraction, there's less pressure on wages and prices and the rate of inflation slows down or becomes negative (stylized fact #2).
18. Classical economists thought that the economy would recover by itself, so there was no need for the government to intervene.
19. The behavioral equation $AE = C + I$ expresses the spending intentions by firms and households. They may not actually spend the amount that they intended to. The accounting identity $Y = C + I$ expresses the actually spending that has occurred (which can be tallied up in the national accounts and is theoretically equal to GDP – at least in the simplified economy with no government or foreign sector).
20. A sudden fall in investment spending would cause a fall in the interest rate, which would dampen saving and stimulate consumption, quickly returning the economy to full employment. The full employment level will now have somewhat more consumption spending and less investment spending.
21. The determinants of investment spending are: the interest rate, prices of investment goods, accumulated assets and debt, the willingness of lenders to lend, but most important for Keynes was the level of confidence and expectations about the future.

22. When there's insufficient aggregate expenditure, there will be unintended investment and excess inventory accumulation.
23. a. The diagram is called the Keynesian cross diagram.
 b. The 45 degree line represents where output = income.
 c. At an income of 800, spending equals 720, so spending is less than income ($AE < Y$), and there's unintended investment (i.e. inventory accumulation) of 80. Producers will cut back production, so income, consumption and saving all drop, and the economy will eventually move to the equilibrium at 400, where $AE = Y$.
24. The equilibrium would not be a desirable one, as there is persistent unemployment there (of the cyclical kind). Unlike the classicals, Keynes thought the economy could get stuck at an equilibrium below the full employment output, and there would be no forces that would automatically move the economy back to full employment output.
25. When spending drops by a certain amount, output drops by *more* than that amount, i.e. by a multiplied amount. This is because the drop in spending has a feedback or echo effect on the economy. As firms cut back production and lay off workers, those workers now have a lower income, and cut back their own consumption. This affects additional firms, who see their inventories pile up and cut back production. Thus more workers are laid off and incomes fall further, leading to a vicious circle of higher unemployment, lower income, and lower investment.
26. To solve the multiplier algebraically, first substitute the consumption function into the equation for AE ($AE = C + I_t$). Then set $Y = AE$, and solve for Y .

Answers to Problems

1. It appears the U.S. economy went into recession in the years 1973-75, 1979-80, 1981-82, 1990-91, and 2007-9, because these are the periods when it the level of real GDP actually goes down. (There was also a relatively mild recession during 2001, which is not apparent except as a slight flattening on the GDP per capita graph, since it occurred entirely within 2001; by 2002 GDP was growing once again).
2.
 A: contraction
 B: expansion
 C: peak
 D: trough
 Y*: full employment output

3.

(1) Income (Y)	(2) Consumption (C)	(3) Intended Investment (I_i)	(4) Aggregate Expenditure $AE = C + I_i$ $= \text{column (2)} + \text{column (3)}$
0	30	20	50
300	300	20	320
400	390	20	410
500	480	20	500
600	570	20	590

Using $AD = C + I_i$,

(a) $50 = 30 + 20$

(b) $320 = 300 + 20$

(c) $410 = 390 + 20$

Deriving the consumption function:

Autonomous consumption = 30 (from the first row where $Y = 0$).

To find the mpc , calculate a change in C (e.g. $390 - 300 = 90$), and divide by the corresponding change in Y ($400 - 300 = 100$). So the $mpc = \Delta C / \Delta Y = 90 / 100 = 0.9$

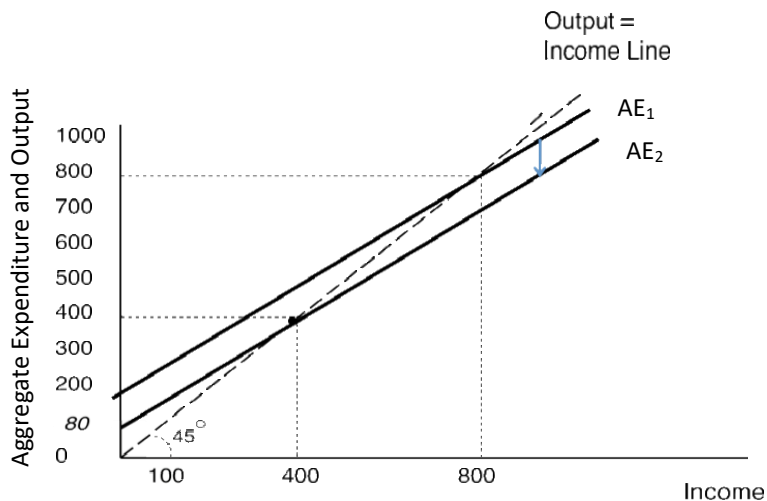
Hence, the consumption function is $C = 30 + 0.9Y$

To fill in (d), $C = 30 + .9(600) = 30 + 540 = 570$.

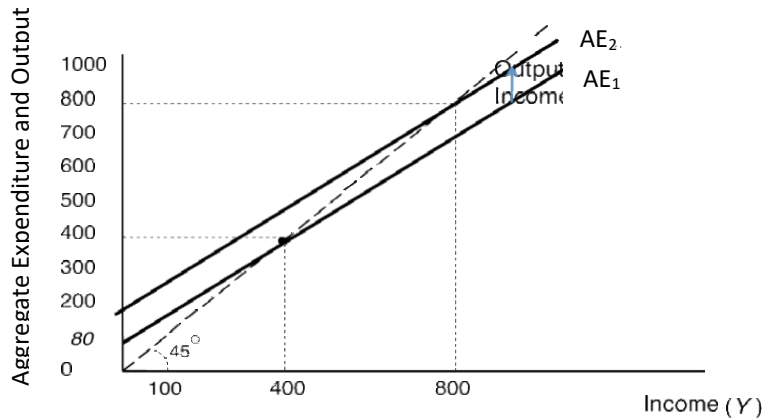
(e) follows from $590 = 570 + 20$. f. Equilibrium is where $Y = AD$, which is at **500** (see shaded row).

4.

a. Households experience a decline in wealth as the value of housing drops when the housing bubble bursts: AE would shift down, and the new equilibrium would be at a lower level of output.



b. The nation's leaders tell consumers it is their patriotic duty to save the economy by consuming more: If consumers act on this, AE would shift up, and the new equilibrium would be at a higher level of output.



c. The same national leaders pass policies favoring the wealthy, which leads to a more unequal distribution of income: Since the rich tend to have much lower marginal propensity to consume than the poor, a greater share of income going to the rich would lower overall consumption levels and increase savings. Hence, AE would shift down and the new equilibrium would be at a lower level of output. The graph would look like the one in part a above.

5 a. Since the marginal propensity to consume (mpc) = 0.8, the multiplier = 5. With a ΔI of 50 million, using the formula:

$$\Delta Y = mult \Delta I$$

$$\Delta Y = 5 \times 50 \text{ million}$$

$$\Delta Y = 250 \text{ million}$$

b. Now with an mpc = 0.9, the multiplier = 10. With a ΔI of 50 million,

$$\Delta Y = mult \Delta I$$

$$\Delta Y = 10 \times 50 \text{ million}$$

$$\Delta Y = 500 \text{ million.}$$

Answers to Self Test Questions

1. B
2. B
3. B
4. C
5. A
6. E
7. E
8. E
9. E
10. B
11. C
12. D
13. D
14. C
15. B
16. B
17. C
18. C
19. A
20. D

Chapter 25

FISCAL POLICY

Principles of Economics in Context, (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter introduces you to a formal analysis of fiscal policy, and puts it in context with real-world data and examples. The basic analysis you will be presented here follows the Keynesian model, although you will also learn about the “classical” or “supply-side” perspectives. You will gain an understanding of the federal budgets and how it affects the economy. The chapter clarifies the difference between automatic stabilizers and discretionary policy, and discusses recent fiscal policies in terms of their economic impact. Finally, the chapter introduces “crowding out” and “crowding in” and explores the macroeconomic implications of each of these two concepts.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Understand the impact of changes in government spending, taxes, and transfers on aggregate expenditure and output.
2. Carry out calculations using “multipliers.”
3. Describe the major types of government outlays, and major government revenue sources.
4. Discuss the issue of lags in fiscal policy, and the relative advantages and disadvantages of automatic and discretionary policies.
5. Distinguish between cyclical deficits and structural deficits.
6. Explain the macroeconomic policy implications of both crowding out and crowding in.

Key Terms

fiscal policy

government spending (G)

transfer payments

disposable income

tax multiplier

balanced budget multiplier

net taxes

expansionary fiscal policy

contractionary fiscal policy

government outlays

government bond

off-budget expenditures

supply-side economics

crowding out

on-budget expenditures

appropriation (of federal funds)

budget surplus

budget deficit

deficit spending

countercyclical policy

procyclical policy

automatic stabilizers

cyclical deficit (surplus)

discretionary fiscal policy

time lags

structural deficit (surplus)

crowding in

Active Review

Fill in the Blank

1. If the government uses tax cuts to expand the economy, it would be using _____ policy
2. Social security payments that are paid by the government to households are an example of a _____.
3. Suppose a household receives a wage income of \$4,000 a month, and receives \$400 in transfers and pays \$800 in taxes per month. Then the household's _____ income (the income after paying taxes and receiving transfers) would be equal to \$3,600 per month.
4. To determine the impact on a change in lump sum taxes on equilibrium output, one would use the tax multiplier, which equals _____.
5. If one were to increase government spending by \$50 million, and simultaneously raise taxes by \$50 million in order to keep the government budget in balance, one would discover that the _____ multiplier is equal to positive one.
6. Government spending on goods and services (such as new bridges and mass transit) and government transfer payments (such as unemployment compensation and food stamps) are two categories of government _____.
7. The government can finance its deficits by selling _____, which are essentially promises to pay back, with interest, the amount borrowed at a specific time in the future.
8. The progressive income tax and transfer payments such as unemployment compensation are examples of _____, because these tax and spending institutions increase government revenues and lower government outlays during an expansion (and decrease government revenues and raise government outlays during a contraction) thereby smoothing out the business cycle.
9. Suppose the Congress passes a stimulus package, but it takes time for recipients of the stimulus payments to spend the money. The effect may not be seen on the wider economy for a period of time, due to the presence of _____.
10. The policies that use tax cuts and other incentives in an attempt to increase work, saving and investment, and thereby overall economic output, are called _____ economics.

True or False

11. There is no way to expand an economy using fiscal policy without incurring (or increasing) a budget deficit.
12. With an *mpc* of 0.8, the multiplier for U.S. government spending is equal to a value of 5, and this value is a fairly accurate reflection of the multiplier in the real world.
13. A policy tool that can be used to fight inflation (brought about by excessive aggregate expenditure) is contractionary fiscal policy.
14. If $T - (G + TR)$ is positive, there is a government budget surplus. If $T - (G + TR)$ is negative, there is a government budget deficit.
15. The existence of budget deficits must mean that the government is conducting an expansionary fiscal policy.
16. The equation for aggregate expenditure with government in an open economy is: $AE = C + I + G + NX$

Short Answer

17. What multiplier is used for calculating the change in output resulting from a change in government spending?
18. What are the three expansionary fiscal policy tools the government can use to expand an economy that is in a recession?
19. What are the three ways the government can finance its expenditures?
20. What are the largest two sources of federal revenues? What are the largest three categories of federal outlays?
21. What role does the size of the economy (GDP) have to play in whether or not a government deficit is burdensome to the economy?

22. What role did automatic stabilizers and discretionary fiscal policies have in the emergence of budget surpluses during the late 1990s?
23. Are tax cuts always directed at stimulating aggregate expenditure? Explain why some supply-siders think tax cuts may actually increase tax revenues.
24. Identify and describe the four types of inside lags as presented in the chapter.
25. Explain the difference between a cyclical deficit and a structural deficit.
26. Explain the difference between "crowding out" and "crowding in."

Problems

1. Suppose in a simple economy with no foreign sector, the mpc equals 0.8. Intended investment spending has suddenly fallen, reducing AE and output to a level that is 100 million below Y^* .
 - a. If the government decided to try to get the economy back to full employment using only an increase in government spending (ΔG), by how much would G need to be increased?
 - b. If the government, instead, decided to try to get the economy back to full employment using only a lump-sum tax cut (ΔT), how big of a tax cut would be needed?
 - c. Alternatively, if the government decided to try to get the economy back to full employment using only an increase in transfers (ΔTR), how large would this increase need to be?

d. Which fiscal policy--increasing G, decreasing T, or increasing TR--would do the least amount of damage to the government budget deficit?

2. Suppose it was found that the *mpc* varied by income level in the following manner, with lower income households spending a greater portion of every dollar of income than higher income households.

Household income	<i>mpc</i>	<i>Income/spending multiplier</i>	<i>Tax multiplier</i>
0-\$30,000	0.9		
\$31,000 – 50,000	0.8		
\$51,000 – 80,000	0.75		
\$80,000 and above	0.6		

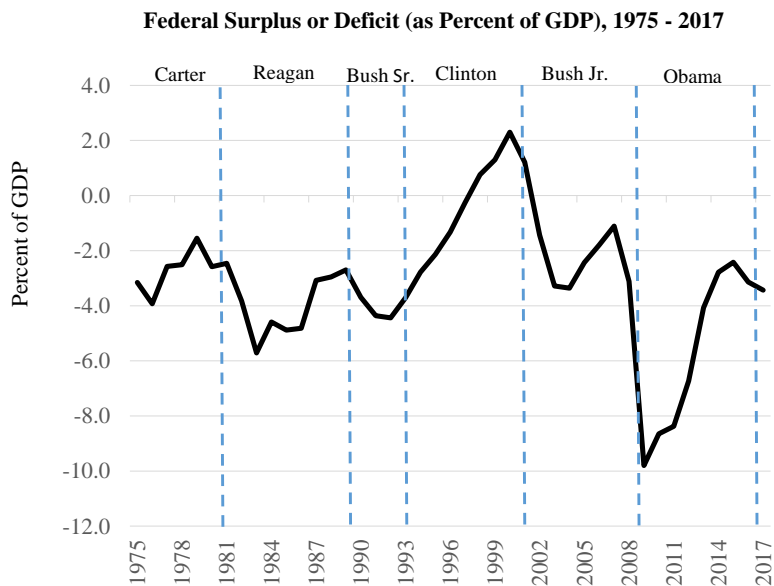
a. Calculate the government spending and tax multipliers for each income bracket, considered separately.

b. Suppose the government decided to use tax cuts to expand the economy, and was debating whether to direct tax cuts to high income households or low income households. Which choice would provide a greater stimulus? Thus, which would do the least amount of damage to the government budget deficit to achieve a given amount of stimulus?

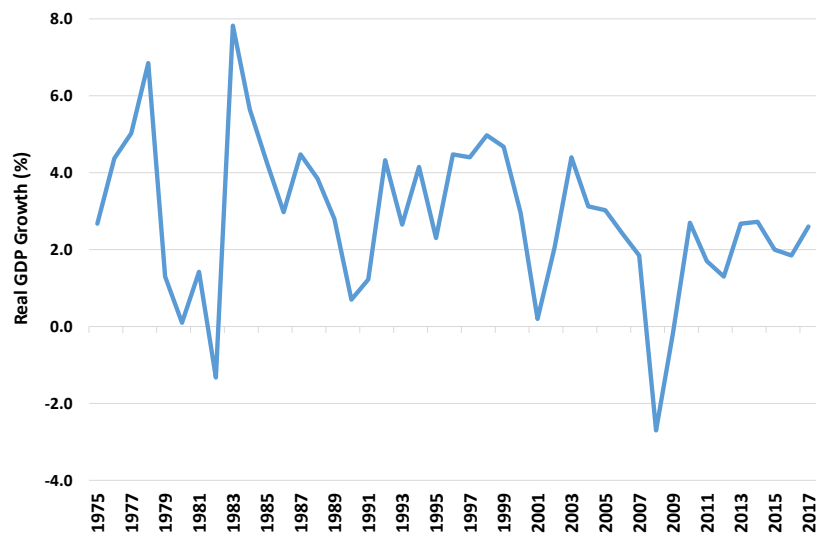
(Note: Technically, while tax cuts can, by design of the policy, be targeted so that their initial impact is on the incomes of a particular group, the feedback effects represented by the multiplier probably in general depend on the *economy-wide average* value of the *mpc*. We abstract from this issue in this question.)

3. Assume a simple closed economy, with an mpc equal to 0.75. The government has passed a balanced budget amendment. The economy goes into a recession, so the government increases government spending by 40 million to try to expand the economy.
 - a. Calculate the change in output (ΔY) from the increase in government spending (ΔG).
 - b. The balanced budget amendment requires the government to also raise taxes by 40 million. Calculate the change in output (ΔY) from the tax hike.
 - c. What is the net effect on output from these two policies? Was there any expansionary effect?
 - d. Why is a balanced budget amendment problematic or undesirable?

4. Use the Figure below to answer the following questions:



- a. It is sometimes said that Republicans are the party of “small government,” whereas Democrats are the “big spenders” and the party of “big government.” Is this confirmed by the historical evidence of the 1975-2017 period?
- b. What changes in discretionary Government outlays (G , TR) and Tax revenues (T) might explain the emergence of the huge deficits under Reagan, G. Bush Sr., and G.W. Bush Jr? And what might explain the surpluses under Clinton?
- c. Are changes in discretionary fiscal policy sufficient in explaining the emergence of deficits and surpluses? What role do automatic stabilizers play? Consider in your answer the figure of the U.S. real GDP growth rate, below.



- d. When Clinton came into office, he increased taxes (the top income bracket was raised somewhat) and cut government spending. These are both considered to be contractionary fiscal policies. And yet the economy boomed. What could explain this? Could the surpluses under his administration come about only from his discretionary fiscal policies?

- e. The G.W. Bush Jr. administration increased government spending and passed sizeable tax cuts, primarily benefitting the rich. Critics argue that these tax cuts will only lead to deficits and do little to stimulate the economy. Explain their point of view.

Self Test

1. Fiscal policy refers to ...
 - a. control of the money supply
 - b. decisions to alter market interest rates
 - c. government spending and taxation decisions
 - d. control of the producer price index
 - e. none of these
2. Which of the following is *not* a component of aggregate expenditure?
 - a. consumption
 - b. unsold inventories
 - c. intended investment
 - d. government spending
 - e. all of these are components of aggregate expenditure
3. Suppose in a simple economy with no foreign sector, the *mpc* is equal to 0.75. How much government spending (ΔG) would be needed to raise output by 100 million?
 - a. 25 million
 - b. 33.3 million
 - c. 75 million
 - d. 400 million
 - e. None of the above
4. Which of the following is *not* an example of a transfer payment?
 - a. Welfare payments to firms or individuals
 - b. Social Security payments
 - c. Unemployment compensation
 - d. A corporate tax cut
 - e. Payments of interest to holders of government bonds.

5. Suppose in a simple economy with no foreign sector, the mpc is equal to 0.9. How much of a lump sum tax (ΔT) would be needed to raise output by 100 million?
- 10 million
 - 11.1 million
 - 33.3 million
 - 100 million
 - None of the above
6. Suppose in a simple economy with no foreign sector, the mpc is equal to 0.8. If the government increased government spending by \$30 million, and it simultaneously raised taxes by \$30 million, how much will be the change in output (ΔY)?
- Output will increase by \$15 million
 - Output will increase by \$30 million
 - There will be no change in output
 - Output will decrease by \$30 million
 - None of the above
7. Government outlays ...
- are the sum of government spending and government transfer payments.
 - are always greater than government revenues
 - must, by law, exactly equal government revenues
 - are generally less than government revenues
 - none of these
8. Which of the following is *not* an example of a government outlay?
- Government spending on a national health care system
 - Government spending on light rail systems and bicycle paths
 - Housing subsidies for low-income households
 - Tax cuts for wind and solar energy producers
 - Child care vouchers for working single parents
9. Which of the following was one of the major sources of federal revenues in 2017?
- Personal income taxes
 - Corporate income taxes
 - Excise and estate taxes
 - Both A and B
 - None of the above

10. Which of the following was the largest category of government spending in 2017?
- Social programs, such as welfare
 - Defense spending
 - Social security, Medicare, and retirement
 - Net interest on the debt
 - None of the above
11. Procyclical policy ...
- refers to the use of fiscal policy to improve the performance of the U.S. economy
 - refers to state/local governments tendency to exacerbate the business cycle.
 - refers to Federal Reserve policy designed to minimize economic downturns
 - refers to Chamber of Commerce efforts to encourage households to shop locally
 - none of these are descriptions of procyclical policy
12. During what period of time did the U.S. experience federal government budget surpluses?
- 1980 – 1988
 - 1989 – 1992
 - 1993 – 1997
 - 1998 – 2001
 - 2002 – 2008
13. Which of the following was responsible for putting the budget back into deficit in 2001?
- The recession that started in the Spring of 2001.
 - The 2001 Bush tax cuts
 - The increased government spending of the Bush administration.
 - Both A and B.
 - None of the above.
14. The President drafts a budget proposal with new tax cuts and increases in government spending, and has it passed by Congress. This would be an example of:
- Automatic stabilizers
 - Discretionary policy
 - Contractionary fiscal policy
 - Supply side policy
 - None of the above.

15. Which of the following is *not* an example of an inside time lag?
- data lag
 - recognition lag
 - legislative lag
 - transmission lag
 - response lag
16. The Obama Stimulus Program ...
- is also known as the "American Recovery and Reinvestment Act."
 - added more than three million jobs according to the Congressional Budget Office
 - probably averted a 21st century "Great Depression" according to some economists
 - amounted to a major expansionary fiscal policy
 - all of these statements are accurate
17. The historical evidence of the supply side tax cuts (of the Reagan administration in the 1980s and Bush in the 2000s) is that:
- they were successful in increasing output, increasing tax revenues and lowering deficits.
 - they led to lower tax revenues and higher deficits.
 - they left output, tax revenues and deficits unchanged.
 - while the Reagan tax cuts were successful in increasing tax revenues and lowering deficits, those of the Bush administration were not.
 - None of the above.
18. Crowding out refers to ...
- intended investment squeezing unsold inventories
 - excess consumer spending competing with foreign demand for U.S. goods
 - the demand for exports making U.S. goods for expensive for consumers
 - government borrowing reducing the availability of private capital
 - none of these
19. Table 25.2 (Different Multiplier Effects) suggests that ...
- making the Bush income tax cuts permanent would have the biggest tax cut impact
 - a payroll tax holiday is not a very effective tax cut strategy
 - temporarily increasing food stamps is more effective than any permanent tax cut
 - cutting the corporate tax rate has a bigger impact than ANY other tax cut
 - none of these statements are accurate

20. The A1 appendix for this chapter ...

- a. focuses on the use of lump-sum taxes
- b. introduces the importance of the IRS for conducting fiscal policy
- c. derives the balanced-budget multiplier
- d. suggests that the multiplier for a change in taxes is larger than for a change in government spending
- e. none of these statements are accurate

Answers to Active Review Questions

1. fiscal policy
2. transfer payment
3. disposable
4. $-(mult)(mpc)$
5. balanced budget
6. outlays
7. government bonds
8. automatic stabilizers
9. outside lag
10. supply side
11. False. It is still possible to expand an economy with a balanced budget. The balanced budget multiplier equals 1.
12. False. In the real world the multiplier is rarely this large. Econometric studies of the U.S. economy have suggested the multiplier is 2.0 or lower.
13. True.
14. True.
15. False. The existence of deficits does not necessarily mean an expansionary fiscal policy is being implemented. It could be that the economy is going through a downturn, so the automatic stabilizers are kicking in, with government outlays increasing and tax revenues declining.
16. False. It is: $AE = C + I + G + NX$
17. The multiplier used in this case is the same as the multiplier introduced in chapter 24:
multiplier = $1/(1-mpc)$
18. The government could increase government spending, increase transfer payments, or cut taxes.
19. It can either raise taxes, borrow, or print money.
20. The two largest sources of federal revenues are: personal income taxes and social security taxes. The three largest categories of federal outlays are: Social security and Medicare, social programs, and defense spending.
21. The larger the economy, the easier it is to handle a deficit. A larger economy means higher incomes, and a greater ability for the government to collect tax revenues or sell government bonds to finance its deficit.
22. As the economy boomed, the automatic stabilizers kicked in and tax revenues rose. The Clinton administration also used discretionary policy, by raising taxes and thereby raising revenues that helped turn deficits into surpluses.
23. No, tax cuts have also been a component of supply-side policy, which attempts to use tax cuts to stimulate work, saving, investment, and thereby output. Some supply-siders think that the growth in output can actually lead to an increase of tax revenues into the government coffers.
24. The four types of inside lags presented in the chapter include: data lags, recognition lags, legislative lags, and transmission lags.
25. A cyclical deficit is caused by fluctuations in the business cycle while a structural deficit is the result of tax and spending policy decisions.
26. "Crowding out" is a reduction in the availability of private capital resulting from federal

borrowing. “Crowding in” occurs when government spending boosts expectations and therefore induces intended investment.

Answers to Problems

1.

a. the income/spending multiplier = $1/(1 - 0.8) = 5$

So solving for $\Delta Y = \text{mult} \times \Delta G$,

$$100 \text{ million} = 5 \times \Delta G$$

$$\Delta G = 20 \text{ million}$$

b. now we need to use the tax multiplier, - *mpc (mult)*

So solving for $\Delta Y = -\text{mpc (mult)} \times \Delta T$

$$100 \text{ million} = -0.8 \times 5 \times \Delta T$$

$$\Delta T = 100 \text{ million} / -4$$

$$\Delta T = -25 \text{ million (a tax cut of 25 million would be needed)}$$

c. the calculation is like part b, above, except instead of ΔT we have ΔTR . Thus, transfers of +25 million would be needed.

d. Increasing G (government spending) would do the least damage to the deficit, raising it by 20 million, rather than 25 million.

2.

a.

Household income	<i>mpc</i>	<i>Income/spending multiplier</i>	<i>Tax multiplier</i>
0-\$30,000	0.9	10	9
\$31,000 – 50,000	0.8	5	4
\$51,000 – 80,000	0.75	4	3
\$80,000 and above	0.6	2.5	1.5

b. Directing the spending increase or tax cuts to the lower income households would provide a greater stimulus, because it has a higher tax multiplier. Thus, it would do less damage to the budget deficit to achieve a given amount of stimulus. In other words, if the government directed tax cuts to the low-income households, it would need a smaller tax cut to expand the economy by a given amount, and this would do less damage to the deficit.

(Note: If one takes into account that *mult* may depend on an economy-wide average *mpc*, this answer would still be correct, but the difference would not be as large.)

3.
 - a. the income/spending multiplier = $1/(1-0.75) = 4$
 $\Delta Y = \text{mult} \times \Delta G$
 $\Delta Y = 4 \times 40 \text{ million}$
 $\Delta Y = 160 \text{ million}$
 - b. the tax multiplier = $-0.75 (4) = -3$
 $\Delta Y = -3 \times \Delta T$
 $\Delta Y = -3 \times 40 \text{ million} = -120 \text{ million}$
 - c. The net effect of the two policies is:
 $\Delta Y (a + b) = 160 \text{ million} - 120 \text{ million}$
 $\Delta Y (a + b) = 40 \text{ million}$
 Yes, it expanded output by 40 million
 - d. A balanced budget rule means that one can't respond to severe emergencies, such as a natural disaster, war, or deal with a severe recession. Because the multiplier is only equal to one, it provides a fairly weak stimulus.

4.
 - a. The biggest deficit was created during the Obama years, when the government responded to the deep economic crisis of 2008 with large increase in spending and tax cuts; this raised the government deficit. However, if we look at the years before 2008, the Republicans (Reagan, G. Bush Sr., G.W. Bush Jr.) appear to be the big spenders, with their accumulation large deficits.
 - b. The emergence of the huge deficits under Reagan, G. Bush Sr., G.W. Bush Jr., and Obama could be from increasing government outlays (G and TR), and/or cutting taxes (T). The surpluses under Clinton could be from cutting government outlays (G and TR), and/or raising taxes (T).
 - c. No, changes in discretionary fiscal policy are not sufficient in explaining the emergence of deficits and surpluses, because a recessionary economy could trigger automatic stabilizers (increases in G and TR , and falling tax revenues), whereas a booming economy could bring forth increases in tax revenues and cuts in government outlays. Indeed, the figure of the U.S. real GDP growth shows a deep recession in 1981-82, which could help explain the emergence of deficits in the early Reagan period. And the figure shows strong growth rates in the late 1990s, which could help explain the emergence of surpluses under Clinton.
 - d. The economy under Clinton could have boomed for other reasons, such as the increased investor and consumer confidence, leading to increases in investment and consumption spending. These could have outweighed the contractionary effect of his fiscal policies. The surpluses came about not only from the tax increases of his discretionary policies, but also from the booming economy, which brought in increases in tax revenues as the automatic stabilizers kicked in

- e. The tax cuts for the rich will do little to stimulate the economy because they are directed to households with relatively lower *mpcs*, and thus have a smaller multiplier effect.

Answers to Self Test Questions

1. C
2. B
3. A
4. D
5. B
6. B
7. A
8. D
9. A
10. C
11. B
12. D
13. D
14. B
15. E
16. E
17. B
18. D
19. C
20. A

Chapter 26

MONEY, BANKING, AND FINANCE

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

In this chapter, you will be introduced to a standard treatment of money and the banking system as well as the role that banks play in our financial system. You will get an overview of the relationship between money and the average price level, and will learn about the role and functions of money, different types of money, and the concept of liquidity as it applies to money. The chapter explores various types of banks and the role they play in money creation. The functions of finance are introduced along with nonbank financial institutions. The final section of the chapter presents a brief survey of financialization and financial asset bubbles.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Describe the consequences of inflation and deflation.
2. Describe the functions and types of money.
3. Describe the measures of the money supply and explain the liquidity continuum.
4. Explain the basic workings of private banks including the use of balance sheets.
5. Explain how banks create money.
6. Describe the categories and functions of nonbank financial institutions.
7. Explain the concept of “financialization” and provide examples.
8. Explain the concept of “speculative bubble” and illustrate it with concrete examples.

Key Terms

monetary policy

barter

deflation

liquidity

credit money

commodity money

intrinsic value

gold standard

fiat money

exchange value

M1

M2

financial intermediary

economic liability

bank reserves

fractional reserve system

required reserves

excess reserves

portfolio investment

leverage

non-bank financial institution

collective investment vehicle

hedge fund

pension fund

insurance company

securities broker

mortgage broker

shadow banking

Active Review

Fill in the Blank

1. The fact that money can be immediately used in exchange, whereas valuable jewelry cannot, illustrates the fact that money is very _____.
2. The measure of the money supply that includes currency in circulation, traveler's checks, and checking accounts is called _____.
3. When the aggregate price level falls economists use the term _____ to describe the situation.
4. When something contains *intrinsic value* and also serves as a medium of exchange it is known as _____.
5. The _____ definition of the money supply is broad enough to include savings deposits as well as checkable deposits and currency.
6. A medium of exchange that is valuable because a government says that it has value is known as _____.
7. Institutions that accept funds and provide loans are known as _____.
8. Vault cash and deposits at the Federal Reserve both count towards _____, a term that describes funds not lent out or invested by a private bank.
9. When banks are only required to hold a fraction of their deposits on reserve they are part of _____.
10. The portion of bank reserves that a bank must keep on reserve are known as _____.
11. The portion of bank reserves that banks are permitted to lend or invest are known as _____.
12. The use of debt to increase the potential rate of return on one's own investment is called _____.
13. One alternative to saving money in a bank is to use a _____, which is a category of pooled funds.

14. A _____ is a type of pooled fund that often engages in highly speculative investments and is generally restricted to wealthy clients.
15. An agent responsible for finding a buyer for sellers of different securities is known as a _____.

True or False

16. When a government finances its expenditures by printing money rather than collecting taxes, this can lead to “too much money chasing too few goods” and hyperinflation.
17. Coins and paper money have in some periods been commodity money and in other periods fiat money.
18. Nelson takes a \$100 bill he had in his wallet and deposits it into his checking account. Thus, M1 increases by \$100.

Short Answer

19. Why is inflation harmful to an economy?
20. Why is deflation harmful to an economy?
21. What are the three roles of money? And what are two types of money?

22. Identify the components of M1 and M2.
23. Explain the difference between *required reserves* and *excess reserves*.
24. Explain the difference between a *commercial bank* and an *investment bank*.
25. What was the Glass-Steagall Act? Why was it originally passed? Why have some economists argued that elements of the Act should be restored?

Problems

1. Jane Doe has the following assets.

\$100 in her wallet

\$800 in her checking account

\$1,000 in her savings account

A \$20 traveler's check from her last business trip to China.

A \$300 outstanding credit card bill.

\$3,000 in a small certificate of deposit

A car worth \$5,000.

A house, worth \$200,000.

- a. Identify which are in M1, which are in M2, or in neither M1 nor M2.
- b. Suppose she takes the \$100 in her wallet and deposits it in her checking account. What is the change in M1 and M2?
- c. Suppose she takes \$400 from her checking account and deposits it in her savings account. What is the change in M1 and M2?

2. Assume a required reserve ratio of 0.10 to complete the following.

Assets		Liabilities & Net Worth	
Reserves	\$ 150 million	Deposits	\$ 500 million
Loans	\$ 250 million	Bank Capital	\$ 25 million
Bonds	\$ 125 million		
TOTAL:	525 Million	TOTAL:	\$ 525 Million

- a) Calculate the initial *required reserves* for this bank.
- b) Calculate the initial *excess reserves* for this bank.
- c) Convert all of the excess reserves into loans. Construct the new balance sheet.

Self Test

1. Which of the following is *not* a reason why an unexpected episode of inflation is harmful to an economy?
 - a. It wipes out the value of people's savings.
 - b. It hurts people on fixed incomes, such as retired people who receive non-indexed pensions.
 - c. It redistributes wealth from debtors to creditors.
 - d. It creates menu costs.
 - e. It creates uncertainty, which makes financial planning for the future more difficult.

2. Hyperinflation ...
 - a. is often defined as any annual inflation rate higher than 10 percent.
 - b. describes the German economy after World War II.
 - c. can become so severe that people resort to barter.
 - d. means that people tend to save money much more aggressively.
 - e. none of these statements is accurate.

3. According to the textbook, why is deflation harmful to an economy?
 - a. It redistributes wealth from debtors to creditors.
 - b. It creates menu costs.
 - c. It creates uncertainty, which makes financial planning for the future more difficult.
 - d. It can lead to cutbacks in borrowing and spending, which can slow down the economy.
 - e. All of the above.

4. Which of the following is NOT a function of money?
 - a. A hedge against inflation.
 - b. A unit of account.
 - c. A store of value.
 - d. A medium of exchange.
 - e. All of these are functions of money.

5. Which of the following is NOT a type of money described in the textbook?
 - a. Fishhooks as money.
 - b. Fiat money.
 - c. Commodity money.
 - d. Silver coins as money.
 - e. All of these are types described in the text.

6. "Fiat money" refers to ...
- Older U.S. coins that contain a high (90%) silver content.
 - A creative alternative to modern money (such as cigarettes in a prisoner of war camp.)
 - Money that is valuable because a government says it has value.
 - Paper money backed by gold or other precious metals.
 - None of these is fiat money.
7. Which of the following is the most liquid?
- A \$20 bill in your pocket
 - A gold necklace
 - Three shares of Microsoft stock
 - A certificate of deposit (CD) in your bank.
 - A new Toyota Prius automobile
8. Which of these sequences best captures the liquidity continuum?
- Checking accounts, precious metal, real estate, share of stock
 - Checking accounts, precious metal, share of stock, real estate
 - Checking accounts, share of stock, precious metal, real estate
 - Checking accounts, share of stock, real estate, precious metal
 - Precious metal, checking accounts, share of stock, real estate
9. Which of the following is *not* one of the characteristics necessary for commodity money to be used as money?
- It must be durable.
 - It must be portable.
 - It must be generally acceptable.
 - It must be differentiated.
 - It must be scarce.
10. Which of the following is *not* included as "money" in M1?
- Currency in circulation
 - Checkable deposits
 - Traveler's checks
 - The use of a credit card
 - The use of debit cards that take funds from a checking account

11. Suppose Tabatha takes \$500 from her savings account and deposits it in her checking account. What is the change in M1 and M2?
- a. M1 increases and M2 decreases
 - b. M1 increases and M2 remains unchanged
 - c. M1 and M2 both increase
 - d. M2 increases and M1 remains unchanged
 - e. M1 and M2 both remain unchanged
12. Which of the following is NOT a component of the M2 definition of the money supply?
- a. Certificates of deposit
 - b. Checking account deposits
 - c. Retail money market funds
 - d. Travelers checks
 - e. All of these are components of the M2 definition of the money supply.
13. Which of these is (was) NOT a financial intermediary?
- a. The New York Stock Exchange
 - b. Bank of America
 - c. MetLife Insurance Company
 - d. Washington Mutual Savings and Loan
 - e. All of these are (were) financial intermediaries.
14. Which of these would be an INCORRECT use a balance sheet for a private bank?
- a. A “government bonds” entry listed as an asset.
 - b. A “deposits” entry listed as a liability.
 - c. A “loans” entry listed as an asset.
 - d. Both (b) and (c) are incorrect.
 - e. All three of (a), (b), AND (c) are correct entries.
15. Which of these is NOT an example of a bank type described in the textbook?
- a. Goldman Sachs investment bank
 - b. Washington Mutual Savings and Loan
 - c. Service Federal Credit Union
 - d. The Federal Reserve
 - e. All of these are examples of bank types described in the textbook.

16. The Glass-Steagall Act ...

- a. was passed in 2009 to prevent future financial crises.
- b. was strengthened in 1999 to increase financial regulation.
- c. was passed in the late 1980s in response to the Savings & Loan crisis.
- d. was passed in the 1930s to increase financial regulation.
- e. None of these is correct.

17. Which of these is NOT an example of leverage?

- a. An investment bank increases its liabilities to speculate on derivatives.
- b. A local entrepreneur borrows heavily to finance the cost of starting a new business.
- c. General Motors issues new stock to raise funds for a new factory.
- d. Microsoft issues commercial bonds to finance production of a new product.
- e. All of these are examples of leverage.

18. A hedge fund is an example of ...

- a. a financial intermediary
- b. a nonbank financial institution
- c. an investment bank
- d. a pension fund
- e. None of these.

19. Nonbank institutions ...

- a. have been growing in importance in our financial system.
- b. often provide much more attractive alternatives to traditional savings accounts.
- c. are typically subject to less government regulation than traditional banks.
- d. include pension funds and insurance companies.
- e. All of these statements are accurate.

20. Speculative bubbles ...

- a. generally form for psychological and economic reasons.
- b. are an important source of economic growth.
- c. generally occur due to a general lack of liquidity.
- d. are generally associated with tight credit conditions.
- e. None of these statements is true.

Answers to Active Review Questions

1. liquid
2. M1
3. deflation
4. commodity money
5. M2
6. fiat money
7. financial intermediaries
8. bank reserves
9. fractional reserve system
10. required reserves
11. excess reserves
12. leverage
13. collective investment vehicle
14. hedge fund
15. securities broker
16. True.
17. True.
18. False, M1 remains unchanged. There has just been a change in the composition of M1, but the size of M1 remains the same.
19. Inflation is harmful because: it wipes out the value of people's savings; it hurts people on fixed incomes; it redistributes wealth from creditors to debtors; it creates menu costs; and it creates uncertainty, making financial planning for the future more difficult.
20. Deflation is a problem because: it redistributes wealth from debtors to creditors, it creates menu costs; it creates uncertainty, making financial planning for the future more difficult; and it can lead to cutbacks in borrowing and spending, which can slow down the economy.
21. The three roles of money are: medium of exchange, store of value, and unit of account. Two types of money are commodity money and fiat money. Commodity money is a good that is used as money that is also valuable in itself. Fiat money is a medium of exchange used as money because the government declares it as such and people accept it.
22. M1 consists of currency in circulation, traveler's checks, and checkable deposits. M2 consists of all of M1, plus savings accounts, and other funds such as small certificates of deposit and retail money market funds.
23. Banks generate much of their profit from the use of other peoples' money. Checking account deposits entrusted to banks are also known as "demand deposits" because the depositors have access to their money whenever they want. Consequently banks are obligated to hold a minimal portion of these deposits in liquid reserves. This portion is a percentage (set by the Federal Reserve in the U.S.) of total deposits and is known as **required reserves**. All of the reserves a bank has beyond this category of required reserves are referred to as **excess reserves**.
24. **Commercial banks** provide retail services to individuals and businesses. These are the institutions that we typically associate with checking accounts and lending. **Investment banks** are institutions that focus on underwriting and issuing securities.

- They do not provide traditional banking functions.
25. The Glass-Steagall Act was a 1933 legislative attempt to provide greater stability for the banking system through increased government regulation. It contained a number of provisions including the separation of commercial banking from investment banking. Some economists have argued that a “firewall” such as the one provided by Glass-Steagall should be restored between institutions that are federally insured (by the FDIC) and investment banks because of differences in risk-taking across the two types of banks.

Answers to Problems

- 1.
- a. The following are in M1, M2, or neither:
- \$100 in her wallet = M1
 - \$800 in her checking account = M1
 - \$1,000 in her savings account = M2
 - A \$20 traveler’s check from her last business trip to China = M1
 - A \$300 outstanding credit card bill = Neither
 - \$3,000 in a small certificate of deposit = M2
 - A car worth \$5,000 = Neither
 - A house, worth \$200,000 = Neither
- b. M1 and M2 remain unchanged, since both cash and checking account deposits are counted in both M1 and M2.
- c. M1 decreases by \$400, and M2 remains unchanged.
- 2.
- a. Required Reserves = reserve ratio * deposits
 = (0.10) * 500 million
 = \$ 50 million
- b. Excess Reserves = total reserves – required reserves
 = 150 million – 50 million
 = \$ 100 million
- c.

Assets		Liabilities & Net Worth	
Reserves	\$ 50 million	Deposits	\$ 500 million
Loans	\$ 350 million	Bank Capital	\$ 25 million
Bonds	\$ 125 million		
TOTAL:	525 Million	TOTAL:	\$ 525 Million

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. C | 11. B |
| 2. C | 12. E |
| 3. E | 13. A |
| 4. A | 14. B |
| 5. E | 15. E |
| 6. C | 16. D |
| 7. A | 17. C |
| 8. C | 18. B |
| 9. D | 19. E |
| 10. D | 20. A |

(note on #1: Inflation redistributes wealth from creditors to debtors)

Chapter 27

THE FEDERAL RESERVE AND MONETARY POLICY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

In this chapter, you will be introduced to a standard treatment of central banking and monetary policy. You will learn about the role of the Federal Reserve and how the decisions made at the Fed impact the macroeconomy. You will be introduced to the market for federal funds, and learn how the Federal Reserve attempts to expand or cool off the economy using monetary policy. You will also be introduced to the quantity equation, the quantity theory of money, and monetarism. In the appendixes you will be introduced to bonds and different ways of thinking about interest rates.

Chapter Objectives

After reading and reviewing this chapter, the student should be able to:

1. Understand the basic workings of central banks.
2. Describe the tools the Federal Reserve can use to carry out monetary policy.
3. Understand how the Fed uses open market operations to influence the federal funds rate.
4. Explain how monetary policy is expected to affect investment and aggregate expenditure.
5. Explain the U.S. monetary policy experience of the 2000-2017 period in the context of Federal Reserve priorities and monetary policy actions.
6. Become familiar with the notions of “liquidity trap” and “credit rationing.”
7. Understand the quantity equation, the quantity theory of money, and monetarism.
7. Describe possible sources of inflation.
8. Understand the controversy over rules versus activism in monetary policy.

If the Appendix is included:

9. Understand the use of bonds and the relation of bond prices to interest rates
10. Understand the difference between real and nominal interest rates, and their impact on the economy.
11. Describe the transactions demand model of money.

Key Terms

open market operations	accommodative monetary policy
Federal Open Market Committee (FOMC)	contractionary monetary policy
monetary base (or high-powered money)	quantitative easing (QE)
money multiplier	liquidity trap
discount rate	credit rationing
federal funds rate	quantity equation
prime rate	velocity of money
accelerator principle	quantity theory of money
expansionary monetary policy	monetary neutrality
	money supply rule

monetarism
monetizing the deficit
modern monetary theory

bond
real interest rate
expected real interest rate
transactions demand
precautionary demand
speculative demand

Appendix:

Active Review

Fill in the Blank

1. When the Federal Open Market Committee (FOMC) directs the Federal Reserve Bank in New York to buy or sell government bonds on the open market, it is conducting _____.
2. Suppose the Fed buys bonds on the open market. By doing so, it is increasing the _____ (also known as _____), which is the currency in circulation plus bank reserves.
3. The ratio of the money supply to the monetary base is called the _____, and in the U.S. is empirically estimated to have a value close to two.
4. The interest rate that the Fed charges banks on loans it makes to banks so they can to meet their reserve requirements is called the _____.
5. The interest rate that banks pay one another when they borrow on an overnight basis is called the _____.
6. The _____ is the interest rate that banks charge their most creditworthy commercial borrowers.
7. The idea that high GDP growth has a bigger impact on intended investment spending than do interest rates, and thus leads to high investment growth is called the _____.
8. The central bank process of buying diverse financial assets with the goal of creating more monetary reserves is known as _____.
9. When interest rates are so low that the Central Bank finds it impossible to lower them any further, the economy is in a _____.
10. In cases where inflation is a significant problem and the banking system is unstable, it is useful to use the _____, which analyzes the relationships between the money supply, the velocity of money, the price level, and real output.

11. The theory that assumes that the velocity of money is constant in the equation $M \times V = P \times Y$ is the _____.
12. _____ is the idea that changes in the money supply may affect only prices, while leaving output unchanged.
13. When a central bank buys government debt as it is issued and thereby injects new money into the economy it is said to be _____, which can trigger hyperinflation.
14. (Appendix) A financial instrument that commits its seller to pay a fixed amount every year, in addition to repaying the amount of the principal on a particular date in the future, in return for the loan of funds, is called a _____.
15. (Appendix) The nominal interest rate minus inflation is the _____.
16. (Appendix) The three reasons that people choose to hold some of their assets as money include _____, _____, and _____.

True or False

17. The most common monetary policy tool used by the Fed is changing the discount rate.
18. A contractionary or “tight” money policy entails a decrease (or fall in the growth rate of) the money supply, M1, leading to a lower interest rate.
19. When the Fed conducts open market operations, it is either trying to keep the federal funds rate at its existing level, or trying to push the federal funds rate up or down.
20. Quantitative easing refers to the purchase of a diverse collection of financial assets to increase the money supply.
21. The quantity theory of money is an important component of Keynesian thinking.

Short Answer

22. Describe the structure of the Federal Reserve. How many governors are on the board, and how long is each governor’s term? Who appoints them? How many regional banks does the Fed have?

23. Is the role (or function) of the Fed only to conduct monetary policy (e.g. raise or lower interest rates)?
24. Identify the three tools of monetary policy, and what the Fed would do to increase (or decrease) the (growth of the) money supply.
25. Explain the sequence of links connecting an expansionary monetary policy with interest rates, intended investment, aggregate expenditure, and output.
26. Suppose the economy is characterized by inflation problems and an unstable banking system. Use the quantity equation, $M \times V = P \times Y$, to answer the following questions:
- What assumptions does the classical theory make about the variables in the quantity equation?
 - What assumptions does monetarist theory make about the variables?
 - What assumptions do Keynesian-oriented theories make?
 - How does monetarist theory use the quantity equation to explain the deflation and fall in output in the U.S. during the Great Depression?
 - How might a Keynesian-oriented theorist use the quantity equation to explain the cause of hyperinflation?
 - Provide two cases where inflation is caused by some factor other than an increase in the money supply.

Problems

- Suppose the Fed buys \$5 million worth of government bonds from TrustMe bank.
 - Show the changes in the Fed's Balance sheet, and the changes in TrustMe bank's balance sheet.
 - How much in new loans can TrustMe Bank make, given this change in its balance sheet? (Assume the borrowers deposit the amount they borrow in other banks.)
 - Assume that when the new loans are deposited in other banks in the banking system, all these banks loan out all of their excess reserves. Assume further that the money multiplier equals 2. By how much has the money supply increased from the Fed's bond purchase?

2. Suppose the Fed conducts an expansionary monetary policy. (Assume an economy with low inflation and a stable banking system). Illustrate graphically the effects of this expansionary monetary policy on:

a) The market for federal funds

b) Intended investment spending

c) Aggregate Expenditure and output

d) Suppose now that firms become pessimistic as they expect a fall in GDP and a fall in sales, such that the expansionary policy leaves no effect on aggregate expenditure and output. Illustrate graphically by re-doing the graphs in a-c above.

Self Test

1. Which of the following is *not* one of the functions of the Federal Reserve?
 - a. Performing banking functions for private banks
 - b. Issuing Treasury bills and bonds
 - c. Regulating banks
 - d. Promoting confidence and stability in the financial sector
 - e. Conducting monetary policy.

2. An open market purchase by the Fed
 - a. increases bank reserves, loans, and deposits, and thus increases the money supply.
 - b. decreases bank reserves, loans, and deposits, and thus decreases the money supply.
 - c. increases bank reserves, loans, and deposits, and thus decreases the money supply.
 - d. decreases bank reserves, loans, and deposits, and thus increases the money supply.
 - e. None of the above.

3. Suppose the Fed buys \$15 million worth of government bonds from Richland bank. Which of the following is Richland Bank most likely to do?
 - a. Reduce its outstanding loans by \$15 million.
 - b. Borrow more reserves at the “discount window”
 - c. Borrow more reserves from other banks.
 - d. Make new loans totaling about \$15 million.
 - e. None of the above

4. Suppose the Fed makes an open market purchase of \$3 million. Assume that the money multiplier equals 2. What is the change in the money supply?
 - a. The money supply has increased by \$1.5 million.
 - b. The money supply has increased by \$6 million.
 - c. The money supply had decreased by \$1.5 million.
 - d. The money supply has decreased by \$6 million.
 - e. None of the above.

5. Suppose the Fed makes an open market sale of \$8 million in bonds. Assume the money multiplier is equal to 2. What is the change in the money supply?
 - a. The money supply has increased by \$4 million.
 - b. The money supply has decreased by \$4 million.
 - c. The money supply has increased by \$16 million.
 - d. The money supply has decreased by \$16 million.
 - e. None of the above.

6. Which of the following is *not* one of the Fed's monetary policy tools?
- Buying bonds on the open market
 - Selling bonds on the open market
 - Raising or lowering taxes
 - Raising or lowering the reserve requirement ratio
 - Raising or lowering the discount rate
7. Suppose the Fed wanted to engage in an expansionary monetary policy. Which of the following should it do?
- Sell bonds on the open market.
 - Increase the reserve requirement ratio.
 - Increase the discount rate.
 - Buy bonds on the open market.
 - Lower taxes.
8. The rate determined in the private market for overnight loans of reserves among banks is called the
- federal funds rate
 - discount rate
 - prime rate
 - interest rate
 - None of the above.
9. Which of the following best describes the sequence of events in the conduct of contractionary monetary policy using open market operations (in an economy with low inflation and a stable banking system)?
- The Fed raises the interest rate, which leads to a decrease in intended investment spending and a decrease in the supply of federal funds, which decreases aggregate expenditure and output.
 - The Fed decreases intended investment spending, which leads to a decrease in aggregate expenditure and output, and a decrease in the supply of federal funds and the interest rate.
 - The Fed sells bonds, which decreases the supply of federal funds, which raises the interest rate, which leads to a decrease in intended investment spending, aggregate expenditure and output.
 - The Fed buys bonds, which increases the supply of federal funds, which lowers the interest rate, and leads to a decrease in intended investment spending and aggregate expenditure and output.
 - The Fed lowers the interest rate, which leads to an increase in intended investment spending and an increase in the supply of federal funds, which decreases aggregate expenditure and output.

10. What did the Federal Reserve do to expand the economy during the 2000-04 period?
- It pushed down the federal funds rate.
 - It raised the reserve requirement ratio.
 - It raised the discount rate.
 - It sold bonds on the open market.
 - None of the above.
11. A liquidity trap refers to a situation when
- The economy is trapped by a flood of money on the market.
 - A rise in interest rates causes people to want to hold less money.
 - Households' wealth becomes trapped in assets that cannot be easily exchanged into money.
 - The general public has a strong preference for holding the most liquid asset, money.
 - None of the above.
12. During a liquidity trap,
- as the Fed increases the money supply, the interest rate falls significantly.
 - increases in the money supply have no effect on the interest rate, because the money demand curve has become perfectly horizontal.
 - as the Fed increases the money supply, the interest rate rises substantially.
 - once the Fed increases the money supply, it can no longer control it, which leads to hyperinflation.
 - monetary policy is highly effective in expanding the economy
13. When credit rationing occurs,
- banks keep their interest rates below what the market would bear, and deny loans to some potential borrowers.
 - Banks lend to only those customers deemed to be creditworthy and less risky.
 - Smaller and less well-known firms may be more disadvantaged than bigger firms with well-established reputations.
 - The Fed's intended monetary policy actions may be limited or ineffective.
 - All of the above.
14. Which theory (or theories) assumes that the velocity of money is *not* constant, in the quantity equation $M \times V = P \times Y$?
- Classical theory
 - Monetarist theory
 - Keynesian-influenced theories
 - The theory expounded by Milton Friedman and Anna Jacobson Schwartz
 - None of the above

15. Which of the following characterizes classical monetary theory?
- a. Output is assumed to be always constant at its full-employment level.
 - b. Changes in the money supply have no effect on the level of real output, and thus money is assumed to be neutral.
 - c. An increase in the money supply can only lead to inflation.
 - d. The Fed should adopt a money supply rule, allowing the money supply to grow only at the same rate as real GDP.
 - e. All of the above.

For the next two questions, consider the following choices:

- I. the Classical theory**
- II. Monetarism**
- III. Keynesian-oriented theories**

16. Which of the above theories would be in agreement with the following statement?
“The Fed should not use interventionist monetary policy, but should adopt a money supply rule such that the money supply is only allowed to grow at a steady rate -- the same rate as real GDP.”
- a. I
 - b. II
 - c. III
 - d. I and II
 - e. I, II, and III
17. Which of the above theories would be in agreement with the following statement?
“Inflation is always and everywhere a monetary phenomenon.”
- a. I
 - b. II
 - c. III
 - d. I and II
 - e. I, II, and III
18. Which of the following is not one of the potential problems of monetary policy?
- a. long “outside lags”
 - b. long “inside lags”
 - c. disagreement over inflation and unemployment targets
 - d. liquidity traps
 - e. reluctant lenders and reluctant borrowers

From Appendix:

19. What happens to bond prices and their interest rate when the Fed makes a sizeable open market purchase?
- The price of bonds rises and their interest rate falls.
 - The price of bonds falls and their interest rate rises.
 - The price of bonds rises and their interest rate rises.
 - The price of bonds falls and their interest rate falls.
 - The price of bonds and their interest rate remain unchanged.
20. What is the difference between the nominal and real interest rate?
- The nominal interest rate is the real interest rate minus the rate of inflation.
 - The real interest rate is the nominal rate plus the rate of inflation.
 - The real interest rate is the nominal rate minus the rate of inflation.
 - The nominal interest rate is the real interest rate plus the rate of inflation.
 - There is no difference between real and nominal interest rates.

Answers to Active Review Questions

1. open market operations
2. monetary base, high-powered money
3. money multiplier
4. discount rate
5. federal funds rate
6. prime rate
7. accelerator principle
8. quantitative easing
9. liquidity trap
10. quantity equation
11. quantity theory of money
12. monetary neutrality
13. monetizing the deficit
14. (Appendix) bond
15. (Appendix) real interest rate
16. (Appendix) transactions demand, precautionary demand, and speculative demand
17. False. It is open market operations.
18. False. With “tight” policy, the interest rate *rises*.
19. True.
20. True.
21. False. It is an important component of the classical theory and monetarism.
22. The Fed’s board of governors has seven members who serve fourteen-year terms. They are nominated by the president and approved by the Senate, and one member of the board is named as chair. There are also 12 regional Federal Reserve banks.
23. No, the Fed is supposed to do more than that. Its roles include: performing banking functions for private banks; determining reserve requirements; stabilizing exchange rates; regulating banks; promoting confidence and stability in the banking sector; as well as conducting monetary policy.
24. The three tools of monetary policy are: open market operations (buying and selling of bonds), discount rate, and reserve requirement. To increase the (growth of the) money supply, the Fed could either buy bonds, lower the reserve requirement ratio, or lower the discount rate. To decrease the (growth of the) money supply, the Fed could either sell bonds, raise the reserve requirement ratio, or raise the discount rate.
25. An expansionary monetary policy will lower interest rates, which tends to encourage intended investment, leading to an increase in aggregate expenditure and output (GDP).
26. a. Classical theory assumes that velocity is constant, and that the economy is always constant at the full employment level of income.
 - b. Monetarism also assumes that velocity is constant, but relaxes the assumption that the economy is always constant at full employment, and believes that output can fall with bad monetary policy.
 - c. Keynesian-oriented theories assume none of the variables (in particular neither velocity or output) are constant.
 - d. The monetarists thought that the bad monetary policy of decreasing the money supply caused both a drop in the price level (deflation) and a fall in output during the Great Depression.

- e. A dramatic rise in the money supply (especially if the central bank is monetizing deficits) and/or the velocity of money could trigger hyperinflation.
- f. Inflation could be caused by an increase in the velocity of money, or by rise in prices of imports.

Answers to Problems

1. Suppose the Fed buys \$5 million worth of government bonds from TrustMe bank. a. The changes in the Fed’s Balance sheet are:

Assets		Liabilities	
Government bonds	+\$ 5 million	Bank reserves	+\$ 5 million

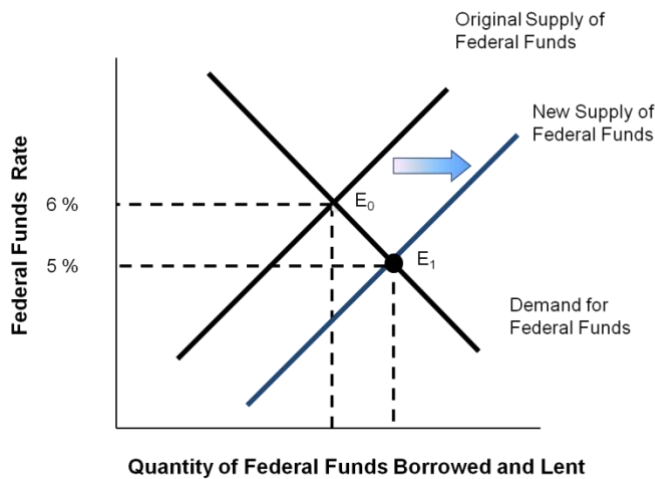
(b) The changes in TrustMe bank’s balance sheet are:

Assets		Liabilities	
Government bonds	-\$ 5 million		
Reserves	+\$ 5 million		

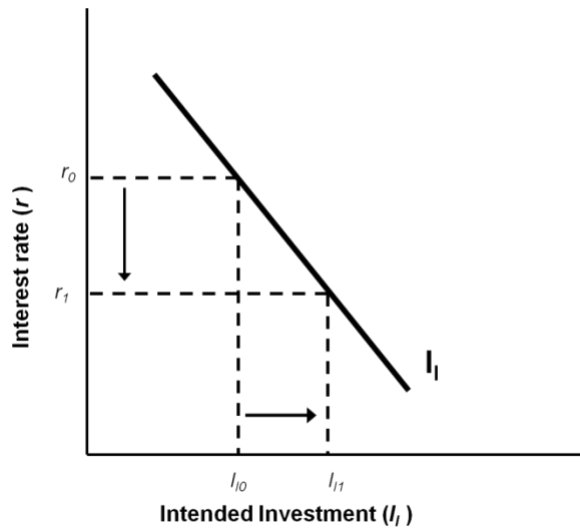
- b. \$5 million
- c. $\$5 \text{ million} \times 2 = \10 million

2. Effects of an expansionary monetary policy:

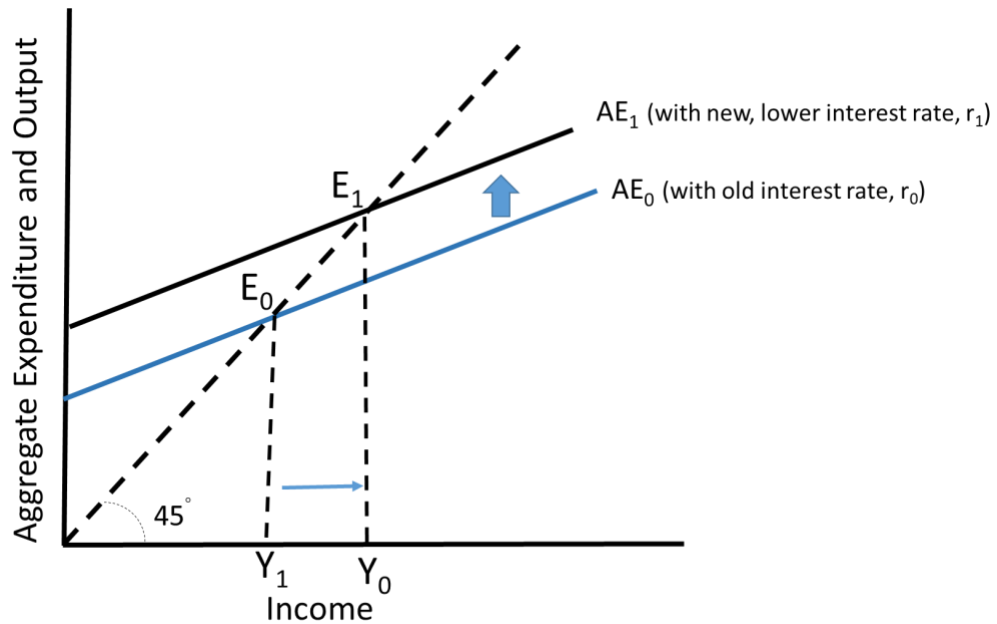
a.



b.



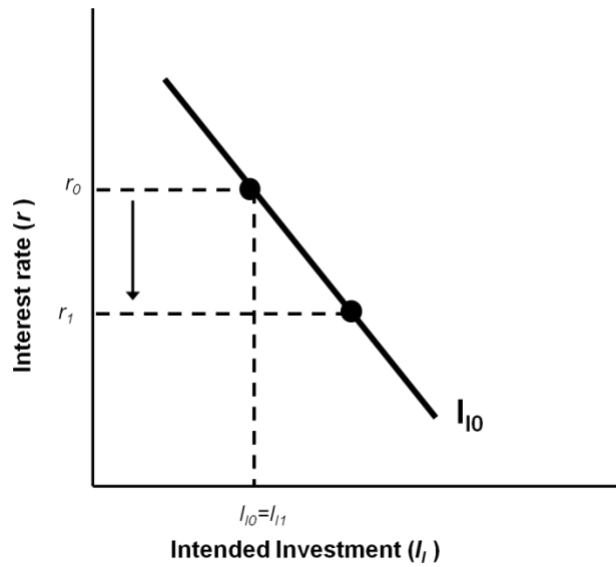
c.



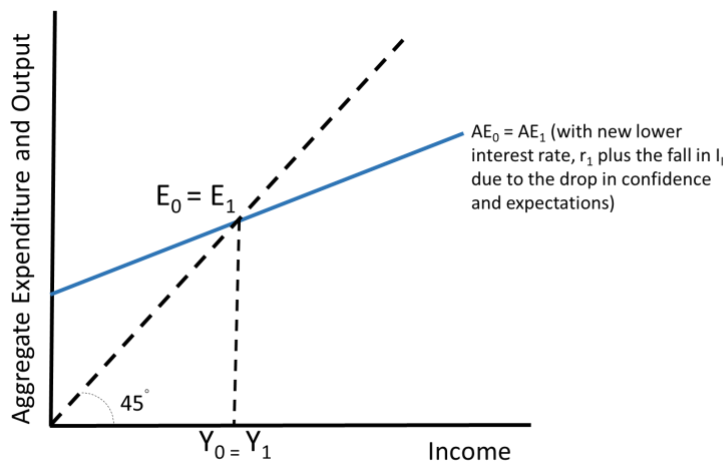
d. If firms become pessimistic as they expect a fall in GDP and a fall in sales:

Graph a would remain the same, as above.

Graph b would now look as follows, as the drop in confidence leads to a fall in I_{i0} to I_{i1} , so intended investment spending remains at its original level:



Graph c would now look like as follows, where AE remains unchanged, but at the lower interest rate:



Answers to Self Test Questions

- | | |
|-------|-------|
| 1. B | 11. D |
| 2. A | 12. B |
| 3. D | 13. E |
| 4. B | 14. C |
| 5. D | 15. E |
| 6. C | 16. D |
| 7. D | 17. D |
| 8. A | 18. B |
| 9. C | 19. A |
| 10. A | 20. C |

Chapter 28

AGGREGATE SUPPLY, AGGREGATE DEMAND, AND INFLATION: PUTTING IT ALL TOGETHER

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter introduces you to the "Aggregate Supply /Aggregate Demand" (or "AS/AD") model. This model builds on the model for Aggregate Expenditure (AE) presented in Chapter 24, using the broader term "aggregate demand" to include explicit attention to the potential problem of inflation. The chapter also adds in the role of aggregate supply by presenting an Aggregate Supply curve. The AS/AD model is then deployed to analyze various current and past events (such as changes in fiscal and monetary policy, supply shocks, and other changes) and examine their effects on the rate of inflation and output. The chapter reviews real-life examples of U.S. macroeconomic performance seen through the lens of the AS/AD model. It also compares the classical school, with their view of a stable full employment equilibrium, to the Keynesians with their view of a dynamically evolving economy.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Explain the derivation of the Aggregate Demand curve relating inflation and output levels, and how it shifts.
2. Explain the derivation of the Aggregate Supply curve relating inflation and output levels, and how it shifts.
3. Use the AS/AD model to describe the consequences of changes in fiscal policy, monetary policy, supply shocks, and investor and consumer confidence, depending on whether an economic is in a recession or at full employment.
4. Apply the AS/AD model to understanding major U.S. macroeconomic developments of the last several decades.
5. Discuss how classical and Keynesian economic theories differ in how they understand the macroeconomy.

Key Terms

aggregate demand (AD) curve
real wealth effect
real money supply
aggregate supply (AS) curve
maximum capacity output
wage-price spiral
wage and price controls
disinflation
supply shock
stagflation

Appendix:

real business cycle theory
rational expectations theory
neoclassical synthesis
New Keynesian macroeconomics
post-Keynesian macroeconomics
path dependence

Active Review

Fill in the Blank

1. The curve that shows how inflation is related to total demand, and indicates an inverse relationship between inflation and output, is called the _____ curve.
2. The tendency for consumers to increase or decrease their consumption based on their perceived level of wealth is described as the _____ effect.
3. The nominal money supply divided by the general price level is known as the _____.
4. The curve that shows the combination of output and inflation that can occur in an economy, given the country's capacity constraints, is called the _____ curve.
5. Assume that a nation is fully using every last one of its available resources in production. Then that nation would be operating at _____ output.
6. When demand for labor and other resources is high, and that bids up wages, which in turn bids up prices as producers try to cover their higher cost of production, which then puts further upward pressure on wages as workers demand compensation for higher prices, etc., the result is what is called a _____.
7. During WWII, the government established _____ to keep inflation from spiraling out of control.
8. Something that changes the ability of an economy to produce goods and services (such as a natural disaster, a war, change in productivity, or change in the price of a key input like oil) is called a _____.
9. The presence of both economic stagnation (with rising unemployment) and rising inflation is known as _____.
10. Suppose people experience a higher level of inflation for a period of time, and begin to build in that higher rate of inflation into their contracts. This would be characterized as an increase in _____.
11. (In appendix) The theory that changes in employment levels are caused by change in technological capacities or people's preferences concerning work is a theory associated with _____.
12. (In appendix). The theory that said that people will use all available information, including rational anticipation of the Fed's monetary policy movements, and will immediately incorporate changes in inflationary expectations into their contracts, is associated with the _____ school.

13. (In appendix) A combination of classical and Keynesian views, with Keynesian theory applied to the short and medium run, but the classical view prevailing in the long run, is known as the _____.

14. (In appendix) The school of thought which bases their analysis on rational, optimizing individuals and micro-level market behavior, but believes that the adjustment to full employment equilibrium could take a relatively long time, is called _____.

15. (In appendix) The school of thought that believes that economies are unstable, that history matters, and that the future is often unpredictable, is called _____.

True or False

16. According to the AS curve, at the “full employment” range of output the unemployment rate is 0%.

17. According to classical theory, any shifts in the AD curve will only lead to changes in inflation, and leave output unchanged.

18. There is a clear relationship between unemployment and inflation: inflation is low during periods of high unemployment and as unemployment declines inflation rate increases.

19. Stagflation is the combination of stagnation and deflation.

20. An oil price shock (assuming all else remains the same) can lead to stagflation.

Short Answer

21. Why is the AD curve downward sloping?

22. What variables would cause a shift in the AD curve?

23. What are the five regions of the aggregate supply curve diagram?

24. Why is the AS curve gently rising in the full employment range?

25. Why is the AS curve flat, rather than upward sloping, in the recession range?

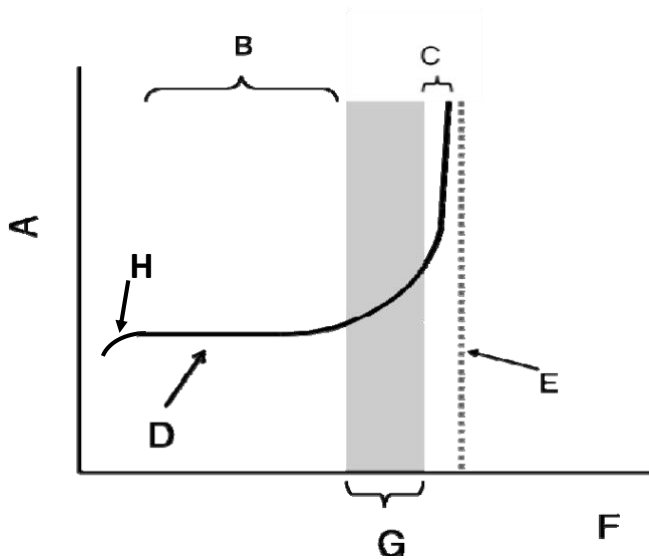
26. Why is there no immediate response in the AS curve to an increase in inflation?

27. What factors would cause a shift in the AS curve (and in some cases, the maximum output)?

28. What is the classical school's rationale for the slope of the AS curve?
29. One of the simplifying assumptions in the macroeconomic AD/AS model is that only the level of spending is important, not its composition. What does the "composition of spending" entail?
30. (In appendix) Is the difference between the classical school and the Keynesians only a matter of time (i.e. the time of the adjustment to the long run full employment equilibrium), or is there a more fundamental difference in world view between the two approaches?

Problems

1. Fill in the missing labels on the graph below:



- A: _____
- B: _____
- C: _____
- D: _____
- E: _____
- F: _____
- G: _____
- H: _____

2. For each of the following, illustrate the shift of one of the curves in the AS/AD model:
- a. Business confidence rises as firms expect an increase in GDP, sales, and profits.
 - b. A rise in inflation increases people's expectations of inflation in the medium run.
 - c. The distribution of high speed internet to rural areas boosts productivity.
3. Illustrate the following periods of history with the AS/AD model:
- a. Government spending for the Vietnam War during the late 1960s pushed up the rate of inflation from about 1% to 5%.
 - b. In 1973-74, OPEC engaged in an oil embargo, causing an increase in oil prices. Inflation rose to above 9% in 1975, and the unemployment rate rose above 8%. (Illustrate the immediate effect.)
 - c. After another oil price shock in 1979, the Fed conducted a contractionary monetary policy (choosing a lower target inflation rate). Inflationary expectations fell. The unemployment rate rose to almost 10%, but inflation fell from 9% to 4%.
 - d. The 1990s brought an era of innovation, increasing global competition, and weakened unions from years of anti-union government policies. By 1998, the unemployment rate was 4.4% and inflation was 1.6%.

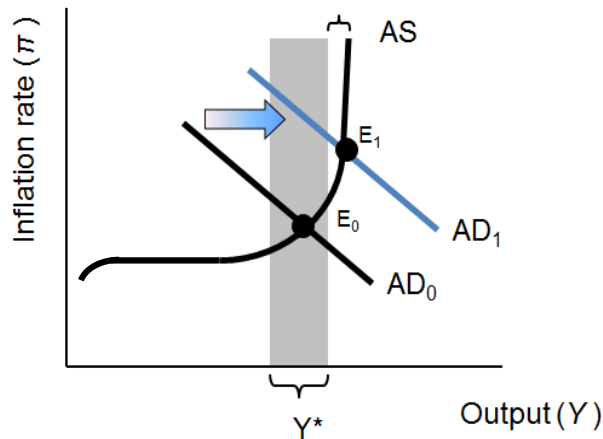
Self Test

1. Which of these factors explain why the AD curve is downward-sloping?
- a. With higher inflation, consumers real income and wealth is less and they consume less, resulting in lower output.
 - b. With higher inflation, the real money supply will be lower, resulting in lower output.
 - c. Because with higher inflation, exports will be more expensive, resulting in less net exports and lower output.
 - d. As inflation increases, the Fed will raise interest rates and slow down the economy, resulting in lower output.
 - e. All of the above.

2. Which of the following would *not* cause a shift in the aggregate demand (AD) curve?
- The government cuts taxes.
 - Expectations of a growing economy lift business confidence and investment.
 - The Fed chooses a more expansionary monetary policy.
 - Technological progress improves productivity.
 - Consumers increase autonomous spending.
3. Which of the following is *not* one of the five regions of the aggregate supply curve diagram?
- Maximum capacity output
 - Wage-price spiral
 - Full employment range of output
 - Unemployment
 - Net exports
4. What is the shape of the AS curve in the full employment range?
- Flat and horizontal
 - Gently rising upwards
 - Steeply rising upwards
 - Completely vertical
 - Downward sloping
5. Which of the following would *not* cause a shift in the AS curve?
- A natural occurrence, such as a bumper crop in agriculture.
 - An increase in labor productivity.
 - An increase in a key input of production, such as oil prices.
 - A change in investment spending.
 - A change in inflation that changes people's expectations of inflation in the medium run.
6. Which of the following would *not* cause a shift in both the AS curve *and* maximum capacity output?
- A natural occurrence, such as a bumper crop in agriculture.
 - An increase in labor productivity.
 - An increase in the price of a key input of production, such as oil.
 - A change in inflation that changes people's expectations of inflation in the medium run.
 - None of the above.

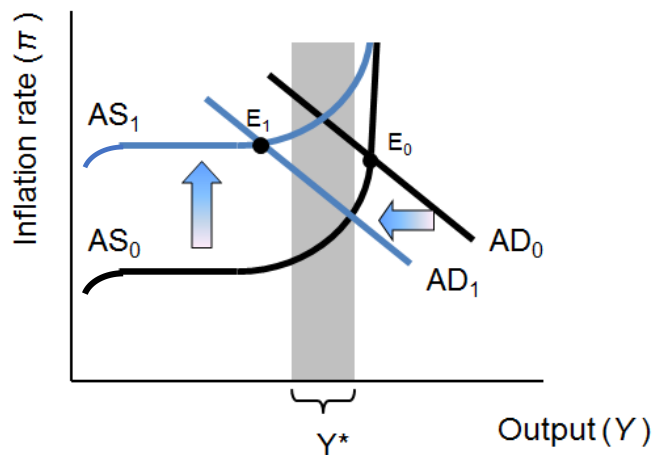
7. Which of the following would cause the AD curve to shift to the right?
- The government raises income taxes.
 - Firms become pessimistic about the future growth of GDP, sales, and profits.
 - The Fed shifts to a more expansionary monetary policy.
 - Workers build expectations of higher inflation into their contracts.
 - None of the above.
8. What could cause both the AS curve and maximum capacity to shift to the right?
- A decrease in labor productivity.
 - A decrease in inflationary expectations.
 - A cut in income taxes.
 - The distribution of high-speed internet access to rural areas in the U.S.
 - None of the above.
9. Suppose a war destroys much of a nation's infrastructure. Assume everything else remains unchanged. How would the impact be illustrated with the AS/AD model?
- AD shifts right/up.
 - AD shifts left/down.
 - AS and maximum capacity shift right.
 - AS and maximum capacity shift left.
 - AS, AD and maximum capacity remain unchanged.
10. Suppose the U.S. Congress passes a stimulus package with tax rebates for all qualifying U.S. households. Assume everything else remains unchanged. How would the impact be illustrated with the AS/AD model?
- AD shifts right.
 - AD shifts left.
 - AS and maximum capacity shift right/down.
 - AS and maximum capacity shift left/up.
 - AS, AD and maximum capacity both shift left.
11. Suppose we observe an increase in inflation and a decrease in output. Which of the following could be the cause?
- The Fed has chosen a lower inflation target.
 - Good weather has produced a bumper harvest.
 - An increase in consumer confidence has boosted consumption spending.
 - The price of a key input, oil, has increased.
 - None of the above.

12. In the figure below, which of the following events could explain the shift of the AD curve to the right?



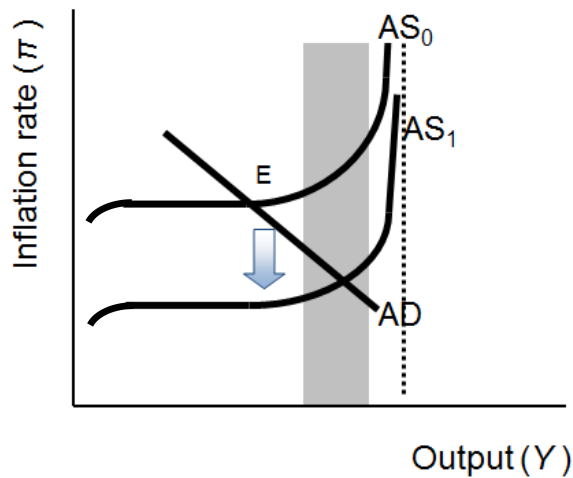
- An increase in government spending.
- A tax increase.
- An increase in consumer and investor confidence.
- (a) and (c) only.
- (b) and (c) only.

13. In the figure below, which of the following events could explain the upward shift of the AS curve, and the leftward shift of the AD curve?



- A tax cut.
- An increase in government spending.
- An increase in inflationary expectations, followed by a contractionary fiscal policy.
- A decrease in inflationary expectations, followed by an expansionary fiscal policy.
- None of the above.

14. In the figure below, which of the following could explain the shift downwards of the AS curve?



- a. An increase in inflationary expectations.
- b. An increase in oil prices.
- c. A fall in inflationary expectations.
- d. An increase in government spending.
- e. None of the above.

15. If the Fed pursues contractionary monetary policy, what are the effects in the medium run (once people's inflation expectations have had time to adapt)?

- a. AD shifts down/left.
- b. AD shifts down/left and AS shifts down.
- c. AD shifts up/right.
- d. AD shifts up/right and AS shifts up.
- e. AD shifts down/left and AS shifts up.

16. According to classical theory, the aggregate supply (AS) curve is:

- a. perfectly horizontal
- b. gently upward sloping
- c. flat at first, and then rises steeply
- d. perfectly vertical
- e. downward sloping

17. Which of the following statements does *not* characterize classical theory?

- a. Markets are self-adjusting, and the economy tends to function smoothly.
- b. Individuals are rational, optimizing agents, who quickly respond to market conditions.
- c. Output always remains at its full employment level.
- d. Fiscal and monetary expansion tends to lead to higher inflation.

e. The government should intervene to keep market conditions favorable for corporations to maximize profits.

18. Which of the following statements characterizes Keynesian theory?

- a. Individuals are not always rational, optimizing agents, but instead are subject to waves of optimism or pessimism.
- b. The “animal spirits” of investors can lead to big fluctuations in the business cycle.
- c. The AD curve is perpetually on the move over the peaks and troughs of the business cycle.
- d. Governments should intervene to smooth out the peaks and troughs of the business cycle and keep the AD curve more stable.
- e. All of the above.

19. The macroeconomic AS/AD model illustrates the following points about the economy:

- a. Expansionary fiscal and monetary policies tend to push the economy toward higher output.
- b. Contractionary fiscal and monetary policies tend to push the economy toward higher output.
- c. Adverse supply shocks lower output and raise inflation.
- d. (a) and (c) only.
- e. (b) and (c) only.

20. Which of the following are current schools of macroeconomics (see Appendix)?

- a. rational expectations school
- b. neoclassical synthesis
- c. New Keynesian macroeconomics
- d. post-Keynesian macroeconomics
- e. All of the above are current schools of macroeconomics

Answers to Active Review Questions

1. aggregate demand
2. real wealth
3. real money supply
4. aggregate supply curve
5. maximum capacity
6. wage-price spiral
7. wage and price controls
8. supply shock
9. stagflation
10. inflationary expectations
11. (In Appendix) real business cycle theory
12. (In Appendix) rational expectations school
13. (In Appendix) neoclassical synthesis
14. (In Appendix) New Keynesian macroeconomics
15. (In Appendix) Post-Keynesian macroeconomics
16. False. There will be some unemployment (transitory unemployment) at the full employment range of output, but not enough unemployment to be considered a problem.
17. True.
18. False. Though there seems to be an inverse relationship between unemployment rate and inflation rate as suggested by the Phillips curve, this is not always true. During the 1970s, the United States experienced both high inflation and high unemployment (stagflation).
19. False. It is the combination of stagnation and inflation.
20. True.
21. The AD curve is downward sloping due to the Fed reaction rule: when inflation is rising, the Fed will raise interest rates, thereby lowering output, and vice versa when inflation is falling. Thus higher rates of inflation lead to lower rates of output, and vice versa. Other explanations for the downward sloping AD curve include real wealth effect (lower consumption due to a decline in the value of people's savings and wealth caused by inflation), real money supply effect (decline in real money supply, increase in interest rates and a decline in investment caused by inflation), and a decline in net exports due to an increase in the price of domestic goods.
22. The AD curve would shift with changes in: levels of government spending, taxation, autonomous consumption, autonomous investment, and net exports, and with a change in the Fed inflation rate target.

23. The five regions are: maximum capacity output, the wage price spiral, the full employment range of output, recession or recovering from recession, and deep recession where output is far below the full employment level and inflation starts to drop or may even be negative.
24. Because producers start to encounter bottlenecks in the supply of some of resources as they increase production, prices will rise in some sectors, leading to some aggregate increase in inflation.
25. The AS curve is flat in the recession range because the existence of unemployed resources produces no pressure for inflation to rise, and the stickiness of wages and prices (their tendency to be slow in adjusting downwards) produces little pressure for inflation to fall.
26. There is no immediate response to inflation in the short run, because it takes time for people to notice the higher inflation and to incorporate it into their contracts.
27. Shifts in the AS curve are caused by: changes in inflationary expectations, and supply shocks (whether beneficial or harmful) such as changes in the price of a key input, or changes in productivity.
28. The classical AS curve is perfectly vertical because the economy is always at its full employment equilibrium. If output falls below full employment equilibrium, unemployed workers would bid down wages, and the economy would thereby return to full employment. Likewise, if output were to rise above full employment equilibrium, workers would bid up wages, and the economy would again return to full employment.
29. The composition of spending entails both the types of goods and services produced, as well as the production methods used in generating GDP. Remember from our discussion in Chapter 1 that ‘what’ is produced and ‘how’ it is produced are central to understanding how the production process affects well-being.
30. Some economists operating with a classical/Keynesian synthesis would see the differences merely as a matter of time. The New Keynesians would be among them, who would argue that it could take a significant amount of time to reach the long run full employment equilibrium. Post-Keynesians, on the other hand, would see a much more fundamental difference between the two approaches. Their starting point is not the rational, optimizing behavior of individuals and markets that are smoothly functioning. Rather, they see the economy as unstable and unpredictable, with individuals influenced by waves of optimism or pessimism.

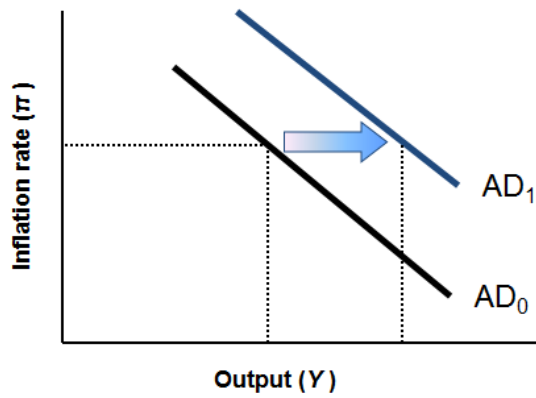
Answers to Problems

1.

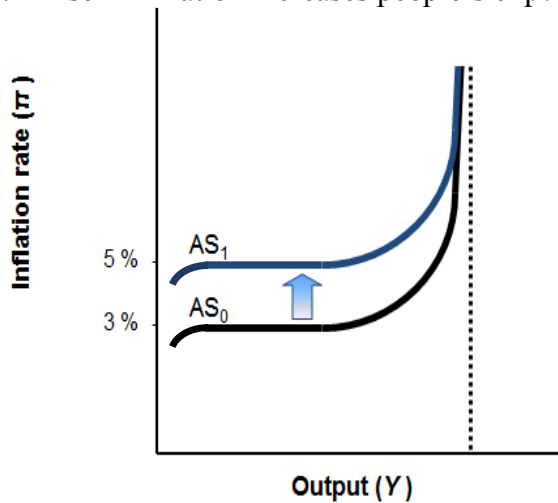
- A: Inflation rate
- B: Recession
- C: Wage-Price Spiral
- D: Aggregate Supply
- E: Maximum Capacity
- F: Output (Y)
- G: Y^* (Full employment output range)
- H: deep recession and decline in inflation

2.

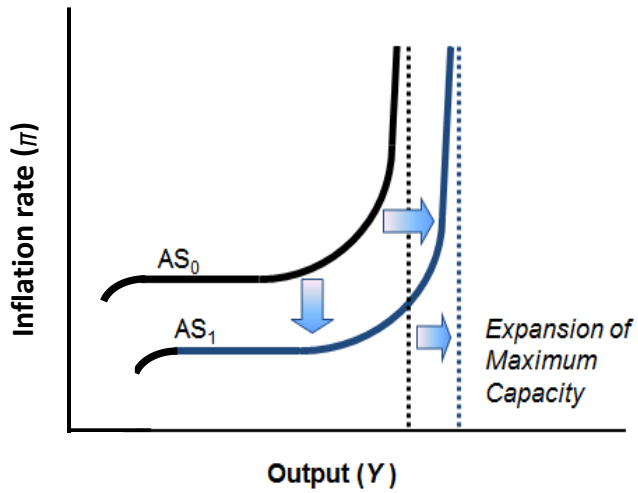
a. Business confidence rises as firms expect an increase in GDP, sales, and profits.



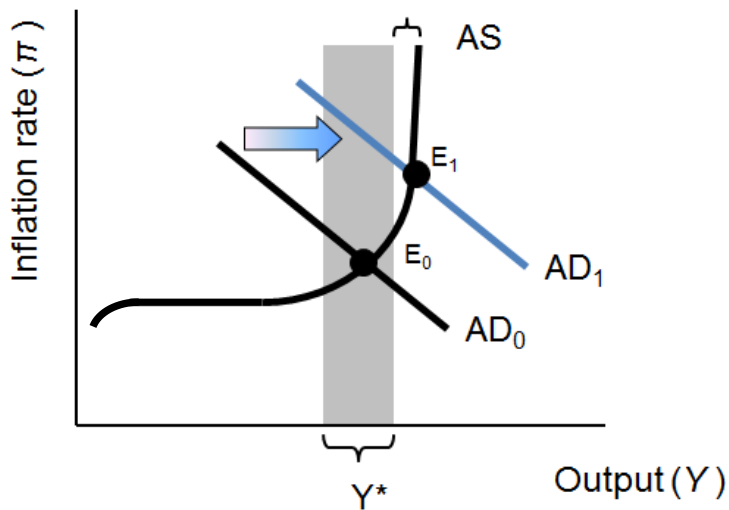
2b. A rise in inflation increases people's expectations of inflation in the medium run.



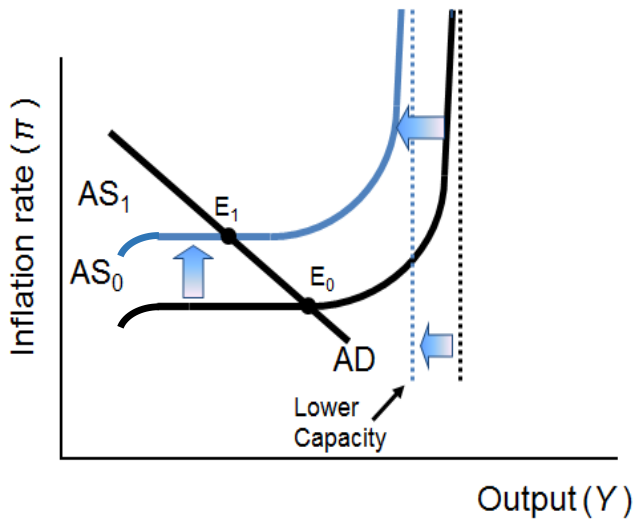
2c. The distribution of high speed internet to rural areas boosts productivity.



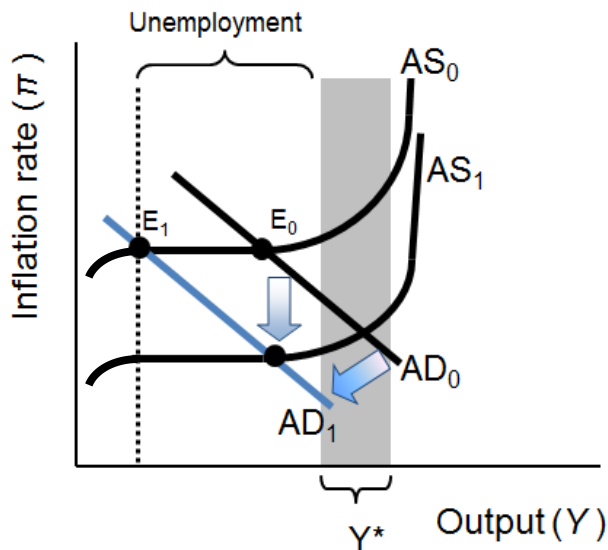
3a. Government spending for the Vietnam War during 1964-69 pushed up the rate of inflation from about 1% to 5% -- shown by an upward shift in the AD curve.



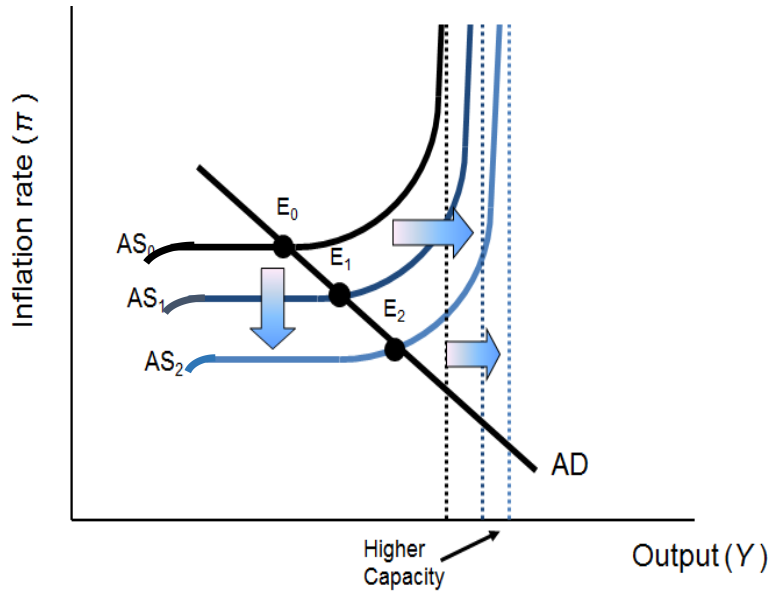
3b. In 1973-74, OPEC engaged in an oil embargo, causing an increase in oil prices. Inflation rose to above 9% in 1975, and the unemployment rate rose above 8% -- shown by an upward shift in the AS curve.



c. After another oil price shock in 1979, the Fed conducted a contractionary monetary policy (choosing a lower target inflation rate). Inflationary expectations fell. The unemployment rate rose to almost 10%, but inflation fell from 9% to 4% -- shown by a leftward shift in the AD curve combined with a downward shift in the AS curve.



d. The 1990s brought an era of innovation, increasing global competition, and weakened unions from years of anti-union government policies. By 1998, the unemployment rate was 4.4% and inflation was 1.6% -- continual beneficial supply shocks leading to a downward and rightward shift of the AS curve and the economy's maximum capacity.



Answers to Self Test Questions

- | | |
|-------|-------|
| 1. E | 11. D |
| 2. D | 12. D |
| 3. E | 13. C |
| 4. B | 14. C |
| 5. D | 15. B |
| 6. D | 16. D |
| 7. C | 17. E |
| 8. D | 18. E |
| 9. D | 19. D |
| 10. A | 20. E |

Chapter 29

THE GLOBAL ECONOMY AND POLICY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter will take you through the basics of international trade and finance. The chapter introduces you to recent trends in the flows of trade and finance, as well as to the controversies over globalization. Imports and exports are added to the circular flow diagram that was introduced in Chapters 24 and 25. The chapter discusses the ways in which trade impacts fiscal and monetary policy. You will learn about exchange rates as well as different exchange rate systems. The chapter also examines the real world political economy of international economic relations.

Objectives

After reading and reviewing this chapter, you should be able to:

1. Describe various ways in which national economies are economically interconnected.
2. Understand the major policy tools countries have used to manage the degree of “openness” of their economies.
3. Describe major recent developments in the volume of international trade and financial flows.
4. Explain the macroeconomic impact of imports and exports using the circular flow model.
5. Understand basic principles of international finance.
6. Understand the implications of “openness” for monetary and fiscal policies.
7. Identify important international institutions concerned with trade and finance.

Key Terms

protectionism

trade quota

tariffs

non-tariff barriers to trade

trade-related subsidies

import substitution

capital controls

domestic content requirements

foreign trade zone

migration controls

free trade area

customs union

common market

World Trade Organization (WTO)

trade deficit

purchasing power parity (PPP)

exchange rate

purchasing power parity (PPP) adjustments

currency depreciation

currency appreciation

real exchange rate

foreign exchange

balance of payments (BOP) account

current account (in the BOP account)

trade account
capital account (in the BOP account)
portfolio investment
foreign direct investment (FDI)
capital flight
official reserve account
flexible (floating) exchange rate system
fixed exchange rate system

Bretton Woods system
devaluation
revaluation
foreign exchange market intervention
balance of payments crisis
International Monetary Fund (IMF)
fiscal capacity
World Bank
Washington Consensus

Active Review

Fill in the Blank

1. Suppose the U.S. government puts a tax on the imports of steel produced abroad. Such taxes charged on imports or exports are called _____.
2. Policies that provide subsidies to domestic producers to encourage the production of goods for domestic market and reduce the quantity of imports are called _____ policies.
3. Countries sometimes set up _____ within their borders, where foreign-owned manufacturers can operate free of many taxes, tariffs, and regulations.
4. _____ refer to the regulation or taxation of international transactions involving financial assets.
5. The exchange rate between two currencies, when adjusted for inflation in each country, is known as the _____.
6. A _____ can occur when a country gets precariously close to running out of foreign exchange and is therefore unable to purchase imports or service its existing debt.
7. The notion that, under certain idealized conditions, the exchange rate between the currencies of two countries should be such that the purchasing power of currencies is equalized is called _____.
8. The national account that tracks inflows and outflows arising from international trade, earnings, transfers, and transactions in assets is called the _____.
9. The account that tracks flows arising from international transactions in assets is called the _____.
10. Under a fixed exchange system, if a government lowers the value at which it fixes its exchange rate, the currency will undergo a _____.

True or False

11. Both quotas and tariffs provide a monetary revenue benefit to the government that has imposed them.
12. When a currency becomes less valuable in a flexible (floating) exchange rate system the correct term to use is “devaluation.”
13. When foreigners buy U.S. bonds or invest in a U.S. business, these are capital outflows in the balance of payments account.
14. The fixed exchange rate system of Bretton Woods broke apart in 1972, when the U.S. dollar came under too much selling pressure.
15. Under a fixed exchange rate system, it becomes impossible for an individual country to conduct independent monetary policy (as exemplified by the case of the EU countries that have adopted the euro).

Short Answer

16. List three policy tools to regulate trade in goods and services.
17. Identify and describe each of the three leakages and the three injections in the open economy version of the circular flow model.
18. Explain the difference between “depreciation” and “devaluation.”
19. Explain how a foreign exchange market intervention could be used to protect a currency that market forces are pushing toward a potential devaluation. Under what circumstances would this intervention potentially turn into a balance of payments crisis?
20. Explain what is meant by purchasing power parity (PPP), and purchasing power parity (PPP) adjustments.

21. Explain what happens to the value of the currency when there's an increase (or decrease) in the supply (or demand) of the currency in a foreign exchange market with flexible exchange rates.

22. Explain what is meant by the balance of payments account, the current account (in the BOP account), and the capital account (in the BOP account).

23. Describe the impact of an expansionary monetary policy in an open economy.

24. Why do some countries try to control the value of their currencies through a fixed exchange rate system? And how can they do so?

25. How has the adoption of the euro affected monetary policy-making in the Eurozone countries?

26. What are the international institutions of the "Washington Consensus", and what were the policy prescriptions they imposed on many developing countries in the 1980s and 1990s?

Problems

1. Identify whether each of the following represents an *inflow* or an *outflow* from either the *current account* or the *financial account*:
 - a. A Mexican banker purchases a United States government bond.
 - b. A U.S. corporation invests in a Chinese facility.
 - c. A U.S. corporation collects profits earned in Mexico and sends the money back to United States.
 - d. An exporter in the U.S. receives payment for goods shipped to France.
 - e. The U.S. government pays interest to bondholders in China

2. Exchange rates
 - a. Suppose under a flexible exchange system, there is a drop in the demand for the U.S. dollar, as investors find higher returns in countries that use the Euro. Use a graph of the foreign exchange market, with the price of dollars expressed as “Euros per dollar” to illustrate the impact on the value of the dollar.

 - b. Suppose that under a fixed (or managed) exchange system, China strives to keep the value of its Yuan artificially low. Illustrate with a graph of the foreign exchange market, how China’s Central Bank can do this.

Self Test

1. Which of the following is *not* one of the policy tools to regulate trade in goods and services?
 - a. Import quotas
 - b. Tariffs
 - c. Licensing requirements on imports
 - d. Capital controls
 - e. Trade-related subsidies
2. Suppose Hereland puts a quota on imports of oranges from Thereland. Which of the following groups is most likely to reap financial benefits from the imposition of the quota?
 - a. Hereland's orange producers
 - b. Hereland's government
 - c. Thereland's government
 - d. Hereland's consumers
 - e. None of the above
3. Which of the following characterizes the trends in trade and financial flows for the U.S. in recent years?
 - a. The volume of trade in goods and services (as a % of GDP) has increased over time, from about 10% in 1965 to almost 30% in 2015.
 - b. China has emerged as a major source of U.S. imports.
 - c. The volume of financial flows has increased significantly in recent years.
 - d. Since the early 1980s, the U.S. has been running current account deficits, mostly due to the trade deficits.
 - e. All of the above.
4. Which of the following is *not* one of the top buyers of U.S. exports?
 - a. Canada
 - b. Mexico
 - c. China
 - d. Japan
 - e. France
5. Which of the following is *not* one of the top sellers of imports to the United States?
 - a. Canada
 - b. Mexico
 - c. Brazil
 - d. China
 - e. Japan

6. The circular flow model in this chapter frames aggregate expenditure as:
- $AE = \text{Consumption} + \text{Intended Investment} + \text{Taxes} + \text{Exports}$
 - $AE = \text{Consumption} + \text{Actual Investment} + \text{Government Spending} + \text{Exports} - \text{Imports}$
 - $AE = \text{Consumption} + \text{Actual Investment} + \text{Government Spending} - \text{Taxes} + \text{Exports}$
 - $AE = \text{Consumption} + \text{Intended Investment} + \text{Government Spending} + \text{Net Exports}$
 - None of these accurately describes aggregate expenditure.
7. Which of the following best describes trends in trade expressed as a percentage of production from 1960 - 2015?
- both the worldwide volume of trade grew and the U.S. volume of trade grew
 - the worldwide volume of trade grew while the U.S. volume of trade fell
 - the U.S. volume of trade grew while the worldwide volume of trade fell
 - both the worldwide volume of trade fell and the U.S. volume of trade fell
 - None of the above.
8. Suppose that the exchange rate between U.S. dollars and currency in France, the euro, is 1.25 dollars per euro. If purchasing parity holds, how much would we expect a bottle of perfume that costs €100 in France to sell for in the United States?
- 80 dollars
 - 100 dollars
 - 120 dollars
 - 125 dollars
 - 150 dollars
9. Suppose that the exchange rate between U.S. dollars and currency in Mexico, the peso, is 0.10 dollars per peso. If purchasing parity holds, how much would we expect a scooter that costs \$10,000 in the United States to sell for in Mexico?
- 1,000 pesos
 - 10,000 pesos
 - 20,000 pesos
 - 50,000 pesos
 - 100,000 pesos

10. Suppose the German demand for United States stocks increases due to a stock market boom in the U.S. What would we expect to happen in the foreign exchange market, holding all other factors constant?

- a. The dollar will depreciate and more dollars will be traded.
- b. The dollar will depreciate and fewer dollars will be traded.
- c. The dollar will appreciate and more dollars will be traded.
- d. The dollar will appreciate and fewer dollars will be traded.
- e. The dollar could appreciate or depreciate, but fewer dollars will be traded.

11. Suppose the Chinese demand for United States government bonds decreases due to concerns about political battles in Washington D.C. What would we expect to happen in the foreign exchange market, holding all other factors constant?

- a. The dollar will depreciate and more dollars will be traded.
- b. The dollar will depreciate and fewer dollars will be traded.
- c. The dollar will appreciate and more dollars will be traded.
- d. The dollar will appreciate and fewer dollars will be traded.
- e. The dollar could appreciate or depreciate, but fewer dollars will be traded.

12. In 2012, brokers selling Miami real estate found that some of their best clients were from Argentina. What concept does this story from the chapter provide an example of?

- a. foreign exchange market intervention
- b. portfolio investment
- c. capital flight
- d. foreign direct investment
- e. None of the above.

13. Assume a foreign exchange market with a flexible exchange system. Suppose the demand for a country's currency decreases. This results in a _____ in its currency.

- a. depreciation
- b. appreciation
- c. devaluation
- d. revaluation
- e. The value of the currency will remain unchanged.

14. If the value of a country's currency falls, what is the effect on exports and imports, assuming all else remains unchanged?

- a. Exports will fall, and imports will rise.
- b. Exports and imports will both fall.
- c. Exports will rise, and imports will fall.
- d. Exports and imports will both rise.
- e. Exports and imports will remain unchanged.

15. How would payments from the sale of fighter jets to Saudi Arabia be registered in the U.S. balance of payments?

- a. As an inflow in the current account.
- b. As an outflow in the current account.
- c. As an inflow in the capital account.
- d. As an outflow in the capital account.
- e. None of the above.

16. Suppose a Kuwaiti company invests in a U.S. bank. How would this transaction be registered in the balance of payments?

- a. As an inflow in the current account.
- b. As an outflow in the current account.
- c. As an inflow in the capital account.
- d. As an outflow in the capital account.
- e. None of the above.

17. Which of the following best describes the impact of an expansionary monetary policy in an open economy?

- a. The rise in the interest rate dampens investment spending. It also raises capital inflows, raises the demand for and value of the currency, thereby dampening net exports.
- b. The fall in the interest rate stimulates investment spending. It also raises capital inflows, raises the demand for and value of the currency, thereby dampening net exports.
- c. The fall in the interest rate stimulates investment spending. It also reduces capital inflows, reduces the demand for and value of the currency, thereby boosting net exports.
- d. The fall in the interest rate stimulates investment spending. It also reduces capital inflows, reduces the money supply, which raises interest rates, cancelling out the effects of the initial fall in the interest rate.
- e. None of the above.

18. How can a Central Bank prop up the value of its currency?
- It could create more demand for the domestic currency by buying more of it.
 - It could increase the supply of the domestic currency.
 - It could create less demand for the domestic currency by buying less of it.
 - It could declare the currency to have a greater value, by fiat.
 - None of the above.
19. Which of the following is *not* one of the international institutions established in the late 1940s?
- The Bretton Woods system of fixed exchange rates.
 - The World Bank
 - The International Monetary Fund (IMF)
 - The General Agreement on Tariffs and Trade (GATT)
 - The World Trade Organization
20. Which of the following was *not* one of the policy prescriptions advocated by the “Washington Consensus” in the 1980s and 1990s?
- Trade liberalization
 - Privatization
 - Deregulation
 - Reduce the size of government
 - Government spending to reduce poverty

Answers to Active Review Questions

1. tariffs
2. import substitution
3. foreign trade zones
4. capital controls
5. real exchange rate
6. balance of payments crisis
7. purchasing power parity (PPP)
8. balance of payments (BOP) account
9. capital account (in the BOP account)
10. devaluation
11. False. Only tariffs provide a monetary revenue benefit to the government.
12. False. “Depreciation” is the correct term.
13. False. They are capital inflows.
14. True.
15. True.
16. Three policy tools to regulate trade are: a trade quota, a tariff, or a trade- related subsidy.
17. The leakages in the open economy circular flow model include savings, taxes, and imports. The injections in the open economy version of this model include intended investment, government spending, and exports.
18. “Depreciation” refers to the reduction in a currency’s value in a flexible exchange rate system, while “devaluation” refers to a reduction in a currency’s value in a fixed exchange rate system.
19. A foreign exchange market intervention to protect a currency threatened with potential devaluation would involve the central bank buying the threatened currency and depleting foreign exchange reserves. If the central bank is in danger of running out of foreign exchange then a balance of payments crisis is a distinct possibility.
20. Purchasing power parity is the theory that exchange rates should reflect the difference in purchasing power among countries, under certain idealized conditions (such as the free trade of currencies and goods, and the absence of transportation costs). However, in reality these conditions often do not exist. Thus purchasing power parity (PPP) adjustments are made to take account of differences in the cost of living between countries.
21. If the supply of the currency increases, the value of the currency will fall. If the demand of the currency increases, the value of the currency will rise. (And vice versa for the decrease.)
22. The balance of payment account tracks the inflows and outflows arising from international trade, earnings, transfers, and transactions in assets. It’s divided into two subsections: the current account and the capital account. The current account tracks the inflows and outflows from trade in goods and services, as well as earnings and transfers. The capital account tracks inflows and outflows from transactions in assets.
23. In an expansionary monetary policy, interest rates fall, which stimulates investment spending. But the lower interest rates also lead to capital outflows, a fall in the demand for the currency, and thereby a depreciation in the currency and an increase in net exports. The increase in investment spending and net exports both boost

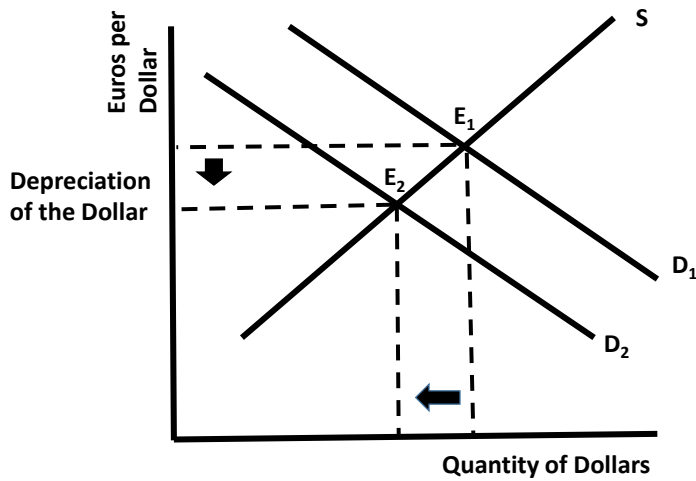
- aggregate expenditure and GDP.
24. Because a wildly fluctuating currency can be very destabilizing in conducting economic activities (particularly for producers, or people with financial assets). Their Central Bank can either buy up domestic currency (to prop up its value). Or if it wants to artificially keep the value of its currency low, it can increase the supply of its domestic currency on the market.
 25. By adopting a common currency, the Eurozone countries have given up having separate monetary policies and put the European Central Bank in control of their monetary policy-making. Since the different Eurozone countries have different objectives and requirements, it is complicated to design a monetary policy that fits the interest of all member countries. For example, the low interest policies of the ECB after the 2008-09 financial crisis was not sufficient to boost the economies of countries like Greece and Spain where the impacts of the crisis was much more adverse than in countries like Germany and Austria.
 26. The “Washington Consensus” consists primarily of the World Bank and IMF, both located in Washington D.C. As a condition for assistance, they required developing countries to engage in trade liberalization, privatization, deregulation, and decreasing the size of government through spending cuts (budget austerity).

Answers to Problems

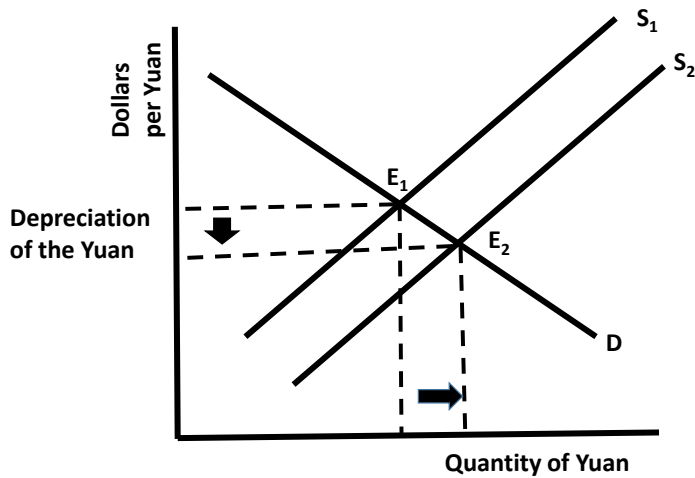
1.

a. Inflow, abroad”	financial account	This is “borrowing from
b. Outflow,	financial account	This is “FDI abroad”
c. Inflow,	current account	This is “income receipts”
d. Inflow, goods”	current account	This is “payments for exports of
e. Outflow,	current account	This is “income payments”

2. a. A drop in demand for the U.S. dollar results in a depreciation in the value of the dollar.



b. The Chinese Central Bank can increase the supply of the Yuan to keep its value low.



Answers to Self Test Questions

- 1. D
- 2. A
- 3. E
- 4. E
- 5. C
- 6. D
- 7. A
- 8. D
- 9. E
- 10. C
- 11. B
- 12. C

- 13. A
- 14. C
- 15. A
- 16. C
- 17. C
- 18. A
- 19. E
- 20. E

Chapter 30

FINANCIAL INSTABILITY AND ECONOMIC INEQUALITY

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter discusses some of the complexities of real-world macroeconomics by introducing you to two of the key challenges of the current century—financial instability and economic inequality. It begins by reviewing the origins and development of the financial crisis of 2007-8 and discussing the policy responses. It then explains the occurrence of such crisis, in general, based on Minsky’s theory of financial instability. The role of deregulation and financialization in increasing the vulnerability of both the real and financial sectors in the U.S. economy is discussed in some detail. A description of some of the key factors contributing to the rising economic inequality in the United States in recent decades is presented next. The final section makes some recommendations on addressing macroeconomic instability and economic inequality. The debate over policy responses continues, and this chapter provides you with the background you need to assess the current state of macroeconomic policy.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Describe the underlying causes of the 2007-08 financial crisis and explain the severity and impacts of the crisis.
2. Describe the major fiscal and monetary responses to the crisis.
3. Understand the role of deregulation and financialization in increasing the vulnerability of the real and financial sectors of the U.S. economy.
4. Describe Minsky’s theory of financial instability to explain the occurrence of financial crisis and understand the role of regulation in managing instability.
5. Understand the similarities and differences between the Great Recession and the Great Depression.
6. Describe the trends in inequality in the United States in the past few decades.
7. Identify the underlying causes of rising wage inequality and the role of financialization and macroeconomic policies in contributing to the rise in inequality.
8. Discuss policy measures that might help create a more stable and sustainable economic system.

Key Terms

subprime mortgage

securitization

mortgage-backed security (MBS)

collateralized debt obligation

moral hazard

credit rating agencies

“too big to fail”

wage-productivity gap

skill-biased technical chang

Active Review

Fill in the Blank

1. The process of pooling various kinds of loans, slicing and sorting them according to their risk levels, and repackaging them into financial instruments is known as _____.
2. Mortgages given to people with poor credit are known as _____.
3. The availability of government bailouts for large firms can encourage excessive risk-taking, a phenomenon known as _____.
4. The major financial reform passed in the wake of the 2007-9 crisis was the _____ bill.
5. The law formerly separating commercial and investment banking, which was repealed in 1999, was known as the _____.
6. The process of increasing size and importance of the financial markets in the operation of the economy is known as _____.
7. The theory that unregulated markets will always produce instability and crisis is referred to as the _____.
8. In Minsky's theory, the three financial profiles that account for the different margins of safety are _____, _____, and _____.
9. The gap between the growth of labor productivity and the growth of wages, referred to as _____, has been _____ since the 1970s.
10. The theory that relative wage gains will be greatest for those workers who possess the education and skills to use modern technologies is _____.
11. Since the 1980s, the difference in effective tax rates paid by the rich and the poor has _____ with the decline in corporate taxes and an increase in payroll taxes.
12. A tax on financial transactions is often referred to as _____, after the economist who first proposed it.

True or False

13. High mortgage rates contributed to the development of the housing bubble.

14. Since the 1970s, a greater proportion of money in the financial system has been directed towards funding productive investment, while investment in financial instruments have declined.
15. The 2008 crisis was referred to as the “Minsky’s moment” because Minsky’s theory of financial instability predicted such a crisis.
16. The Great Recession was less severe than the Great Depression because of the deregulation of the financial system since the 1980s.
17. The expansionary monetary policies implemented by the Federal Reserve since the 1980s have contributed to the rising income inequality in the U.S..
18. The Dodd-Frank bill promoted deregulation of banks.

Short Answer

19. What were some of the factors leading to the housing bubble?
20. What were the major fiscal and monetary policy responses to the crisis?
21. In what ways can unemployment be both a result and a cause of deepening recession?
22. How does Minsky’s theory explain the occurrence of financial instability in the economic system?
23. What are some of the factors explaining the rise of inequality in the United States in the past few decades?
24. How was globalization related to increasing inequality?
25. Discuss some of the ways in which financial resources may be directed towards more socially useful investments.

Problems

1. Refer to Figure 30.2 in the text to describe how interest rates were related to the development and collapse of the housing bubble.
2. Refer to Figure 30.6 in the text to describe how the distribution of bank assets changed between 1984 and 2017.
3. As suggested in Exercise 1 in the text, you can find information on housing prices at The Federal Housing Finance Agency website www.fhfa.gov. To find the required data, go to www.fhfa.gov/DataTools/Tools and select HPI Motion chart. Then check off the states you want to view (it is possible to view multiple states at the same time). Select the third tab at the top right (with graph symbol) to get a historical view of the rate of change in state housing prices from 1991 to the present. What do you observe? (Note that the chart shows quarterly rate of change, not absolute price levels, so overall prices start to fall when the line goes below zero.)
4. As suggested in Exercise 2 in the text, you can find data on the Great Recession at the Federal Reserve Economic Database <http://research.stlouisfed.org/fred2/>. To find data on unemployment rates, go to Current Population Survey/Unemployment Rate/Civilian Unemployment Rate/Seasonally Adjusted (do not select Natural Rate of Unemployment on the main Population, Employment, and Labor Markets page – this does not show total unemployment). Drag the cursor over graph to see the data on unemployment during the last four recessions. How does the Great Recession compare to previous recessions?

Self Test

1. Factors contributing to the housing bubble included:
 - a. Unprecedented access to credit.
 - b. Rising unemployment.
 - c. Low interest rates.
 - d. Both (a) and (b).
 - e. Both (a) and (c).
2. During the recession of 2007-9:
 - a. The U.S. economy lost nearly 9 million jobs.
 - b. About 11 million homeowners faced foreclosure
 - c. Manufacturing unemployment rose from 4.3% to 12.1%
 - d. U.S. consumer spending declined and business profits fell.
 - e. All of the above.

3. The underlying causes of the financial crisis of 2007-8 included all of the following *except*:

- a. Increasing bank size.
- b. Increasing inequality.
- c. Excessively contractionary monetary policy.
- d. Deregulation
- e. Short-term corporate incentive.

4. Comparing the Great Depression and the Great Recession, we can say that:

- a. The Great Recession was more severe in terms of unemployment.
- b. The Great Depression was more severe in terms of unemployment.
- c. Both were preceded by bubbles in asset values.
- d. Both (a) and (c).
- e. Both (b) and (c).

5. Government responses to the 2007-9 recession included all of the following *except*:

- a. Stimulus spending by state and local governments.
- b. Bailouts for key financial institutions.
- c. Stimulus spending by the federal government.
- d. Expansionary monetary policy.
- e. “Quantitative easing” or security purchases by the Fed.

6. The Dodd-Frank bill does all of the following *except*:

- a. Sets up a Consumer Financial Protection Bureau.
- b. Relaxes bank regulation.
- c. Institutes minimum lending standards.
- d. Empowers regulators to aggressively pursue financial fraud, conflicts of interest and manipulation of system.
- e. Requires greater disclosure by ratings agencies.

7. Regulations put in place after the Great Depression include all of the following *except*:

- a. Glass-Steagall Act
- b. Dodd-Frank Bill
- c. Regulation Q
- d. Restrictions on banking across state lines
- e. Imposition of several capital and leverage requirements on the financial sector

8. The increase in size of banks since the 1980s is explained by:
- Loosening of restrictions on capital across borders
 - Riegle-Neal Interstate Banking and Branching Act
 - Financial Services Modernization Act
 - (b) and (c) only
 - (a), (b) and (c)
9. Which of the following statements is TRUE?
- The frequency of bank mergers increased steadily from 1980 to 2000, and has declined since then.
 - Deregulation of the financial sectors has helped reduce the risk-taking behavior of banks.
 - The Dodd-Frank bill reinstated the separation between commercial and investment banks.
 - Non-financial firms have become increasingly financialized through increasing investment in financial instruments.
 - All of the above.
10. The 'efficient market hypothesis is based on all the following assumptions *except*:
- Individuals are rational decision-makers.
 - Markets are perfectly competitive.
 - Individual decision-making is influenced by their expectations.
 - Individuals possess complete information about the market price of assets.
 - (a) and (c)
11. According to Minsky, during an economic expansion
- financial firms move from speculative financing to hedge financing.
 - financial firms become more confident and take higher risks.
 - financial firms move from hedge financing to Ponzi financing.
 - financial firms become stronger.
 - Both (b) and (c).
12. Which of the following statements is FALSE?
- Data from 1948 to 2017 shows that corporate profits have always grown faster than wages.
 - Over time, the labor productivity in the U.S. has declined.
 - The wage-productivity gap has narrowed in the last three decades.
 - Union membership rate in the U.S. has gradually increased since the 1970s.
 - All of the above.

13. The theory of skill-biased technological change proposes that:
- a. relative wage gains will be the greatest for workers who possess the education and skills to use modern technologies
 - b. technological change leads to a decline in wages
 - c. technological change increases worker productivity and their wages
 - d. as technology replaces workers, the bargaining power of workers declines
 - e. technological change could increase unemployment rates
14. Which of the following explains financialization as a factor in rising inequality in the U.S. economy?
- a. Wages in the financial sector has grown much faster than wages in other sectors.
 - b. A greater share of income has gone to those who own assets, most of whom tend to be wealthier individuals.
 - c. Executive pay has increased sharply due to a change in corporate pay structure, where a larger proportion of executive pay has come in the form of stock options and bonuses.
 - d. Workers' bargaining power has declined as corporations have shifted their reliance on earnings through financial channels.
 - e. All of the above.
15. Since the 1980s,
- a. top marginal tax rates have increased.
 - b. payroll tax rates have declined.
 - c. effective tax rates paid by the rich and poor has narrowed.
 - d. spending on welfare has increased.
 - e. All of the above.
16. An expansionary monetary policy could increase inequality because:
- a. low interest rates increase asset prices which are mostly owned by the rich
 - b. low interest rates increase labor income faster than business income
 - c. middle-income savers lose returns on savings when rates are low
 - d. (a) and (c) only.
 - e. (a), (b), and (c).
17. Which of the following statements about the impact of macroeconomic policy on inequality is TRUE?
- a. The impact of fiscal policies of the last few decades on inequality is ambiguous.
 - b. Fiscal policies of the last few decades have contributed to a rise in inequality.

- c. Monetary policies of the last few decades have contributed to a rise in inequality.
- d. The impact of fiscal policy on increasing inequality is less clear than the impact of monetary policies.
- e. There is clear evidence that the equalizing effects of monetary policy is greater than its disequalizing effects.

18. Policies to reduce inequality include all the following, *except*:

- a. Lowering corporate taxes.
- b. Increasing minimum wages.
- c. Strengthening labor unions.
- d. Increasing investment in human capital.
- e. Providing support to low-income workers.

19. Which of the following might help direct financial resources to more socially useful investments?

- a. Increasing payroll taxes.
- b. Encouraging companies to engage in stock buybacks.
- c. Promoting regional and community financial institutions.
- d. Increasing investment in financial assets.
- e. All of the above.

20. Proposals for regulate the financial system include:

- a. A financial transactions tax.
- b. An increased sales tax.
- c. A lower sales tax.
- d. A general reduction in business taxes.
- e. A general increase in business taxes.

Answers to Active Review Questions

1. securitization
2. sub-prime mortgages
3. moral hazard
4. Dodd-Frank
5. Glass-Steagall Act
6. financialization
7. financial instability hypothesis
8. hedge, speculative, and Ponzi
9. wage-productivity gap, increasing
10. skills-biased technical change
11. narrowed
12. Tobin tax
13. False. It was *low* mortgage rates that feed the growth of the housing bubble.
14. False. Role of finance in funding productive investment has declined while a greater portion of money has gone to investment in financial instruments.
15. True.
16. False. The Great Recession was less severe than the Great Depression because of the existence of government regulations, automatic stabilizers, and the imposition of expansionary monetary and fiscal policy during the 2008 crisis.
17. False. The impact of monetary policy on inequality is not clear.
18. False. The goal was to regulate the banks, though it has been watered down to a great extent through intense lobbying by the financial sector.
19. Factors leading to the housing bubble included a period of low interest rates, unprecedented expansion of credit including sub-prime mortgages, and speculation in the housing market driving prices even higher.

20. After the immediate responses of bailouts for endangered financial institutions, the Federal government instituted large-scale stimulus spending to prevent a collapse in aggregate demand and to promote economic recovery. At the same time, the Federal Reserve engaged in an extraordinarily expansionary monetary policy, purchasing hundreds of billions of dollars' worth both of Treasury bonds (traditional expansionary policy) and other financial assets ("quantitative easing").

21. As the economy goes into recession, more people are laid off. Unemployed workers have less income to spend, leading to a decline in consumption. This lowers business profits, which in turn promotes further cutbacks and layoffs. The process creates a vicious spiral of unemployment and lower consumption that feeds on itself and deepens the recession.

22. Minsky's theory argues that uncertainty about the future and expectations of market participants play a key role in influencing the value of assets. When the economy is just recovering from a crisis investors will be cautious and maintain large safety margins. However, as the economy gains strength, investors will become more optimistic and pursue risky ideas which weakens the financial system and makes it more credit-dependent and vulnerable to crisis.

23. Rising wage-productivity gap due to decline of unions, globalization and trade, and technological change. The financialization of the economy and the fiscal policies of the past few decades have also contributed to the rise in inequality.

24. Globalization has lowered the bargaining power of workers as corporations have had to ability to look around the world and also relocate their production facilities to hire low-cost workers (mostly in developing countries). Additionally, competition from low-priced imports has also eliminated many jobs, especially in the industrial sector, and pushed many middle-income workers to move to lower-income jobs.

25. Promoting smaller regional and community financial institutions that support local home-buyers and businesses. Institute small tax on financial transactions to discourage speculations and prevent the formation of asset price bubbles. Restrict companies from buying back their own stocks and encourage them to invest in their employees through tax incentives. Encourage cooperative based organizations that focus on improving the well-being of workers.

Answers to Problems

1. A steep decline in interest rates after 2001 contributed to inflating the bubble in housing prices. The fact that interest rates rose in 2005 and 2006 may have been a precipitating factor in the bursting of the bubble. Once the bubble burst, with a steep decline in housing prices, interest rates also fell as the Fed moved back to an expansionary policy to respond to the crisis and ensuing recession.
2. Bank assets became increasingly concentrated in the largest banks, with the share of assets held by banks with assets over \$250 billion went from about 5% to over 50% between 1996 and 2017. The relatively large banks with assets between \$10 billion and \$250 billion increased from being less than 30% in 1984 to almost 50% between 1994 and 2000, and then declined to just over 30% in 2017. Meanwhile the share of the smallest banks, those with less than \$100 million in assets, fell from about 14% to about 0.5% between 1984 and 2017. The shares of intermediate-sized banks also declined, with the share of banks having assets between \$100 million and \$1 billion going from about 26% to about 7%, and the share of banks having between \$1 and \$10 billion going from about 32% to about 10% between 1984 and 2017.
3. In general, all states show the pattern of a housing price run-up prior to 2006, with a significant price crash by 2008. After 2008, the rate of decline slows, but the rate of change remains below zero for most states until 2011. The fluctuations are more extreme for states such as Florida and Nevada than, for example Connecticut and Illinois, indicating that the crisis was concentrated in specific housing markets (but, as the text notes, spread nationwide due to the complexity of mortgage finance instruments).
4. The Great Recession was much more severe than the previous three recessions, with an increase in unemployment of over five percentage points. The FRED graph also shows that unemployment continued to rise after the formal end of the recession, then declined only slowly, falling below 7% only at the end of 2013, and falling even lower to about 4% in 2017.

Answers to Self Test Questions

- | | |
|------|-------|
| 1. E | 11. E |
| 2. E | 12. E |
| 3. C | 13. A |
| 4. E | 14.E |
| 5. A | 15. C |
| 6. B | 16. D |
| 7. B | 17. B |
| 8. E | 18. A |
| 9. D | 19. C |
| 10.C | 20.A |

Chapter 31

DEFICITS AND DEBT

Principles of Economics in Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter expands on the material from Chapter 25, from a less theoretical and more applied perspective. It begins by going over the difference between deficits and debts, and reviewing some of the history of U.S. indebtedness. Included in this is a brief discussion of “supply-side” economics and its role in altering the fiscal position of the United States. The chapter also goes into significant detail explaining the differences among different debt “terminologies” that are often confused, clarifying what we mean by terms such as “external debt” or “public debt.” It then reviews some of the basic problems with excessive borrowing, including political considerations and issues related to the foreign holding of government debt. This discussion includes a contrast between the European Union (EU) and US approaches to their respective budget problems. The chapter concludes with future projections of deficits and debt in the United States, and a discussion of some policies to reduce future deficits and long-term growth of debt.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Understand the difference between a deficit and a debt, and how the two are related.
2. Explain how the national debt in the United States has evolved over the years.
3. Have a basic understanding of how “supply side” economics changed the debt situation in the United States.
4. State the differences among the different debt classifications
5. Understand the main problems with excessive borrowing
6. Explain the different ways in which a country’s debt infiltrates its politics, both domestic and international.
7. Explain what future projections are, both for U.S. deficits and debt.
8. Discuss the revenue and spending side policies for reducing future deficits.

Key Terms

gross federal debt
debt held by the public
internal debt
external debt
monetizing the debt
deficit ceiling

debt ceiling
functional finance
sovereign debt
convergence criteria
austerity

Active Review

Fill in the Blank

1. We say that whereas the government deficit is a flow variable, the debt is a _____ variable.
2. The gross federal debt results from an accumulation of _____ over the years.
3. The Department of the Treasury issues _____ in order to pay for its budget deficits.
4. President Reagan favored policies based on _____ economics, which presumed that offering more benefits to the rich would help the economy.
5. The _____ debt refers to the total amount owed by the federal government to *all* claimants.
6. When the Federal Reserve buys the government debt as it is issued, it is referred to as _____ the debt.
7. Were it not for low _____ in recent years, the growing debt would have been a greater burden on the annual federal budget.
8. The two countries that hold the greatest share of the U.S. gross federal debt are _____ and _____.
9. A policy of _____ involves cutting deficits by cutting social spending and/or raising taxes.
10. The rules by which EU member countries must abide as a condition for participating in the Eurozone are known as the _____.

True or False

11. An accumulation of government debts will ultimately lead to a deficit.
12. Alexander Hamilton believed that the national debt had the potential to strengthen the country.
13. The debt held by the public refers to the portion of the debt not held by foreign countries.
14. China holds a minority of the external debt of the United States.

15. The United States recently passed a balanced budget amendment to the Constitution.
16. United States policy has, over the past 10 years, preferred deficit spending to austerity.

Short Answer

17. Explain the difference between deficits and debt, and discuss how they are related.
18. Has the federal debt increased over the past century in absolute terms? How about as a percentage of GDP? Discuss.
19. Explain how supply-side economic policies have impacted the U.S. federal budget.
20. Discuss in detail how ‘gross federal debt’ is different from ‘total U.S. indebtedness.’
21. What are some of the main problems associated with too much borrowing by the federal government?
22. Many believe that most of our government debt is owed to foreigners, especially to the Chinese. Is this true? Discuss.
23. Should the United States “balance its budget?” Discuss, contrasting the United States and the European Union.
24. What does the future hold for the U.S. federal budget? Why, according to the Congressional Budget Office, are deficits likely to increase significantly in the next few years?

25. Do taxes on carbon or other greenhouse make sense from the standpoint of reducing U.S. deficits? Explain.

Problems

1. Given the following hypothetical budget data for “Budgetland,” fill in the “total spending” column (which, for the time being, is just military and civilian spending). Then calculate the surplus/deficit for each year and, based on this calculation, the existing debt at the start of the next year. Comment.

<u>Year</u>	<u>Tax Revenue</u>	<u>Military Spending</u>	<u>Civilian Spending</u>	<u>Total Spending</u>	<u>Surplus or Deficit</u>	<u>Existing Debt</u>
2015	7.0	4.0	4.0			100.0
2016	7.2	4.0	4.1			
2017	7.2	4.2	4.3			
2018	7.3	4.0	4.5			
2019	7.0	3.7	4.7			
2020	7.1	3.5	4.9			
2021	6.8	3.6	5.1			
2022	7.0	3.7	5.3			
2023	7.2	3.8	5.5			
2024	7.3	3.9	5.7			
2025	7.4	4.0	5.9			

2. Now expand this problem by adding a column that includes Budgetland’s interest payments (another component of total spending). For now, assume a constant interest rate of 2 percent, so that interest payment for the first year equals .02 times the existing debt of 100.0. (Interest payments for subsequent years will be based on updated debt numbers). Notice that the debt numbers will themselves change now since the interest payments will add to the annual deficit. Comment on what you observe.

3. Now let’s compare Budgetland’s debt to its GDP. Add two columns—GDP, and “debt-GDP ratio.” Let GDP in the year 2015 equal 200.0, and assume that it grows by 3 percent annually. Then calculate the debt-GDP ratio for each year. What trend do you notice?

4. Finally, redo the entire exercise assuming an interest rate of 5 percent instead of 2 percent. Then try it assuming an interest rate of 10 percent. What differences do you notice? Prepare a graph that shows the Budgetland’s debt-GDP ratio under each of the three interest rate assumptions over the period.

Self Test

1. A deficit in a given year signifies...
 - a. a shrinking surplus.
 - b. a growing debt.
 - c. a surplus in the year to follow.
 - d. higher taxes.
 - e. Both (a) and (b)

2. Which of the following is NOT an argument for not worrying about the size of the debt?
 - a. Every country's government is indebted.
 - b. Half of government debt is owed to U.S. citizens.
 - c. The U.S. government pays interest in dollars, a desirable currency internationally.
 - d. Government debt never even has to be paid off.
 - e. All of the above are valid arguments.

3. Our national debt as a percentage of GDP reached its highest point during...
 - a. the Viet Nam war.
 - b. the Great Depression.
 - c. the Reagan Administration.
 - d. World War II.
 - e. the Obama Administration.

4. What was the importance of the Great Depression in relation to the history of the U.S. federal debt?
 - a. It thereafter became more manageable than it had been previously.
 - b. Higher taxes since then have wreaked havoc with the federal budget.
 - c. Social spending started to make a meaningful impact on the overall debt.
 - d. It was from this point forward that the Treasury Department would start borrowing at lower interest rates.
 - e. None of the above is true.

5. Reagan's 1981 Economic Recovery Act...
 - a. substantially reduced income and corporate tax rates.
 - b. was in keeping with his preferred supply-side policies.
 - c. contributed to a sizable increases in federal budget deficits.
 - d. coincided with an increased in military spending.
 - e. All of the above are true.

6. Which of the following was NOT a factor in the record deficits seen during President Obama's first term in office?
- a. The Great Recession
 - b. Automatic stabilizers
 - c. Wars in Iraq and Afghanistan
 - d. Tax increases
 - e. All of the above were factors.
7. The "debt held by the public" refers to...
- a. the gross federal debt minus the debt held by the Federal Reserve.
 - b. the gross federal debt minus the debt owed to other government accounts.
 - c. the gross federal debt plus the debt held in credit cards and household mortgages.
 - d. the portion of the federal debt held by U.S. citizens.
 - e. household credit card and mortgage debt.
8. Total U.S. indebtedness, including both public and private debt, reached _____ percent of GDP in the aftermath of the financial crisis of 2007-08.
- a. 500
 - b. 140
 - c. 350
 - d. 57
 - e. 18
9. Monetizing the debt means that...
- a. the Fed buys new government debt as it is issued.
 - b. the Treasury Department issues new bonds to finance the federal budget deficits.
 - c. the Defense Department sells some of its aircraft for cash in order to help finance the deficit.
 - d. the Fed "cashes in" its debt holdings.
 - e. None of the above.
10. The Federal Reserve holds approximately _____ percent of the gross federal debt.
- a. 10
 - b. 20
 - c. 5
 - d. 50
 - e. 2

11. After China and Japan, the three single greatest foreign holders of U.S. federal debt are...
- a. Brazil, India, and Russia.
 - b. Russia, India, and Saudi Arabia.
 - c. Brazil, Switzerland, and the Congo.
 - d. Brazil, Russia, and Kenya.
 - e. Ireland, Brazil, and Switzerland.
12. As of 2016, the EU nation with the greatest debt-GDP ratio was...
- a. Portugal.
 - b. Germany.
 - c. Greece.
 - d. Spain.
 - e. Italy.
13. Austerity...
- a. means that deficits are cut through either spending cuts or tax hikes.
 - b. accurately describes recent U.S. fiscal policy.
 - c. tends to cause deficits to rise rapidly.
 - d. describes a set of policies that a government would pursue if it wanted to promote job growth.
 - e. was favored by the Reagan Administration.
14. The Congressional Budget expects U.S. deficits to...
- a. decline until 2025 and rise steeply thereafter.
 - b. rise until 2025 and then decline steeply thereafter.
 - c. decline until the debt is fully paid off by 2055.
 - d. more or less stabilize by 2025.
 - e. rise to about 5% of GDP by 2022 and remain close to 5-6% for the next six years.
15. The debt ceiling refers to...
- a. the debt level at which the U.S. government runs out of money.
 - b. the congressionally mandated limit on the size of the federal debt.
 - c. the point at which the federal debt reaches 100 percent of GDP.
 - d. a limit on federal debt imposed by the Treasury Department.
 - e. the point at which interest payments on the debt fully exhaust next year's budget.

16. A balanced budget amendment to the Constitution...
- a. would likely increase the annual inflation rate.
 - b. would probably make fiscal policy a more powerful tool.
 - c. was passed in 2013 but awaits ratification.
 - d. All of the above are true.
 - e. None of the above is true.
17. Which of the following is NOT a reason given by the CBO for its expectation that deficits in the United States will remain high in the near future?
- a. An increase in healthcare costs.
 - b. An aging population.
 - c. An increase in interest payments on the federal debt.
 - d. The 2017 tax cuts by the Trump administration.
 - e. All of the above are reasons given by the CBO.
18. The reduction in “mandatory” spending would require the federal government to cut spending on ...
- a. the military.
 - b. retirement programs and unemployment.
 - c. education and research and development.
 - d. the environment.
 - e. All of the above.
19. Which of the following is a revenue side policy for reducing future deficits?
- a. lowering payroll taxes
 - b. imposing new, possibly environmentally-oriented, taxes
 - c. reducing spending on military.
 - d. repealing tax cuts for high-income individuals and corporations
 - e. Both b. and d.
20. The spending side policies on reducing deficits include all the following, *except*:
- a. increasing taxes for high-income individuals
 - b. reducing spending on social welfare programs
 - c. reducing discretionary spending on military and infrastructure
 - d. increase efficiency of spending on healthcare
 - e. reduce spending on scientific research

Answers to Active Review Questions

1. stock
2. deficits
3. bonds
4. supply-side
5. gross federal
6. monetizing
7. interest rates
8. China, Japan
9. austerity
10. convergence criteria
11. False, it is the other way round—an accumulation of deficits results in a debt.
12. True
13. False, that would be the internal debt. The public debt refers to the gross federal debt minus the debt owed to other government accounts such as Social Security and Medicare.
14. True
15. False, only a minority of Congress members believes that the United States should do so.
16. True
17. A deficit occurs whenever available tax revenue is insufficient to finance government spending for that year. The money borrowed by the government to make up the difference adds to the existing debt. Hence, debt is the accumulation of deficit over many years.
18. In terms of dollars, yes, the debt has more or less risen throughout the 20th century, to its present level of over \$21 trillion. But in relation to the size of the economy (GDP)—which is what we care more about—it has fluctuated considerably. It reached its highest point, more than 100 percent of GDP, during World War II, but since then declined to under 40 percent in the late 1970s. Since then it has again been on the rise, recently again reaching over 100 percent of GDP.
19. In short, supply-side economics involves tax cuts—and starting in the 1980s these were substantial. Reduced tax revenue results in budget deficits (unless spending declines commensurately, which was far from the case), and with deficits a perennial phenomenon the debt can become very large indeed.
20. The gross federal debt refers to the total amount of money owed by the federal government—what is often referred to as the national debt. Total indebtedness is a much broader concept, which includes the national debt, but also all corporate debt from financial and non-financial businesses, all debt from state and local governments, and all debt from households (including credit card and mortgage debt) and non-profits.
21. One problem is that borrowing sometimes is for “low-multiplier” activities, such as tax cuts for the wealthy, or spending on projects that might disproportionately benefit the wealthy, who spend a much smaller share of their income than the poor. Another problem is that if debt grew too large, creditors might begin to doubt the U.S. government’s continued ability to finance its debt. Thus far there is not much

evidence of this, but it is not inconceivable. Third, mounting debt requires either that taxes be raised or that more money be borrowed to finance existing debt. Often this leads to monetizing the debt—which means that the Fed stands ready to buy the new bonds—which has monetary policy impacts that might not always be desirable.

22. This is not true. As of 2016, foreigners held about one-third (32.5%) of the debt, of which the Chinese and the Japanese held over 35 percent. This is not to say that it is not a problem. Foreign ownership of U.S. debt has increased substantially over the past 30-40 years, and seems likely to continue increasing. Interest payments on this portion of the debt must be made to those outside the country.
23. Balancing the budget and, ultimately, paying off the debt would likely create more problems than it solves. There is nothing inherently wrong with a national government having a debt, as long as it is “manageable.” What this means is that the cost of servicing the debt (i.e., paying interest on it) is not too burdensome on the next budget (in that it requires cuts in other types of spending or an increase in the amount of borrowing). The problem with balancing the budget is that doing so would require tax increases, spending cuts, or both. And such policies may have to be implemented at times when the economy is in a downturn (which might worsen the crisis), or when there is severe need for government funds for recovery from a natural disaster. So, while reducing the deficit is probably a good idea, caution is required so that doing so does not produce too contractionary an effect on the economy. In contrast to the United States, the European Union had adopted a strict deficit-reducing (austerity) strategy, which only deepened the already suffering economy with countries such as Greece, Spain and Portugal experiencing considerable social unrest and economic hardship. Unfortunately, countries in the Eurozone had little choice, since their deficit and debt levels must satisfy the euro’s convergence criteria. However, since 2017 these austerity policies have been relaxed and EU has encouraged fiscal expansion.
24. The 2017 tax cuts by the Trump administration that includes tax cuts for everyone, with greater and more permanent tax cuts going to the high-income individuals and corporations, is likely to increase the deficits in the coming years significantly. Moreover, the CBO finds that deficits are likely to remain high—for four other reasons. First, an aging U.S. population means that more funds than earlier will be needed to finance retirement programs like Social Security and Medicare, and the tax base is likely to shrink as the retired become a greater percentage of the overall population. Second, and related, with health care costs rising much more rapidly than the general inflation rate, Medicare expenditures will only increase even more rapidly. Expenditures on Medicaid, a program that provides medical coverage for poor families, would also increase significantly. Third, federal subsidies for health care are likely to rise commensurately. Finally, as interest rates are not expected to remain at historical lows forever, any modest rise in the interest rate would translate to much larger annual interest payments, also worsening budget deficits.
25. They do make sense, at least potentially. Such taxes increase revenue for the government, so if nothing else changed, deficits would be smaller, possibly by \$100 billion or more. And if such taxes raised sufficient revenue, they could even carry the additional benefit of allowing a reduction in the income tax, which would likely increase overall economic efficiency (since instead of taxing income, a “desirable,” we would tax pollution, an “undesirable.”)

Answers to Problems

1.

<u>Year</u>	<u>Tax Revenue</u>	<u>Military Spending</u>	<u>Civilian Spending</u>	<u>Total Spending</u>	<u>Surplus or Deficit</u>	<u>Existing Debt</u>
2015	7.0	4.0	4.0	8.0	-1.0	100.0
2016	7.2	4.0	4.1	8.1	-0.9	101.0
2017	7.2	4.2	4.3	8.5	-1.3	101.9
2018	7.3	4.0	4.5	8.5	-1.2	103.2
2019	7.0	3.7	4.7	8.4	-1.4	104.4
2020	7.1	3.5	4.9	8.4	-1.3	105.8
2021	6.8	3.6	5.1	8.7	-1.9	107.1
2022	7.0	3.7	5.3	9.0	-2.0	109.0
2023	7.2	3.8	5.5	9.3	-2.1	111.0
2024	7.3	3.9	5.7	9.6	-2.3	113.1
2025	7.4	4.0	5.9	9.9	-2.5	115.4

Budgetland runs a deficit every year, so its debt gradually increases over the period, from 100.0 to 115.4.

2.

<u>Year</u>	<u>Interest Payment</u>	<u>Total Spending</u>	<u>Surplus or Deficit</u>	<u>Existing Debt</u>
2015	2.0	10.0	-3.0	100.0
2016	2.1	10.2	-3.0	103.0
2017	2.1	10.6	-3.4	106.0
2018	2.2	10.7	-3.4	109.4
2019	2.3	10.7	-3.7	112.8
2020	2.3	10.7	-3.6	116.4
2021	2.4	11.1	-4.3	120.1
2022	2.5	11.5	-4.5	124.4
2023	2.6	11.9	-4.7	128.8
2024	2.7	12.3	-5.0	133.5
2025	2.8	12.7	-5.3	138.5

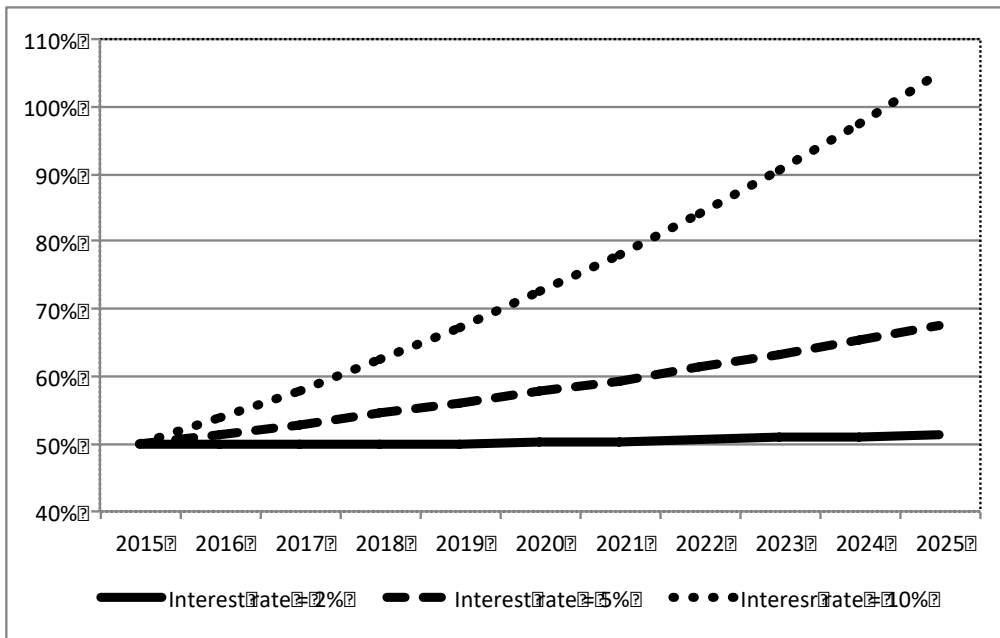
Including interest payments increase spending each year, which increases the size of the deficit, and the size of the existing debt for each year.

3.

<u>Year</u>	<u>Existing</u>		<u>Debt-GDP</u>
	<u>Debt</u>	<u>GDP</u>	<u>Ratio</u>
2015	100.0	200.0	50.0%
2016	103.0	206.0	50.0%
2017	106.0	212.2	49.9%
2018	109.4	218.5	50.0%
2019	112.8	225.1	50.1%
2020	116.4	231.9	50.2%
2021	120.1	238.8	50.3%
2022	124.4	246.0	50.6%
2023	128.8	253.4	50.9%
2024	133.5	261.0	51.2%
2025	138.5	268.8	51.5%

The earlier drop in military spending results in the debt increase not keeping pace with the 3 percent rate of growth in GDP. This makes the debt-GDP ratio decline slightly and remain mostly flat until about 2021. After this, continued increased in the interest payment cause debt to rise more rapidly than GDP, so the debt-GDP ratio increases to 51.5% by 2025.

4.



Increasing the annual interest rate changes matters substantially. Assuming a rate of 5 percent, the debt-GDP ratio is at about two-thirds by 2025, and assuming a rate of 10 percent, debt actually *exceeds* GDP by the year 2025. This clearly illustrates how the burden of having to pay interest on existing debt could make it even more difficult to keep from running deficits (hence borrowing more!) in the future.

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. b | 11. e |
| 2. a | 12. c |
| 3. d | 13. a |
| 4. c | 14. e |
| 5. e | 15. b |
| 6. d | 16. e |
| 7. b | 17. e |
| 8. c | 18. b |
| 9. a | 19. e |
| 10. a | 20. a |

Chapter 32

HOW ECONOMIES GROW AND DEVELOP

Principles of Economics In Context (Goodwin, et al.), 2nd Edition

Chapter Overview

This chapter presents material on economic development and growth, including the theory behind these concepts, their measurements, and the historical context for understanding why some countries are successful at promoting development, while others seem to be “stuck” at low levels of development. You will be able to compare data on growth rates for different countries in trying to determine whether the world’s poor countries are, over time, “catching up” to the rich countries. You will also learn about the main institutional factors that economists consider important in achieving economic development. The chapter discusses issues of poverty, inequality, and human development; each will allow you to independently examine the subject matter, and consider its relationship to economic growth. In the final section, you will learn about the different kinds of economies and the role of the government in influencing economic outcomes.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Explain the difference between “economic growth” and “economic development.”
2. Discuss the relevance of GDP measures and poverty indices in evaluating the economic progress of countries and regions.
3. Understand the relevance to economics—and to economic growth in particular—of the Industrial Revolution.
4. Explain the different theories on economic development and understand their historical context.
5. Describe the various sources of economic growth and development.
6. Describe general patterns of economic growth over time and across different regions and countries.
7. Discuss the trends in global inequality and the relation between inequality and economic-well-being.
8. Describe the recent perspectives on development including the Millennium Development Goals and the Sustainable Development Goals.
9. List the different kinds of economies and their relevance for understanding the process of economic development and well-being.

Key Terms

human development
Capabilities
poverty line
Industrial Revolution
dependency theory
primary goods

bilateral development assistance
multilateral development assistance
conditional cash transfer (CCT)
unconditional cash transfer (UCT)
convergence
Kuznets curve hypothesis

terms of trade
virtuous cycles (in development)
capital intensive
labor intensive
industrial policy
infant industry

Millennium Development Goals (MDGs)
Sustainable Development Goals (SDGs)
laissez-faire capitalism
administrative capitalism
administrative socialism
market socialism

Active Review

Fill in the Blank

1. When an economy has experienced increases in aggregate levels of production and income, and its real GDP has risen by some percentage from one year to the next, it has experienced economic _____.
2. When an economy has moved people from a situation of poverty to material plenty through investments in productive capacity and changes in the organization of work, it has experienced economic _____.
3. The _____ approach defines development in terms of the opportunities that people have to pursue important aspects of well-being, such as being healthy and having access to education.
4. The process of social and economic change that began in 18th century England and resulted in a huge increase in output per worker is called the _____.
5. The theory that under-development in developing countries is caused by unequal trade relations between developing and developed countries is called _____.
6. Self-reinforcing patterns of high savings, investment, productivity growth, and economic expansion, such as experienced by Japan and other “Asian tigers,” are called _____.
7. The idea that poor countries are on a path to “catch up” with the rich countries due to underlying economic forces, is called _____.
8. Aid or loans given by the government of a rich country like the U.S. to a poor country like Ethiopia is called _____ development assistance.
9. Aid or loans given by international institutions such as the World Bank, IMF, or United Nations Development Program (UNDP) is called _____ development assistance.

10. Suppose a U.S. company builds a factory in China to produce electronic goods. When such a private company acquires or creates assets for their own business operations in a foreign country, it is engaging in _____ investment.

True or False

11. Economic growth will always lead to inflation.

12. The income threshold below which members of a population are classified as poor is called poverty line.

13. Additions to a nation's capital stock will automatically lead to economic growth.

14. History shows that having plentiful resources of arable land, energy, and/or minerals is a requirement for a country to have strong economic growth and development.

15. A system of private property rights is essential for economic growth.

16. Economic growth is a necessary condition for human development.

17. The system of administrative capitalism is characterized by private corporate ownership and a substantial reliance on public administration as a mode of coordination.

Short Answer

18. Explain the difference between economic growth and economic development.

19. Given data on growth of real GDP and the growth of population, how can growth in real GDP per capita be calculated?

20. List seven factors that can promote economic growth and development. Are these factors requirements for achieving economic growth?

21. Explain the idea of convergence.

22. Explain how inflow of remittances has affected development prospects for migrant-sending countries.

23. What kinds of institutions are beneficial for promoting economic growth and development?

24. Why have the net official flows from multilateral agencies turned negative in recent years?

25. Is China more “developed” than India? Explain.

Problems

1. Suppose the following data for the fictitious country Growland:

	2016	2017
Real GDP (in 2009 U.S. dollars)	286.9 billion	301.3 billion
Population	220.5 million	223.0 million

a. Calculate the growth in real GDP between 2016 and 2017.

b. Calculate the GDP per capita for 2016 and 2017. (Note that GDP is measured in billions, while population is measured in millions.)

c. Calculate the population growth rate between 2016 and 2017.

d. Calculate the growth rate of GDP per capita.

2. Draw a graph with shifts in the AD/AS curves to illustrate each of the following:

a. Economic growth with inflation rising.

b. Economic growth with inflation falling.

3. Whether worldwide inequality is increasing or decreasing much debated in the press and popular writings. Some commentators claim that the world is getting much more equal—“just look at the progress of India and China!” Others claim that the world is getting much more unequal—“just look at the problems in Sub-Saharan Africa!” This exercise has you explore data regarding such claims.

a. Using the data in the following table, create a graph showing real GDP per capita on the horizontal axis and the rate of real GDP per capita growth for 1980-2011 on the vertical axis. Plot the data for each country.

Country	GDP per Capita, 2016 (PPP, 2011 US \$)	Percent Growth in GDP Per Capita (PPP, Annual Average, 1990-2016)
United States	53,342	1.4
Hong Kong	54,279	2.8
Japan	38,252	1.1
France	38,059	1.0
China	14,399	8.8
India	6,093	4.9
Bangladesh	3,319	3.7

Source: World Bank, World Development Indicators Database, 2017

b. Examining just these selected countries, is there evidence that convergence is occurring?

c. Now re-do your diagram for the following countries:

Country	GDP per Capita, 2016 (PPP, 201 US \$)	Percent Growth in GDP Per Capita (PPP, Annual Average, 1990-2016)
United States	53,279	2.8
Japan	38,252	1.1
France	38,059	1.0
Turkey	23,756	3.1
Brazil	14,024	1.0
Haiti	1,654	-0.2
Ethiopia	1,608	3.6
Congo, Dem. Rep.	744	-2.2

Source: World Bank, World Development Indicators Database, 2017

d. Now is there evidence that convergence is occurring?

e. What criticism can you make about basing generalizations about world inequality on studies such as these?

Self Test

1. Suppose in a given year, a country's real GDP growth rate was 5 percent and its population grew at 2 percent. Then its per capita real GDP growth rate was:
 - a. 7%
 - b. 5%
 - c. 3%
 - d. 2%
 - e. 2.5%

2. If an economy is experiencing economic growth, this is usually shown in the AD/AS model with
 - a. a shift to the left of the AS and maximum capacity
 - b. a shift to the left of the AD curve.
 - c. a shift to the right of the AD curve.
 - d. a shift to the right of the AS and maximum capacity
 - e. a shift to the right of the AS and maximum capacity, together with a shift to the right of the AD curve.

3. Which of the following is *not* one of the stages of development in Rostow's thesis on how countries progress from "underdevelopment" to "development"?
 - a. take-off into self-sustaining growth
 - b. age of high mass consumption
 - c. drive to maturity
 - d. unbalanced terms of trade
 - e. traditional agrarian society

4. The process of social and economic change that began in 18th century England and led to huge increases in output per worker is called
 - a. the Democratic Revolution
 - b. the Communist Revolution
 - c. the Industrial Revolution
 - d. the Gender Revolution
 - e. the Environmental Revolution

5. Which of the following was *not* one of the factors that contributed to the Industrial Revolution?
- New agricultural techniques, new tools and machines that boosted agricultural productivity.
 - New technologies adopted in factory production that boosted output in manufacturing.
 - New communication technologies that boosted output in the service sector.
 - Supplies of cheap raw materials from other countries.
 - Access to markets in other countries in which to sell finished products.
6. Which of the following was *not* one of the main policies promoted in the “Washington Consensus”?
- Fiscal discipline
 - Development of infrastructure, health, and education
 - Market liberalization
 - Privatization
 - Trade liberalization
7. Which of the following best characterizes the record of the policies of the “Washington Consensus”?
- The countries that most strictly followed the World Bank’s market-oriented development path suffered the most severe crises.
 - Some countries in Africa were forced to make cutbacks in desperately needed health and education.
 - Countries were barred from using fiscal policy for macroeconomic stabilization.
 - Some countries that did not follow the Washington Consensus experienced notable success.
 - All of the above.
8. Which of the following is one of the trends of global economic growth in the 20th century?
- World per capita economic output grew about fivefold.
 - The use of energy more than tripled.
 - Per capita incomes steadily increased.
 - Most of the growth came in the second half of the 20th century.
 - All of the above.
9. Which of the following factors were key to Japan’s rapid economic growth in the 1950-1980 period?
- High savings rates.
 - The investment of savings in machines and equipment to boost productivity rates.

- c. Investment in human capital.
- d. Promotion of exports.
- e. All of the above.

10. Which of the following is a middle-income country?

- a. The Congo
- b. France
- c. Japan
- d. Russia
- e. Haiti

11. Which of the following characterizes the global distribution of per capita GDP across countries?

- a. Income per person is highest in the industrialized countries.
- b. Income per person is lowest in many African and Asian countries.
- c. The income per person in many industrialized countries such as U.S., Canada, Europe, and Japan is more than \$25,000.
- d. Many of the low-income countries in sub-Saharan Africa have income per capita lower than \$2,500.
- e. All of the above.

12. Which of the following has clearly NOT been converging to rich country income levels since 1990?

- a. Democratic Republic of Congo
- b. South Korea
- c. Ethiopia
- d. China
- e. India

13. Which of the following is NOT considered by economists to be a source of economic growth?

- a. Natural resources
- b. Consumption
- c. Savings and investment
- d. Foreign sources of capital
- e. Financial, legal, and regulatory institutions

14. A national system combining private ownership of capital with substantial reliance on government as a mode of coordination is known as

- a. market socialism
- b. administrative capitalism

- c. impure communism
- d. fascism
- e. welfarism

15. Among variables NOT considered in the multidimensional poverty index are

- a. income inequality
- b. child mortality
- c. school attendance
- d. cooking fuel
- e. drinking water

16. The Sustainable Development Goals

- a. have already largely been achieved
- b. were introduced to the public by the World Bank
- c. place greatest emphasis on reversing climate change
- d. can be achieved indirectly with global GDP growth
- e. None of the above.

17. The Kuznets curve hypothesis states that

- a. inequality will intensify in a country as it grows richer, but beyond a certain point it will diminish.
- b. inequality will steadily decrease as a county grows richer
- c. inequality will increase as a country grows richer
- d. a country's income level mattered more to inequality in the era of colonies
- e. The hypothesis does not say anything about inequality.

18. Which of the following is *not* one of the ingredients that can stimulate economic growth?

- a. Savings and investment.
- b. Technological innovation and entrepreneurship.
- c. Access to domestic and international markets.
- d. Contractionary macroeconomic policies to slow down aggregate demand.
- e. Access to foreign capital.

19. From what sources can a developing country acquire funds to finance investments?

- a. From domestic savings.
- b. From bilateral assistance.
- c. From multilateral assistance.
- d. From private foreign banks.
- e. All of the above.

20. Approximately how much in development assistance (as a % of GDP) do the rich countries give to poor developing countries?

- a. Less than 1%
- b. About 1%
- c. About 3%
- d. About 5%
- e. About 10%

Answers to Active Review Questions

1. growth
2. development
3. capabilities
4. Industrial Revolution
5. dependency theory
6. virtuous cycles (in development)
7. convergence
8. bilateral
9. multilateral
10. foreign direct (investment)
11. False. The effect of economic growth on inflation is ambiguous. If the AS curve shifts further to the right than the AD curve, the inflation rate may decline. If the AD curve shifts further to the right than the AS curve, the inflation rate may rise.
12. True.
13. False. Poorly planned or misguided development projects may lead to waste or even harm.
14. False. While natural resources are generally very important, there are some economies with few natural resources that have done very well (e.g. Hong Kong and Singapore, which are natural ports but have little energy or mineral resources or arable land).
15. False. Some countries, like China and Vietnam, have been successful in achieving economic growth without a system of private property rights.
16. False. Economic growth often helps, but it is not required. Human development has many dimensions, and it could be achieved through progress in many different areas unrelated to income.
17. True.
18. Economic growth is the growth in production of output (or income), and can be measured as the percent change in real GDP. Economic development is the movement of the population from poverty into a situation of material plenty or well-being. Development is a much broader concept than growth, as it includes improvement in the quality of living through changes in non-income aspects such as access to better nutrition and housing, progress in quality of education and healthcare, decline in crime rates, and improvement in environmental quality.
19. $\text{Growth in real GDP per capita} = \text{growth in real GDP} - \text{growth in population}$.
20. The factors that can promote economic growth include: savings and investment, technological innovation and entrepreneurship, good macroeconomic policies that stabilize aggregate demand, access to international markets, availability of natural resources, access to foreign capital, and good institutions. These factors are not requirements for economic growth, however, as there are many examples of countries that have achieved growth without one or more of these factors.
21. The idea of convergence is that the poor countries are on a path to “catch up” with the rich countries, because they are starting off with little capital. So as they experience increases in their manufactured capital stock, their output will grow at a faster rate than that of rich countries that are already rich in manufactured capital.

22. Remittances are a significant source of financial capital (much greater than aid) for many of the poor migrant-sending countries. Research on the impacts of remittances show gains in income and improvement in other aspects of well-being such as access to healthcare and education.
23. The beneficial institutions include: a good banking system; a good legal system with private property rights and contract enforcement; and the absence of corruption, internal conflict, and political instability.
24. Because developing countries are currently paying back more due to their heavy debt burdens, than what they receive in new loans.
25. Despite rapid economic growth in both countries in recent decades, China has made significantly more progress in improving the capabilities of its people. It has placed a greater priority in eliminating hunger, illiteracy, and medical neglect, and developing the economic potential of its population. However, India is ahead of China in terms of human freedom as it is a democracy, while China's government is authoritarian. Most of the development efforts in China has come from its leaders without much pressure from the public. In India, on the other hand, public protests and court decisions play a central role in influencing the process of development.

Answers to Problems

1.

a. $[(301.3 - 286.9) / 286.9] \times 100 = 5.0\%$

b. Real GDP per capita for 2016 = $\$286,900,000,000 / 220,500,000 = \$1,301$

Real GDP per capita for 2017 = $\$301,300,000,000 / 223,000,000 = \$1,351$

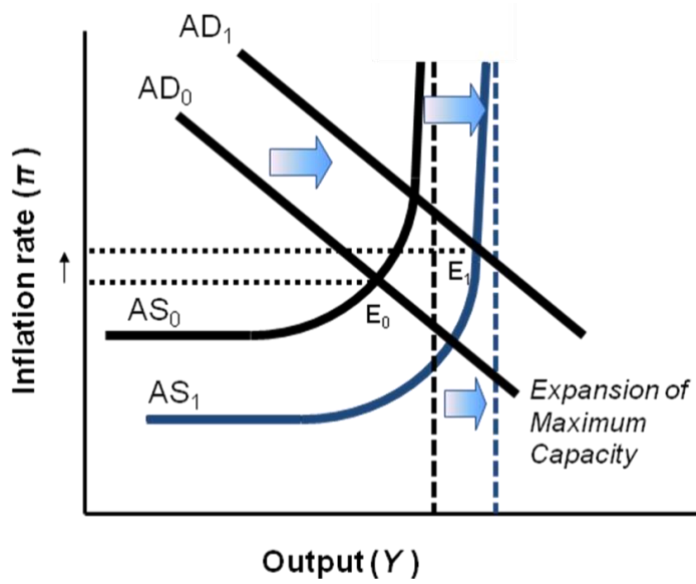
c. $[(223.0 - 220.5)/220.5] \times 100 = 1.1\%$

d. $5.0\% - 1.1\% = 3.9\%$

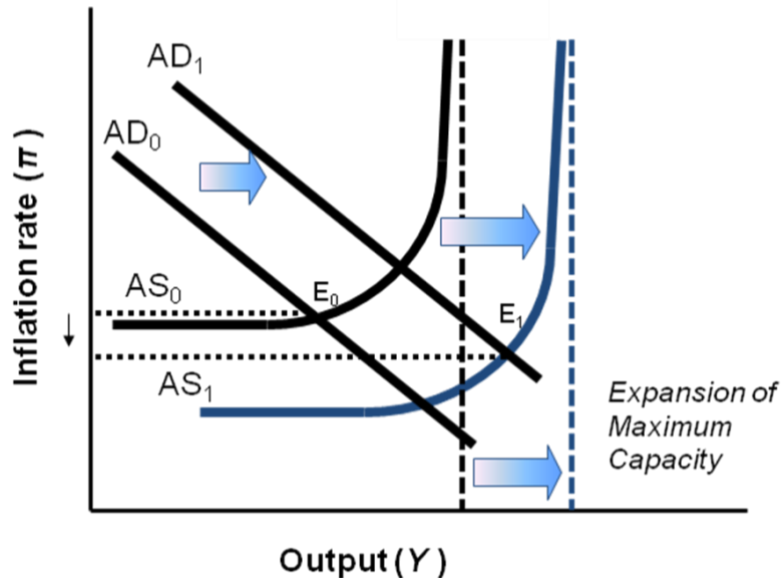
Calculating the percentage change in real GDP per capita from part b, as $(1351 - 1301)/1301 \times 100$, gives a rate of 3.8%. This is also an acceptable answer.

Technical Note: The simple formula given for figuring percentage changes is to blame for the discrepancy between the two answers. In practice, economists often use a different formula--the "log-difference formula"--to calculate percentage changes. Using the "ln" (natural log) function on a calculator or spreadsheet, the equation $[\ln(\text{GDP}_{2017}) - \ln(\text{GDP}_{2016})] \times 100$ gives a measure of percentage change. Using this method of calculating percentage changes, there would be no discrepancies (except due to rounding.)

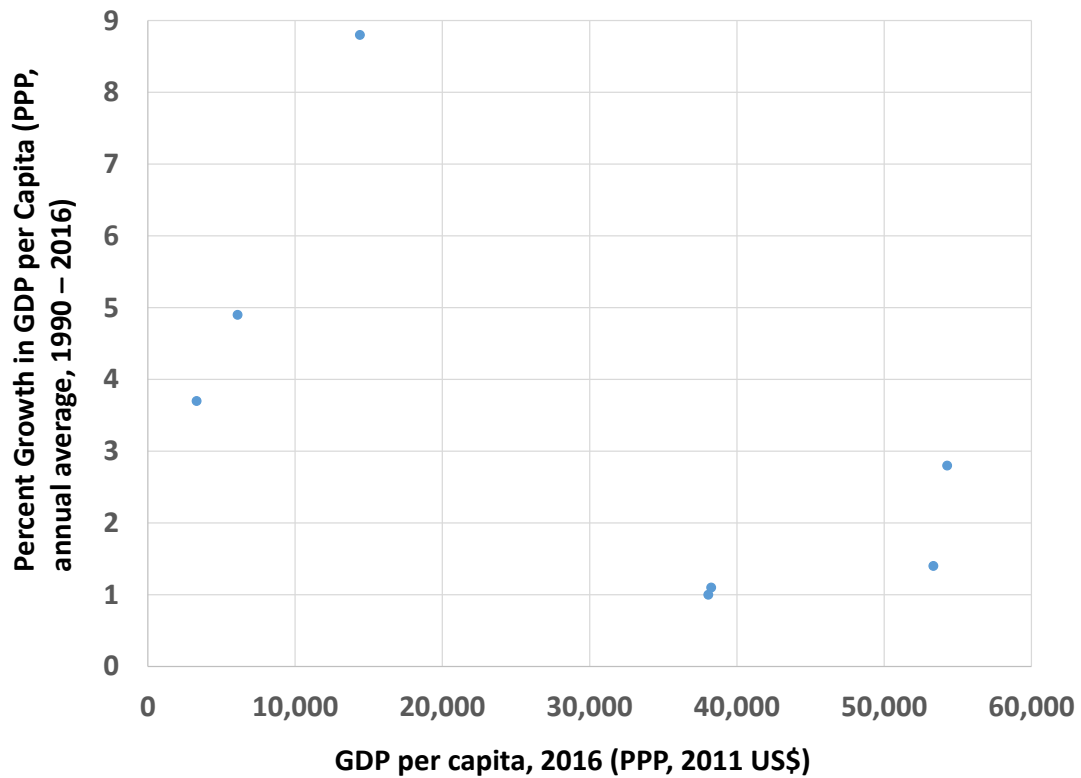
2.
a. Economic growth with inflation rising.



- b. Economic growth with inflation falling.

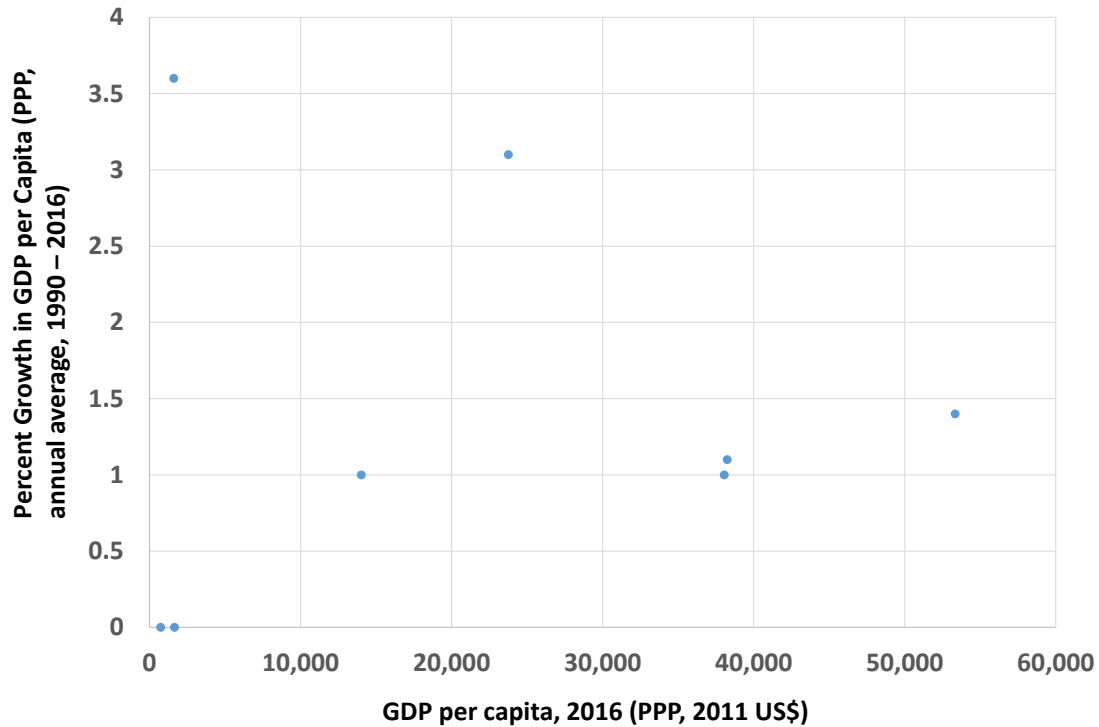


3.
a.



b. Yes, looking only at this evidence, it would appear that convergence may be occurring. The poorer countries tend, on balance, to have faster growth rates than the richer countries, and are on the path to “catch up” to them.

c.



d. Now it does *not* appear that convergence is occurring, because the poor countries are growing at rates generally less than those of the developed countries.

e. Neither “study” looks at the whole picture.

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. C | 11. E |
| 2. E | 12. A |
| 3. D | 13. B |
| 4. C | 14. B |
| 5. C | 15. A |
| 6. B | 16. E |
| 7. E | 17. A |
| 8. E | 18. D |
| 9. E | 19. E |
| 10. D | 20. A |

Chapter 33

GROWTH AND SUSTAINABILITY IN THE TWENTY-FIRST CENTURY

Principles of Economics in Context (Goodwin et al.), 2nd Edition

Chapter Overview

This chapter examines ecological challenges and their implications for macroeconomic growth. It considers the problems of population, resource depletion, climate change, and possible limits to economic growth, putting earlier analysis of aggregate demand and economic growth into a new framework emphasizing sustainability. The chapter discusses theories of the relationship between economic growth and the environment, such as the Environmental Kuznets Curve (EKC). It looks at possible alternatives to indefinite economic growth, including theories of the steady-state economy. Analyses of resource limits and environmental impacts raise serious challenges to the belief that economic growth and markets, on their own, will solve the social and environmental problems of the coming century. The chapter concludes with a discussion of institutions and policies to promote sustainable development.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Recognize ecological sustainability as a major economic issue for the 21st century.
2. Identify major environmental challenges.
3. Understand the relationship of climate change to economic growth.
4. Be familiar with the Environmental Kuznets Curve and its limitations.
5. Understand the concepts of limits to growth and a steady-state economy
6. Describe several policies directed towards sustainable development.

Key Terms

weak sustainability
strong sustainability
ecological footprint
nonrenewable resources
social cost of carbon

social discount rate
environmental Kuznets curve (EKC)
hypothesis
steady-state economy
throughput

Active Review

Fill in the Blank

1. The _____ approach measures the human impacts on the environment in terms of the land area required to supply a society's resources and assimilate its wastes and pollution.
2. Major environmental issues for the twenty-first century include _____, _____, and _____.
3. Resources that do not regenerate through natural processes, at least on a human time scale, such as oil, coal, and mineral ores are called _____.
4. Emissions of _____ lead to global warming and climate change.
5. The _____ agreement allowed each country set their own emissions targets on a voluntary basis and enact national policies to meet these targets.
6. The two most prominent market-based policies for addressing climate change are _____ and _____.
7. The _____ curve posits an inverted U-shaped relationship between economic development and environmental damages, suggesting that as nations develop their damage to the environment decreases.
8. Taxes that are used as a means to internalize the negative externalities from pollution are called _____.
9. A discount rate that reflects social rather than market valuation of future costs and benefits, and is usually lower than the market discount rate, is called a _____.
10. An economy with no increase in population, or in the rate of use of raw-materials and energy is termed _____.

True or False

11. The world population exceeded 7.5 billion in 2018, and the United Nations medium range projections show global population of 10 billion people in 2050.
12. As of 2016, the OECD nations comprise the majority of global emissions of carbon dioxide.

13. According to leading scientists, global emissions of greenhouse gases will eventually need to be reduced significantly—up to 50 percent lower than current levels by 2050—if we are to avoid the most dangerous effects of climate change.

14. Environmental damage per capita tends to decline with increasing income for all major pollutants.

15. One of the limitations of green taxes is that they are regressive, likely falling disproportionately on lower-income households.

16. Tradable permit systems allow overall pollution to increase since businesses can purchase permits to pollute.

Short Answer

17. Distinguish between the “weak” and “strong” perspectives on sustainability. What are some of the indicators that can be used to measure each of these?

18. Identify three environmental issues that are closely related to economic growth.

19. What kinds of environmental problems are associated with the increasing global human population?

20. What are some of the problems predicted to occur with rising levels of greenhouse gas emissions?

21. What is the Environmental Kuznets Curve (EKC) hypothesis? And what is the evidence for this hypothesis?

22. Identify at least three policies for sustainable development.

Self Test

1. Which of the following statements describes the “strong” version of sustainability?
 - a. Two trees are planted to replace each tree cut in the production of timber.
 - b. Trees are cut for the production of timber, and the value of timber produced is estimated to be higher than the value of tree lost.
 - c. Trees are cut for producing timber, and the value of timber produced is estimated to be lower than the value of tree lost.
 - d. Both (a) and (b)
 - e. None of the above.

2. According to United Nations median projections published in 2017, global population is expected to:
 - a. Increase to 8 billion by 2050
 - b. Decrease to 6 billion by 2050
 - c. Remain approximately constant
 - d. Increase to nearly 10 billion by 2050
 - e. Increase to 11 billion by 2050

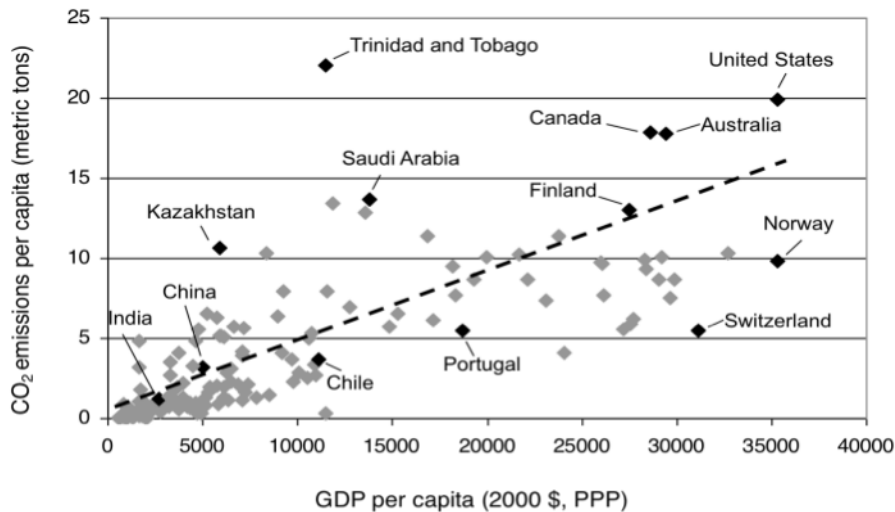
3. Which of the following resources are currently being depleted or at risk of depletion?
 - a. Fisheries
 - b. Forests
 - c. Clean water for drinking and agriculture
 - d. Minerals and fossil fuels
 - e. All of the above.

4. Which of the following statements about the level of air pollution is FALSE?
 - a. Air pollution has mostly increased in both developing countries and developed countries in recent years.
 - b. Air pollution in most major cities in developing countries exceed the World Health Organization’s recommended levels.
 - c. The most common air pollutants in the U.S. have declined by 73% since the 1970s.
 - d. Efforts to reduce pollution levels have generally been found to be cost-effective.
 - e. None of the above.

5. Which of the following are *not* among the adverse effects of greenhouse gas emissions?
- Rising temperatures.
 - Rising sea-levels.
 - Ecological disruptions such as species extinction.
 - Increased frequency of severe weather events such as hurricanes, floods, and droughts.
 - Depletion of mineral resources.
6. Which of the following countries is the world's top emitter of carbon dioxide?
- India
 - United States
 - Russia
 - Saudi Arabia
 - China
7. Which of the following was the conclusion of the 2006 British government report written by former World Bank chief economist Nicholas Stern?
- The costs of climate change in the twenty-first century are estimated as equivalent to 5–20 percent of global GDP, while the most severe effects of climate change could be avoided at a cost of around only 1 percent of global GDP.
 - The costs of climate change in the twenty-first century are estimated as equivalent to 1 percent of global GDP, while the most severe effects of climate change could only be avoided at a cost of around 5 - 20 percent of global GDP.
 - It now appears that the benefits of current actions to minimize climate change significantly exceed the costs.
 - (a) and (c)
 - None of the above.
8. If nothing is done now to stem the effects of climate change, what group will face the most dangerous impacts from climate change?
- Current generations
 - Future generations living several decades from now or later
 - Developed countries
 - Developing countries
 - (b) and (d)

9. Why do some researchers suggest that when economic development increases, environmental damage (per capita) will decrease?
- Because the greater availability of wealth and technology allows nations to adopt cleaner production methods.
 - Because as countries develop, they move to a service-based economy which does less harm to the environment.
 - Because as people become wealthier, they demand higher environmental quality standards.
 - All of the above.
 - None of the above.
10. The Environmental Kuznets Curve (EKC) hypothesis posits that:
- Environmental damage per capita increases in the early stages of economic development, reaches a maximum, and then diminishes as a nation attains higher levels of income.
 - Environmental damage per capita falls in the early stages of economic development, reaches a minimum, and then rises as a nation attains higher levels of income.
 - Environmental damage per capita steadily rises during all stages of economic development.
 - Environmental damage per capita steadily falls during all stages of economic development.
 - There is no clear relationship between environmental damage per capita and economic development, as it depends on the country, the pollutant, and other contingencies.
11. The evidence for the Environmental Kuznets Curve (EKC) suggests that:
- The EKC relationship does seem to hold for all pollutants.
 - The EKC relationship does not seem to hold for any pollutants.
 - The EKC relationship does seem to hold for some pollutants, such as per capita sulfur dioxide emissions and other air pollutants, but not for CO₂ emissions.
 - The EKC relationship does seem to hold for the environmental impacts of CO₂ emissions, but not for per capita sulfur dioxide emissions and other air pollutants.
 - The EKC relationship does seem to hold for some countries, but not others.

For the following question, refer to the figure below.



12. The figure above, showing the relationship between GDP per capita and CO₂ emissions:

- Indicates that developing countries typically have high per capita CO₂ emissions.
- Show that there is no relationship between GDP and CO₂ emissions.
- Provides evidence that confirms the Environmental Kuznets Curve hypothesis.
- Provides evidence that does not support the Environmental Kuznets Curve hypothesis.
- None of the above.

13. Which of the following is *not* a consequence of instituting carbon taxes on large emitters of CO₂?

- reduction in overall levels of CO₂ emission
- effective control on the overall level of emissions by the government
- increase in tax revenue for the government
- increased investment in renewable technology
- higher utility bills for consumers

14. Which of the following statements about the 2015 Paris Climate Agreement is FALSE?

- Each country is allowed set their own targets and participation is voluntary.
- There are no enforceable penalties for failing to meet targets.
- Most countries are on track to achieve the treaty's objective of limiting global warming to no more than 2°C above preindustrial levels.
- An overall evaluation of the treaty shows that it has resulted in a reduction in the expected increase in temperature levels.
- None of the above.

15. Which of the following is *not* a policy to promote environmental sustainability?
- Green taxes.
 - Grants, subsidies and tax breaks to support recycling, renewable energy, and efficient transportation systems.
 - Tax cuts to stimulate consumption spending.
 - Elimination of subsidies for environmental degrading activities.
 - Tradable pollution permits.
16. According to the macroeconomic model developed by the United Nations, an annual investment of 2% of the global GDP over 2010-2050 to fund sustainable technologies relative to the business-as-usual (BAU) scenario will:
- initially reduce the global GDP per capita by about 1 percent.
 - increase the global GDP per capita by 2% by 2030.
 - increase the global GDP per capita by 14% by 2050.
 - Reduce global energy demand by 40%.
 - All of the above
17. Which of the following is *not* among the recommendations proposed by Tim Jackson in transitioning to a sustainable economy?
- structural transition towards service-based activities
 - investment in infrastructure development
 - investment in ecological assets
 - a decline in working hours per week
 - Both (b) and (d)
18. Which of the following statements is FALSE?
- Green taxes discourage energy-intensive economic activities.
 - Environmental taxes in industrial countries range from less than 3% to around 10%.
 - Green taxes are strongly supported by economic theory as a means of internalizing negative externalities.
 - Environmental taxes as a percentage of overall taxes is higher in United States than it is in Spain, Germany, Sweden or United Kingdom.
 - None of the above.

19. Which of the following policies is not favorable for transitioning to a more sustainable economy?

- a. Increase subsidies to the fossil fuel industry.
- b. Increase investment in agriculture systems to encourage crop diversification.
- c. Impose taxes on large emitters of CO₂.
- d. Invest in renewable energy.
- e. Institute a system of tradable permits.

20. How can macroeconomic policy deal with environmental considerations?

- a. Seek to modify both the level and composition of consumption spending.
- b. Promote forms of investment that do not increase the “throughput” of natural resources and the creation of wastes.
- c. Direct government spending towards promoting environmental sustainability.
- d. Promote investments that are more future-oriented than those concerned with short-term considerations.
- e. All of the above.

Answers to Active Review Questions

1. ecological footprint
2. population, resource depletion, and pollution and wastes
3. nonrenewable resources
4. greenhouse gases including CO₂
5. 2015 Paris Climate (Agreement)
6. carbon taxes; a system of tradable permits
7. Environmental Kuznets (Curve)
8. green taxes
9. social discount rate
10. steady-state economy
11. True.
12. False – OECD nations comprised the majority of global emissions of CO₂ until 2003, but by 2016 over 60% of the world's CO₂ was emitted by non-OECD nations.
13. False – scientific research indicates that the reduction in greenhouse gases needs to be 70 percent or more by 2050 to avoid major destructive impacts.
14. False – a declining trend is noted for some pollutants above about \$5,000 in per capita income, but other pollutants continue to increase as incomes rise.
15. True.
16. False. Tradable permit systems allow individual business to purchase permits for pollution, but set an overall limit on the total amount of pollution emitted.
17. The “weak sustainability” perspective asserts that the depreciation of natural capital is justified as long as there is an adequate increase in any other types of capital, while the “strong sustainability” perspective argues that the depreciation of natural capital is only justified if there is an adequate increase in some form of natural capital. Indicators such as GPI and Green GDP can be used for “weak sustainability” and satellite accounts such as forested area, waste generation, and greenhouse gas emissions can be used for “strong sustainability”.
18. Global population, depletion of renewable and non-renewable resources, and pollution and wastes.
19. The increasing global human population necessitates increasing food supplies, which has led to environmental problems such as: land degradation, pollution from fertilizers and pesticides, and overdraft of water supplies.
20. The problems include: Rising temperatures, rising sea-levels and coastal flooding, decrease in water supplies, declines in crop yields, increase in food insecurity, ecological disruptions such as species extinction, spread of malaria and other tropical diseases, and increased frequency of severe weather events such as hurricanes, floods, and droughts.
21. The Environmental Kuznets Curve (EKC) hypothesis says that environmental damage per capita increases in the early stages of economic development, reaches a maximum, and then diminishes as a nation attains higher levels of income. The EKC relationship does seem to hold for some pollutants, such as per capita sulfur dioxide emissions and other air pollutants, but not for the environmental impacts of municipal waste, energy use, and CO₂ emissions.

22. Green taxes and tradable pollution permits; Grants, subsidies and tax breaks to support recycling, renewable energy, and efficient transportation systems; Elimination of subsidies for environmental degrading activities.

Answers to Self Test Questions

- | | |
|-------|-------|
| 1. A | 11. C |
| 2. D | 12. D |
| 3. E | 13. B |
| 4. A | 14. C |
| 5. E | 15. C |
| 6. E | 16. E |
| 7. D | 17. B |
| 8. E | 18. D |
| 9. D | 19. A |
| 10. A | 20. E |