MACROECONOMICS IN CONTEXT, 1e
STUDENT STUDY GUIDE

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Each chapter of this Student Study Guide includes the following materials:

- Overview
- Objectives
- Key Term Review
- Active Review Questions
- Self Test
- Answers to Active Review Questions
- Answers to Self Test

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CHAPTER 1
ECONOMIC ACTIVITY IN CONTEXT

Macroeconomics in Context (Goodwin, et al.)

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, to the classical/Keynesian synthesis, 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. Define the difference between normative and positive questions.
3. Discuss the relationship between economics and well-being.
4. Identify and describe the three main macroeconomic goals.
5. Identify and distinguish the major historical traditions of economic thought.

Key Terms

economics  labor productivity
microeconomics  business (trade) cycle
macroeconomics  precautionary principle
unemployment  classical economics
ingflation  division of labor
macroeconomy  specialization
global economy  laissez-faire economy
economic actor (agent)  Say’s Law
positive questions  aggregate demand
normative questions  Keynesian economics
well-being  fiscal policy
living standards growth  monetary policy
economic growth  monetarist economics
economic development
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. Questions about facts or “how things are” are __________ questions, while questions about values and “how things should be” are __________ questions.

3. The three main macroeconomic goals identified in this chapter are __________, ____________ , and ____________.

4. The process of moving from a situation of poverty and deprivation to a situation of increased production and plenty is referred to as ________________

5. 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.

6. The fluctuations in the level of production, between recessions on the one hand and booms on the other hand, is called ________________.

7. The goal that recognizes a serious responsibility to future generations is the goal of ________________.

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 phenomenon 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 use monetary policy to boost aggregate demand during a recession.

15. According to the classical/Keynesian synthesis, in the short run we are in the Keynesian world, and in the long run we are in the classical world.

**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. Explain the how the classical school views the role of markets and government intervention in fighting business cycles.

23. Explain how Keynesian economics views the role of markets and government intervention in fighting business cycles.

24. Explain how Monetarist economics views the role of markets and government intervention in fighting business cycles.

25. How does the classical/Keynesian synthesis combine elements from both the classical and Keynesian schools?

26. 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 an example of a normative question?
   a. What is the nation’s rate of economic growth?
   b. What is the nation’s rate of inflation?
   c. What is the nation’s rate of unemployment?
   d. What is the nation’s level of GDP?
   e. Is the goal of sustainability of greater importance than the goal of economic growth as we move into the 21st century?

3. 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

4. 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.
5. What explains the fact that the value of global production has grown by a factor of 4.6, while the value of global production per capita has grown by a factor of 2?

a. the increase in global production has not kept up with the growth in global population
b. the increase in global production has occurred simultaneously with the decline in global population.
c. the increase in global production has occurred simultaneously with the growth in the global workforce.
d. the increase in global production has occurred simultaneously with the decline in the global workforce.
e. the growth in the global working age population contributing to global production has been greater than the growth in the global population.

6. 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.

7. 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.

8. 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.
9. 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.

10. 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

11. Which of the following is not an issue concerning of social sustainability?

a. the disparities between the “haves” and the “have nots.”
b. the ability of the next generation to contribute to a healthy economy and society
c. the existence of national debt and the draining of financial resources.
d. the creation of social disruption and political strife
e. the ability of the next generation to experience social and political participation and inclusion.

12. Which of the following best describes the precautionary principle?

a. It is incumbent on society to prove if an activity is unsafe to natural systems or human health.
b. We should err on the side of caution when dealing with natural systems or human health.
c. The benefits of economic production and growth outweigh the risks of damage to natural systems or human health.
d. 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.
e. We should take precautions before engaging in risky investment.
13. Which of the following is not one of the ideas associated with the school of classical economics?

a. specialization and the division of labor  
b. laissez-faire and the functioning of markets free of government intervention  
c. the pursuit of individual self-interest leads to positive economic outcomes.  
d. supply creates its own demand  
e. markets sometimes fail, necessitating government intervention.

14. Which of the following is not one of the ideas of Keynesian economics?

a. An economy can experience insufficient demand  
b. Governments can step in to help boost aggregate demand  
c. Active use of fiscal policy can help keep aggregate demand high and employment rates up.  
d. Governments should focus on keeping the money supply steady  
e. Lowering interest rates alone may be insufficient if investors lack the confidence to engage in spending.

15. Which of the following best distinguishes fiscal from monetary policy?

a. Monetary policy deals with the manipulation of government spending and taxation.  
b. Fiscal policy deals with the manipulation of interest rates and the money supply.  
c. Fiscal policy deals with the manipulation of levels of government spending and taxation.  
d. Monetary policy deals with both the manipulation of government spending and taxation, and interest rates and the money supply.  
e. Fiscal policy deals with both the manipulation of government spending and taxation, and interest rates and the money supply.

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?

a. the use of fiscal policy to stabilize the business cycle.  
b. the use of monetary policy to stabilize the business cycle.  
c. the involvement of government in controlling of the level and direction of national investment.  
d. the role of government in purchasing goods and services to stimulate aggregate demand.  
e. the role of government in manipulating taxation to stimulate aggregate demand.
17. Which of the following is not one of the ideas associated with monetarist economics?

a. Bad government monetary policies are the cause of economic crises.
b. It was easy credit, low interest rates and high levels of money supply that led to the overspending of the late 1920s.
c. The Great Depression of the 1930s was caused primarily by tight money policies.
d. Governments should not use active monetary policy, but should keep the money supply stable.
e. There are times when the government should take an active role by intervening with fiscal policy.

18. Which of the following best describes the classical/Keynesian synthesis?

a. In the short run we are in the classical world, but in the long run we are in the Keynesian world.
b. In the short run we are in the Keynesian world, but in the long run we are in the classical world.
c. We are always in the short run which is characterized by the Keynesian view.
d. We are always in the long run, which is characterized by the classical view.
e. The classical and Keynesian schools both share the same basic view of economic agents engaging in rational, optimizing behavior.

19. According to the text, which of the following issues, not previously a major concern of macroeconomics, must macroeconomics confront in the 21st century?

a. The ecological sustainability of our reliance on fossil-fuel based economic growth.
b. The social sustainability of the traditional model of economic development with the persistence of global poverty.
c. 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. Economists are beginning to realize that there are limits to the capacity of the environment to absorb the by-products of economic growth.
c. Economists are increasingly questioning the ability of 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 gases may lead to dramatic disturbances to our environment and economy.
e. all of the above.

Answers to Active Review Questions
1. microeconomics, macroeconomics
2. positive, normative
3. living standards growth, stability and security, sustainability
4. economic development
5. economic, living standards
6. the business cycle
7. sustainability
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. 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.

23. Keynesian economics believes markets often fail and governments have a role to intervene, especially in boosting aggregate demand during downturns.

24. Monetarist economics believes that the government should pursue a steady money supply and not use active monetary policy interventions over the course of the business cycle.

25. The classical/Keynesian synthesis believes that in the short run we are in the Keynesian world (where markets fail to adjust and prices remain sticky), but in the long run we are in the classical world in which markets adjust and prices are flexible.

26. 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. e
3. c
4. e
5. a
6. b
7. d
8. e
9. e
10. a
11. c
12. b
13. e
14. d
15. c
16. c
17. e
18. b
19. d
20. e
Chapter 2
Useful Tools and Concepts
*Macroeconomics in Context* (Goodwin, et al.)

Chapter Overview

This chapter introduces standard concepts of economic modeling, efficiency, scarcity, opportunity cost, the Production Possibilities Frontier, and the advantages of market systems, and includes a review of graphing techniques. In this chapter you will see these concepts set into a broader context of concern for well-being. The chapter discusses the institutional requirements of markets and introduces the concepts of externalities, public goods, market power, transaction costs, information and expectations and concern for human needs and equity in order to demonstrate why markets, while useful, are not on their own sufficient for organizing economic life in the service of 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 concept of economic tradeoffs (or opportunity costs) in the face of abundance or scarcity.
3. Interpret and apply the Production Possibilities Frontier.
4. Distinguish the different meanings of the term “market,” and describe how the market is understood in the basic neoclassical model.
5. Describe the institutional requirements of markets.
6. Identify the advantages and limitations of markets.

Key Terms

- empirical investigation
- time series data
- negative (or inverse) relationship
- positive (or direct) relationship
- theoretical investigation
- model
- ceteris paribus
- historical investigation
- abundance
- scarcity
- production possibilities frontier
- opportunity cost
- efficiency
- technological progress
- market
- institutions
- basic neoclassical (traditional microeconomic)model
- private property
- implicit contract
- explicit contract
- physical infrastructure
- public goods
- free riders
externalities
transactions costs
market power

static analysis
dynamic analysis
market failure

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. A diagram that shows the tradeoffs between production of two goods is called a(n) __________.

5. You’re deciding whether to take an Economics course, or to take an Anthropology course. The __________ cost of taking the Economics course is the course you’re having to forego, the Anthropology course.

6. A process that achieves the maximum value of output from the given set of inputs can be described as __________.

7. If someone enjoys the benefit of a well-paved highway but refuses to pay for it, they would be considered a __________.

8. 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.

9. 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 ________________.

10. A professional musician practices piano every afternoon. Her neighbor listens to the music and enjoys it. Through her activity, the musician is creating a positive ________________.
True or False

Questions 11 to 13 refer to the production possibilities frontier shown below.

11. In the graph shown above, at point B, society is producing the maximum possible amount of butter.

12. To move from point A to point B, society would have to cut down on its gun production and increase butter production.

13. Starting from point B, society would have to shift substantial resources to increase gun production.

14. A public good is a good that is consumed by the public.

15. 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

16. Assume you see that two macroeconomic variables are correlated with each other. But you want to know if there’s an underlying or causal relationship between the two variables. Would you use an empirical or theoretical investigation? Explain why.
17. Why does a production possibilities frontier with increasing opportunity costs have a bowed-out shape?

18. Consider the following PPF:

![Graph showing a production possibilities frontier with points B, C, D, and A.]

Identify points that are a) inefficient and b) unattainable. How might a country be able to produce a combination of goods and services that was otherwise unattainable?

19. Consider the following Production/Maintenance frontier.

![Graph showing a production/maintenance frontier with points B and A.]

2-4
What would the future PPF look like if a high level of resource maintenance (e.g. point B) were chosen now? If a high level of resource depleting production (e.g. point A) were chosen now?

20. Provide an example of a market that fits the first meaning of markets (as a physical place), and an example of a market that fits the second definition (as an institution).

21. 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.

22. What does the basic neoclassical, or traditional, model of economics assume about markets?

23. List two advantages of markets identified by the authors of the text.

24. Identify the four institutional requirements of markets.

25. Identify six disadvantages of markets (i.e. cases of market failures).
Problems

1. Given the following data:

<table>
<thead>
<tr>
<th>Year</th>
<th>Unemployment Rate (percent)</th>
<th>Inflation Rate (percent per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>7.5</td>
<td>3.8</td>
</tr>
<tr>
<td>1985</td>
<td>7.2</td>
<td>3.0</td>
</tr>
<tr>
<td>1986</td>
<td>7.0</td>
<td>2.2</td>
</tr>
<tr>
<td>1987</td>
<td>6.2</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Source: Economic Report of the President

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

b. 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?
2. Suppose that a society could produce the following maximum combinations of schools and airplanes in a given year:

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Quantity of schools</th>
<th>Quantity of airplanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>80</td>
<td>30</td>
</tr>
<tr>
<td>C</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>D</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>E</td>
<td>20</td>
<td>65</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>68</td>
</tr>
</tbody>
</table>

a. Draw a production possibilities frontier (PPF) with schools on the horizontal axis and airplanes on the vertical axis. Assume that the dots define a complete curve.

b. Is it possible and/or efficient for this society to produce 50 airplanes and 80 schools?

c. If society is currently producing at alternative C, then the opportunity cost of increasing the output of schools from 60 to 80 is __________ airplanes.

d. If society is currently producing at alternative E, then the opportunity cost of increasing the output of schools from 20 to 40 is __________ airplanes.

e. Is the opportunity cost of producing schools higher or lower moving from alternative C to B, than moving from E to D? Explain why.
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. 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.

3. 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.

Questions 4 and 5 refer to the following scenario:
An economy produces two goods: pencils and erasers. Use the graph shown above depicting two possible production possibilities frontiers (PPFs) for this economy to answer questions 4 and 5.

4. Which of the following events could cause the PPF to shift out?
   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.

5. 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.

6. 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
7. 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.

8. 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.

9. Which of the following is not an example of resource maintenance activities that can lead to the PPF shifting outward in the future?

a. Investment in plant, equipment, and physical infrastructure
b. Investment in education and knowledge
c. Investment in international diplomacy and conflict resolution
d. Conservation of non-renewable resources such as fossil fuels
e. Mandatory overtime and cutbacks in vacations that leave workers exhausted and in bad mental or physical health
10. 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.

11. Which of the following would not be considered a market by any of the three meanings of markets?

a. Seattle’s Pikes Place Market, a tourist attraction known for its fish and flower stands.
b. The mall of America in Minnesota, the U.S.’s largest retail and entertainment complex.
c. The capitalist free market
d. The stock market
e. Marketplace, the radio program on national public radio.

12. 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 maintenance and environmental protection

13. 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.
14. Which of the following is not an example of an institutional requirement of markets?

   a. The deed of a house, identifying its owner.
   b. A police force devoted to combating theft.
   c. A firm’s reputation for making quality products.
   d. Reliable roads and bridges that won’t fall apart
   e. Central planners who are able to allocate and distribute resources

15. A city government maintains local roads. This service is an example of:

   a. A free rider
   b. A public good
   c. A positive externality
   d. An external cost
   e. A core sphere activity

16. 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.

17. 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.
18. 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.

19. A firm has an experienced worker who it has spent considerable time training. The economy goes into a recession, but the firm is reluctant to lay off the worker. Searching for another worker who is trained and trustworthy when the economy picks up again would entail which kind of costs?

a. Opportunity costs
b. Implicit costs
c. Explicit costs
d. Transactions costs
e. External costs

20. Which of the following entities does not have substantial market power?

a. An oil company like Exxon Mobil.
b. A multinational soft drink corporation like Coca Cola.
c. A government agency like the Department of Defense.
d. A computer software company like Microsoft.
e. A flower seller at a local farmers’ market, where there are many flower sellers.

Answers to Active Review Questions

1. empirical, theoretical
2. historical
3. ceteris paribus
4. production possibility frontier
5. opportunity (cost)
6. efficient
7. free rider
8. transactions (costs)
9. externalities
10. externality
11. False. Society could produce more butter by producing fewer guns.
12. False. To move from A to B, society would have to decrease butter production and increase gun production.
13. True. At point B, society is already employing many of its resources to produce guns. Increasing gun production further will present high opportunity costs.

14. 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.

15. True. These are all cases in which the market form of organization leads to inefficient or harmful results.

16. You would use a theoretical investigation. Empirical investigation is useful in describing macroeconomic phenomenon, but may be inadequate in explaining them. It may be clear that two variables are correlated, but unclear if there’s a causal relation between the two. Theoretical investigation can more closely examine complex relationships between phenomena.

17. The curve is bowed-out because some resources are better suited for the production of one good (e.g. butter) rather than the other (e.g. guns). And as we try to produce more and more of the other good (e.g. guns), it takes increasing amounts of resources to do so and thus we incur increasing opportunity costs.

18. Point D is inefficient and point C is unattainable. One could get to an unattainable point such as point C through technological progress, or the acquisition of additional resources.

19. If Point B were chosen, the PPF would shift outwards, leading to a larger set of production possibilities in the future. If Point A were chosen, the PPF would shift inwards, leading to a smaller set of production possibilities in the future.

20. A local farmer’s market would be an example of a market understood as a physical place with both buyers and sellers of a good. The market for goods sold on eBAY, the stock market or the market for oil, are examples of markets understood as institutions.

21. Firms and households. Firms are assumed to maximize profits, and households are assumed to maximize their utility (or satisfaction).

22. It assumes that markets are perfectly competitive and smoothly functioning, and that prices are determined purely by forces of supply and demand.

23. Markets can be an efficient way of allocating resources. Markets involve voluntary exchanges. Another advantage identified in the text is that markets encourage innovation and creativity.

24. The four institutional requirements of markets are: private property, social institutions of trust, good physical infrastructure, and money.

25. Six disadvantages or cases of market failure are: public goods, externalities, market power, inequality, transactions costs, and information/expectations problems.
Answers to Problems

1.a.

![Unemployment Rate Chart]

b.

![Inflation Rate Chart]
There appears to be a positive (direct) relationship between unemployment and inflation from 1984 to 1986 (both are falling), but a negative (inverse) relationship between them from 1986 to 1987 (unemployment falls while inflation rises).
b. No, 50 airplanes and 80 schools is unattainable, because it’s beyond the PPF.

c. To go from 60 to 80 schools, 20 airplanes must be given up. Thus the opportunity cost of 20 schools is 20 airplanes.

d. To go from 20 schools to 40 schools, 5 airplanes must be given up. Thus, the opportunity cost of 20 schools is 5 airplanes, starting from alternative E.

e. The opportunity costs of moving from C to B is higher than it is moving from E to D. As we try to get more and more schools, we’re using resources not as well suited into the production of schools, incurring increasing costs.

**Answers to Self Test Questions**

1. B 11. E  
2. C 12. E  
3. E 13. A  
5. A 15. B  
7. E 17. D  
8. A 18. B  
Chapter 3
What Economies Do

Chapter Overview
This chapter introduces the four essential economic activities: resource maintenance, the production of goods and services, the distribution of goods and services, and the consumption of goods and services. The chapter highlights resource maintenance, a crucial component in ensuring the environmental sustainability of economic activities. The chapter also examines the activity of distribution. In the chapter, you will learn about ways in which economists and others measure the extent of income and wealth inequality in an economy. The chapter concludes with a description of the three spheres of economic activity: the core sphere, the public purpose sphere, and the business sphere.

Chapter Objectives
After reading and reviewing this chapter, you should be able to:
1. Define the four essential economic activities.
2. Define the five types of capital.
3. Explain the difference between stocks and flows.
4. Discuss the limitations of substitutability with respect to natural capital.
5. Understand the importance of maintaining capital stocks.
6. Describe the difference between exchange and transfer.
7. Define the difference between wealth and income.
8. Describe the distribution of income and wealth in the United States.
9. Describe how inequality is measured.
10. Describe the three spheres of economic activity.

Key Terms
resource maintenance  transfer
capital stock  in-kind transfers
natural capital  consumption
manufactured capital  saving
human capital  stock
social capital  flow
financial capital  stock-flow diagram
gross investment
investment depreciation
production
net investment
inputs renewable resource
outputs nonrenewable resource
waste products substitutability
distribution sustainable socioeconomic system
exchange
Active Review

Fill in the Blank

1. Protecting wildlife in a national park is an example of the economic activity of ________________.

2. 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.

3. The activity that turns inputs into new goods and services, or outputs, is called __________.

4. Your grandmother sends you a check for $100. This form of resource distribution is referred to as a ________________.

5. A gardener hears that a pesticide he has been using may have toxic effects on birds. Rather than wait to find out what further studies show about its effects, he finds another way of controlling insects in his garden. By taking action to protect birds, despite uncertainty about the dangers of the pesticide, the gardener is exercising the ______________ principle.

6. An oil executive states he is not concerned about the eventual depletion of fossil fuel resources. "When we run out of oil," he says, “we’ll just switch to nuclear." The oil executive is basing his argument on the notion of _____________.

7. The activity of consumption and the activity of investment are linked by the activity of ________________, which is the refraining from consumption today in order to gain benefits in the future.

8. In one year a country adds to the capital stock with new investments, but during that year some of its capital stock is reduced through depreciation. The resulting amount of investment is called _______ investment.
9. 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.

10. If income were perfectly equally distributed within a country, the value of the Gini ratio for that country would be ________________.

True or False

11. Watching a movie is an example of “consumption.”

12. In a sustainable socioeconomic system, flows of goods and services come largely from judicious use of renewable capital stocks.

13. The number of fish sold per day at Big City Fish Shop is an example of a stock.

14. Planting new trees in a forest is an example of making an investment.

15. The distribution of wealth in the U.S. tends to be more equal than the distribution of income.

16. Cooking a family dinner at home is an activity of the core sphere of economics.

Short Answer

17. Identify the four essential economic activities.

18. Name the five types of capital.

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

20. Explain the difference between a stock and a flow.
21. How does the approach of someone who has adopted the precautionary principle differ from someone with a blind faith in substitutability, when it comes to a non-renewable resource like fossil fuels?

22. What are the two types of government cash transfer programs in the U.S., used to help households achieve income security? Provide examples of each.

23. What is the distinguishes a progressive income tax, from a proportional income tax, or a regressive income tax?

24. What is a Lorenz curve? Explain how the Gini ratio uses the Lorenz curve to measure the level of inequality in a nation’s income distribution.

25. The US Census Bureau has experimented with a variety of possible definitions of personal income. The Gini ratio in the US varies somewhat, depending which definition of personal income is used. If the Census Bureau starts with a measure of pre-tax money income and then adds the value of health insurance fringe benefits paid by businesses for their employees, as well as the value of net capital gains, how does the Gini ratio change?

26. What is the distinguishing characteristic of institutions in the public purpose sphere?

Problems

1. Match the following items from column 1 with the appropriate examples from column 2:

<table>
<thead>
<tr>
<th>Column 1:</th>
<th>Column 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) natural capital</td>
<td>1) clean water</td>
</tr>
<tr>
<td>b) human capital</td>
<td>2) a company's good reputation</td>
</tr>
<tr>
<td>c) social capital</td>
<td>3) a company uses its own funds to pay for new machinery</td>
</tr>
<tr>
<td>d) equity finance</td>
<td>4) literate workers</td>
</tr>
</tbody>
</table>
2. Identify which of the following resources are renewable vs. non-renewable resources. Explain how their stock/flow diagrams would be different, assuming that when the renewable resources are being renewed at the same rate as they are used up.

   a. A forest
   b. Reserves of petroleum and natural gas
   c. Reserves of uranium
   d. Fish in the seas
   e. Wind energy

Problem #3 refers to following graph.

![Graph](image)

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 pattern of employment and wages in Utopia changes, so that now the distribution of income is less unequal. On the graph, draw an example of a Lorenz curve that could illustrate this result.
Self Test

1. Enjoying art at a museum is an example of
   2. production
   3. consumption
   4. exchange
   5. transfer
   6. resource maintenance

2. Which of the following is an example of the economic activity of resource maintenance?
   a. Cooking dinner
   b. Operating a factory
   c. Providing worker education
   d. Drilling for oil
   e. Buying a bicycle

3. 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.

4. 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.

5. 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
6. Which of the following activities would be described as a resource maintenance effort?
   a. Limiting the use of fossil fuels in an effort to limit global warming
   b. Harvesting fish at a high rate
   c. Extracting oil from known oil reserves
   d. Using a well-designed machine to process leather for shoes
   e. Selling seeds on the international market

7. Many public health and environmental policy experts believe that when an activity poses a threat to human health or the environment, action should be taken to address that threat even when there is some scientific uncertainty about the issue. This approach is known as
   a. substitutability
   b. the renewable resource rule
   c. the precautionary principle
   d. the sustainability principle
   e. the fixed capital principle

8. 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
   a. fixed inventory
   b. flows of capital services
   c. depreciation
   d. substitutability
   e. a renewable resource

9. Which of the following is an example of a stock of natural capital?
   a. The number of trucks owned by a company.
   b. The new growth in a forest over a year.
   c. The knowledge you have gained from your past education.
   d. The amount of oil in an underground reserve.
   e. Efforts to remove the effects of pollution from a river.
10. 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

11. 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.

12. Which of the following statements is false?

   a. Rules about what can be owned vary across time and across cultures.
   b. If you have a use right to a good, you cannot necessarily sell that good.
   c. Transfers are distinguished by being one-way.
   d. Transfers are distinguished by being voluntary.
   e. Controversy exists over what sorts of things may be privately owned.

Question #13 refers to the following graph:
13. According to the Lorenz curve above, which of the following statements is true?

a. The bottom 40% of households earn less than 20% of all income
b. The bottom 20% of households earn 20% of all income
c. The society shown here has complete income equality
d. The more the curve sags downward, the greater income equality
e. Both a and d are true

Question #14 refers to the following graph:

![Lorenz curve diagram]

14. Referring to the graph shown above, the Gini ratio is equal to:

a. $A/(A+B)$  
b. $(A+B)/A$  
c. $B/(A+B)$  
d. $A/B$  
e. $B/A$

15. In the year 2010, suppose the Gini ratio for Canada is 0.3 and the Gini ratio for the US is 0.5. In the year 2015, the Gini ratio for Canada rises to 0.35. Which of the following statements is true?

a. Canada has greater inequality than the US.
b. Canada has greater inequality in 2015 than it did in 2010.
c. The US has greater equality than Canada.
d. Between 2010 and 2015, Canada’s Lorenz curve has become straighter (closer to the diagonal line).
e. All of the above are false.
16. Which of the following statements is true?

a. The US has the lowest Gini ratio of all major industrialized countries
b. The US has the highest Gini ratio of all major industrialized countries
c. The UK has a higher Gini ratio than the US.
d. Countries with high levels of equality have high Gini ratios.
e. The US has a straighter Lorenz curve than any other major industrialized country.

17. Which of the following statements about income inequality in the US 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 US has greater income equality than most industrialized countries.

18. Which of the following is an example of a core sphere activity?

a. James plays a game of catch with his nephew.
b. Martha works at a bank.
c. A local fire department responds to local emergencies.
d. A national government purchases weapons.
e. A publicly funded state college provides education.

19. The activities of the U.S. Environmental Protection Agency would be characterized as part of

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

20. 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
Answers to Active Review Questions
1. resource maintenance
2. social (capital)
3. production
4. transfer
5. precautionary (principle)
6. substitutability
7. saving
8. net (investment)
9. Lorenz
10. zero
11. True
12. True
13. False, it’s a flow.
14. True.
15. False, wealth is more unequally distributed than income is in the U.S.
16. True
17. The four essential economic activities are: resource maintenance, production, distribution, and consumption.
18. The five types of capital are: natural capital, manufactured capital, human capital, social capital, and financial capital.
19. The two main forms of economic distribution are exchange and transfer. Exchange involves a two-way distribution, trading one thing for another, whereas a transfer involves a one-way distribution, giving something with nothing specific expected in return.
20. 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.
21. Someone with a blind faith in substitutability will think that the depletion of a non-renewable resource like fossil fuels is not such a serious problem, since they have faith that in the future other resources can cheaply be substituted for it. While someone who has adopted the precautionary principle will think that we should err on the cautious side and not simply assume that other resources can be cheaply substituted for the non-renewable resource.
22. The two types of government cash transfer programs in the U.S., used to help households achieve income security are social insurance programs (like Social Security and Medicare) and means-tested programs (like welfare, food stamps, housing subsidies).
23. A proportional income tax takes the same percentage of a person’s income, whether they are rich or poor. A progressive income tax takes a larger percentage of income from the rich, while a regressive income tax takes a larger percentage from the poor.
24. A Lorenz curve is a line that portrays a nation’s income distribution, by dividing up households by into quintiles from poor to rich, and then plotting the cumulative percent of income flowing each quintile of households. The Gini ratio measures the level of income inequality by taking the area between the Lorenz curve and line of perfect equality (A), divided by the total area under the line of perfect equality (A+B). The higher the Gini, the more inequality there is in the income distribution.
25. It rises, since these benefits are enjoyed primarily by the middle class and the relatively wealthy.
26. 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.

**Answers to Problems**
1. a) 1; b) 4; c) 2; d) 3

2. a) renewable; b) non-renewable; c) non-renewable; d) renewable; e) renewable. For the renewable resources, if the incoming flows equal the outgoing flows, the size of the stock will remain the same. For the non-renewable flows, there is no incoming flow, thus the size of the stock will continually diminish as it is used.

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

![Graph](image)

**Answers to Self Test Questions**
1. B
2. C
3. E
4. D
5. E
6. A
7. C
8. C
9. D
10. C
11. D
12. D
13. A
14. A
15. B
16. B
17. A
18. A
19. C
20. D
Chapter 4
Supply and Demand
Macroeconomics In Context (Goodwin, et al.)

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, the concepts of equilibrium and market adjustment and the concept of elasticity. You will also be asked to consider how supply and demand analysis may or may not be useful in explaining macroeconomic phenomena.

Objectives

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

1. Understand the characteristics of the market theorized in the Classical model.
2. Interpret supply and demand curves.
3. Understand the difference between a change in supply (demand) and a change in the quantity supplied (demanded).
4. Describe some changes that would cause a shift in a supply curve, or a demand curve.
5. Explain how price adjusts due to changes in supply and demand.
6. Identify what is meant by the “price elasticity” of demand (supply).
7. Appreciate the usefulness and limitations of the theory of supply and demand in the real world, and its relevance to macroeconomics.

Key Terms

perfectly competitive markets
spot markets
double auction markets
supply curve
change in quantity supplied
change in supply
demand curve
change in quantity demanded
change in demand
substitute good
complementary good
surplus
equilibrium
market-clearing equilibrium
shortage
theory of market adjustment
market disequilibrium
price elasticity of demand
price elasticity of supply
quantity adjustments
menu costs
speculation
speculative bubble
Active Review

Fill in the Blank

1. Assume that in the market for tulips, there are hundreds of buyers and sellers of tulips, all of the tulips are identical, and it is extremely easy for anyone to become a tulip farmer and sell tulips. This market would most likely be characterized as a_____________________ market.

2. You go to your local farmer’s market to buy some fresh bread, which you plan to go home and eat right away. This market would be characterized as a_________ market.

3. A curve indicating the quantities that buyers are willing to purchase at various prices is known as a(n) ____________ curve.

4. You notice that when the price of gasoline goes up in your town, people buy less gasoline. Assuming that nothing else has changed, this would be described by economists as a change in__________________.

5. 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.

6. 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.

7. Surplus and shortage are both instances of__________________.

8. A curve indicating the quantities that sellers are willing to offer at various prices is known as a(n) ____________ curve.

9. In general, in a basic model showing supply and demand, if the supply curve shifts to the right, equilibrium price will ______________ and equilibrium quantity will ______________.
10. Henry notices that when the price of bread goes up by 10%, the quantity demanded falls only slightly. To measure by how much quantity demanded falls, Henry should use the _______________ of demand.

11. 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 _________________.

**True or False**

12. The quantity of rainfall is a nonprice determinant of the supply of lemons.

13. The demand curve for a good shows the same information as the demand schedule.

14. The level of income (or ability to pay) enjoyed by potential buyers is one factor determining the location of the demand curve.

15. In general, an increase in demand tends to increase equilibrium price and decrease equilibrium quantity.

16. In a situation of shortage, the quantity supplied exceeds the quantity demanded.

**Short Answer**

17. Why do demand curves generally slope downward?

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

19. A U.S. car manufacturer has produced a lot of SUVs, but now is having difficulty selling them at the price it had intended to sell them for. The cars are sitting at the warehouse unsold. Is this market in equilibrium? Explain.
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.

21. What is the mathematical definition of price elasticity of demand (supply)?

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.

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 following graph shows supply and demand for hardcover unabridged 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.

[Graph of supply and demand curves: S for supply and D for demand]

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).

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.

![Diagram of the market for deck chairs](image)

**Quantity of deck chairs**

**Price of deck chairs**

a. On the diagram above, show what happens to the market for deck chairs as a result of the movie.

b. Show the size of the shortage that exists in the short term, before the market adjusts to equilibrium.

c. 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. A key input for making deck chairs becomes more expensive (ceteris paribus).

   b. In a highly publicized event, someone falls off a poorly constructed deck chair and sustains a serious head injury (ceteris paribus).

Self Test

1. Which of the following is a characteristic of the sort of market imagined by classical macroeconomists?
   a. A market with speculation
   b. A market with only one seller
   c. A market with long-term contracts
   d. A double auction market
   e. A long supply-chain market

2. In a double auction market,
   a. buyers state the price at which they are willing to buy, and the good is sold to the highest bidder.
   b. antique furniture is sold at two locations.
   c. both buyers and sellers state the prices at which they are willing to make transactions, and the item is sold to the highest bidder.
   d. the bidding process happens two times, to make sure the buyer really wants to buy the item at his or her stated price.
   e. the item is sold for immediate delivery, rather than for delivery at a future time.
Questions 3 to 5 refer to the following graph:

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. All ten apartment owners

4. In the scenario depicted in the figure 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 all 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.

![Graph showing supply curves](4-9)  

7. The graph shown above depicts two possible supply curves for production of handmade rugs. S₁ is the initial supply curve, and S₂ is the new supply curve after a change has occurred in the market. Which of the following events could have caused this shift?

a. Several rug makers have left the market, making handmade rugs more scarce.  
b. Several new rug makers have entered the market, making handmade rugs more plentiful.  
c. The price of thread used in rugs has dropped, making it cheaper to produce rugs.  
d. Rugs have come into fashion, so buyers want more of them.  
e. Rugs have gone out of fashion, so buyers want fewer of them.
8. Which of the following is an example of movement along a supply curve?

   a. The quantity of apples offered for sale increases as the price of apples rises.
   b. An apple orchard burns down in an accidental fire, decreasing the number of suppliers on the market.
   c. Thanks to good weather conditions, apple growers enjoy a bumper crop this year.
   d. The price of pears doubles, increasing demand for apples.
   e. The price of fertilizer increases, making it more expensive to produce apples.

Question #9 refers to the following graph:

9. 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?

   a. The price of sofas increased.
   b. The price of armchairs increased.
   c. The price of labor for making sofas increased.
   d. The price of sofas decreased.
   e. The price of armchairs decreased.

10. 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

   a. disequilibrium
   b. shortage
   c. surplus
   d. equilibrium
   e. both a and c are correct
Questions 11 to 13 refer to the following graph.

11. When the price of cars is $5000, which of the following terms is not an accurate description of the situation?
   a. Quantity demanded exceeds quantity supplied.
   b. A shortage exists.
   c. The market is in disequilibrium.
   d. Fewer than five cars are available for sale.
   e. The market is in equilibrium.

12. Beginning from the price of $5000, which of the following events would be predicted by the theory of market adjustment?
   a. Some buyers who are willing to pay more will bid the price of cars up.
   b. The market will remain in disequilibrium.
   c. Prices will fall.
   d. All buyers will remain in the market.
   e. The supply and demand curves will shift to achieve equilibrium.

13. 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?
   a. The supply curve shifts to the right.
   b. The supply curve shifts to the left.
   c. The demand curve shifts to the right.
   d. The demand curve shifts to the left.
   e. None of the above.
14. Suppose the demand curve for gasoline shifts to the right, as global demand from India and China increases. Suppose also that new discoveries of oil enable an increase in the supply of gasoline to be sold on the market. Assuming that nothing else changes, what is the likely effect on the equilibrium price of gasoline?

   a. The equilibrium price rises.
   b. The equilibrium price falls.
   c. The equilibrium price remains the same.
   d. The effect on the equilibrium price is uncertain, as it depends on the extent of the shifts in supply and demand.
   e. None of the above.

15. Suppose we observe an increase in the world price of corn. Which of the following could have caused the price increase?

   a. An increase in the demand for corn by households in China and India.
   b. An increase in the demand for corn for use in ethanol production in the U.S.
   c. A fall in the supply of corn due to a drought in Australia.
   d. A rise in the price of fertilizer, a key input in the production of corn.
   e. All of the above.

16. Suppose the price elasticity of demand for oil is found to be very inelastic. Which of the following factors could account for its inelasticity?

   a. Oil is a greatly needed item, as it is a key ingredient for gasoline and many other industrial products and processes.
   b. There are few substitutes available for oil.
   c. Oil accounts for a very small part of consumers’ budgets, so an increase in the price of oil is barely noticed by consumers.
   d. Oil accounts for a very large part of consumers’ budgets, so an increase in the price of oil is quickly noticed and consumers greatly reduce the amount of oil they purchase.
   e. Both a and b.

17. Which of the following markets do not operate like the Classical’s perfectly competitive spot market with smoothly functioning double-auction mechanisms?

   a. Markets with long-term contracts
   b. Retail markets, such as for clothing, with prices posted on tags and long supply chains
   c. Restaurants with high menu costs
   d. The market for computer operating systems
   e. All of the above
18. Assume there’s been a fall in demand for automobiles in the U.S. Which of the following best describes a “quantity adjustment” made by the U.S. automobile producers?

a. Producers lower their price.
b. Although supply now is greater than demand at the initial equilibrium price, producers continue to produce at the same rate, despite the resulting surplus of automobiles on the market.
c. Producers primarily reduce their production levels, rather than lowering their price.
d. Producers raise their price, hoping to maintain their profit margins.
e. Producers raise their production levels, to entice customers back with more automobiles to choose from.

19. Which of the following markets have experienced speculative bubbles (somewhere, at some point in history)?

a. The stock market
b. The real estate market
c. The market for mortgage-based securities
d. The market for foreign exchange
e. All of the above

20. Which of the following reflects a Keynesian view of how the market mechanism may operate?

a. Sometimes price adjustments are very slow
b. Sometimes price adjustments are too fast
c. Sometimes the market can get stuck at an equilibrium that is undesirable.
d. The market mechanism often does not work smoothly, thus necessitating some corrective measures by government.
e. All of the above.

Answers to Active Review Questions

1. perfectly competitive
2. spot
3. demand
4. quantity demanded
5. substitute
6. complementary
7. disequilibrium
8. supply
9. decrease, increase
10. price elasticity
11. speculative bubble
12. True. For example, a drought would decrease the supply of lemons.
13. True.
14. True.
15. False. In general, an increase in demand tends to increase both equilibrium price and equilibrium quantity.
16. False. In a shortage situation, the quantity demanded exceeds the quantity supplied.
17. The demand curve slopes downward because in general, the higher the price of the good, the fewer people will want to buy it.
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. No, this market is not in equilibrium; there is a surplus of SUVs.
20. No, this market is not in equilibrium; there is a shortage of movie tickets.
21. The price elasticity of demand is the percentage change in quantity demanded divided by the percentage change in price. The price elasticity of supply is the percentage change in quantity supplied divided by the percentage change in price.
22. In retail markets with long supply chains, prices may adjust very slowly. In stock markets, prices may adjust very rapidly.

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.

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.

![Diagram showing supply and demand curves with a shift to the left, indicating a higher equilibrium price and lower equilibrium quantity.](image)

4. c.

![Diagram showing supply and demand curves with a shift to the left, indicating a higher equilibrium price and lower equilibrium quantity.](image)

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

![Diagram showing supply and demand curves with a shift to the left, indicating a higher equilibrium price and lower equilibrium quantity.](image)
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. d 11. e
2. c 12. a
3. b 13. d
4. b 14. d
5. e 15. e
6. d 16. e
7. a 17. e
8. a 18. c
9. e (substitute goods) 19. e
10. c 20. e
Chapter 5
Macroeconomic Measurement: The Current Approach

Macroeconomics In Context (Goodwin, et al.)

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

Bureau of Economic Analysis (BEA)  open economy
National Income and Product Accounts (NIPA)  Net exports
United Nations System of National Accounts (SNA)  national income (NI)
households and institutions sector (BEA definition)  nominal GDP
government sector (BEA definition)  real GDP
foreign sector (BEA definition)  base year
fixed assets (BEA)  index number
inventories  consumer price index (CPI)
consumer durable goods  implicit price deflator (GDP deflator)
gross domestic product (GDP) (BEA definition)  rule of 72
final good  net national product (NNP)
intermediate good  traditional macroeconomic model
capital goods  consumption(C)
value-added  investment (I)
imputation  government spending (G)
identity (accounting identity)  net exports (NX)
closed economy  From Appendix:

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 2006? (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. A 2002 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:

<table>
<thead>
<tr>
<th>Stage of Production</th>
<th>Stage of production</th>
<th>Sales value of material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>Grapes produced in the vineyard</td>
<td>10</td>
</tr>
<tr>
<td>Stage 2</td>
<td>New wine produced at the winery, stored in oak barrels</td>
<td>15</td>
</tr>
<tr>
<td>Stage 3</td>
<td>Fermented wine stored in wine bottles</td>
<td>20</td>
</tr>
<tr>
<td>Stage 4</td>
<td>Wine bottles distributed by the wholesaler</td>
<td>25</td>
</tr>
<tr>
<td>Stage 5</td>
<td>Retail price of bottled wine sold to consumer</td>
<td>30</td>
</tr>
</tbody>
</table>
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’s 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.

<table>
<thead>
<tr>
<th></th>
<th>Bicycle company</th>
<th>Wind energy company</th>
<th>Organic cheese company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of inputs</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Wages</td>
<td>$50</td>
<td>$75</td>
<td>$25</td>
</tr>
<tr>
<td>Value of output (total revenues)</td>
<td>$100</td>
<td>$150</td>
<td>$50</td>
</tr>
</tbody>
</table>

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. Calculate the growth rate of nominal GDP between years 1 and 2.

c. Using the constant-dollar approach, calculate the real GDP in year 1 and 2. Take year 1 as the base year.

d. Calculate the growth in real GDP between years 1 and 2 (with year 1 as the base year).

e. Calculate a constant weight price index for the second year, using the first year as the base.

f. 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?
   a. Office equipment
   b. Factories and office buildings
   c. Houses and apartment buildings
   d. Computer software
   e. Inventories

5. Which of the following would *not* be included in the measure of U.S. GDP in the current year?
   a. A new machine, made in the U.S. and purchased that year for the Ford motor company assembly line.
   b. A Ford automobile newly produced that year in the U.S.
   c. A Ford automobile, newly produced that year in the U.S. but unsold and sitting in a warehouse.
   d. Three shares of Ford motor company stock purchased that year in the U.S.
   e. 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. A car produced and sold in the U.S. by the Japanese-owned Toyota company.
   b. A car produced in the U.S. by the U.S.-owned Ford motor company, and sold in Japan.
   c. Restaurant meals in the U.S. sold to Canadian tourists visiting the U.S.
   d. Restaurant meals in Canada sold to U.S. tourists visiting Canada.
   e. 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:

<table>
<thead>
<tr>
<th>Stage of production</th>
<th>Sales value of material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat grown by a farmer</td>
<td>$0.50</td>
</tr>
<tr>
<td>Wheat milled by the miller</td>
<td>$0.75</td>
</tr>
<tr>
<td>Bread made by the baker</td>
<td>$1.00</td>
</tr>
<tr>
<td>Bread sold by a distributor</td>
<td>$3.50</td>
</tr>
<tr>
<td>Retail price of bread to the consumer</td>
<td>$4.00</td>
</tr>
</tbody>
</table>

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 2006, how much of GDP was produced by the business sector, according to the BEA?

   a. 33%  
   b. 50%  
   c. 66%  
   d. 77%  
   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. GDP = Household and institution spending + Business spending + Net foreign sector spending + Government spending  
   b. GDP = Personal consumption + Private investment + Net exports + Government consumption  
   c. GDP = Personal consumption + Private investment + Net exports + Government consumption + 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, profits, rents  
   b. Wages, profits, investment spending  
   c. Wages, 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 a secretary working 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. Implicit price deflator (The GDP deflator)
   e. Export price index

16. 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.

17. 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.
18. In the traditional macroeconomic model’s basic identity, \( Y = C + I + G + NX \), which of the following is true?

   a. The household sector is assumed to only engage in consumption spending, \( C \).
   b. The business sector is assumed to engage in investment, \( I \).
   c. The government sector is assumed to only engage in government (consumption) spending, \( G \).
   d. Neither the household sector nor the government sector is assumed to engage in investment or production.
   e. All 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 slightly more than 77% of GDP, whereas the household and institutions sector, and the government sector were each estimated to have contributed about 11% 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.
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. C
   c. Not counted
   d. I
   e. C
f. NX (exports)
g. Not counted
h. Not counted
i. I
j. I
k. G

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 = wages + 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 × $3) + (50 × $5) = $550
    Nominal GDP in Year 2 = (110 × $3.50) + (55 × $5.50) = $687.50
  b. Growth rate of nominal GDP = 25%
  c. The real GDP in year 1 = nominal GDP in year 1 = $550
    The real GDP in year 2 = (110 × $3) + (55 × $5) = $605
  d. Growth in real GDP = 10%
  e. The constant weight price index =
     $[[(100 × $3.50) + (50 × $5.50)]/[100 × $3 + (50 × $5)] × 100 = 113.636
  f. The inflation rate = [(113.636 - 100)/100] × 100 =13.636%
Answers to Self Test Questions

1. A  
2. C  
3. D  
4. E  
5. D  
6. D  
7. C  
8. D  
9. C  
10. D  
11. C  
12. A  
13. C  
14. C  
15. A  
16. D  
17. C  
18. E  
19. D  
20. E
Chapter 6
Macroeconomic Measurement: Environmental and Social Dimensions

Macroeconomics In Context (Goodwin, et al.)

Chapter Overview

This chapter provides an introduction to social and environmental accounting and alternative measures of economic performance. You will be introduced to an image of economic activity as embedded in social and physical contexts. 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. Finally, the chapter introduces you to two alternative measures of economic well-being.

Chapter Objectives

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

1. Identify and provide examples of the three economic functions of the environment.
2. Identify how, conceptually, the depreciation of natural capital can be included in measures of production and saving.
3. Understand the issues involved in assigning monetary values to environmental asset stocks, depreciation, and service flows.
4. Explain and critique the justifications usually given for the historical exclusion of household production from the national accounts.
5. Understand the methods used to measure household production and impute a monetary value to it.
6. Understand why GDP does not measure well-being, and describe two examples of alternative measures of economic well-being.

Key Terms

resource functions  maintenance cost approach
environmental service functions  satellite accounts
sink functions  third person criterion
environmentally adjusted net domestic product (eaNDP)  counter cyclical movement
environmentally adjusted net domestic product  replacement cost method
genuine saving  opportunity cost method
defensive expenditures  Genuine Progress Indicator (GPI)
damage cost approach  Human Development Index (HDI)
Active Review

Fill in the Blank

1. The three types of functions that the natural environment plays in economic life are ________ functions, ________ functions, and ________ functions.

2. The absorption and accumulation of mercury into the food chain would be an example of the ________ function of the environment.

3. The measure of the value of natural assets is a ________ variable, whereas the measure of changes in the level of these natural assets over the course of a year is a ________ variable.

4. The measure of national production that subtracts both the depreciation of manufactured capital and the depreciation of natural capital is called ____________________.

5. 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 ________________.

6. 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.

7. Distinguishing forms of household production from consumption (leisure) activities has been helped by the use of the ____________, which examines whether a person could pay someone else to do the activity in his or her place.

8. 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.

9. A measure of well-being expressed in monetary terms that has been developed by the U.S. nonprofit group Redefining Progress is the ________________.

10. The index of well-being developed by the UNDP in 1990 that combines measures of health, education, and income is called the ________________.

True or False

11. Water filtration provided by wetlands is an example of a sink function of the environment.
12. A society with a “high time discount rate” tends to put a high value on the future and the well-being of future generations.

13. Satellite accounts are a helpful way of measuring the value of changes in a country’s environmental resources.

14. Playing a game of tennis with your child to help your child improve his/her tennis skills would be considered a form of household production if, by the third person criterion, you could just as easily hire a tennis coach to perform this same service.

15. 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.

16. The first estimates of the value of household services in the U.S. were produced more than 80 years ago.

*Short Answer*

17. What two measures have been developed in recent years that subtract for the depreciation of both manufactured capital and natural capital?

18. 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?

19. What have been some justifications given for the historical exclusion of household production from the national accounts?

20. What most likely is the cyclical movement of household production with the business cycle – is it pro-cyclical or counter-cyclical? Explain.

21. Is it easier or harder to incorporate household production into the national accounts, compared to incorporating environmental assets and services? Explain.
22. In an updated GDP that includes household production, how would the purchase of a car or appliance for household use be treated?

23. How does the GPI adjust for increasing U.S. income inequality?

24. Identify the categories that are added in, and those that are subtracted for, when calculating the GPI.

25. 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?

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

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

Column Totals:    ______   ______

Total GPI: ________________

6-5
Self Test

1. 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

2. Genuine Saving is
   a. is a measure of saving that subtracts for both the depreciation of manufactured capital and natural capital
   b. is a measure of saving that subtracts for the depreciation of natural, manufactured, social, human, and financial capital.
   c. was proposed by the United Nations to account for the saving in a country adjusted for depreciation
   d. is the true saving in a nation, as opposed to the fake saving that showed up in the false accounting schemes of many firms in the late 1990s and early 2000s.
   e. none of the above

3. 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

4. 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 __________, 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
5. Which of the following major industrialized countries have not yet ratified the Kyoto Protocol, as of 2008?
   a. Russia
   b. The U.S.
   c. Australia
   d. Canada
   e. All of the above

6. Which of the following would *not* be an example of household production that is currently excluded from in GDP?
   a. childcare
   b. housecleaning
   c. meal preparation
   d. landscaping by a paid gardener
   e. taking kids to afterschool activities

7. According to the most conservative estimates, what is the total value of household production in the U.S.?
   a. about 5 - 10% of GDP
   b. about 15 - 20% of GDP
   c. about 25 - 35% of GDP
   d. about 40 – 50% of GDP
   e. about 100% of GDP

8. Approximately what percent of all U.S. workers were full time homemakers in the U.S. in 2000?
   a. about 5%
   b. about 16%
   c. about 35%
   d. about 40%
   e. about 56%
9. Suppose the economy goes into a recession and GDP declines by 1% over the year. If unpaid household production had been included in the national accounts, what might we find?

   a. That GDP declines by a smaller amount, than it does when measured in the traditional way.
   b. That GDP declines by a larger amount, than it does when measured in the traditional way.
   c. That GDP declines by an equal amount, equal to what it does when measured in the traditional way.
   d. There is no change in the measure of GDP when unpaid household production is included.
   e. None of the above.

10. Which of the following is used to measure (or estimate) the quantity of unpaid, non-market core sector production?

   a. Satellite accounts
   b. Time use surveys
   c. Value added
   d. The precautionary principle
   e. The maintenance cost method

11. 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 2005 BLS survey?

   a. Women and men spent an equal amount of time per day on household activities.
   b. Women spent on average 2.3 hours per day, while men spent 1.4 hours per day.
   c. Women spent on average 4.2 hours per day, while men spent 3.3 hours per day.
   d. Women spent on average 1.5 hours per day, while men spent 0.5 hours per day.
   e. Women did all the household activities, while men did none.

12. 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.

   a. $25,000, opportunity cost
   b. $40,000, replacement
   c. $40,000, damage cost
   d. $25,000, maintenance cost
   e. $25,000, replacement cost
13. 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. a loss of leisure
   d. a loss of human and social capital formation
   e. an unequal distribution

14. 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. a loss of leisure
   d. a gain in human and social capital formation
   e. a well-being reducing production method

15. 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

16. 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

17. When tracking the trends in real GDP per capita and real GPI per capita from 1950 to 2002, 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.
18. 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.

19. 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.

20. 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

Answers to Active Review Questions

1. resource, environmental service, sink
2. sink
3. stock, flow
4. environmentally adjusted net domestic product (eaNDP)
5. defensive expenditures
6. damage
7. third person criterion
8. replacement
9. Genuine Progress Indicator (GPI)
10. Human Development Index (HDI)
11. False. It is an environmental service function.
12. False. It would put a high value on the present, and relatively little value on the future.
13. False. Satellite accounts only measure changes in the quantities of environmental resources, not changes in their monetary values.
14. True.
15. True.
16. True.
17. The environmentally adjusted Net Domestic Product (eaNDP) and the measure of Genuine Saving.
18. 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.
19. 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.
20. It is most likely counter-cyclical: when the GDP goes up, people spend more hours in the paid labor force and purchase domestic services on the market, and when the GDP goes down, people spend fewer hours in paid labor and probably resort to more unpaid, do-it-yourself household production.
21. 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.
22. A car or appliance would be treated as a household investment rather than a consumer durable, and could be included in the category of investment.
23. Starting with the category of Personal Consumption Expenditures, the GPI adjusts for increasing income inequality by dividing by a factor that reflects the growth in the Gini ratio since 1968.
24. The GPI adds in: unpaid housework and parenting, higher education, volunteer work, the services of consumer durables, the services of highways and streets, and net capital investment. It subtracts: 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.
25. 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.

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

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<tr>
<th>Item</th>
<th>Added (+)</th>
<th>Subtracted (-)</th>
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<tbody>
<tr>
<td>National defense</td>
<td>$100</td>
<td>Neither added nor subtracted. Excluded.</td>
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<tr>
<td>Spending on new bridges</td>
<td>$25</td>
<td>+25</td>
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<td>Net foreign borrowing</td>
<td>$75</td>
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<td>Volunteer work in community centers</td>
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<td>+50</td>
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<td>Oil tanker accident</td>
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<td>+10</td>
</tr>
<tr>
<td>You clean your own house</td>
<td>$50</td>
<td>+50</td>
</tr>
<tr>
<td>Working overtime on Saturdays (in your paid job)</td>
<td>$25</td>
<td>-25 (loss of leisure)</td>
</tr>
<tr>
<td>Value of higher education</td>
<td>$40</td>
<td>+40</td>
</tr>
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</table>

Column Totals:  

+245  
-215

Total GPI:  

$1,030  ($1,000 + 245 – 215 = $1,030)
### Answers to Self Test Questions

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Chapter 7
Employment and Unemployment

Macroeconomics In Context (Goodwin, et al.)

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. You will also be introduced to the “natural rate of unemployment” hypothesis. In the final section, you will be introduced to changes in labor force participation rates and questions of labor market “flexibility.”

Chapter Objectives

After reading and reviewing this chapter, you 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 theories of labor market imperfections.
6. Describe Keynes’ theory of aggregate demand, as it relates to wage levels and employment.
7. Discuss the concepts of “natural rate” and “non-accelerating inflation rate” of unemployment, and their relation to empirical evidence.
8. Describe some major changes in society and the nature of work life that have affected the relationship between employment and well-being.

Key Terms

Bureau of Labor Statistics (BLS)
employed person (BLS household survey definition)
unemployed person (BLS definition)
labor force (BLS definition)
“not in the labor force” (BLS definition)
unemployment rate
discouraged workers
underemployment
frictional unemployment

structural unemployment
cyclical unemployment
recession
“sticky wage” theories
insider-outsider theory
efficiency wage theory
“natural” rate of unemployment
non-accelerating inflation rate of unemployment (NAIRU)
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. Marwan 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 ______________, 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. According to ______________ theory, workers who already have jobs at an organization may engage in actions that prevent competition from potential new employees and thereby keep their wages high.

8. Paying your workers higher than the market wage rate in order to improve productivity is an example of ___________ theory.

9. Suppose the economy is at a full employment equilibrium. According to the ______________ hypothesis, the unemployment that exists would be called the ______________ rate of unemployment.

10. Suppose that when the unemployment rate falls below a certain threshold level, the inflation rate begins to rapidly rise. Some economists call that threshold the ______________.

True or False

11. The BLS’s household survey and employer survey always get the same precise measure of the unemployment rate.

12. The unemployment rate is the percentage of the population that does not have paid employment, but is immediately available and actively looking for work.

13. Almost all of the people who are unemployed are so because they have involuntarily lost their jobs.
14. Some economists question whether there is just one NAIRU (non-accelerating inflation rate of unemployment), and whether the NAIRU exists at all and is even a useful concept.

15. While the rate of unionization in the U.S. once reached over 30%, today it is only about 13%.

*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. Suppose the current unemployment rate is 5%. How would an economist characterize the economy if the NAIRU was thought to be 4%? And if the NAIRU was thought to be 6%?
25. Provide two meanings of “flexible” work, in the context of macroeconomics and labor economics.

Problems

1. The U.S. labor force as of May 2008 was 154.5 million. There were 146 million employed, and 8.5 million unemployed. There were about 2.18 million in prison.

a. Calculate the official unemployment rate.

b. If those 2.18 million people were not in prison, but were in the labor force and unemployed, calculate what the unemployment rate would be.

2. 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 7. You will need to draw on some concepts from Chapter 4 (Supply and Demand).

a. 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.

![Wage Diagram](image)

3. Below is data on unemployment and inflation (CPI) from the U.S. from 1994-2000.

<table>
<thead>
<tr>
<th>Year</th>
<th>Unemployment rate (in %)</th>
<th>Inflation (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>6.1</td>
<td>2.6</td>
</tr>
<tr>
<td>1995</td>
<td>5.6</td>
<td>2.8</td>
</tr>
<tr>
<td>1996</td>
<td>5.4</td>
<td>3.0</td>
</tr>
<tr>
<td>1997</td>
<td>4.9</td>
<td>2.3</td>
</tr>
<tr>
<td>1998</td>
<td>4.5</td>
<td>1.6</td>
</tr>
<tr>
<td>1999</td>
<td>4.2</td>
<td>2.2</td>
</tr>
<tr>
<td>2000</td>
<td>4.0</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Source: BLS, 2008

a. Is there any evidence in this period of unemployment falling below the NAIRU? Investigate this by plotting the data points (as in Fig. 7.7 of your textbook).

b. What should the curve look like if the hypothesis about the NAIRU were to hold? Are there any years that do suggest inflation accelerates when unemployment dips below a threshold level?
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 it 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. Marlena 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:

   a. 2.4%
   b. 4.7%
   c. 4.9%
   d. 5.3%
   e. 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:

   a. 2.1%
   b. 2.4%
   c. 4.1%
   d. 4.7%
   e. 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?

   a. African Americans
   b. Hispanics and Latinos
   c. Teenagers
   d. People with less than a high school diploma
   e. 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:

    a. unemployed
    b. underemployed
    c. a discouraged worker
    d. not in the labor force
    e. 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?

   a. frictional unemployment
   b. structural unemployment
   c. cyclical unemployment
   d. natural unemployment
   e. 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. 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,

   a. wages will fall and labor markets will return to full employment equilibrium, eliminating the surplus of labor.
   b. wages will remain unchanged, leading to the persistence of a surplus of labor (unemployment).
   c. wages will remain unchanged, and the supply of labor will drop and thereby eliminate the surplus of labor (unemployment).
   d. wages and the quantity of labor will remain unchanged.
   e. none of the above.

15. Which of the following have been proposed as explanations for sticky wages?

   a. psychological resistance to wage cuts
   b. minimum wages and long term contracts
   c. efficiency wages
   d. barriers by insiders
   e. all of the above
16. 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?

   a. insider-outsider theory  
   b. efficiency wage theory  
   c. classical theory  
   d. unemployment theory  
   e. none of the above

17. The natural rate of unemployment hypothesis defines the natural rate of unemployment as that which:

   a. consists of frictional, structural, and cyclical unemployment  
   b. consists of frictional, structural, cyclical, and seasonal unemployment  
   c. is the rate of unemployment that would exist in the absence of cyclical fluctuations  
   d. is the rate of unemployment that is “natural” to the economy.  
   e. is completely unrelated to the non-accelerating inflation rate of unemployment (NAIRU).

18. Suppose the current rate of unemployment is 5%. Which of the following would lead economists to characterize the economy as “sluggish”, with some cyclical unemployment?

   a. If they believe the “natural” rate of unemployment is 4%  
   b. If they believe the “natural” rate of unemployment is 5%  
   c. If they believe the “natural” rate of unemployment is 6%  
   d. Any of the above  
   e. None of the above

19. Which of the following characterizes historical trends in labor force participation rates?

   a. Men’s labor force participation rates have risen dramatically  
   b. Men’s labor force participation rates have dropped dramatically  
   c. Women’s labor force participation rates have risen dramatically  
   d. Women’s labor force participation rates have dropped dramatically  
   e. Both women and men’s labor force participation rates have not changed much.

20. Which of the following best characterizes the trends in the hours of work in the U.S. over the last 30 years?

   a. Americans are working more and more hours than before  
   b. Americans are now working fewer hours and enjoying more leisure than before  
   c. The average workweek in the U.S. has remained relatively unchanged  
   d. Some groups of workers in the U.S. are working more hours than before, and other groups are working fewer hours than before.  
   e. Both c and d
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. insider-outsider
8. efficiency wage
9. natural rate of unemployment, natural
10. non-accelerating inflation rate of unemployment, or NAIRU
11. False. The unemployment rate figures from the two surveys are sometimes different from each other and may point to diverging trends in unemployment.
12. 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.
13. 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.
14. True.
15. True.
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 or 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. Insider-outsider theory, and efficiency wage 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. If the NAIRU were 4%, a 5% rate of unemployment would mean that the economy was sluggish with the problem of cyclical unemployment. If the NAIRU were 6%, a 5% unemployment rate would mean that the economy was vibrant and potentially at risk of overheating.
25. One meaning of “flexible” work, is work schedules and accommodations that benefit workers, such as family-friendly job schedules. The other meaning of “flexible” work, is making
things easier for employers, such as the ability to hire and fire at will, and to hire part-time workers with no benefits.

**Answers to Problems**

1.  
   a. 5.5%   b. 6.8%

2. a.

![Graph 1](attachment:image1.png)

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.

b.

![Graph 2](attachment:image2.png)

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.
b. If the hypothesis of the NAIRU were to hold, then the curve should rise steadily upwards from the southeastern quadrant towards the northwestern quadrant. However, it does not do this and actually falls between 1996-1998. Only perhaps in the last three years (1998-2000) do we see inflation accelerating as the unemployment rate dips below 4.5%.

**Answers to Self Test Questions**

1. E  
2. B  
3. D  
4. C  
5. D  
6. C  
7. B  
8. C  
9. E  
10. B  
11. B  
12. C  
13. A  
14. A  
15. E  
16. B  
17. C  
18. A  
19. C  
20. E
Chapter 8
The Structure of the United States Economy

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 and the rising costs of health care.

Chapter Objectives

After reading and reviewing this chapter, you 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, financial and insurance, and retail services.

Key Terms

primary sector
secondary sector
tertiary sector
financial assets

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 75% 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. By 2006, the U.S. imported _______ percent of its oil, most of it from the countries of __________, __________, and ____________.

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 only about 3% of the U.S. private economy and employs only 1% of U.S. workers.

14. About 60% of the U.S. fishery stocks are being harvested at or over the maximum sustainable level.

15. Between 1995 and 2002 China lost 14.9 million manufacturing jobs, more than the entire current United States manufacturing workforce of less than 14 million.
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. Where does the U.S. get its oil from (as of 2006)?

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. (In Appendix) 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. (In Appendix) 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.

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

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.

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

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 (that you learned about in 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.

   a. OPEC engages in an oil embargo in 1973
b. Consumers in the U.S. and Europe start driving more fuel efficient cars in the late 1970s and early 1980s

c. Saudi Arabia departs from the OPEC agreement and increases its supply of oil in the early 1980s

d. Consumers in the U.S. start driving more fuel inefficient SUVs and light trucks with low gas mileage in the 1990s

e. The economies of China and India grow more rapidly in the early 2000s and consumers buy and drive more cars.

f. 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

1. How large is the U.S. economy?
   a. The largest in the world.
   b. The second largest in the world, after China.
   c. The third largest in the world, after China and India.
   d. The fourth largest in the world, after China, India and Japan.
   e. The fifth largest in the world, after China, India, Japan, and Germany.

2. Which of the following would be a primary sector activity?
   a. Utilities
   b. Construction
   c. The selling of houses
   d. A household growing food in their garden
   e. 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?
   a. The share of the secondary sector continued to grow steadily throughout the 20th century.  
   b. The share of the secondary sector started to decline in the early 1980s with the growth of globalization.  
   c. The share of the secondary sector started to decline in the late 1960s.  
   d. The share of the secondary sector started to decline in the Great Depression of the 1930s.  
   e. None of the above.
9. Which of the following best captures how employment is distributed among the sectors?

   a. 50% of all workers are employed in the tertiary sector, while 20% are in the primary sector.
   b. 75% of all workers are employed in the tertiary sector, while 15% are in the primary sector.
   c. 83% of all workers are employed in the tertiary sector, while only 10% are in the primary sector.
   d. 83% of all workers are employed in the tertiary sector, while only 1% are in the primary sector.
   e. none of the above.

10. Which of the following is not one of the trends in agriculture in the U.S.?

   a. The total farm population has declined.
   b. The total number of farms has decreased.
   c. The average farm size has decreased.
   d. Output per acre has increased.
   e. Output per worker has increased.

11. Which of the following is not one of the characteristics of agriculture in the U.S.?

   a. Farms occupy about 42% of the land area in the U.S.
   b. There are about 2 million farms in the U.S.
   c. About 92% of the farms are small family farms.
   d. Large corporate farms account for almost half of the value of agricultural output.
   e. Almost all farm receipts come from selling crops.

12. Which of the following about energy in the U.S. is false?

   a. As of 2005, the U.S. is the world’s largest consumer of energy.
   b. As of 2005, the U.S. is the world’s largest producer of energy.
   c. The U.S. has one of the highest per capita energy usage rates in the world.
   d. 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 country or region has the largest supply of known oil reserves, and is expected to supply an increasing share of U.S. oil imports in the future?

a. Canada  
b. Mexico  
c. The Middle East  
d. Nigeria  
e. Venezuela

14. The largest manufacturer of goods (measured in value-added) in the world is

a. China  
b. India  
c. Japan  
d. Germany  
e. The U.S.

15. Which of the following regarding trends in the housing and construction industry is false?

a. The average size of new family homes has doubled in size from 1970 to 2005, while the number of people living in them has decreased.  
b. The percentage of Americans who own their own homes has increased between 1970 and 2005.  
c. The construction industry is very sensitive to the business cycle.  
d. Housing prices have increased at a faster rate than the rate of inflation.  
e. The bursting of the housing bubble in 2007 did not affect other sectors of the economy.

16. Which of the following regarding trends in manufacturing is true?

a. The value of manufacturing output has remained fairly constant since 1960.  
b. Employment in manufacturing has declined by about 30% since 1980, employing about 10% of all workers today.  
c. The number of workers in manufacturing declined from about 20 million in 1980 to about 14 million today.  
d. All of the above  
e. B and C only
17. 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 and fewer workers.
d. All of the above
e. B and C only

18. 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.

19. 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 1980 and 2004.
c. Most service jobs can not be off-shored to low-wage nations, and will remain in the U.S.
d. The U.S. currently exports more services than it imports.
e. None of the above.

20. 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.
Answers to Active Review Questions

1. primary
2. primary, secondary
3. secondary
4. tertiary
5. service
6. tertiary
7. five, twenty-five
8. 60, Canada, Saudi Arabia, and Mexico.
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, 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. As of 2006, the U.S. produces about 40% of its own oil, and imports about 60% from: Canada, Saudi Arabia, Mexico, Venezuela, and Nigeria.
23. The U.S. manufacturing sector is losing jobs for two reasons: manufactured products can be produced more cheaply abroad, and productivity advances (automation) is 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. (In Appendix) 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) managing the system (information, finance and insurance, and professional, scientific, and technical services, etc.), private social services (education, health care, and social services), and entertainment (which includes accommodation and food services).
26. (In Appendix) 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:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Value Added (in millions of dollars)</th>
<th>Percent of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>21</td>
<td>5.3</td>
</tr>
<tr>
<td><strong>Primary Sector Total</strong></td>
<td>21</td>
<td><strong>5.3%</strong></td>
</tr>
</tbody>
</table>

   b. For the Secondary sector:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Value Added (in millions of dollars)</th>
<th>Percent of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>44</td>
<td>11.0</td>
</tr>
<tr>
<td>Textile manufacturing</td>
<td>65</td>
<td>16.3</td>
</tr>
<tr>
<td><strong>Secondary Sector Total</strong></td>
<td>109</td>
<td><strong>27.3%</strong></td>
</tr>
</tbody>
</table>

   c. For the Tertiary sector:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Value Added (in millions of dollars)</th>
<th>Percent of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>34</td>
<td>8.5</td>
</tr>
<tr>
<td>Trade</td>
<td>50</td>
<td>12.5</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>21</td>
<td>5.3</td>
</tr>
<tr>
<td>Education</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Arts and Recreation</td>
<td>11</td>
<td>2.8</td>
</tr>
<tr>
<td>Diplomacy &amp; peacekeeping</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>Waste management and environmental stewardship</td>
<td>54</td>
<td>13.5</td>
</tr>
<tr>
<td><strong>Tertiary Sector Total</strong></td>
<td>270</td>
<td><strong>67.6%</strong></td>
</tr>
</tbody>
</table>

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
2. D
3. E
4. C
5. E
6. C
7. B
8. C
9. D
10. C
11. E
12. D
13. C
14. E
15. E
16. D
17. E
18. E
Chapter 9
Aggregate Demand and Economic Fluctuations
Macroeconomics In Context (Goodwin, et al.)

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 demand ($AD$)
behavioral equation

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 _________________.

9-1
2. The _______________ economists believe that aggregate demand needs active
guidance, whereas the _______________ economists believe that aggregate demand 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 $AD = C + II$ 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. $Y = AD$ only when actual investment equals intended investment.
15. In a situation with insufficient aggregate demand, $C + II < C + I$

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 $AD = C + II$, and the accounting identity $Y = C + I$ (in a simplified economy with no government or foreign sector).

20. Given the following Figure below (Figure 9.8 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 is 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 demand?

23. In the figure below:

![Graph showing aggregate demand and output](image)

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 the graph of real GDP for the U.S. in the years 1970 – 1990:

![U.S. Real GDP graph](source: www.bea.gov)

Identify approximately what years the economy went into a recession.

2. Use the graph below to answer the following questions:

![GDP graph](source: www.bea.gov)
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.

<table>
<thead>
<tr>
<th>(1) Income ($Y$)</th>
<th>(2) Consumption ($C$)</th>
<th>(3) Intended Investment ($II$)</th>
<th>(4) Aggregate Demand $AD = C + II = column (2) + column (3)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>30</td>
<td>(a)</td>
<td>50</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>20</td>
<td>(b)</td>
</tr>
<tr>
<td>400</td>
<td>(c)</td>
<td>20</td>
<td>410</td>
</tr>
<tr>
<td>500</td>
<td>480</td>
<td>20</td>
<td>500</td>
</tr>
<tr>
<td>600</td>
<td>(d)</td>
<td>20</td>
<td>(e)</td>
</tr>
</tbody>
</table>

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 $AD$ 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 (\( II \)) 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.

![Diagram of GDP and Years showing contraction and expansion phases with peaks and troughs.]

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 demand in the traditional macro model (with no government and a closed economy)?

a. The amount firms and households intend to spend on consumption and investment.
b. The actual level of spending done in the economy by firms and households on consumption and investment.
c. The summing up of all the spending on goods and services in the economy by firms and households.
d. The average level of demand for all goods and services in the economy by firms and households.
e. 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?

a. When leakages = injections 
b. When saving (S) = intended investment (II) 
c. When Y = AD 
d. When actual consumption and investment spending equals the intended consumption and investment spending.
e. All of the above
7. In the classical model:
   a. flexible markets will keep the economy at a full-employment level of spending and output.
   b. both households’ saving activity and firms’ investment activity are quite sensitive to changes in the interest rate.
   c. adjustments in the interest rates quickly correct any imbalances between saving and investment.
   d. 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.
   e. all of the above.

8. Which of the following can describe the meaning of autonomous consumption?
   a) The part of consumption that is not related to income.
   b) That which, when it changes, shifts the consumption schedule up or down.
   c) A minimum level of income that people feel required to spend for survival.
   d) 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.
   e) All of the above.

9. The marginal propensity to consume ($mpc$):
   a. stands for the portion of every additional dollar of aggregate income that goes to consumption spending.
   b. is equal to the change in consumption ($C$) divided by the change in aggregate income ($Y$).
   c. is equal to $1 – mps$.
   d. theoretically should be less than 1
   e. all of the above.
10. In the figure above, what is the level of autonomous consumption?
   a. 0
   b. 20
   c. 100
   d. 340
   e. 400

11. In the figure above, when income = 400, what is the level of saving?
   a. 400
   b. 340
   c. 60
   d. 20
   e. 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 demand falls below aggregate output ($AD < Y$), 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. \( \frac{1}{mpc} \)
   b. \( \frac{1}{1+mpc} \)
   c. \( \frac{1}{1-mpc} \)
   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 demand
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 $AD = C + II$ 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 demand, 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 ($AD < Y$), 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 \( AD = Y \).

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 drop in income, and cut back their own consumption. So this affects additional firms, who see their inventories pile up and thus cut back production. Thus more workers are laid off and incomes fall further, etc. etc.

26. To solve the multiplier algebraically, first substitute the consumption function into the equation for \( AD (AD = C+I) \). Then set \( Y=AD \), and solve for \( Y \).

### Answers to Problems

1. It appears the U.S. economy went into a recession in the years: 1973-75, 1979-80, and 1981-82, because these are the periods when it appears the level of real GDP actually goes down.

2. 
   A: contraction 
   B: expansion 
   C: peak 
   D: trough 
   \( Y^* \): full employment output

3. 

<table>
<thead>
<tr>
<th>(1) Income ((Y))</th>
<th>(2) Consumption ((C))</th>
<th>(3) Intended Investment ((II))</th>
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<tbody>
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<td>50</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>20</td>
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</tr>
<tr>
<td>400</td>
<td>390</td>
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<td>500</td>
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<tr>
<td>600</td>
<td>570</td>
<td>20</td>
<td>590</td>
</tr>
</tbody>
</table>

Using \( AD = C + II \),
(a) \( 50 = 30 + 20 \)
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: AD 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, AD 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: AD 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 ∆II of 50 million, using the formula:

\[ \Delta Y = \text{mult} \times \Delta II \]
\[ \Delta Y = 5 \times 50 \text{ million} \]
\[ \Delta Y = 250 \text{ million} \]

b. Now with an mpc = 0.9, the multiplier = 10. With a ∆II of 50 million,

\[ \Delta Y = \text{mult} \times \Delta II \]
\[ \Delta Y = 10 \times 50 \text{ million} \]
\[ \Delta Y = 500 \text{ million} \]

Answers to Self Test Questions

1. B  11. C
2. B  12. D
5. A  15. B
7. E  17. C
8. E  18. C
9. E  19. A
Chapter 10
Fiscal Policy
Macroeconomics In Context (Goodwin, et al.)

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 budgets, deficits, and debt, and how these affect 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 foreign sector is added to give a complete macroeconomic model including saving, investment, taxes, government spending, exports and imports.

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 demand and output.
2. Carry out calculations using “multipliers.”
3. Describe the major types of government outlays, and major government revenue sources.
4. Distinguish between government deficits and government debt.
5. Describe the recent history of U.S. debt and deficits, and the controversies surrounding them.
6. Discuss the issue of lags in fiscal policy, and the relative advantages and disadvantages of automatic and discretionary policies.
7. Understand how international trade can be included in the model of aggregate demand.

Key Terms

- fiscal policy
- transfer payments
- disposable income
- tax multiplier
- balanced budget multiplier
- expansionary fiscal policy
- contractionary fiscal policy
- government outlays
- government bond
- automatic stabilizers
- time lags
- supply-side economics
- trade deficit
**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 ______ multiplier, which equals \(- (mult)(mpc)\).

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 demand) 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 demand with government in an open economy is: $AD = C + I + G + NX$

**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 is the difference between a government budget deficit versus debt?

23. What is the current level (in 2006) of Government deficit and debt (as % of GDP)?

24. What role did automatic stabilizers and discretionary fiscal policies have in the emergence of budget surpluses during the late 1990s?

25. Are tax cuts always directed at stimulating aggregate demand? Explain why some supply-siders think tax cuts may actually increase tax revenues.

26. Imports are a leakage from the circular flow, and end up stimulating the economy of the country producing the goods that are imported. But are imports always bad for an economy? Provide two reasons why not.

Problems

1. Suppose in a simple economy with no foreign sector, the mpc equals 0.8. Intended investment spending has suddenly fallen, reducing AD 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 ($\Delta TR$), 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.

<table>
<thead>
<tr>
<th>Household income</th>
<th>$mpc$</th>
<th>Income/spending multiplier</th>
<th>Tax multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-$30,000</td>
<td>0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$31,000 – 50,000</td>
<td>0.8</td>
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<tr>
<td>$51,000 – 80,000</td>
<td>0.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$80,000 and above</td>
<td>0.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 ($\Delta Y$) from the increase in government spending ($\Delta G$).

b. The balanced budget amendment requires the government to also raise taxes by 40 million. Calculate the change in output ($\Delta Y$) 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:

Federal Surplus or Deficit (as Percent of GDP), 1975-2006

![Graph showing Federal Surplus or Deficit as Percent of GDP from 1975 to 2006 with data points for Carter, Reagan, G. Bush Sr., Clinton, and G. W. Bush Jr. from 1975 to 2005.]

Year

Percent of GDP
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 1975-2006 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.

![Real GDP Growth rate (%)](source: www.OECD.org)

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 has 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. Suppose in a simple economy with no foreign sector, the $mpc$ is equal to 0.75. How much government spending ($\Delta G$) 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

2. 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.

3. Suppose in a simple economy with no foreign sector, the $mpc$ is equal to 0.9. How much of a lump sum tax ($\Delta T$) would be needed to raise output by 100 million?
   
   a. 10 million  
   b. 11.1 million  
   c. 33.3 million  
   d. 100 million  
   e. None of the above

4. 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 $30 million, how much will be the change in output ($\Delta Y$)?
   
   a. Output will increase by $15 million  
   b. Output will increase by $30 million  
   c. There will be no change in output  
   d. Output will decrease by $30 million  
   e. None of the above
5. Which of the following is not an example of a government outlay?
   a. Government spending on a national health care system
   b. Government spending on light rail systems and bicycle paths
   c. Housing subsidies for low-income households
   d. Tax cuts for wind and solar energy producers
   e. Child care vouchers for working single parents

6. Which of the following was one of the major sources of federal revenues in 2006?
   a. Personal income taxes
   b. Corporate income taxes
   c. Excise and estate taxes
   d. Both A and B
   e. None of the above

7. Which of the following was the largest category of government spending in 2006?
   a. Social programs, such as welfare
   b. Defense spending
   c. Social security, Medicare, and retirement
   d. Net interest on the debt
   e. None of the above

8. During what period of time did the U.S. experience federal government budget surpluses?
   a. 1980 - 1988
   b. 1989 - 1992
   c. 1993 – 1997
   d. 1998 – 2001
   e. 2002 – 2008

9. Which of the following was responsible for putting the budget back into deficit in 2001?
   a. The recession that started in the Spring of 2001.
   b. The 2001 Bush tax cuts
   c. The increased government spending of the Bush administration.
   d. Both A and B.
   e. None of the above.
10. Approximately how large was the U.S. federal debt at the end of 2006?
   a. $300 billion
   b. $500 billion
   c. 1 trillion dollars
   d. 5 trillion dollars
   e. 8 trillion dollars

11. Approximately how large was the U.S. federal debt (as % of GDP) in 2006?
   a. about 3%
   b. about 6%
   c. about 35%
   d. almost 50%
   e. None of the above

12. Which of the following is a reason why the federal government debt in the U.S. may not be a problem?
   a. When the debt is owed to a U.S. citizens themselves, it stays within the circular flow of the economy.
   b. As long as the debt does not grow too fast, it can be rolled over to other willing lenders (buyers of government bonds).
   c. The interest payments on the debt are denominated in U.S. dollars, posing less of a significant problem in repayment than otherwise.
   d. The debt may be used for productive purposes, serving as an investment for future growth.
   e. All of the above.

13. Which of the following is a reason why the U.S. federal government debt may indeed be a problem?
   a. A larger share of future budgets must be devoted to paying interest, leaving less for other needs.
   b. Since more of the debt is held by wealthy households, most of the interest paid by the government go to people who are better off, thereby exacerbating income inequality.
   c. An increasing proportion of the debt is held by foreign individuals and institutions.
   d. When the debt is spent on wasteful, speculative, risky, or poorly planned projects.
   e. All 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:

a. Automatic stabilizers  
b. Discretionary policy  
c. Contractionary fiscal policy  
d. Supply side policy  
e. None of the above.

15. Which of the following is not an example of an inside time lag?

a. data lag  
b. recognition lag  
c. legislative lag  
d. transmission lag  
e. response lag

16. The historical evidence of the supply side tax cuts (of the Reagan administration in the 1980s and Bush in the 2000s) is that:

a. they were successful in increasing output, increasing tax revenues and lowering deficits.  
b. they led to lower tax revenues and higher deficits.  
c. they left output, tax revenues and deficits unchanged.  
d. while the Reagan tax cuts were successful in increasing tax revenues and lowering deficits, those of the Bush administration were not.  
e. None of the above.

17. Which of the following characterizes the U.S. trade balance?

a. The U.S. runs a trade deficit, with imports exceeding exports.  
b. U.S. net exports were negative  
c. In 2006 the U.S. trade deficit was about 5.5 percent of GDP.  
d. The U.S. trade deficit is a negative contribution to aggregate demand and a net leakage from the circular flow.  
e. All of the above.

18. Assume an economy with an \( mpc \) equal to 0.75. Then an increase in exports (\( \Delta X \)) by 50 million will increase in output (\( \Delta Y \)) by:

a. 12.5 million  
b. 16.67 million  
c. 150 million  
d. 200 million  
e. None of the above
19. In the macroeconomic model with government and an open economy, which of the following is a leakage from the circular flow?

a. Government spending  
b. Government transfers payments 
c. imports  
d. exports  
e. intended investment

20. Which of the following characterizes the classical economists’ view of how the economy works at the macro level?

a. Leakages and injections will balance themselves automatically and keep the economy at the full employment level of output.  
b. Sometimes there is a “slip from the lip to the cup” and a leakage can turn into a big messy spill.  
c. Leakages may be greater than injections, which may keep the economy stuck at an equilibrium below the full employment level of output.  
d. Government policy interventions are often essential to achieve acceptable levels of income and employment.  
e. All of the above.

Answers to Active Review Questions
1. fiscal policy  
2. transfer payment  
3. disposable  
4. tax  
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: \[ AD = C + II + G + NX \]
17. The multiplier used in this case is the same as the multiplier introduced in chapter 9: 
\[ \text{multiplier} = \frac{1}{1 - mpc} \]
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. The deficit is a flow variable representing an annual shortfall (when tax revenues < government outlays), whereas the debt is a stock variable representing the accumulation of deficits over many years.
23. In 2006 the U.S. deficit as % of GDP was about 2%, and the debt as % of GDP was slightly over 35%.
24. 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.
25. 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.
26. One reason is that U.S. consumers and U.S. industry benefit from the imports whose prices tend to be cheaper than the domestically-produced alternatives. The second reason is that at least some of the money spent on imports is likely to return to the United States as demand for exports, which stimulates GDP.

Answers to Problems

1. a. the income/spending multiplier = \( \frac{1}{1 - 0.8} = 5 \)
   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, \(- mpc (\text{mult})\)
   So solving for \( \Delta Y = -mpc (\text{mult}) \times \Delta T \)
   \( 100 \text{ million} = -0.8 \times 5 \times \Delta T \)
   \( \Delta T = 100 \text{ million} / -4 \)
   \( \Delta T = -25 \text{ million} \) (a tax cut of 25 million would be needed)

c. the calculation is like part b, above, except instead of \( \Delta T \) we have \( \Delta TR \). 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. 

<table>
<thead>
<tr>
<th>Household income</th>
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<th>Tax multiplier</th>
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<td>0.75</td>
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<tr>
<td>$80,000 and above</td>
<td>0.6</td>
<td>2.5</td>
<td>1.5</td>
</tr>
</tbody>
</table>

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 \( \text{mult} \) may depend on an economy-wide average \( \text{mpc} \), 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. No, this is not confirmed by the historical evidence of the 1975-2006 period, as in this period 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., and G.W. Bush Jr could be from increasing government outlays \( (G \text{ and } TR) \), and/or cutting taxes \( (T) \). The surpluses under Clinton could be from cutting government outlays \( (G \text{ and } TR) \), 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. A  11. C
2. D  12. E
5. D  15. E
6. A  16. B
7. C  17. E
8. D  18. D
10. E  20. A
Chapter 11
Money and Monetary Policy
Macroeconomics In Context (Goodwin, et al.)

Chapter Overview

In this chapter, you will be introduced to a standard treatment of the banking system and monetary policy. You will learn about the role and functions of money, and about the role of the Federal Reserve. 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 Appendix you will be introduced to other approaches to understanding how monetary policy works, such as the more traditional money-supply-and-money-demand approach.

Chapter Objectives

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

1. Describe the functions of money and types of money.
2. Understand the basic workings of private and central banks.
3. Describe the tools the Federal Reserve can use to carry out monetary policy.
4. Understand how the Fed uses open market operations to influence the federal funds rate.
5. Explain how monetary policy is expected to affect investment and aggregate demand.
6. 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 relation of bond prices to interest rates
10. Describe the transactions demand model of money.
11. Understand the difference between real and nominal interest rates, and their impact on the economy.
12. Become familiar with the notions of “liquidity trap” and “credit rationing.”

Key Terms

<table>
<thead>
<tr>
<th>English Word</th>
<th>Spanish Word</th>
</tr>
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<tbody>
<tr>
<td>barter</td>
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<tr>
<td>deflation</td>
<td>deflación</td>
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<td>liquidity</td>
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<td>commodity money</td>
<td>dinero en dinero</td>
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<table>
<thead>
<tr>
<th>English Word</th>
<th>Spanish Word</th>
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<td>financial intermediary</td>
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<td>high-powered money</td>
<td>dinero de curso alto</td>
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money multiplier  |  monetizing the deficit
discount rate   |  
Federal funds rate |  
Prime bank rate   |  
Accelerator principle  |  
Expansionary monetary policy  |  
Accommodating monetary policy  |  
Contractionary monetary policy  |  
Quantity equation  |  
Velocity of money  |  
Quantity theory of money  |  
Monetary neutrality  |  
Money supply rule  |  
Monetarism  |  

**Appendix:**

- Bond
- Coupon amount
- Face value
- Maturity date
- Bond price
- Bond yield to maturity
- Transactions demand model
- Real interest rate
- Expected real interest rate
- Liquidity trap
- Credit rationing

**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. The percentage of deposits that the Fed orders banks to keep in their vaults or in deposits at the Fed are called ________________.

4. 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 ____________.

5. 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.

6. 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.

7. The interest rate that the Fed charges banks on overnight loans it makes to banks so they can to meet their reserve requirements is called the ____________.

8. 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 ________________.
9. 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.

10. The theory that assumes that the velocity of money is constant in the equation \( M \times V = P \times Y \) is the ________________.

11. 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.

12. (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 ________________.

13. (Appendix) The model of the money market which assumes that people need money balances for transactions, but forego earnings on the money balances they hold, is called the ________________.

14. (Appendix) The nominal interest rate minus inflation is the ______________.

15. (Appendix) When interest rates are so low that the Central Bank finds it impossible to lower them any further, the economy is in 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.

19. The most common monetary policy tool used by the Fed is changing the discount rate.

20. 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.

21. 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.
22. Why is inflation harmful to an economy?

23. Why is deflation harmful to an economy?

24. What are the three roles of money? And what are two types of money?

25. Identify the components of M1 and M2.

26. Describe the structure of the Federal Reserve. How many board of governors are there, and how long are their terms? Who appoints them? And how many regional banks does the Fed have?

27. Is the role (or function) of the Fed only to conduct monetary policy (e.g. raise or lower interest rates)?

28. Identify the three tools of monetary policy, and what the Fed would do to increase (or decrease) the (growth of the) money supply.

29. Explain the sequence of links connecting an expansionary monetary policy with interest rates, intended investment, aggregate demand, and output.

30. 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:

   a. What assumptions does the classical theory make about the variables in the quantity equation?

   b. What assumptions does monetarist theory make about the variables?

   c. What assumptions do Keynesian-oriented theories make?
d. How does monetarist theory use the quantity equation to explain the deflation and fall in output in the U.S. during the Great Depression?

e. How might a Keynesian-oriented theorist use the quantity equation to explain the cause of hyperinflation?

f. Provide two cases where inflation is caused by some factor other than an increase in the money supply

Problems

1. Jane Do 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. Suppose the Fed buys $5 million worth of government bonds from TrustMe bank.


b. 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.)
c. 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?

3. 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 Demand 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 demand and output. Illustrate graphically by re-doing the graphs in a-c above.
Self Test

1. Which of the following is *not* a reason why an unexpected bout 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. Why is deflation harmful to an economy, according to the textbook authors?

   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.

3. Which of the following is the most liquid?

   a. A $20 bill in your pocket
   b. A gold necklace
   c. Three shares of Microsoft stock
   d. A certificate of deposit (CD) in your bank.
   e. A new Toyota Prius automobile

4. Which of the following is *not* one of the characteristics necessary for commodity money to be used as money?

   a. It must be durable.
   b. It must be portable.
   c. It must be generally acceptable.
   d. It must be differentiated.
   e. It must be scarce.
5. Which of the following is not included as “money” in M1?

a. Currency in circulation  
b. Checkable deposits  
c. Traveler’s checks  
d. The use of a credit card  
e. The use of debit cards that take funds from a checking account

6. 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

7. 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.

8. 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.

9. 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 it’s 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
10. 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.

11. 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.

12. Which of the following is not one of the Fed’s monetary policy tools?

   a. Buying bonds on the open market
   b. Selling bonds on the open market
   c. Raising or lowering taxes
   d. Raising or lowering the reserve requirement ratio
   e. Raising or lowering the discount rate

13. Suppose the Fed wanted to engage in an expansionary monetary policy. Which of the following should it do?

   a. Sell bonds on the open market.
   b. Increase the reserve requirement ratio.
   c. Increase the discount rate.
   d. Buy bonds on the open market.
   e. Lower taxes.

14. The rate determined in the private market for overnight loans of reserves among banks is called the

   a. federal funds rate
   b. discount rate
   c. prime rate
   d. interest rate
   e. None of the above.
15. 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)?

   a. 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 demand and output.
   b. The Fed decreases intended investment spending, which leads to a decrease in aggregate demand and output, and a decrease in the supply of federal funds and the interest rate.
   c. 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 demand and output.
   d. 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 demand and output.
   e. 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 demand and output.

16. What did the Federal Reserve do to expand the economy during the 2000-04 period?

   a. It pushed down the federal funds rate.
   b. It raised the reserve requirement ratio.
   c. It raised the discount rate.
   d. It sold bonds on the open market.
   e. None of the above.

17. Which theory (or theories) assumes that the velocity of money is not constant, in the quantity equation $M \times V = P \times Y$?

   a. Classical theory
   b. Monetarist theory
   c. Keynesian-influenced theories
   d. The theory expounded by Milton Friedman and Anna Jacobson Schwartz
   e. None of the above

18. 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

19. 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

20. 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

From Appendix:

21. 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

22. What happens to bond prices and their interest rate when the Fed makes a sizeable open market purchase?
   a. The price of bonds rises and their interest rate falls.
   b. The price of bonds falls and their interest rate rises.
   c. The price of bonds rises and their interest rate rises.
   d. The price of bonds falls and their interest rate falls.
   e. The price of bonds and their interest rate remain unchanged.
23. In the transactions demand model, what happens when the Fed engages in an expansionary monetary policy?

a. The money supply increases, driving up the interest rate.
b. The money supply increases, driving down the interest rate.
c. The money supply decreases, driving up the interest rate.
d. The money supply decreases, driving down the interest rate.
e. The money supply and the interest rate remain unchanged.

24. What is the difference between the nominal and real interest rate?

a. The nominal interest rate is the real interest rate minus the rate of inflation.
b. The real interest rate is the nominal rate plus the rate of inflation.
c. The real interest rate is the nominal rate minus the rate of inflation.
d. The nominal interest rate is the real interest rate plus the rate of inflation.
e. There is no difference between real and nominal interest rates.

25. A liquidity trap refers to a situation when

a. The economy is trapped by a flood of money on the market.
b. A rise in interest rates causes people to want to hold less money.
c. Households’ wealth becomes trapped in assets that cannot be easily exchanged into money.
d. The general public has a strong preference for holding the most liquid asset, money.
e. None of the above.

26. During a liquidity trap,

a. as the Fed increases the money supply, the interest rate falls significantly.
b. increases in the money supply have no effect on the interest rate, because the money demand curve has become perfectly horizontal.
c. as the Fed increases the money supply, the interest rate rises substantially.
d. once the Fed increases the money supply, it can no longer control it, which leads to hyperinflation.
e. monetary policy is highly effective in expanding the economy.
27. When credit rationing occurs,

a. banks keep their interest rates below what the market would bear, and deny loans to some potential borrowers.
b. Banks lend to only those customers deemed to be creditworthy and less risky.
c. Smaller and less well-known firms may be more disadvantaged than bigger firms with well-established reputations.
d. The Fed’s intended monetary policy actions may be limited or ineffective.
e. All of the above.

Answers to Active Review Questions

1. liquid
2. M1
3. required reserves
4. open market operations
5. monetary base, high-powered money
6. money multiplier
7. discount rate
8. accelerator principle
9. quantity equation
10. quantity theory of money
11. Monetizing the deficit
12. (Appendix) bond
13. (Appendix) transactions demand model
14. (Appendix) real interest rate
15. (Appendix) liquidity trap
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. False. It is open market operations.
20. False. With “tight” policy, the interest rate rises.
21. True.
22. Inflation is harmful for the following reasons: 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, which makes financial planning for the future more difficult.
23. Deflation is a problem because: it redistributes wealth from debtors to creditors, it creates menu costs; it creates uncertainty, which makes financial planning for the future more difficult; and it can lead to cutbacks in borrowing and spending, which can slow down the economy.
24. 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.
25. 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.
26. 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.
27. No, the Fed is supposed to do more than that. It’s 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.
28. 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.
29. An expansionary monetary policy will lower interest rates, which tends to encourage intended investment, leading to an increase in aggregate demand and output (GDP).
30.
   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 due to imports whose prices have risen.

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.
c. M1 decreases by $400, and M2 remains unchanged.

2. Suppose the Fed buys $5 million worth of government bonds from TrustMe bank. a.
The changes in the Fed’s Balance sheet are:

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
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<tbody>
<tr>
<td>Government bonds</td>
<td>+$ 5 million</td>
</tr>
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</table>

(b) The changes in TrustMe bank’s balance sheet are:

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government bonds</td>
<td>−$ 5 million</td>
</tr>
<tr>
<td>Reserves</td>
<td>+$ 5 million</td>
</tr>
</tbody>
</table>

b. $5 million
c. $5 million × 2 = $10 million

3. Effects of an expansionary monetary policy:
a.
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 \( II_0 \) to \( II_1 \), so intended investment spending remains at its original level:
Graph c would now look like as follows, where AD remains unchanged, but at the lower interest rate:
Answers to Self Test Questions

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

From appendix:

21. B  
22. A  
23. B  
24. C  
25. D  
26. B  
27. E
Chapter 12
Aggregate Supply, Aggregate Demand, and Inflation: Putting It All Together

Macroeconomics In Context (Goodwin, et al.)

Chapter Overview

This chapter introduces you to the "Aggregate Supply Response/Aggregate Demand Equilibrium" (or "ASR/ADE") model. It introduces the inflation rate to the aggregate demand model presented previously in Ch. 9. Now, however, the aggregate demand curve is an Aggregate Demand Equilibrium (ADE) curve and is downward sloping in relation to inflation and output. The chapter also adds in the role of aggregate supply by presenting an Aggregate Supply Response (ASR) curve. The ASR/ADE model is then deployed to analyze various current events (such as changes in fiscal and monetary policy, supply shocks, and other changes) and examines their effects on the rate of inflation and output. The chapter reviews several decades of U.S. macroeconomic performance through the lens of the ASR/ADE model. It also compares the classical school with their view of full employment equilibrium, to the Keynesians with their view of a dynamically evolving economy. Lastly, you will be introduced to considerations of social and ecological sustainability and their implications for the ASR/ADE model.

Chapter Objectives

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

1. Explain the derivation of the Aggregate Demand Equilibrium curve relating inflation and output levels, and how it shifts.

2. Explain the derivation of the Aggregate Supply Response curve relating inflation and output levels, and how it shifts.

3. Use the ASR/ADE 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 ASR/ADE 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.

6. Examine the assumptions of the aggregate demand models covered in Chapters 9-12, in light of concerns for social and ecological sustainability.
Key Terms

maximum capacity output
wage-price spiral
wage and price controls
supply shock
stagflation

Appendix:
real business cycle theory
rational expectations school
New Keynesian macroeconomics
Post Keynesian macroeconomics

Active Review

Fill in the Blank

1. The curve that represents various equilibrium points that are consistent with various levels of inflation, and shows an inverse relationship between inflation and output, is called the _____________ curve.

2. If inflation is on the rise, the Fed will raise interest rates, thereby reducing output (and vice versa, if inflation is falling). This action describes the _________ rule.

3. 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.

4. Assume that a nation is fully using every last one of its available resources in production. Then that nation would be operating at ___________ output.

5. 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 _____________.

6. At least two times in U.S. economic history, during WWII and the early 1970s, the government established ____________ to keep inflation from spiraling out of control.

7. 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 ____________.

8. The presence of both economic stagnation (with rising unemployment) and rising inflation is known as ____________.

9. 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 __________.
10. Some economists concerned with the environment point out that one can keep the level of spending constant, but change the ______________ of spending, in ways that can help the environment.

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 ________________.

13. (In Appendix) The economists who believe that the Keynesian view holds in the short and medium run, but the classical view prevails in the long run, have proposed a ________________.

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 ASR curve, at the “full employment” range of output the unemployment rate is 0%.

17. According to classical theory, any shifts in the ADE curve will only lead to changes in inflation, and leave output unchanged.

18. There is a clear relationship between employment over the business cycle and well-being in industrialized countries: during downturns, mortality rates increase and during upswings, mortality rates decrease.

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 ADE curve downward sloping?
22. What variables would cause a shift in the ADE curve?

23. What are the four regions of the aggregate supply response curve diagram?

24. Why is the ASR curve gently rising in the full employment range?

25. Why is the ASR curve flat, rather than upward sloping, in the recession range?

26. Why is there no immediate response in the ASR curve to an increase in inflation?

27. What factors would cause a shift in the ASR curve (and in some cases, the maximum output)?

28. What is the classical school’s rationale for the slope of the ASR curve?

29. One of the simplifying assumptions in the macroeconomic ADE/ASR 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 classicals and 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:

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<tr>
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<tr>
<td>A:</td>
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<td>C:</td>
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<td>E:</td>
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</tbody>
</table>

2. For each of the following, illustrate the shift of one of the curves in the ASR/ADE 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. Depletion of the Ogallala aquifer produces a long-lasting drought and reduces crop yields in the Midwest.
d. The distribution of high speed internet to rural areas boosts productivity.

3. Illustrate the following periods of history with the ASR/ADE model.

a. Government spending for the Vietnam war during 1964-69 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 rises to above 9% in 1975, and the unemployment rate rises above 8%. (Illustrate the immediate effect.)

c. After another oil price shock in 1979, Volker conducted a contractionary monetary policy (choosing a lower target inflation rate). Inflationary expectations fell. The unemployment rate rises to almost 10%, but inflation is brought down from 9% to 4%. (Illustrate both the immediate and medium-run effects.)

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 4.5% and inflation was about 1%. 
Self Test

1. According to our textbook authors, why is the ADE curve downward sloping?
   
   a. Because with higher inflation, consumers real income and wealth is less and they consume less, resulting in lower output.
   b. Because with higher inflation, nominal interest rates will be higher, so businesses will engage in less investment spending, resulting in lower output.
   c. Because with higher inflation, exports will be more expensive, resulting in less net exports and lower output.
   d. Because as inflation increases, the Fed will cut interest rates and slow down the economy, resulting in lower output.
   e. None of the above.

2. Which of the following would not cause a shift in the aggregate demand equilibrium (ADE) curve?
   
   a. The government cuts taxes.
   b. Expectations of a growing economy lifts business confidence.
   c. The Fed chooses a lower inflation target.
   d. The Fed sees falling inflation and responds with an interest rate cut.
   e. A fall in the value of the U.S. dollar boosts exports.

3. Which of the following is not one of the four regions of the aggregate supply response curve diagram?
   
   a. Maximum capacity output
   b. Wage-price spiral
   c. Full employment range of output
   d. Recession
   e. Depression

4. What is the shape of the ASR curve in the full employment range?
   
   a. Flat and horizontal
   b. Gently rising upwards
   c. Steeply rising upwards
   d. Completely vertical
   e. Downward sloping
5. Which of the following would not cause a shift in the ASR curve?
   a. A natural occurrence, such as a bumper crop in agriculture.
   b. An increase in labor productivity.
   c. An increase in a key input of production, such as oil prices.
   d. A change in investment spending.
   e. 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 ASR curve and maximum capacity output?
   a. A natural occurrence, such as a bumper crop in agriculture.
   b. An increase in labor productivity.
   c. An increase in the price of a key input of production, such as oil.
   d. A change in inflation that changes people’s expectations of inflation in the medium run.
   e. None of the above.

7. Which of the following would cause the ADE curve to shift to the right?
   a. The government raises income taxes.
   b. Firms become pessimistic about the future growth of GDP, sales, and profits.
   c. The Fed shifts to a higher target rate of inflation.
   d. Workers build expectations of higher inflation into their contracts.
   e. None of the above.

8. What would have caused both the ASR curve and maximum capacity to shift to the right?
   a. A decrease in labor productivity.
   b. A decrease in inflationary expectations.
   c. A cut in income taxes.
   d. The distribution of high-speed internet access to rural areas in the U.S.
   e. 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 ADE/ASR model?
   a. ADE shifts right/up.
   b. ADE shifts left/down.
   c. ASR and maximum capacity shift right/down.
   d. ASR and maximum capacity shift left/up.
   e. ADE, ASR 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 ADE/ASR model?

a. ADE shifts right/up.
b. ADE shifts left/down.
c. ASR and maximum capacity shift right/down.
d. ASR and maximum capacity shift left/up.
e. ADE, ASR and maximum capacity remain unchanged.

11. Suppose we observe an increase in inflation and a decrease in output. Which of the following could be the cause?

a. The Fed has chosen a lower inflation target.
b. Good weather has produced a bumper harvest.
c. An increase in consumer confidence has boosted consumption spending
d. The price of a key input, oil, has increased.
e. None of the above.

12. In the figure below, which of the following events could explain the shift of the ADE curve to the right?

a. The tax cuts of 1964.
c. The immediate effect of the oil price shocks of 1973-74.
d. The medium run adjustment to the oil price shocks, with a fall in inflationary expectations in 1975-76.
e. None of the above.
13. In the figure below, which of the following events could explain the shift of the ADE curve to the left, and the shift up of the ASR curve?

a. The tax cuts of 1964.
c. The immediate effect of the oil price shocks of 1973-74.
d. The medium run adjustment to the oil price shocks, with a fall in inflationary expectations in 1975-75.
e. None of the above.

14. In the figure below, which of the following could explain the shift downwards of the ASR curve?

b. The immediate effect of the oil price shocks of 1973-74.
c. The medium run adjustment to the oil price shocks, with a fall in inflationary expectations in 1975-75.
d. The increase in productivity and globalization in the 1990s.
e. None of the above.
15. If the Fed tries to lower the rate of inflation by choosing a lower inflation target, what are the effects in the immediate and medium run?

   a. ADE shifts down/left.  
   b. ADE shifts down/left and ASR shifts down.  
   c. ADE shifts up/right.  
   d. ADE shifts up/right and ASR shifts up.  
   e. ADE shifts down/left and ASR shifts up.

16. According to classical theory, the aggregate supply response (ASR) 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. Any increases in aggregate demand will only 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 ADE 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 ADE curve more stable.  
   e. All of the above.
19. What simplifying assumptions were made in developing the macroeconomic ASR/ADE model?

a. More employment (and less unemployment) is always a good thing.
b. Inflation must be kept as low as possible.
c. What matters is keeping the levels of aggregate spending high, not its composition.
d. A and B.
e. A and C.

20. Which of the following fiscal and monetary policies would enhance the goal of environmental sustainability?

a. Carbon taxes on fossil fuels.
b. Government spending on renewable energy development.
c. Tax credits for environment-enhancing private investment spending.
d. Subsidized interest rates for environment-enhancing private investment spending.
e. All of the above.

Answers to Active Review Questions

1. Aggregate demand equilibrium
2. Fed Reaction rule
3. aggregate response curve
4. maximum capacity
5. wage-price spiral
6. wage and price controls
7. supply shock
8. stagflation
9. inflationary expectations
10. composition (of spending)
11. (In Appendix) real business cycle theory
12. (In Appendix) rational expectations school
13. (In Appendix) classical-Keynesian 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. In industrialized countries, mortality rates tend to fall when the economy slows down and rise during economic upswings.
19. False. It is the combination of stagnation and inflation.
20. True.
21. The ADE 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.
22. The ADE 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 four regions are: maximum capacity output, the wage price spiral, the full employment range of output, and recession.
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 ASR 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 ASR 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’s ASR 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.
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 Response
E: Maximum Capacity
F: Output (Y)
G: Y* (Full employment output range)
2.

a. Business confidence rises as firms expect an increase in GDP, sales, and profits.

\[
\text{Inflation rate (\(\pi\))}
\]

\[
\text{Output (Y)}
\]

\(\text{ADE}_0 \quad \text{ADE}_1\)

2b. A rise in inflation increases people’s expectations of inflation in the medium run.

\[
\text{Inflation rate (\(\pi\))}
\]

\[
\text{Output (Y)}
\]

\(\text{ASR}_0 \quad \text{ASR}_1\)

2c. Depletion of the Ogallala aquifer produces a long-lasting drought and reduces crop yields in the Midwest.
2d. 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%.
3b. In 1973-74, OPEC engaged in an oil embargo, causing an increase in oil prices. Inflation rises to above 9% in 1975, and the unemployment rate rises above 8%. (Illustrate the immediate effect.)

c. After another oil price shock in 1979, Volker conducted a contractionary monetary policy (choosing a lower target inflation rate). Inflationary expectations fell. The unemployment rate rises to almost 10%, but inflation is brought down from 9% to 4%. (Illustrate both the immediate and medium-run effects.)
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 4.5% and inflation was about 1%.

![Graph showing inflation rate and output.]

**Answers to Self Test Questions**

1. D  
2. D  
3. E  
4. B  
5. D  
6. D  
7. C  
8. D  
9. D  
10. A  
11. D  
12. A  
13. B  
14. C  
15. B  
16. D  
17. E  
18. E  
19. E  
20. E
Chapter 13
The Global Economy
Macroeconomics In Context (Goodwin, et al.)

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. You will examine the standard Ricardian gains-from-trade model and the principle of comparative advantage, and the arguments for and against “free trade.” You will be introduced to the ways in which trade impacts monetary policy. The chapter also examines the real world political economy of international economic relations.

Chapter 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.
5. Discuss arguments for and against “free trade.”
6. Understand basic principles of international finance.
7. Understand the implications of “openness” for monetary policy.
8. Identify important international institutions concerned with trade and finance.

Key Terms

trade ban
tariffs
trade-related subsidies
import substitution
capital controls
foreign trade zone
migration controls
free trade
Ricardian model of trade
terms of trade
comparative advantage (principle of)
labor-intensive production
capital-intensive production
factor-price equalization
economies of scale
World Trade Organization (WTO)
protectionist policies
infant industry
race to the bottom
dumping
purchasing power parity (PPP)
exchange rate
purchasing power parity (PPP) adjustments
real exchange rate fixed exchange rate system
balance of payments (BOP) account devaluation
current account (in the BOP account) revaluation
financial account (in the BOP account) foreign exchange market intervention
foreign direct investment (FDI) World Bank
flexible (floating) exchange rate system International Monetary Fund (IMF)

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. Many newly independent developing countries in the 1950s, 60s, and 70s used ______________ policies to encourage their domestic producers to make products that could be used in place of the imports from the industrialized countries (including imports coming from their former colonizers).

3. Countries sometimes set up ______________ within their borders, where foreign-owned manufacturers can operate free of many taxes, tariffs, and regulations.

4. Suppose China and the U.S. exchange 10 units of cloth for 10 units of wheat. Then the price (or cost) of imports relative to exports, or the ____________, is 1:1.

5. The principle that says that the gains from trade occur when producers specialize in making goods for which their opportunity costs are relatively low is called the principle of _________________.

6. The theory that predicts that free trade should tend to equalize the returns to capital and labor across countries is the theory of _________________.

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 _________________.

13-2
True or False

11. Both quotas and tariffs provide a monetary revenue benefit to the government that has imposed them.

12. Foreign exchange flows in mid-2007 were averaging about $3.2 trillion per year.

13. When foreigners buy U.S. bonds or invest in a U.S. business, these are financial (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 four policy tools to regulate trade in goods and services.

17. Briefly explain the principle of comparative advantage.

18. What does the theory of factor price equalization say should happen (in a hypothetical world of perfectly free trade) to wages and the returns to capital in two countries like Bangladesh (a labor-intensive country) and the U.S. (a capital intensive country)?

19. Identify six arguments against “free trade.”

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 financial 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. 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. Theory of Comparative Advantage
Suppose if the U.S. put all its resources into Corn production, it could produce 200 units of Corn. If it put all its resources into Toy production, it could produce 100 units of Toys. Suppose it’s desired consumption was to consume 100 units of Corn and 100 units of Toys.

a. Illustrate the U.S.’s Production Possibilities Frontier and its desired bundle of consumption (label this point A).

Suppose if China put all its resources into Corn production, it could produce 200 units of Corn. If it put all its resources into Toy production, it could produce 300 units of Toys. Suppose it’s desired consumption is to consume 100 units of Corn and 200 units of Toys.
b. Illustrate China’s Production Possibilities Frontier and its desired bundle of consumption (label this point B).

c. Determine the opportunity cost of 1 unit of Toys in each country. And what is the opportunity cost of 1 unit of Corn in each country?

d. According to the theory of comparative advantage, which country should specialize in what? Explain why.

e. Suppose the two countries were to trade 100 units of Corn for 100 units of Toys. Can each country now achieve its desired consumption?

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 four policy tools to regulate trade in goods and services?
   
   a. Import quotas  
   b. Tariffs  
   c. Trade ban  
   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 over 20% in 2007.  
   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 deficit.  
   e. All of the above.

4. Which of the following is *not* one of the U.S.’s top 10 trading partners?
   
   a. Canada  
   b. Mexico  
   c. China  
   d. Japan  
   e. Saudi Arabia
5. Which of the following is *not* one of the arguments in favor of “free-trade”?

a. To realize the gains from specialization and exchange.
b. To realize the opportunities of economies of scale.
c. To stimulate competition and innovation.
d. To protect new “infant” industries.
e. To create of a “global village” with peaceful relations among countries.

6. The principle of comparative advantage says that:

a. Producers should specialize in making goods for which they have an absolute advantage.
b. Even if producers have a comparative advantage in producing a good, they should produce it only if they have an absolute advantage.
c. Producers should specialize in making goods for which they can produce at the lowest cost.
d. Producers should specialize in making goods for which their opportunity costs are relatively low.
e. Producers should consider the effects on their workers and the environment when engage in specialization and exchange.

Consider the following 2 figures for the next 4 problems:

Figure 1
7. What is the opportunity cost of 1 unit of cotton in India?

   a. $\frac{1}{2}$ unit wheat
   b. 1 unit wheat
   c. 2 units wheat
   d. 50 units wheat
   e. None of the above.

8. According to the theory of comparative advantage, which country should specialize in what?

   a. The U.S. should specialize in cotton and India should specialize in wheat.
   b. India should specialize in cotton and the U.S. should specialize in wheat.
   c. The U.S. should specialize in both cotton and wheat.
   d. India should specialize in both cotton and wheat.
   e. The U.S. should specialize in wheat, but it doesn’t matter who specializes in cotton.

9. Suppose the two countries specialize in the products for which they have a comparative advantage, and agree to a 1:1 exchange, trading 50 units of cotton for 50 units of wheat. How much cotton and wheat can India now consume?

   a. 50 units of cotton, and 25 units of wheat.
   b. 50 units of cotton, and 50 units of wheat.
   c. 100 units of cotton, and 50 units of wheat.
   d. 50 units of cotton, and 150 units of wheat.
   e. None of the above.
10. Suppose the two countries specialize in the products for which they have a comparative advantage, but now suppose the U.S. offers only 25 units of wheat in exchange for 50 units of cotton. Will India still agree to these terms of trade?
   a. Yes, because by specialization and exchange, it is still better off.
   b. Yes, because it is still able to consume a greater bundle than it could before trade.
   c. Probably not, because it is no better off than it was before trade.
   d. Absolutely not, because it is worse off than it was before trade.
   e. None of the above.

11. Which of the following is not one of the reasons against “free trade”?
   a. To protect domestic industries and jobs.
   b. To protect infant industries and/or create a dynamic comparative advantage.
   c. To prevent a race to the bottom in weakening costly labor, environmental, and safety standards.
   d. To take advantage of specialization and exchange.
   e. To lessen vulnerability through diversification.

12. In 2005, China had a GDP per capita (US $) of $1,713. It’s GDP per capita with the purchasing power parity adjustments ((PPP US$) was $6,757. Which of the following best explains the difference in these two figures?
   a. The GDP per capita (PPP US$) figure adjusts for the difference in the size of the population between the two countries.
   b. The GDP per capita (PPP US$) figure adjusts for the fluctuation in the values of the countries’ currencies.
   c. The GDP per capita (PPP US$) figure adjusts for the difference in the cost of living between China and the U.S.
   d. The GDP per capita (PPP US$) figure uses the “Big Mac Index.”
   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 will rise, 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 financial account.
d. As an outflow in the financial 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 financial account.
d. As an outflow in the financial 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?

   a. It could create more demand for the domestic currency by buying more of it.
   b. It could increase the supply of the domestic currency.
   c. It could create less demand for the domestic currency by buying less of it.
   d. It could declare the currency to have a greater value, by fiat.
   e. None of the above.

19. Which of the following is not one of the international institutions established in the late 1940s?

   a. The Bretton Woods system of fixed exchange rates.
   b. The World Bank
   c. The International Monetary Fund (IMF)
   d. The General Agreement on Tariffs and Trade (GATT)
   e. 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?

   a. Trade liberalization
   b. Privatization
   c. Deregulation
   d. Cut government spending and reduce the size of government
   e. Reduction in poverty and domestic income/wealth inequality

**Answers to Active Review Questions**

1. tariffs
2. import substitution
3. foreign (or free) trade zones
4. terms of trade
5. comparative advantage
6. factor-price equalization
7. purchasing power parity (PPP)
8. balance of payments (BOP) account
9. financial account (in the BOP account)
10. devaluation
11. False. Only tariffs provide a monetary revenue benefit to the government.
12. False. It was about $3.2 trillion per day.
13. False. They are financial (capital) inflows.
14. True.
15. True.
16. Four policy tools to regulate trade are: a trade ban, a trade quota, a tariff, or a trade-related subsidy.
17. The principle of comparative advantage says that countries should specialize in producing what they can produce best (at relatively lower opportunity cost) and trade, and thereby reap gains from trade by being able to consume a greater bundle of goods than they could without trade.
18. The theory says that wages and the returns to capital in both countries would eventually converge.
19. Six arguments or reasons against “free trade” include: Protecting domestic industries and jobs; collecting government revenues through tariffs; protecting infant industries and/or creating a dynamic comparative advantage; preventing a race to the bottom in labor, environmental, and safety standards; protecting industries important to national security; and lessening vulnerability through diversification.
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 financial account. The current account tracks the inflows and outflows from trade in goods and services, as well as earnings and transfers. The financial 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 demand 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. 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.
Answers to Problems

1. a.

b.

c. For the U.S.:
1 unit of Toys = 2 units of Corn
1 unit of Corn = ½ units of Toys

For China:
1 unit of Toys = 0.67 units of Corn
1 unit of Corn = 1.5 units of Toys

d. China should specialize in Toys and the U.S. should specialize in Corn, because China has lower opportunity costs in Toys, and the U.S. has lower opportunity costs in Corn.

e. If the U.S. trades 100 units of Corn for 100 units of Toys, it can now consume 100 units of Corn and 100 units of Toys. If China trades 100 units of Toys for 100 units of
Corn, it can now consume 100 Corn and 200 Toys. So yes, they can now achieve their desired consumption.

2.

a.

b.

The Chinese Central Bank can increase the supply of the Yuan to keep its value low.
### Answers to Self Test Questions

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<td>19.</td>
<td>E</td>
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<td>20.</td>
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Chapter 14
How Economies Grow and Develop

Macroeconomics In Context (Goodwin, et al.)

Chapter Overview

This chapter discusses theories of economic growth, highlighting the Solow growth model and the importance of investment in manufactured capital. It also discusses the role of strong institutions, industrial policy, and human capital as key ingredients to economic growth. The chapter then presents the debate on economic convergence, which examines whether or not a reduction in global inequality is occurring. The chapter also examines the process of economic development and the policies that have been implemented in recent years. You will be introduced to the view that the “one size fits all” approach to economic development emphasizing structural reforms has produced disappointing results, and that different approaches are required in response to the circumstances in each country.

Chapter Objectives

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

1. Explain the difference between “economic growth” and “economic development.”
2. Understand economists’ traditional (Solow) model of economic growth.
3. Describe general patterns of economic growth over time and across different regions and countries.
4. Discuss the controversy concerning whether global inequality is increasing or decreasing.
5. List various factors that play a role in development.
6. Explain how development policies have evolved over time.

Key Terms

- factors of production
- total factor productivity
- Industrial Revolution
- virtuous cycles (in development)

- convergence
- bilateral development assistance
- multilateral development assistance
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. Labor, capital, and natural resources are just three ________________, key inputs into the production function.

4. A measure of the productivity of all factors of production is ________________ productivity.

5. 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 ________________.

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. A major cause of Japan’s extraordinary growth in the period of 1950-1980 was its high savings rate, which reached as high as 20% of household income in the mid 1970s.
13. Additions to a nation’s capital stock will automatically lead to economic growth.

14. History shows that having a 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.

*Short Answer*

16. Explain the difference between economic growth and economic development.

17. Given data on growth of real GDP and the growth of population, how can growth in real GDP per capita be calculated?

18. What is the economy-wide production function in Solow’s growth model? Also define the variables.

19. What is the growth accounting equation?

20. According to the Solow growth model, what are the main ingredients to achieving increases in income per capita?

21. Explain the idea of convergence.

22. Does the evidence suggest that convergence is indeed occurring?

23. Identify 7 factors that can promote economic growth and development. Are these factors requirements for achieving economic growth?
24. What kinds of institutions are beneficial for promoting economic growth and development?

25. Why have the net official flows from multilateral agencies turned negative in recent years?

**Problems**

1. Suppose the following data for the fictitious country Growland:

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP (in 2000 U.S. dollars)</td>
<td>286.9 billion</td>
<td>301.3 billion</td>
</tr>
<tr>
<td>Population</td>
<td>220.5 million</td>
<td>223.0 million</td>
</tr>
</tbody>
</table>


b. Calculate the GDP per capita for 2005 and 2006. (Note that GDP is measured in billions, while population is measured in millions.)


d. Calculate the growth rate of GDP per capita.

2. Draw a graph with shifts in the ADE/ASR curves to illustrate each of the following:
   a. Economic growth with inflation rising.

   b. Economic growth with inflation falling.
3. Use the growth accounting equation to solve for the following:
   a. Suppose the growth rate of total factor productivity is 2% per year, and the growth rate of capital per worker is 2% per year. Calculate the growth in output per worker.

   b. Suppose the growth in output per worker is 1.5% per year, and the growth in capital per worker is 3% per year. Calculate the growth rate of total factor productivity.

4. 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 1990-2005 on the vertical axis. Plot the data for each country.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>37,437</td>
<td>1.8</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>28,643</td>
<td>2.6</td>
</tr>
<tr>
<td>Japan</td>
<td>27,568</td>
<td>1.3</td>
</tr>
<tr>
<td>France</td>
<td>26,941</td>
<td>1.4</td>
</tr>
<tr>
<td>China</td>
<td>5,878</td>
<td>8.7</td>
</tr>
<tr>
<td>India</td>
<td>3,118</td>
<td>4.1</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>1,786</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Source: World Bank, World Development Indicators Database, 2006
b. Examining just these selected countries, is there evidence that convergence is occurring?

c. Now re-do your diagram for the following countries:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>37,437</td>
<td>1.8</td>
</tr>
<tr>
<td>Japan</td>
<td>27,568</td>
<td>1.3</td>
</tr>
<tr>
<td>France</td>
<td>26,941</td>
<td>1.4</td>
</tr>
<tr>
<td>Mexico</td>
<td>9,132</td>
<td>1.3</td>
</tr>
<tr>
<td>Brazil</td>
<td>7,808</td>
<td>0.8</td>
</tr>
<tr>
<td>Haiti</td>
<td>1,642</td>
<td>-2.4</td>
</tr>
<tr>
<td>Nigeria</td>
<td>1,058</td>
<td>1.7</td>
</tr>
<tr>
<td>Congo, Dem. Rep.</td>
<td>679</td>
<td>-5.4</td>
</tr>
</tbody>
</table>

Source: World Bank, World Development Indicators Database, 2006

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%. And its population grew at 2%. 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 ADE/ASR model with
   a. a shift to the up of the ASR and maximum capacity
   b. a shift to the left of the ADE curve.
   c. a shift to the right of the ADE curve.
   d. a shift to the right of the ASR and maximum capacity
   e. a shift to the right of the ASR and maximum capacity, together with a shift to the right of the ADE curve.

3. Which of the following is not a factor of production?
   a. Labor
   b. Capital
   c. Output
   d. Natural resources
   e. Human capital

4. In the Solow growth model, the economy-wide production function can be written as:
   a. \( Y = A + K^{0.3}L^{0.7} \)
   b. \( Y = A/K^{0.7}L^{0.3} \)
   c. \( Y = K^{0.3}L^{0.7} - A \)
   d. \( Y = AK^{0.3}L^{0.7} \)
   e. \( Y = AK^{0.7}L^{0.3} \)

5. Suppose total factor productivity is growing at 1.5% per year, and capital per worker is growing at 3% per year. Then according to the growth accounting equation, the growth rate of output per worker is:
   a. 0.6%
   b. 1.4%
   c. 1.7%
   d. 2.4%
   e. None of the above.
6. What are the main ingredients for achieving economic growth per capita, according to the Solow growth model?

a. Increase the amount of manufactured capital per person
b. Increases in technological innovation
c. Increase the number of workers
d. A and B
e. All of the above.

7. 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

8. Which of the following was not one of the factors that contributed to the Industrial revolution?

a. New agricultural techniques, new tools and machines that boosted agricultural productivity.
   b. New technologies adopted in factory production that boosted output in manufacturing.
   c. New communication technologies that boosted output in the service sector.
   d. Supplies of cheap raw materials from other countries.
   e. Access to markets in other countries in which to sell finished products.

9. Which of the following is one of the trends of global economic growth in the 20th century?

a. World per capita economic output grew about fivefold.
b. The use of energy more than tripled.
c. Per capita incomes steadily increased.
d. Most of the growth came in the second half of the 20th century.
e. All of the above.
10. Which of the following factors were key to Japan’s rapid economic growth in the 1950-1980 period?
   a. High savings rates.
   b. 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.

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-Sahara have income per capita lower than $2,500.
   e. All of the above.

12. Which of the following best characterizes the distribution of the world’s income among the world’s households?
   a. Nearly three-quarters of the world’s income goes to the richest 20 percent, while the poorest 40 percent only receive 5 percent of the world’s income.
   b. Nearly half of the world’s income goes to the richest 20%, while the poorest 20 percent only receive 1.5% of the world’s income.
   c. Nearly half of the world’s income goes to the richest 20%, while the poorest 40 percent only receive 10% of the world’s income.
   d. About one-third of the world’s income goes to the richest 20 percent, while the poorest 20 percent receive about 30% of the world’s income.
   e. None of the above.

13. The evidence on the convergence debate suggests:
   a. It is clear that convergence is occurring.
   b. It is clear that convergence is failing to occur.
   c. If one examines the number of poor countries remaining in poverty, it appears convergence is not occurring. But if one adjusts for population and look at the number of people moving out of poverty, it does appear convergence is occurring.
   d. If one examines the number of poor countries remaining in poverty, it appears convergence is indeed occurring. But if one adjusts for population and look at the number of people moving out of poverty, it does not appear convergence is occurring.
   e. Developing countries are neither converging nor diverging with the developed countries, but are growing at the same rate as the developed countries.
Refer to the Figure below to answer the following question:

14. The Figure above illustrates that:

a. The evidence that convergence is happening is mixed.
b. The growth trajectory of China and India is promising, as they have both experienced high rates of growth in the 1980-2000 period.
c. Many countries in sub-Saharan Africa have slipped behind and have experienced negative growth rates in the 1980-2000 period.
d. If convergence were truly happening for all developing countries, they would all be located in the northwest quadrant of the graph, while the developed countries would be located in the southeast quadrant near where the U.S. is located.
e. All of the above.

15. 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.

16. 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.
17. Which of the following have sharply increased as a source of financial capital to developing countries in the years 2001 - 2005?

a. Official flows from multilateral agencies.
b. Private capital flows (both FDI and loans).
c. Bilateral grants.
d. Workers’ remittances
e. All of the above.

18. 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%

19. Which of the following was not one of the main policies promoted in the “Washington Consensus”?

a. Fiscal discipline
b. Development of infrastructure, health, and education
c. Market liberalization
d. Privatization
e. Trade liberalization

20. Which of the following best characterizes the record of the policies of the “Washington Consensus”?

a. The countries that most strictly followed the World Bank’s market-oriented development path suffered the most severe crises.
b. Some countries in Africa were forced to make cutbacks in desperately needed health and education.
c. Countries were barred from using fiscal policy for macroeconomic stabilization.
d. Some countries that did not follow the Washington Consensus experienced notable success.
e. All of the above.
Answers to Active Review Questions

1. growth
2. development
3. factors of production
4. total factor (productivity)
5. Industrial Revolution
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 ASR curve shifts further to the right than the ADE curve, the inflation rate may decline. If the ADE curve shifts further to the right than the ASR 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. 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.
18. \[ Y = A K^{0.3} L^{0.7} \], where \( Y \) is aggregate output; \( A \) is “total factor productivity” (a number based on the current state of technology); \( K \) is a quantitative measure of the size of the stock of manufactured capital; and \( L \) the quantity of labor used during the period of time, measured as the number of workers.
19. It is an equation that measures the growth rate of output per worker. Specifically, it is: growth rate of output per worker = growth rate of total factor productivity + 0.3(growth rate of manufactured capital per worker).
20. The main ingredients are increasing the manufactured capital per person, and increasing technology.
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. If one examines the number of poor countries remaining in poverty, and one counts each country equally, then it appears convergence is not occurring. But if one adjusts for population and look at the number of people moving out of poverty, it does appear convergence is occurring. This is primarily due to the rapid growth rates of the two most populous countries, China and India.
23. 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, 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.

24. 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.

25. Because developing countries are currently paying back more due to their heavy debt burdens, than what they receive in new loans.

Answers to Problems

1.
   a. \( \left[ \frac{(301.3 - 286.9)}{286.9} \right] \times 100 = 5.0\% \)
   b. Real GDP per capita for 2005 = \( \frac{286,900,000,000}{220,500,000} \) = \$1,301
   Real GDP per capita for 2006 = \( \frac{301,300,000,000}{223,000,000} \) = \$1,351
   c. \( \left[ \frac{(223.0 - 220.5)}{220.5} \right] \times 100 = 1.1\% \)
   d. 5.0\% − 1.1\% = 3.9\%

   Calculating the percentage change in real GDP per capita from part b, as \( \frac{(1351-1301)}{1301} \times 100 \), 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, professional 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 \( \left[ \ln(GDP_{2006}) - \ln(GDP_{2005}) \right] \times 100 \) 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. 2% + .3(3%) = 2.6%

b. Plugging in the numbers, 1.5% = growth rate of A + .3(3%). This implies that 1.5% − .9% = 0.6% is the growth rate of A.
b. Yes, looking only at this evidence, it would appear that convergence may be occurring, because the poorer countries have much faster growth rates than the richer countries, and are on the path to “catch up” to them.

d. Now it does not appear that convergence is occurring, because the poor countries are growing at rates equal to or less than those of the developed countries.

e. Neither “study” looks at the whole picture.
Answers to Self Test Questions

1. C
2. E
3. C
4. D
5. D
6. D
7. C
8. C
9. E
10. E
11. E
12. A
13. C
14. E
15. D
16. E
17. B
18. A
19. B
20. E
Chapter 15
Macroeconomic Challenges for the 21st Century

Chapter Overview

This chapter examines two major issues for the 21st century: (1) human development, both in poor and rich countries, and (2) ecological challenges, particularly (but not exclusively) global climate change. The chapter discusses the relationship between economic development and human development, and examines the Millennium Development Goals for enhancing human development. The chapter also discusses the relationship between economic growth and the environment, and the standard theories regarding this relationship, such as the Environmental Kuznets Curve. The chapter raises serious challenges to the belief that economic growth and markets, on their own, will solve the social and environmental problems of the coming century, and highlights several policies to promote sustainable development.

Chapter Objectives

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

1. Identify human development and ecological sustainability as major economic issues for the 21st century.
2. Discuss the relationship between economic development and human development.
3. Understand the development goals set by international institutions, and the likelihood of their being met.
4. Identify major environmental challenges.
5. Discuss the relationship between economic growth and the environment.
6. Describe several policies directed towards sustainable development.

Key Terms

- capabilities
- human development
- Millennium Development Goals (MDGs)
- social discount rate

Appendix Key Terms:
- birth rate
- fertility rate
- death rate
- mortality rate
- replacement fertility rate
- population momentum
- demographic transition
- net migration rate
- old-age dependency ratio
**Active Review**

*Fill in the Blank*

1. The approach that concerns itself with the opportunities that people have to pursue well-being, such as being well nourished, decently housed, and to participate in society is called the ___________ approach.

2. The process of creating an environment that expands people’s choices, allowing people to develop their full potential and lead productive, creative lives in accord with their needs and interests, is the definition of _______________ as established by the UNDP.

3. In September 2000, the United Nations member nations declared a set of goals (each with certain targets) to make progress by 2015 in the areas of poverty alleviation, education, gender equity, health, environmental sustainability, and partnerships in development. These goals are known as the _________________.

4. 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.

5. Taxes that are used as a means to internalize the negative externalities from pollution are called _________________.

6. 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 _________________.

7. (Appendix) The annual number of births per 1,000 people is the ___________ rate, whereas the average number of births per woman of reproductive age in the population is the _________________ rate.

8. (Appendix) The annual number of deaths per 1,000 people is the ___________ rate, whereas the average number of deaths among a specific group is the _______________ rate.

9. (Appendix) The fertility rate required in order for each generation to be replaced by a next generation of the same size (which is an average of 2.1 children per woman in industrialized countries) is the _________________.

10. (Appendix) The change over time from a combination of high birth and death rates to a combination of low birth and death rates is called the _________________.

15-2
**True or False**

11. Human development is about meeting basic needs for food, shelter, and health care.

12. The world population in 2000 was already 6 billion, and the United Nations low and medium range projections show global population of between 7.7 and 9.2 billion people in 2050.

13. According to leading scientists, global emissions of greenhouse gases will eventually need to be reduced significantly—up to 80 or 90 percent lower than current levels by 2050—if we are to avoid the most dangerous effects of climate change.

14. One of the limitations of green taxes is that they are regressive, likely falling disproportionately on lower-income households.

15. Only economic development can raise well-being, both in terms of human development and environmental sustainability.

16. (Appendix) A population can continue to grow, in spite of having a fertility rate at or below replacement, if a large proportion of its members are of childbearing age.

**Short Answer**

17. What is the relationship between economic development and the human development indicator of life expectancy? Is there a clear relationship for both the low income countries and the middle income countries?

18. Where do resources spent in boosting life expectancies appear to be more successful – in high income countries, or low income countries?

19. What kinds of problems have emerged in affluent societies in which having “too much” may itself be a problem?

20. One of the Millennium Development Goals is fostering “a global partnership for development.” Explain what this entails.

21. Are the Millennium Development Goals likely to be met by 2015?
22. Identify three environmental issues that are closely related to economic growth.

23. What kinds of environmental problems are associated with the increasing global human population?

24. What are some of the problems predicted to occur with rising levels of greenhouse gas emissions?

25. What is the Environmental Kuznets Curve (EKC) hypothesis? And what is the evidence for this hypothesis?

26. Identify at least four policies for sustainable development.

**Problems**

1. Given the following Human Development data:

<table>
<thead>
<tr>
<th>Country</th>
<th>GDP per capita (PPP, US$, 2005)</th>
<th>Adult Literacy rate (% aged 15 and older)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>$41,890</td>
<td>99</td>
</tr>
<tr>
<td>Norway</td>
<td>41,420</td>
<td>99</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>10,845</td>
<td>99</td>
</tr>
<tr>
<td>South Africa</td>
<td>11,110</td>
<td>82.4</td>
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<td>Mexico</td>
<td>10,751</td>
<td>91.6</td>
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<td>China</td>
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<td>90.9</td>
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<td>India</td>
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<td>Nigeria</td>
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<tr>
<td>Congo, Dem. Rep.</td>
<td>714</td>
<td>67.2</td>
</tr>
</tbody>
</table>

Source: UNDP, 2007/08
a. Plot GDP per capita on the horizontal axis and adult literacy rates on the vertical axis.

b. Is there a correspondence, only a rough correspondence, or no correspondence between GDP per capita and adult literacy rates? Explain your answer.

Self Test

1. The capabilities approach
   a. strives to enhance people’s capabilities – their skills, knowledge, and other human capital.
   b. strives to enhance well-being, such as being well nourished, decently housed.
   c. strives to enhance the opportunities that people have to pursue well-being, such as being well nourished, decently housed.
   d. strives to enhance the opportunities that people have to pursue well-being, such as being well nourished, decently housed, and to participate in society.
   e. None of the above.

2. The capabilities approach is associated with which of the following economists?
   a. Adam Smith
   b. Amartya Sen
   c. David Ricardo
   d. John Maynard Keynes
   e. Milton Friedman

3. The process of creating an environment that expands people’s choices, allowing people to develop their full potential and lead productive, creative lives in accord with their needs and interests, is associated with:
   a. Economic development
   b. Industrial development
   c. Human development
   d. Environmentally sustainable development
   e. Animal welfare development
4. Which of the following best describes the relationship between average income (GDP per capita) and average life expectancy, across countries?

a. There seems to be a clear relationship at all income levels.
b. There seems to be a clear relationship at low income levels, but the relationship is less clear at middle and high incomes.
c. At middle incomes there seems to be a clear relationship, but the relationship is less clear at low and high incomes.
d. At high incomes, there seems to be a clear relationship, but the relationship is less clear at low and middle incomes.
e. There seems to be no relationship for any range of income.

5. Which of the following statements is false?

a. For low income countries, an increase in income results in significant increases in life expectancy.
b. Some middle income countries like Mexico have high life expectancies close to the high income countries, yet per capita incomes that are not even half as high.
c. Some middle income countries like South Africa and the Russian Federation have moderate per capita incomes, yet life expectancies that are surprisingly low.
d. Increases in incomes in the high income countries translates into very little increases in already high life expectancy rates.
e. Comparing any two countries, the one with a higher per capita income will have a longer average life expectancy than the country with lower per capita income.

6. Which of the following is not one of the Millennium Development Goals?

a. Eradicating extreme poverty and hunger
b. Combating HIV/AIDS, malaria and other diseases
c. Promoting gender equality
d. Promoting international security through weapons buildup
e. Ensuring environmental sustainability

7. 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.
8. Which of the following are not among the adverse effects of greenhouse gas emissions?

   a. Rising temperatures.
   b. Rising sea-levels.
   c. Ecological disruptions such as species extinction.
   d. Increased frequency of severe weather events such as hurricanes, floods, and droughts.
   e. Over-use and depletion of fossil fuels.

9. The Intergovernmental Panel on Climate Change (IPCC) in a 2001 report predicts a rise in global average temperatures by 2100 of:

   a. Between 1 degree Celsius (low estimate), to 2 degrees Celsius (medium estimate), to 3 degrees Celsius (high estimate).
   b. Between 1.4 degrees Celsius (low estimate) to 2.8 degrees Celsius (medium estimate), to 5.8 degrees Celsius (high estimate).
   c. Between 2 degrees Celsius (low estimate), to 5 degrees Celsius (medium estimate), to 10 degrees Celsius (high estimate).
   d. They claim the uncertainties of climate change make such predictions impossible.
   e. None of the above.

10. According to the IPCC in a 2001 report, which of the following are likely effects of only a 2°Celsius increase in global average temperature?

   a. A 20–30 percent decrease in water supplies in already vulnerable regions such as Southern Africa and the Mediterranean.
   b. 15–40 percent of species possibly facing extinction
   c. 40–60 million more people exposed to malaria in Africa.
   d. Up to 10 million more people affected by coastal flooding each year, with major low-lying areas swamped and coastal cities endangered.
   e. All of the above.

11. Which of the following was the conclusion of the 2006 British government report written by former World Bank chief economist Nicholas Stern?

   a. 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.
   b. 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.
   c. It now appears that the costs of current actions to minimize climate change significantly exceed the benefits.
   d. B and C
   e. None of the above.
12. If nothing is done now to stem the effects of climate change, what group will face the most dangerous impacts from climate change?
   a. Current generations
   b. Future generations living several decades from now
   c. Developed countries
   d. Developing countries
   e. B and D

13. Why do some researchers suggest that when economic development increases, environmental damage (per capita) will decrease?
   a. Because the greater availability of wealth and technology allows nations to adopt cleaner production methods.
   b. Because as countries develop, they move to a service-based economy which does less harm to the environment.
   c. Because as people become wealthier, they demand higher environmental quality standards.
   d. All of the above.
   e. None of the above.

14. The Environmental Kuznets Curve (EKC) hypothesis posits that:
   a. 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.
   b. 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.
   c. Environmental damage per capita steadily rises during all stages of economic development.
   d. Environmental damage per capita steadily falls during all stages of economic development.
   e. There is no clear relationship between environmental damage per capita and economic development, as it depends on the country, the pollutant, and other contingencies.
15. The evidence for the Environmental Kuznets Curve (EKC) suggests that:

   a. The EKC relationship does seem to hold for all pollutants.
   b. The EKC relationship does not seem to hold for any pollutants.
   c. 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.
   d. The EKC relationship does seem to hold for the environmental impacts of municipal waste, energy use, and CO₂ emissions, but not for per capita sulfur dioxide emissions and other air pollutants.
   e. The EKC relationship does seem to hold for some countries, but not others.

For the following question, refer to the figure below.

16. The figure above, showing the relationship between GDP per capita and CO₂ emissions:

   a. Suggests that countries with higher incomes have the wealth and technology to implement less polluting production methods.
   b. Suggests that countries with higher incomes have moved to service-based economies with lower pollution levels.
   c. Provides evidence that confirms the Environmental Kuznets Curve hypothesis.
   d. Provides evidence that does not support the Environmental Kuznets Curve hypothesis.
   e. None of the above.
17. Which of the following does not describe the textbook authors’ view on the relationship of poverty and the environment?

a. When addressing sustainable development, it is imperative to also reduce poverty and economic inequality.
b. Eliminating poverty can provide people with choices that are less destructive of the environment, thereby helping the environment.
c. Environmental degradation usually hits the poorest people hardest, so improving the environment can also help to reduce poverty.
d. A concern for the environment takes away attention from addressing issues of poverty.
e. All of the above.

18. Which of the following is not a policy to promote environmental sustainability?

a. Green taxes and tradable pollution permits.
b. Grants, subsidies and tax breaks to support recycling, renewable energy, and efficient transportation systems.
c. Tax cuts to stimulate consumption spending.
d. Elimination of subsidies for environmental degrading activities.
e. Debt for nature swaps.

19. What are the conclusions drawn by Alan Durning in *How Much is Enough*?

a. The impact on environmental problems of the global lower-income class is relatively minor.
b. The global middle class leads the most environmentally sustainable lifestyle.
c. The global upper income class leads to most environmentally unsustainable lifestyle.
d. Each group must approach environmental sustainability with different objectives.
e. All of the above.

20. Which of the following applies to how macroeconomic theory could deal with environmental considerations?

a. Target 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.
21. (Appendix) Which of the following is not one of the 5 stages of the demographic transition?
   a. Both birth and death rates are high.
   b. Death rates are reduced, while birth rates stay high.
   c. Death rates decline, but are still higher than birth rates.
   d. Birth rates and death rates equalize at a low rate.
   e. Birth rates are lower than death rates.

22. (Appendix) In what stage of the demographic transition are the industrialized countries of the world?
   a. In the first stage.
   b. In the second stage.
   c. In the third or fourth stage.
   d. In the fifth stage.
   e. They have passed through the fifth stage.

23. (Appendix) What type of policies are international organizations primarily advocating to lower population rates in developing countries?
   b. Reducing fertility rates.
   c. Raising death rates.
   d. Raising mortality rates.
   e. None of the above.

24. (Appendix) Which of the following trends about global population is false?
   a. Even though China has put downward pressure on population with its one-child policy and had a fertility rate estimated at 1.73 in 2006, its population is still growing due to population momentum (the large number of women in childbearing years).
   b. China is expected to displace India as the world’s most populous country within the next fifty years.
   c. Some countries, such as Italy, German and Japan, are now experiencing population declines.
   d. Sub-Saharan Africa has had some of the world’s highest fertility rates in modern times, but increased mortality rates due to the HIV/AIDS pandemic.
   e. World population is forecasted to rise from its current level of 6.5 billion to between 7.7 billion and 10.6 billion by 2050.
25. (Appendix) Which of the following characterizes the forecasted U.S. population pyramid for 2050?
   
a. Triangular, due to the steady birth rates and steady death rates among older persons.
b. Triangular, due to the baby boom of the post WWII years.
c. House-shaped, due to the unusually high proportion of the population who are in their prime working years.
d. Rectangular, due to the rising proportion of the population who are in their retirement years.
e. An inverted triangle, due to the rising proportion of the population who are in their retirement years.

26. (Appendix) Which of the following are macroeconomic considerations from higher old-age dependency ratios in upcoming years?
   
a. There may be pressure for people to start work earlier in life, retire later, or work more intensely than they have in the past.
b. There may be a further sectoral shift toward service-sector employment.
c. National savings may become depressed, squeezing the funds available for investment spending.
d. Strains on public finances may lead to higher taxes and/or lower benefits, or cuts in areas other than social services and medical care for the elderly.
e. All of the above.

Answers to Active Review Questions

1. capabilities
2. human development
3. Millennium Development Goals (MDGs)
4. Environmental Kuznets (Curve)
5. green taxes
6. social discount rate
7. (Appendix) birth (rate), fertility (rate)
8. (Appendix) death (rate), mortality (rate)
9. (Appendix) replacement fertility rate
10. (Appendix) demographic transition
11. False. It is also about participation in society and having the opportunity to lead a meaningful life.
12. True.
13. True.
14. True.
15. False. The relationship between economic development and both human development and environmental sustainability is not clear-cut. In some cases, increases
in GDP per capita leads to little increase in well-being, and leads to decreases in some areas of environmental quality.

16. (Appendix) True.

17. For low income countries, there does appear to be a relationship that higher levels of economic development (measured as GDP per capita) does correspond to higher rates of life expectancy. For the middle income countries the relationship is less clear, since some countries (such as Mexico) have been able to achieve life expectancies comparable to the high income countries, but with a lower level of GDP per capita. And other countries with medium levels of GDP per capita (such as South Africa and the Russian Federation) have surprisingly low life expectancies.

18. It appears that resources spent in low-income countries (in basic provisioning of foodstuffs, health, clean water) have a much greater impact on raising life expectancy. The gains in life expectancy in high income countries are quite small.

19. Problems include overconsumption and overstimulation, such as obesity, as well as spiritual malaise and dissatisfaction when not being able to “keep up with the Joneses”.

20. This entails: eliminating tariff barriers to poor countries’ products, canceling and/or restructuring debts, increasing foreign aid (to at least 0.7% of GNI), easing the flow of essential drugs, and sharing technology.

21. Some of the goals may be met (e.g. halving the proportion of people in developing countries living on less than $1/day), but the goals regarding hunger, child and maternal health, sanitation, and gender equity are not likely to be met.

22. Global population, resource depletion, and pollution and wastes.

23. 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.

24. The problems include: Rising temperatures (between 1.4 – 5.8 degrees Celsius), rising sea-levels and coastal flooding, decrease in water supplies, declines in crop yields, 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.

25. 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.

26. 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; Debt for nature swaps.
Answers to Problems

1. a.

b. There is only a rough correspondence between GDP per capita and adult literacy rates. In general, countries with lower GDP per capita have lower adult literacy rates. However, countries with very different levels of GDP per capita (such as the Russian Federation, Mexico, and China on the one hand, and Norway and the U.S. on the other) have fairly similar adult literacy rates.

Answers to Self Test Questions

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

In Appendix

15-14