Chapter 1

The Long and Short of Macroeconomics

Brief Chapter Summary

1.1 What Macroeconomics Is About (pages 36–48)

Learning Objective 1  
Become familiar with the focus of macroeconomics.

 In the short run—a period of a few years—the focus of macroeconomic analysis is the business cycle. In the long run—a period of decades or more—the focus of macroeconomics is economic growth, which is the process by which rising productivity raises the average standard of living.

1.2 How Economists Think About Macroeconomics (pages 48–53)

Learning Objective 2  
Explain how economists approach macroeconomic questions.

 Economists study economic problems systematically by gathering data relevant to a problem and building a model capable of analyzing the problem. Economics uses positive analysis, which measures the costs and benefits of different courses of action, to analyze economic problems.

1.3 Key Issues and Questions of Macroeconomics (pages 53–55)

Learning Objective 3  
Become familiar with key macroeconomic issues and questions.

 Beginning with Chapter 2, the textbook highlights one key issue and one key question and uses concepts introduced in the chapter to answer the question.

List of Key Terms

**Business cycle**, p. 36. Alternating periods of economic expansion and economic recession.

**Deflation**, p. 44. A sustained decrease in the price level.

**Endogenous variable**, p. 51. A variable that is explained by an economic model.

**Exogenous variable**, p. 51. A variable that is taken as given and is not explained by an economic model.

**Financial crisis**, p. 46. A crisis that involves a significant disruption in the flow of funds from lenders to borrowers.

**Fiscal policy**, p. 46. Changes in government taxes and purchases that are intended to achieve macroeconomic policy objectives.

**Inflation rate**, p. 43. The percentage increase in the price level from one year to the next.

**Labor force**, p. 42. The sum of employed and unemployed workers in the economy.

**Labor productivity**, p. 37. The quantity of goods and services that can be produced by one worker or by one hour of work.

**Long-run economic growth**, p. 37. The process by which increasing productivity raises the average standard of living.

**Macroeconomics**, p. 36. The study of the economy as a whole, including topics such as inflation, unemployment, and economic growth.

**Microeconomics**, p. 36. The study of how households and firms make choices, how they interact in markets, and how the government attempts to influence their choices.

**Monetary policy**, p. 46. The actions that central banks take to manage the money supply and interest rates to pursue macroeconomic policy objectives.

**Normative analysis**, p. 52. Analysis concerned with what ought to be.

**Positive analysis**, p. 52. Analysis concerned with what is.

**Real gross domestic product (GDP)**, p. 38. The value of final goods and services, adjusted for changes in the price level.

**Unemployment rate**, p. 42. The percentage of the labor force that is unemployed.

Chapter Outline

WHEN YOU ENTER THE JOB MARKET CAN MATTER A LOT

In 2005, the U.S. economy was expanding. Sales of houses and cars were strong and unemployment was low. Therefore, it was a good time to enter the job market. However, 2008 was not a good time to enter the job market. Unemployment was higher than it had been in 25 years, and sales of houses and cars were at depressed levels. Research shows that college students who graduate during a recession have to search longer to find a job and accept jobs that pay less than the jobs accepted by students who graduate during expansions. Students who graduate during recessions will continue to earn less for 8 to 10 years after they graduate. Starting a business is also easier during an expansion than during a recession.

Teaching Tips

Subsequent chapters in the book have chapter-opening vignettes similar to the one that begins Chapter 1. Beginning with Chapter 2, the chapter opener will end with a key issue and related question. Concepts introduced in the chapter will be used to answer the question at the end of the chapter. The chapter-opening vignettes are meant to spark student interest in reading the chapters, but they can also serve to help introduce the material in lecture. For example, you might consider beginning your first lecture by asking students if they are concerned about their job market prospects. Those students who are concerned can be asked what the most important factors are in determining the employment prospects of new college graduates. The discussion can provide entrée into some of the themes of the course.

1.1 What Macroeconomics Is About (pages 36–48)

Learning Objective: Become familiar with the focus of macroeconomics.

Economics is traditionally divided into the study of microeconomics and macroeconomics. **Microeconomics** is the study of how households and firms make choices, how they interact in markets, and how the government attempts to influence their choices. **Macroeconomics** is the study of the economy as a whole, including topics such as inflation, unemployment, and economic growth.

A. Macroeconomics in the Short Run and in the Long Run

In the short run, macroeconomic analysis focuses on the **business cycle,** which refers to the alternating periods of economic expansion and economic recession experienced by the United States and other economies. For the long run, the focus of macroeconomics is on **long-run economic growth**, which is the process by which increasing productivity raises the average standard of living. Increasing production faster than population growth increases the standard of living. Achieving sustained increases in the standard of living is possible only through increases in **labor productivity**, which is the quantity of goods and services that can be produced by one worker or by one hour of work.

B. Long-Run Growth in the United States

Changes in living standards depend on the rate of long-run economic growth. **Real gross domestic product (GDP)**, the value of final goods and services adjusted for changes in the price level, provides a measure of the total level of income in the economy. The best measure of the standard of living is real *GDP per capita*. Real GDP per capita fluctuates in the short run, but we focus on the upward trend in real GDP per capita when discussing long-run economic growth.

C. Some Countries Have Not Experienced Significant Long-Run Growth

Because countries have experienced different rates of economic growth, their current levels of GDP per capita are also very different. Although the gap between the GDP per capita of the United States and the GDP per capita of other high-income countries is relatively small, the gap between high-income countries and low-income countries is large.

D. Aging Populations Pose a Challenge to Governments Around the World

Some economists fear that aging populations may pose a threat to long-run economic growth. As populations age, fewer workers pay taxes relative to the number of retired people who receive government payments. This imbalance may force governments to reduce payments to retired workers, reduce expenditures on other programs, or raise taxes on current workers, which may slow economic growth.

E. Unemployment in the United States

There has been a tremendous increase in the standard of living of the average American during the past century, but real GDP per capita did not increase every year. The key macroeconomic issue of the short run is the business cycle. Most people experience the business cycle in the job market.

The **labor force** is the sum of employed and unemployed workers in the economy, and the **unemployment rate** is the percentage of the labor force that is unemployed. The unemployment rate in the United States has risen and fallen with the business cycle. Following the end of the severe 1981–1982 recession, the United States entered into a period of mild business cycles that some economists call the *Great Moderation*. The Great Moderation ended with the severe recession of 2007-2009.

F. Unemployment Rates Differ Across Developed Countries

Unemployment rates have been persistently higher in some countries than others for reasons not connected to the business cycle. Economists have not reached a consensus on which labor-market policies are most important in explaining these differences.

G. Inflation Rates Fluctuate Over Time and Across Countries

Just as the unemployment rate varies over time and differs across countries, so does the inflation rate. The **inflation rate** is the percentage increase in the price level from one year to the next. Data going back to 1775 show that in the United States most periods of very high inflation have occurred during times of war, with the except of the late 1970s and early 1980s. The inflation rate during the past 25 years has generally been below 5%. Periods of **deflation**—a sustained decrease in the price level—were relatively common during most of the country’s history, but occurred in 2009 for the first time in more than 50 years. Some countries have experienced mild deflation or inflation, but other countries have experienced significantly higher inflation rates than the United States.

H. Economic Policy Can Help Stabilize the Economy

A basic measure of economic stability is how much real GDP fluctuates from one year to the next. During the past 50 years, the U.S. economy has not experienced anything similar to the fluctuations in real GDP that occurred during the 1930s. From 1950 to 2007, the U.S. economy experienced long business-cycle expansions, interrupted by brief recessions. Most economists believe that most high-income countries became more stable after 1950 because of their monetary and fiscal policies. **Monetary policy** refers to the actions that central banks take to manage the money supply and interest rates to pursue macroeconomic policy objectives. **Fiscal policy** refers to changes in government taxes and purchases that are intended to achieve macroeconomic policy objectives. The period of increased stability came to an end with the beginning of the 2007-2009 recession and the accompanying financial crisis. A **financial crisis** involves a significant disruption in the flow of funds from lenders to borrowers.

I. International Factors Have Become Increasingly Important in Explaining Macroeconomic Events

Economists measure the “openness” of an economy in terms of how much it trades with other economies. Though the imports and exports of the United States as a percentage of GDP have grown over time, a number of other developed countries have economies that are significantly more open than the United States. As markets in goods and services have become more open to international trade, so have the financial markets that help match savers and investors around the world. The financial crisis of 2007–2009 resulted in a sharp decline in foreign purchases of U.S. corporate bonds, a small decline in foreign purchases of stock, but an increase in foreign purchases of bonds issued by the federal government. In 2011, foreign purchases of U.S. stocks and bonds declined sharply, as the slow recovery in the United States from the recession of 2007-2009 increased the degree of risk foreign investors saw in holding these securities. The increased openness of the United States and other economies has raised incomes and improved economic efficiency around the world. But increased openness also means that macroeconomic problems in one country can have consequences for other economies. Openness can also complicate the attempts of policy makers to stabilize the economy.

Teaching Tips

Section 1.1 includes several figures, most of which students should be able to understand after having taken principles of economics courses. You may want to spend some classroom time discussing the note to Figure 1.1 on page 39, which points out that the values in the graph are plotted on a logarithmic scale.

1.2 How Economists Think About Macroeconomics (pages 48–53)

Learning Objective: Explain how economists approach macroeconomic questions.

1. What Is the Best Way to Analyze Macroeconomic Issues?

Economists study economic problems systematically by gathering data relevant to the problem and then building a model capable of analyzing the data.

B. Macroeconomic Models

Economic models are simplified versions of reality. To develop a model, economists generally follow these steps:

1. Decide on the assumptions to be used in developing the model and decide which *endogenous variables* will be explained by the model and which *exogenous vari*ables will be taken as given.
2. Formulate a testable hypothesis.
3. Use economic data to test the hypothesis.
4. Revise the model if it fails to explain the data well.
5. Retain the revised model to help answer similar economic questions in the future.

C. Assumptions, Endogenous Variables, and Exogenous Variables in Economic Models

Models have to be simplified to be useful. Some economic models make behavioral assumptions about the motives of consumers and firms. These assumptions are simplifications because they do not describe the motives of every consumer and every firm. An **exogenous variable** is a variable that is taken as given and is not explained by an economic model. An **endogenous variable** is a variable that is explained by an economic model.

D. Forming and Testing Hypotheses in Economic Models

A hypothesis is a statement that may be either correct or incorrect about an economic variable. To test a hypothesis, we need to analyze statistics on the relevant economic variables. Hypotheses must be statements that could turn out to be incorrect. Economists accept an economic model if it leads to hypotheses that are confirmed by statistical analysis. The acceptance is often tentative, pending the gathering of new data or further statistical analysis. Bear in mind the distinction between positive analysis and normative analysis. **Positive analysis** is analysis concerned with what is. **Normative analysis** is analysis concerned with what ought to be. Economics is concerned primarily about positive analysis, which measures the costs and benefits of different courses of action.

Teaching Tips

This section includes a *Solved Problem*. Other *Solved Problems* appear throughout the book. Each *Solved Problem* uses a step-by-step process of solving an economic problem. *Solved Problem 1.2* uses a question —“Do Rising Imports Lead to a Permanent Reduction in U.S. Employment?”— to show students how economists evaluate explanations of macroeconomic events.

Another feature—*Making the Connection*—also appears in this section. *Making the Connection* features discuss news stories or research related to the concepts of the chapter. *Making the Connection* in this section explains how the financial crisis in Europe could affect the United States.

1.3 Key Issues and Questions of Macroeconomics (pages 53–55)

Learning Objective: Become familiar with key macroeconomic issues and questions.

The text discusses a number of important issues and questions. Beginning with Chapter 2, one key issue and one key question will be highlighted at the start of each chapter. Each chapter will end by using the concepts introduced in the chapter to answer the question.

Teaching Tips

The final section of Chapter 1 provides an introduction to the key issues and questions that are raised in the other chapters. The issue-question framework provides a roadmap for the rest of the book.

**Chapter 2: Measuring the Macroeconomy**

*Issue:* The unemployment rate can rise even though a recession has ended.

*Question:* How accurately does the government measure the unemployment rate?

**Chapter 3: The U.S. Financial System**

*Issue:* The financial system moves funds from savers to borrowers, which promotes investment and the accumulation of capital goods.

*Question:* Why did the bursting of the housing bubble that began in 2006 cause the financial system to falter?

**Chapter 4: The Global Financial System**

*Issue:* Some governments allow the value of their currency to fluctuate in foreign-exchange markets, while other governments fix the value of their currency.

*Question:* What are the advantages and disadvantages of floating versus fixed exchange rates?

**Chapter 5: The Standard of Living Over Time and Across Countries**

*Issue:* Some countries have experienced rapid rates of long-run economic growth, while other countries have grown slowly, if at all.

*Question:* Why isn't the whole world rich?

**Chapter 6: Long-Run Economic Growth**

*Issue:* Real GDP has increased substantially over time in the United States and other developed countries.

*Question:* What are the main factors that determine the growth rate of real GDP per capita?

**Chapter 7: Money and Inflation**

*Issue:* The Federal Reserve’s actions during the financial crisis of 2007–2009 led some economists and policymakers to worry that the inflation rate in the United States would be increasing.

*Question:* What is the connection between changes in the money supply and the inflation rate?

**Chapter 8: The Labor Market**

*Issue:* The unemployment rate in the United States did not fall below 8% until more than three years after the end of the 2007–2009 recession.

*Question:* Has the natural rate of unemployment increased?

**Chapter 9: Business Cycles**

*Issue:* Economies around the world experience a business cycle.

*Question:* Does the business cycle impose significant costs on the economy?

**Chapter 10: Explaining Aggregate Demand: The *IS-MP* Model**

*Issue:* The U.S. economy has experienced 11 recessions since the end of World War II.

*Question:* What explains the business cycle?

**Chapter 11: The *IS-MP* Model*:* Adding Inflation and the Open Economy**

*Issue:* The recession of 2007-2009 was the worst since the Great Depression of the 1930s.

*Question:* What explains the severity of the 2007-2009 recession?

**Chapter 12: Monetary Policy in the Short Run**

*Issue:* The Federal Reserve undertook unprecedented policy actions in response to the recession of 2007–2009.

*Question:* Why were traditional Federal Reserve policies ineffective during the 2007–2009 recession?

**Chapter 13: Fiscal Policy in the Short Run**

*Issue:* During the 2007–2009 recession, Congress and the president undertook unprecedented fiscal policy actions.

*Question:* Was the American Recovery and Reinvestment Act of 2009 successful in increasing real GDP and employment?

**Chapter 14: Aggregate Demand, Aggregate Supply, and Monetary Policy**

*Issue:* Between the early 1980s and 2007, the U.S. economy experienced a period of macroeconomic stability known as the Great Moderation.

*Question:* Did discretionary monetary policy kill the Great Moderation?

**Chapter 15: Fiscal Policy and the Government Budget in the Long Run**

*Issue:* In 2012, the federal government’s budget deficit and the national debt were on course to rise to unsustainable levels.

*Question:* How should the United States solve its long-run fiscal problem?

**Chapter 16: Consumption and Investment**

*Issue:* Households and firms make decisions about how much to consume and invest based on expectations about the future.

*Question:* How does government tax policy affect the decisions of households and firms?

Solutions to the End-of-Chapter Questions, Problems, and Data Exercises

1.1 What Macroeconomics Is About

Learning Objective: Become familiar with the focus of macroeconomics.

Review Questions

**1.1** The primary reason behind inter-country difference in long-run growth experience is the difference in production facilities across countries. The purchase of additional equipment, training of workers, adoption of new technology, etc. lead to long-run economic growth. The financial system of a country helps in facilitating such activities to a great extent. The development of a country’s financial system is strikingly different between high-growth countries like the U.S. and low-growth countries like Uganda.

**1.2** The key issues discussed in the short-run are different from the key issues discussed in the long-run in macroeconomics literature. The business cycle is the focus of analysis in the short-run, which indicates alternating periods of economic expansion and economic recession, even though on average the country is experiencing economic growth in the long run.

**1.3** The inflation rate during the past 40 years has generally been below 5%. Since 1775, most of the periods of very high inflation have occurred during times of war. An important exception to this is the high levels of inflation in the late 1970s and early 1980s. Periods of deflation were relatively common during most of U.S. history but had not occurred during the past 50 years until the price level fell during 2009, reflecting the severity of the 2007–2009 recession. Inflation rates vary around the world. During 2011, some countries experienced mild inflation (for example, Japan, Norway, Germany, the United States), while others (for example, Pakistan, Vietnam, Venezuela) experienced significantly higher inflation rates.

**1.4** To support an aging population, the government has to spend more on social security and the medical care of retired individuals. On the other hand, there will be fewer workers to pay taxes. In this situation, a funding crisis may pose a threat to long-run economic growth.

Problems and Applications

**1.5** **a.** Because China is growing faster than the United States, the difference between the U.S. level of income and the Chinese level of income is narrowing.

**b.** Because these African countries are growing more slowly than the United States, the difference between the level of income in the United States and the level of income in these African countries is widening.

**c.** In order to catch up, the low-income countries must grow more rapidly than the high-income countries.

**1.6** The openness of an economy is measured in terms of how much it trades goods and services and financial assets with other countries. Trade in financial assets is currently increasing more than trade in goods and services. Financial assets are inherently risky. Greater financial integration leads to quicker transmission of risk from one country to another, and any economic event in any part of the world affects the domestic economy very quickly.

**1.7** The best measure of standard of living is real GDP per person, or real GDP per capita, so optimism about future standard of living implies faster expected growth in real GDP per capita in coming years.

**1.8** The programs in (a) and (d) are monetary policies (that the Fed carries out). The programs in (b). and (c.) are fiscal policies (that Congress and the president carry out).

**1.9** Graduating during a recession means that it may take workers longer to find a job, workers may start at lower wages, and workers may have less opportunity to accumulate human capital, which will affect wages and careers long after the recession has ended.

1.2 How Economists Think About Macroeconomics

Learning Objective: Explain how economists approach macroeconomic questions.

Review Questions

**2.1** Economic models help in focusing on a few key variables to increase the understanding of macroeconomic issues. The necessity of such models is also felt in prediction of future economic events. Assumptions help one to move beyond the overwhelming complexity of the real world and make models of simplified versions of reality that are able to analyze key variables.

**2.2** Endogenous variables are explained within economic models. However, to construct a framework for the analysis of endogenous variables, some of the necessary variables are determined from outside the model. These are known as exogenous variables.

**2.3** A hypothesis in an economic model is a statement about an economic variable that has to be tested. Usually this statement relates to a causal relationship. To test a hypothesis, one has to gather data on relevant variables and analyze the data using statistical tools and finally conclude whether to reject the hypothesis or not. Assumptions influence the formation of hypotheses.

**2.4** Normative analysis is concerned with what ought to be; positive analysis is concerned with what is. Economics is concerned primarily with positive analysis.

Problems and Applications

**2.5** In the United States, imports and employment have both increased over time, making it unlikely that imports have permanently reduced employment. This result indicates that outsourcing has not been significant relative to the size of the U.S. labor market. One method to analyze the question would be to collect data on the U.S. labor force and on jobs that have migrated both in and out of the United States in the relevant time period. However, it might be difficult to identify which jobs are actually outsourced versus simply lost or have a changed job description.

**2.6** Statements (a), (c), and (e) are positive statements that could be tested directly. Statements (b) and (d) are normative statements that involve value judgments and so cannot be tested in an objective way.

**2.7** a.Investment, exogenous; GDP, endogenous

b.Sunshine, exogenous; growth, endogenous

c.Studying, exogenous; GPA, endogenous

**2.8** Assumptions reflect the real world in a simplified manner, enabling the researcher to focus on a few key variables. When data analysis leads to the rejection of a hypothesis, the usefulness of the assumptions has to be re-examined.

**2.9** The debt crisis in Europe can affect the U.S. economy through financial markets. Even if the U.S. economy does not depend on foreign trade as much as the economies of countries such as Greece and Italy, over the past 20 years there has been a large increase in buying and selling of financial assets and in making loans across borders. This increased openness of financial markets means that macroeconomic problems in one economy can have consequences for other economies. For example, the Greek debt crisis of 2010 caused stock prices to decline around the world.

Data Exercises

**D1.1** a. Download Data from FRED. Using data from FRED, the annual growth rates for each year should be calculated by: .

Real GDP decreased in the following years (events associated with these years in parentheses): 1904 (recession); 1908 (recession); 1914 (recession); 1917 (post-WWI), 1920 – 1921 (recession); 1930 – 1933 (Great Depression); 1938 (recession); 1945-1947 (recession and post-WWII); 1949 (recession); 1954 (recession); 1958 (recession); 1974 – 1975 (recession); 1980 (recession); 1982 (recession); 1991 (recession); 2008 – 2009 (recession).

b. Average rate of real GDP growth should be calculated by: .

Average annual growth rate 2009-2011 = 2.12%

The average annual growth rate from 2009-2011 is less than the average annual growth rate from 1930 – present.

**D1.2** **a.** Download Data from FRED.

**Real GDP per capita for the United States and Japan, 1960-2010 (U.S. dollars)**

**IM_Ch01_Solution_D1**

Real GDP per capita has been consistently higher in the United States than in Japan since 1960, with the gap narrowing in the 1980s and widening since the mid-1990s.

**b.**

**CPI for the United States and Japan, 1955-2011**

**IM_Ch01_Solution_D1**

The annual inflation rate for each year for each country should be calculated by:

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Since about 1980, the United States has experienced higher annual inflation rates than Japan, and since 1990, the inflation rate in the United States increased while the inflation rate in Japan remained at or near zero, with several years since 1990 having negative inflation rates. From 1955-2011, the only year in which the United States had a negative inflation rate was 2009.

**D1.3** **a.** Import the required data from *Measuring Worth* into an Excel file.

**b.** The changes in wages seem more volatile than the changes in prices.

IM_Ch01_Solution_D1

**c.** Average wage change 2010-2011: 1.66%

Average inflation 2010-2011: 3.16%

Standard Deviation – Wage Change: 2.2787308

Standard Deviation – Inflation Rate: 1.090694013

**d.** Correlation Coefficient: 0.0607

Because the coefficient is close to zero, there appears to be only a weak relationship between changes in wages and changes in prices..