Introduction

The first two chapters of this book introduce you to the issues and the approach of macroeconomics.

Chapter 1

Chapter 1 takes you on a macroeconomic tour of the world. It starts with a look at the economic crisis that has shaped the world economy since the late 2000s. The tour then stops at each of the world's major economic powers: the United States, the Euro area, and China.

Chapter 2

Chapter 2 takes you on a tour of the book. It defines the three central variables of macroeconomics: output, unemployment, and inflation. It then introduces the three time periods around which the book is organized: the short run, the medium run, and the long run.

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A Tour of the World

What is macroeconomics? The best way to answer is not to give you a formal definition, but rather to take you on an economic tour of the world, to describe both the main economic evolutions and the issues that keep macroeconomists and macroeconomic policy makers awake at night.

At the time of this writing (the fall of 2015), policy makers are sleeping better than they did just a few years ago. In 2008, the world economy entered a major macroeconomic crisis, the deepest since the Great Depression. World output growth, which typically runs at 4 to 5% a year, was actually negative in 2009. Since then, growth has turned positive, and the world economy is slowly recovering. But the crisis has left a number of scars, and some worries remain.

My goal in this chapter is to give you a sense of these events and of some of the macroeconomic issues confronting different countries today. I shall start with an overview of the crisis, and then focus on the three main economic powers of the world: the United States, the Euro area, and China.

Section 1-1 looks at the crisis.

Section 1-2 looks at the United States.

Section 1-3 looks at the Euro area.

Section 1-4 looks at China.

Section 1-5 concludes and looks ahead.

Read this chapter as you would read an article in a newspaper. Do not worry about the exact meaning of the words or about understanding the arguments in detail: The words will be defined, and the arguments will be developed in later chapters. Think of this chapter as background, intended to introduce you to the issues of macroeconomics. If you enjoy reading this chapter, you will probably enjoy reading this book. Indeed, once you have read it, come back to this chapter; see where you stand on the issues, and judge how much progress you have made in your study of macroeconomics.

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If you do not, please accept my apologies…

1-1 The Crisis

Figure 1-1 shows output growth rates for the world economy, for advanced economies, and for other economies, separately, since 2000. As you can see, from 2000 to 2007 the world economy had a sustained expansion. Annual average world output growth was 4.5%, with advanced economies (the group of 30 or so richest countries in the world) growing at 2.7% per year, and other economies (the other 150 or so countries in the world) growing at an even faster 6.6% per year.

In 2007 however, signs that the expansion might be coming to an end started to appear. U.S. housing prices, which had doubled since 2000, started declining. Economists started to worry. Optimists believed that, although lower housing prices might lead to lower housing construction and to lower spending by consumers, the Fed (the short name for the U.S. central bank, formally known as the *Federal Reserve Board*) could lower interest rates to stimulate demand and avoid a recession. Pessimists believed that the decrease in interest rates might not be enough to sustain demand and that the United States may go through a short recession.

Even the pessimists turned out not to be pessimistic enough. As housing prices continued to decline, it became clear that the problems were deeper. Many of the mortgages that had been given out during the previous expansion were of poor quality. Many of the borrowers had taken too large a loan and were increasingly unable to make the monthly payments on their mortgages. And, with declining housing prices, the value of their mortgage often exceeded the price of the house, giving them an incentive to default. This was not the worst of it: The banks that had issued the mortgages had often bundled and packaged them together into new securities and then sold these securities to other banks and investors. These securities had often been repackaged into yet new securities, and so on. The result is that many banks, instead of holding the mortgages themselves, held these securities, which were so complex that their value was nearly impossible to assess.

"Banks" here actually means "banks and other financial institutions." But this is too long to write and I do not want to go into these complications in Chapter 1.

This complexity and opaqueness turned a housing price decline into a major financial crisis, a development that few economists had anticipated. Not knowing the quality of the assets that other banks had on their balance sheets, banks became reluctant to lend to each other for fear that the bank to which they lent might not be able to repay.

Figure 1-1

Output Growth Rates for the World Economy, for Advanced Economies, and for Emerging and Developing Economies, 2000–2014

Source: World Economic Outlook Database, July 2015. NGDP_RPCH.A.

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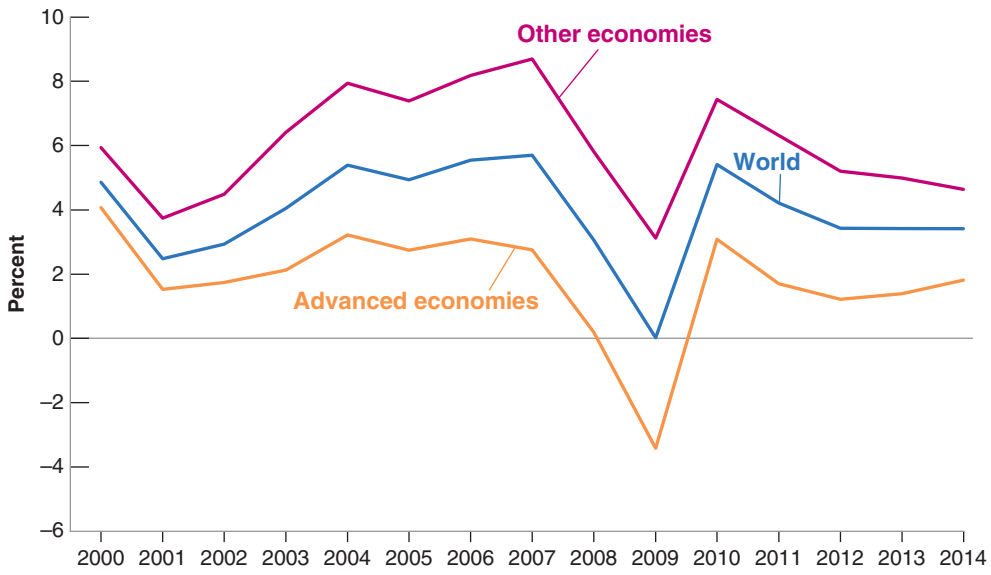

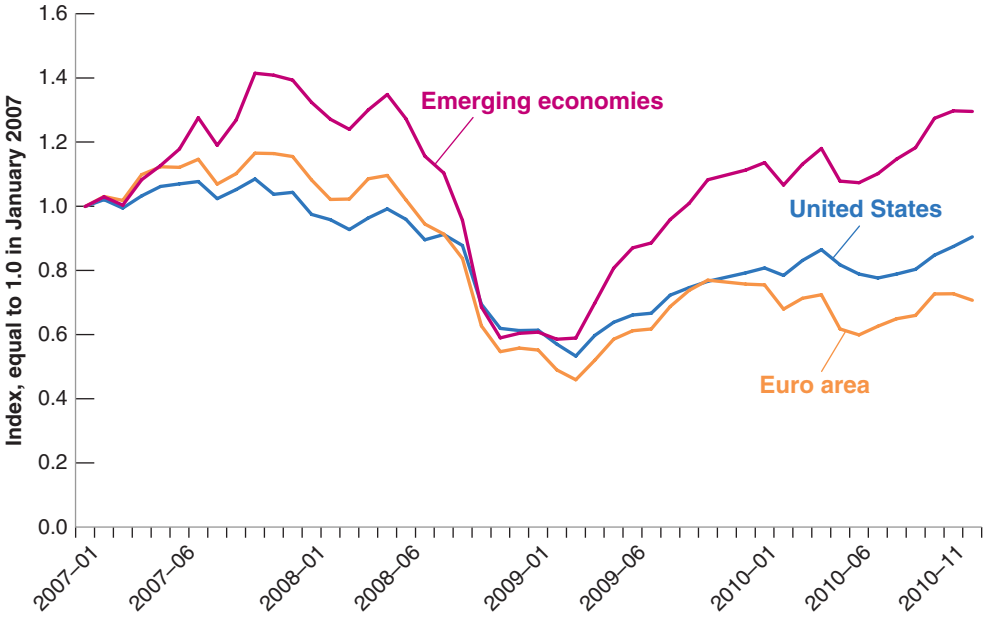

Figure 1-2

Stock Prices in the United States, the Euro Area, and Emerging Economies, 2007–2010

Source: Haver Analytics USA (S111ACD), Eurogroup (S023ACD), all emerging markets (S200ACD), all monthly averages.

Unable to borrow, and with assets of uncertain value, many banks found themselves in trouble. On September 15, 2008, a major bank, Lehman Brothers, went bankrupt. The effects were dramatic. Because the links between Lehman and other banks were so opaque, many other banks appeared at risk of going bankrupt as well. For a few weeks, it looked as if the whole financial system might collapse.

I started my job as chief economist at the International Monetary Fund two weeks before the Lehman bankruptcy. I faced a steep learning curve.

This financial crisis quickly turned into a major economic crisis. Stock prices collapsed. Figure 1-2 plots the evolution of three stock price indexes, for the United States, for the Euro area, and for emerging economies, from the beginning of 2007 to the end of 2010. The indexes are set equal to 1 in January 2007. Note how, by the end of 2008, stock prices had lost half or more of their value from their previous peak. Note also that, despite the fact that the crisis originated in the United States, European and emerging market stock prices decreased by as much as their U.S. counterparts; I shall return to this later.

Hit by the decrease in housing prices and the collapse in stock prices, and worried that this might be the beginning of another Great Depression, people sharply cut their consumption. Worried about sales and uncertain about the future, firms sharply cut back their investment. With housing prices dropping and many vacant homes on the market, very few new homes were built. Despite strong actions by the Fed, which cut interest rates all the way down to zero, and by the U.S. government, which cut taxes and increased spending, demand decreased, and so did output. In the third quarter of 2008, U.S. output growth turned negative and remained so in 2009.

One might have hoped that the crisis would remain largely contained in the United States. As Figures 1-1 and 1-2 both show, this was not the case. The U.S. crisis quickly became a world crisis. Other countries were affected through two channels. The first channel was trade. As U.S. consumers and firms cut spending, part of the decrease fell on imports of foreign goods. Looking at it from the viewpoint of countries exporting to the United States, their exports went down, and so, in turn, did their output. The second channel was financial. U.S. banks, badly needing funds in the United States, repatriated funds from other countries, creating problems for banks in those countries as well. As those banks got in trouble, lending came to a halt, leading to a decrease in spending and in output. Also, in a number of European countries, governments had accumulated high levels of debt and were now running large deficits. Investors began to worry about

whether debt could be repaid and asked for much higher interest rates. Confronted with those high interest rates, governments drastically reduced their deficits, through a combination of lower spending and higher taxes. This led in turn to a further decrease in demand, and in output. In Europe, the decline in output was so bad that this particular aspect of the crisis acquired its own name, the *Euro Crisis.* In short, the U.S. recession turned into a world recession. By 2009, average growth in advanced economies was −3.4%, by far the lowest annual growth rate since the Great Depression. Growth in emerging and developing economies remained positive but was 3.5 percentage points lower than the 2000–2007 average.

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Since then, thanks to strong monetary and fiscal policies and to the slow repair of the financial system, most economies have turned around. As you can see from Figure 1-1, growth in advanced countries turned positive in 2010 and has remained positive since. The recovery is however both unimpressive and uneven. In some advanced countries, most notably the United States, unemployment has nearly returned to its pre-crisis level. The Euro area however is still struggling. Growth is positive, but it is low, and unemployment remains high. Growth in emerging and developing economies has also recovered, but, as you can see from Figure 1-1, it is lower than it was before the crisis and has steadily declined since 2010.

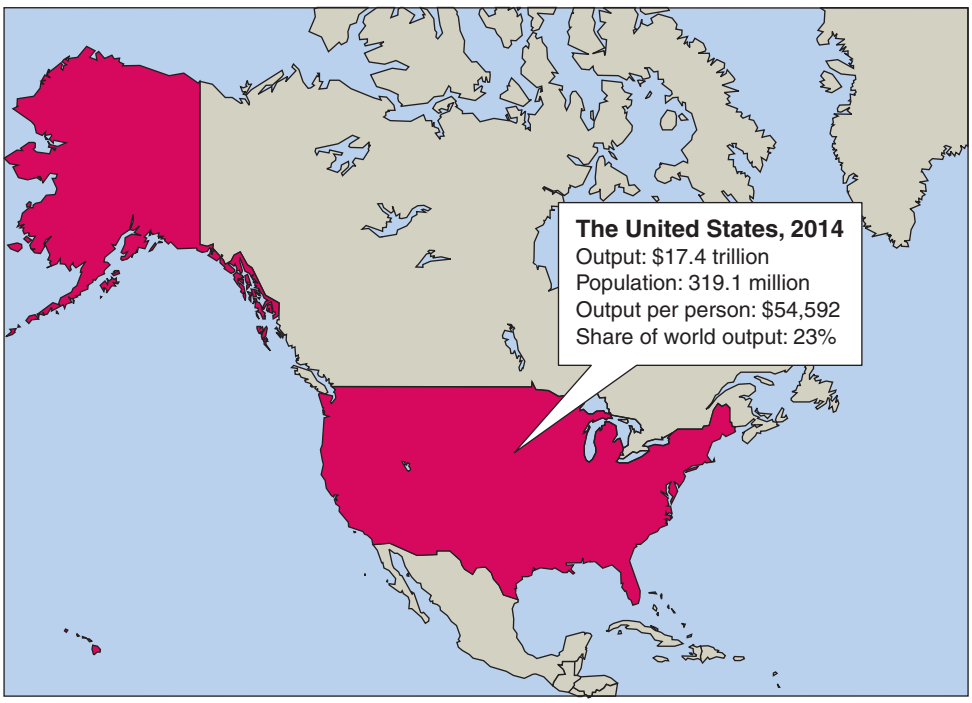
Having set the stage, let me now take you on a tour of the three main economic powers in the world, the United States, the Euro area, and China.

1-2 The United States

When economists look at a country, the first two questions they ask are: How big is the country from an economic point of view? And what is its standard of living? To answer the first, they look at output—the level of production of the country as a whole. To answer the second, they look at output per person. The answers, for the United States, are given in Figure 1-3: The United States is big, with an output of $17.4 trillion in 2014,

Figure 1-3

The United States, 2014



accounting for 23% of world output. This makes it the largest country in the world in economic terms. And the standard of living in the United States is high: Output per person is $54,600. It is not the country with the highest output per person in the world, but it is close to the top.

Can you guess some of the countries with a higher standard of living than the United States? *Hint*: Think of oil producers and financial centers. For answers, look for "Gross Domestic Product per capita, in current prices" at http://www.imf.org/external/pubs/ft/weo/2015/01/weodata/weoselgr.aspx

When economists want to dig deeper and look at the state of health of the country, they look at three basic variables:

- *Output growth*—the rate of change of output
- The *unemployment rate*—the proportion of workers in the economy who are not employed and are looking for a job
- The *inflation rate*—the rate at which the average price of goods in the economy is increasing over time

Numbers for these three variables for the U.S. economy are given in Table 1-1. To put current numbers in perspective, the first column gives the average value of each of the three variables for the period 1990 up to 2007, the year before the crisis. The second column shows numbers for the acute part of the crisis, the years 2008 and 2009. The third column shows the numbers from 2010 to 2014, and the last column gives the numbers for 2015 (or more accurately, the forecasts for 2015 as of the fall of 2015).

By looking at the numbers for 2015, you can see why economists are reasonably optimistic about the U.S. economy at this point. Growth in 2015 is forecast to be above 2.5%, just a bit below the 1990–2007 average. Unemployment, which increased during the crisis and its aftermath (it reached 10% during 2010), is decreasing and, at 5.4%, is now back to its 1990–2007 average. Inflation is low, substantially lower than the 1990–2007 average. In short, the U.S. economy seems to be in decent shape, having largely left the effects of the crisis behind.

Not everything is fine however. To make sure demand was strong enough to sustain growth, the Fed has had to maintain interest rates very low, indeed, too low for comfort. And productivity growth appears to have slowed, implying mediocre growth in the future. Let's look at both issues in turn.

Low Interest Rates and the Zero Lower Bound

When the crisis started, the Fed tried to limit the decrease in spending by decreasing the interest rate it controls, the so-called *federal funds rate*. As you can see from Figure 1-4, on page 28 the federal funds rate went from 5.2% in July 2007 to nearly 0% (0.16% to be precise) in December 2008.

Why did the Fed stop at zero? Because the interest rate cannot be negative. If it were, then nobody would hold bonds, everybody would want to hold cash instead—because cash pays a zero interest rate. This constraint is known in macroeconomics as the *zero lower bound*, and this is the bound the Fed ran into in December 2008.

Because keeping cash in large sums is inconvenient and dangerous, people might be willing to hold some bonds even if those pay a small negative interest rate. But there is a clear limit to how negative the interest rate can go before people find ways to switch to cash.

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Table 1-1 Growth, Unemployment, and Inflation in the United States, 1990–2015

Percent	1990–2007 (average)	2008–2009 (average)	2010–2014 (average)	2015
Output growth rate	**3.0**	**–1.5**	**2.2**	**2.5**
Unemployment rate	**5.4**	**7.5**	**8.0**	**5.4**
Inflation rate	**2.3**	**1.4**	**1.6**	**0.7**

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year. Inflation rate: annual rate of change of the price level (GDP deflator).

Source: IMF, *World Economic Outlook*, July 2015.

Figure 1-4

The U.S. Federal Funds Rate since 2000

Source: Haver Analytics.

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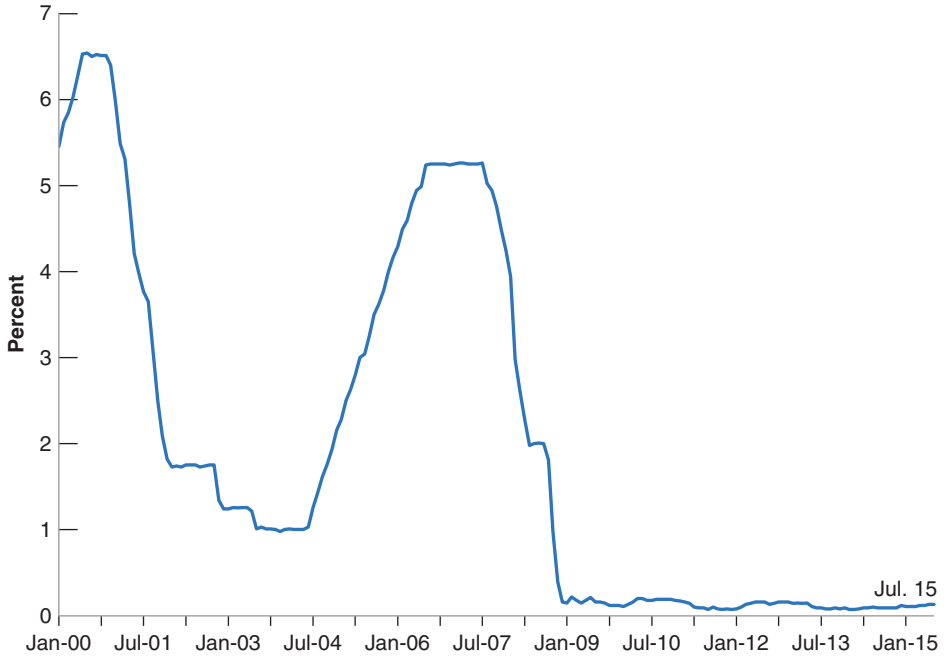

This sharp decrease in the interest rate, which made it cheaper for consumers to borrow, and for firms to invest, surely limited the fall in demand and the fall in output. But, as we saw earlier and you can see from Table 1-1, this was not enough to avoid a deep recession: U.S. growth was negative in both 2008 and 2009. To help the economy recover, the Fed then kept the interest rate close to zero, where it has remained until now (the fall of 2015). The Fed's plan is to start increasing the interest rate soon, so when you read this book, it is likely that the rate will have increased, but it will still be very low by historical standards.

Why are low interest rates a potential issue? For two reasons: The first is that low interest rates limit the ability of the Fed to respond to further negative shocks. If the interest rate is at or close to zero, and demand further decreases, there is little the Fed can do to increase demand. The second is that low interest rates appear to lead to excessive risk taking by investors. Because the return from holding bonds is so low, investors are tempted to take too much risk to increase their returns. And too much risk taking can in turn give rise to financial crises of the type we just experienced. Surely, we do not want to experience another crisis like the one we just went through.

As you will see later in the book, central banks like the Fed can use a few other tools to increase demand. These tools are known as "unconventional monetary policy." But they do not work as well as the interest rate.

How Worrisome Is Low Productivity Growth?

Although the Fed has to worry about maintaining enough demand to achieve growth in the short run, over longer periods of time, growth is determined by other factors, the main one being productivity growth: Without productivity growth, there just cannot be a sustained increase in income per person. And, here, the news is worrisome. Table 1-2 shows average U.S. productivity growth by decade since 1990 for the private sector as a whole and for the manufacturing sector. As you can see, productivity growth in the 2010s has so far been about half as high as it was in the 1990s.

How worrisome is this? Productivity growth varies a lot from year to year, and some economists believe that it may just be a few bad years and not much to worry about. Others believe that measurement issues make it difficult to measure output and that productivity growth may be underestimated. For example, how do you measure

Table 1-2 Labor Productivity Growth, by Decade

Percent change; year on year (average)	1990s	2000s	2010–2014
Nonfarm Business Sector	2.0	2.6	1.2
Business Sector	2.1	2.6	1.2
Manufacturing	4.0	3.1	2.4

Source: Haver Analytics.

the real value of a new smartphone relative to an older model? Its price may be higher, but it probably does many things that the older model could not do. Yet others believe that the United States has truly entered a period of lower productivity growth, that the major gains from the current IT innovations may already have been obtained, and that progress is likely to be less rapid, at least for some time.

◀ IT stands for information technology.

One particular reason to worry is that this slowdown in productivity growth is happening in the context of growing inequality. When productivity growth is high, most everybody is likely to benefit, even if inequality increases. The poor may benefit less than the rich, but they still see their standard of living increase. This is not the case today in the United States. Since 2000, the real earnings of workers with a high school education or less have actually decreased. If policy makers want to invert this trend, they need either to raise productivity growth or limit the rise of inequality, or both. These are two major challenges facing U.S. policy makers today.

1-3 The Euro Area

In 1957, six European countries decided to form a common European market—an economic zone where people and goods could move freely. Since then, 22 more countries have joined, bringing the total to 28. This group is now known as the **European Union**, or EU for short.

◀ Until a few years ago, the official name was the *European Community*, or EC. You may still encounter that name.

In 1999, the EU decided to go a step further and started the process of replacing national currencies with one common currency, called the *euro*. Only 11 countries participated at the start; since then, 8 more have joined. Some countries, in particular, the United Kingdom, have decided not to join, at least for the time being. The official name for the group of member countries is the **Euro area**. The transition took place in steps. On January 1, 1999, each of the 11 countries fixed the value of its currency to the euro. For example, 1 euro was set equal to 6.56 French francs, to 166 Spanish pesetas, and so on. From 1999 to 2002, prices were quoted both in national currency units and in euros, but the euro was not yet used as currency. This happened in 2002, when euro notes and coins replaced national currencies. Nineteen countries now belong to this *common currency area*.

◀ The area also goes by the names of "Euro zone" or "Euroland." The first sounds too technocratic, and the second reminds one of Disneyland. I shall avoid them.

Table 1-3 Growth, Unemployment, and Inflation in the Euro Area, 1990–2015

MyEconLab Real-time data

Percent	1990–2007 (average)	2008–2009 (average)	2010–2014 (average)	2015
Output growth rate	2.1	−2.0	0.7	1.5
Unemployment rate	9.4	8.6	11.1	11.1
Inflation rate	2.1	1.5	1.0	1.1

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year.
Inflation rate: annual rate of change of the price level (GDP deflator).

Source: IMF, *World Economic Outlook*, July 2015.

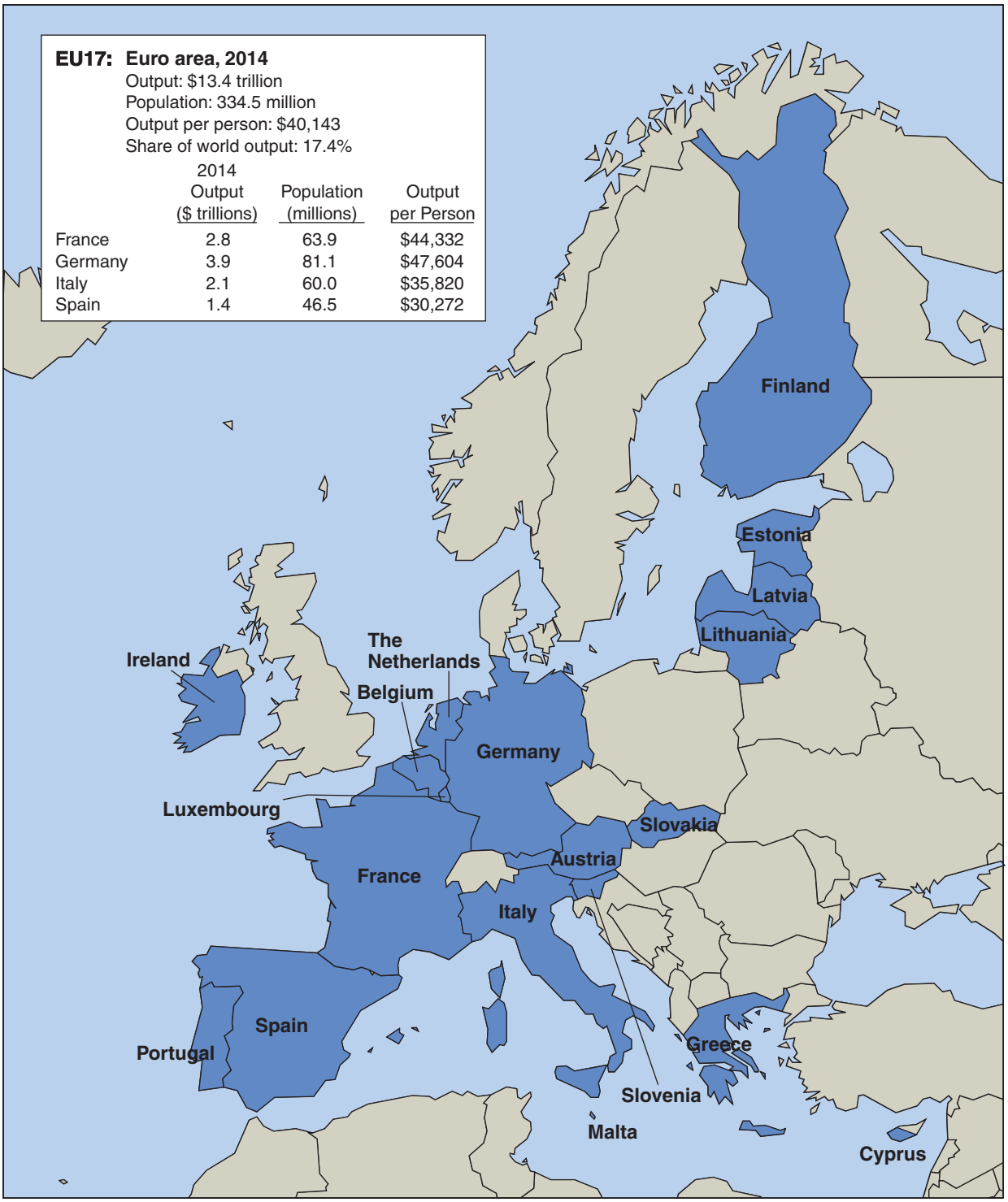

Figure 1-5

The Euro Area, 2014

As you can see from Figure 1-5, the Euro area is also a strong economic power. Its output is nearly equal to that of the United States, and its standard of living is not far behind. (The EU as a whole has an output that exceeds that of the United States.) As the numbers in Table 1-3 show, however, it is not doing very well.

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Just as in the United States, the acute phase of the crisis, 2008 and 2009, was characterized by negative growth. Whereas the United States recovered, growth in the Euro area remained anemic, close to zero over 2010 to 2014 (indeed two of these years again saw negative growth). Even in 2015, growth is forecast to be only 1.5%, less than in the United States, and less than the pre-crisis average. Unemployment, which increased from 2007 on, stands at a high 11.1%, nearly twice that of the United States. Inflation is low, below the target of the European Central Bank, the ECB.

The Euro area faces two main issues today. The first is how to reduce unemployment. Second is whether and how it can function efficiently as a **common currency area**. We consider these two issues in turn.

Can European Unemployment Be Reduced?

The high average unemployment rate for the Euro area, 11.1% in 2015, hides a lot of variations across Euro countries. At one end, Greece and Spain have unemployment rates of 25% and 23%, respectively. At the other, Germany's unemployment rate is less than 5%. In the middle are countries like France and Italy, with unemployment rates of 10% and 12%, respectively. Thus, it is clear that how to reduce unemployment must be tailored to the specifics of each country.

To show the complexity of the issues, it is useful to look at a particular country with high unemployment. Figure 1-6 shows the striking evolution of the Spanish unemployment rate since 1990. After a long boom starting in the mid 1990s, the unemployment rate had decreased from a high of nearly 25% in 1994 to 9% by 2007. But, with the crisis, unemployment exploded again, exceeding 25% in 2013. Only now, is it starting to decline, but it is still high. The graph suggests two conclusions:

- Much of the high unemployment rate today is a result of the crisis, and to the sudden collapse in demand we discussed in the first section. A housing boom turned to

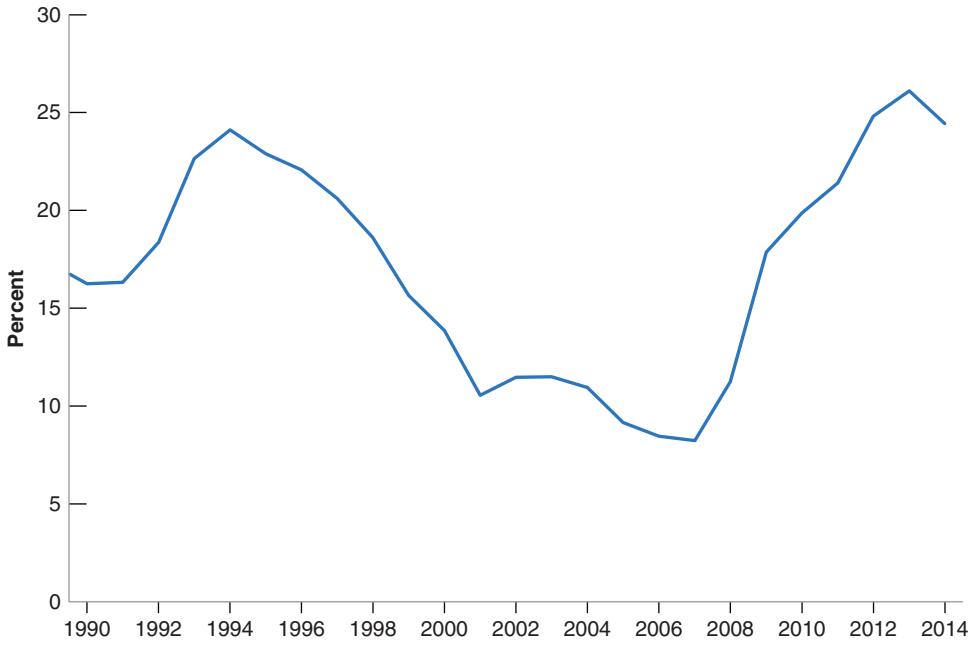


Figure 1-6

Unemployment in Spain since 1990

(*Source:* International Monetary Fund, *World Economic Outlook*, July 2015).

MyEconLab Real-time data

housing bust, plus a sudden increase in interest rates, triggered the increase in unemployment from 2008 on. One can hope that, eventually, demand will pick up, and unemployment will decrease.

- How low can it get? Even at the peak of the boom however, the unemployment rate in Spain was around 9%, nearly twice the unemployment rate in the United States today. This suggests that more is at work than the crisis and the fall in demand. The fact that, for most of the last 20 years, unemployment has exceeded 10% points to problems in the labor market. The challenge is then to identify exactly what these problems are, in Spain, and in other European countries.

Some economists believe the main problem is that European states protect workers too much. To prevent workers from losing their jobs, they make it expensive for firms to lay off workers. One of the unintended results of this policy is to deter firms from hiring workers in the first place, and thus increasing unemployment. Also, to protect workers who become unemployed, European governments provide generous unemployment insurance. But, by doing so, they decrease the incentives for the unemployed to take jobs rapidly; this also increases unemployment. The solution, these economists argue, is to be less protective, to eliminate these *labor market rigidities*, and to adopt U.S.-style labor-market institutions. This is what the United Kingdom has largely done, and its unemployment rate is low.

Others are more skeptical. They point to the fact that unemployment is not high everywhere in Europe. Yet most countries provide protection and generous social insurance to workers. This suggests that the problem may lay not so much with the degree of protection but with the way it is implemented. The challenge, those economists argue, is to understand what the low unemployment countries are doing right, and whether what they do right can be exported to other European countries. Resolving these questions is one of the major tasks facing European macroeconomists and policy makers today.

What Has the Euro Done for Its Members?

Supporters of the euro point to its enormous symbolic importance. In light of the many past wars among European countries, what better proof of the permanent end to conflict than the adoption of a common currency? They also point to the economic advantages of having a common currency: no more changes in exchange rates for European firms to worry about; no more need to change currencies when crossing borders. Together with the removal of other obstacles to trade among European countries, the euro contributes, they argue, to the creation of a large economic power in the world. There is little question that the move to the euro was indeed one of the main economic events of the start of the twenty-first century.

Others worry, however, that the symbolism of the euro has come with substantial economic costs. Even before the crisis, they pointed out that a common currency means a common monetary policy, which means the same interest rate across the euro countries. What if, they argued, one country plunges into recession while another is in the middle of an economic boom? The first country needs lower interest rates to increase spending and output; the second country needs higher interest rates to slow down its economy. If interest rates have to be the same in both countries, what will happen? Isn't there the risk that one country will remain in recession for a long time or that the other will not be able to slow down its booming economy? And a common currency also means the loss of the exchange rate as an instrument of adjustment within the Euro area. What if, they argued, a country has a large trade deficit and needs to become more competitive? If it cannot adjust its exchange rate, it must adjust by decreasing prices relative to its competitors. This is likely to be a painful and long process.

Until the Euro crisis, the debate had remained somewhat abstract. It no longer is. As a result of the crisis, a number of Euro members, from Ireland and Portugal, to Greece, have gone through deep recessions. If they had their own currency, they could have depreciated their currency vis-à-vis other Euro members to increase the demand for their exports. Because they shared a currency with their neighbors, this was not possible. Thus, some economists conclude, some countries should drop out of the euro and recover control of their monetary policy and of their exchange rate. Others argue that such an exit would be both unwise because it would give up on the other advantages of being in the euro and be extremely disruptive, leading to even deeper problems for the country that exited. This issue is likely to remain a hot one for some time to come.

1-4 China

China is in the news every day. It is increasingly seen as one of the major economic powers in the world. Is the attention justified? A first look at the numbers in Figure 1-7 on page 34 suggests it may not be. True, the population of China is enormous, more than four times that of the United States. But its output, expressed in dollars by multiplying the number in yuans (the Chinese currency) by the dollar–yuan exchange rate, is still only 10.4 trillion dollars, about 60% of the United States. Output per person is about $7,600, only roughly 15% of output per person in the United States.

So why is so much attention paid to China? There are two main reasons: To understand the first, we need to go back to the number for output per person. When comparing output per person in a rich country like the United States and a relatively poor country like China, one must be careful. The reason is that many goods are cheaper in poor countries. For example, the price of an average restaurant meal in New York City is about 20 dollars; the price of an average restaurant meal in Beijing is about 25 yuans, or, at the current exchange rate, about 4 dollars. Put another way, the same income (expressed in dollars) buys you much more in Beijing than in New York City. If we want to compare standards of living, we have to correct for these differences; measures which do so are called PPP (for *purchasing power parity*) measures. Using such a measure, output per person in China is estimated to be about $12,100, roughly one-fourth of the output per person in the United States. This gives a more accurate picture of the standard of living in China. It is obviously still much lower than that of the United States or other rich countries. But it is higher than suggested by the numbers in Figure 1-7.

The issue is less important when comparing two rich countries. Thus, this was not a major issue when comparing standards of living in the United States and the Euro area previously.

Second, and more importantly, China has been growing very rapidly for more than three decades. This is shown in Table 1-4, which, like the previous tables for the United States and the Euro area, gives output growth, unemployment, and inflation for the periods 1990–2007, 2008–2009, 2010–2014, and the forecast for 2015.

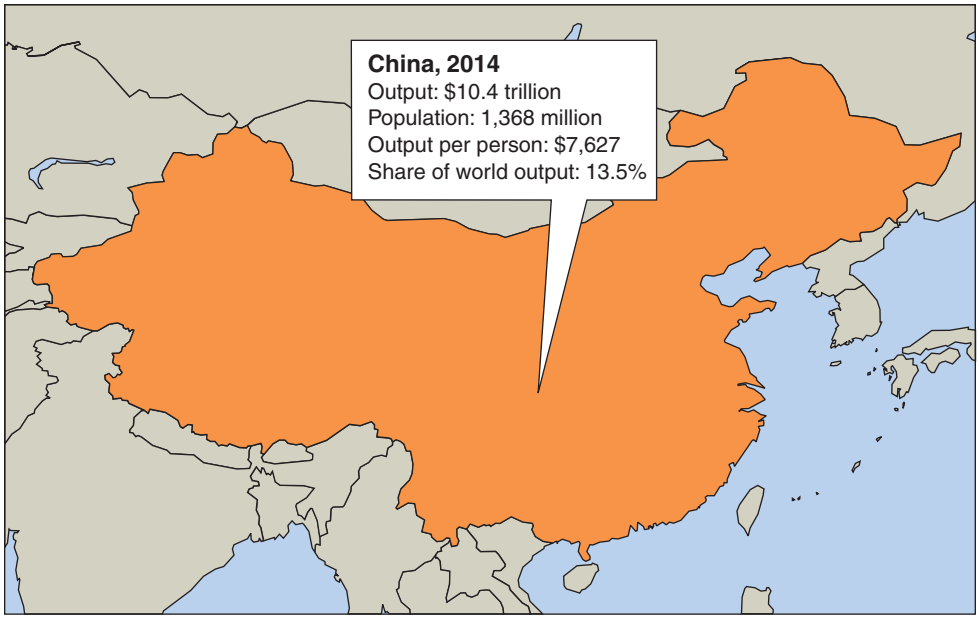
The first line of the table tells the basic story. Since 1990 (indeed, since 1980, if we were to extend the table back by another 10 years), China has grown at close to 10% a year. This represents a doubling of output every 7 years. Compare this number to the numbers for the United States and for Europe we saw previously, and you understand why the weight of the emerging economies in the world economy, China being the main one, is increasing so rapidly.

There are two other interesting aspects to Table 1-4. The first is how difficult it is to see the effects of the crisis in the data. Growth barely decreased during 2008 and 2009, and unemployment barely increased. The reason is not that China is closed to the rest of the world. Chinese exports slowed during the crisis. But the adverse effect on demand was nearly fully offset by a major fiscal expansion by the Chinese government, with, in particular, a major increase in public investment. The result was sustained growth of demand and, in turn, of output.

Figure 1-7

China, 2014

Source: World Economic Outlook, IMF.



The second is the decline in growth rates from 10% before the crisis to less than 9% after the crisis, and to the forecast 6.8% for 2015. This raises questions both about how China maintained such a high growth rate for so long, and whether it is now entering a period of lower growth.

A preliminary question is whether the numbers are for real. Could it be that Chinese growth was and is still overstated? After all, China is still officially a communist country, and government officials may have incentives to overstate the economic performance of their sector or their province. Economists who have looked at this carefully conclude that this is probably not the case. The statistics are not as reliable as they are in richer countries, but there is no major bias. Output growth is indeed very high in China. So where has growth come from? It has come from two sources: The first was high accumulation of capital. The investment rate (the ratio of investment to output) in China is 48%, a very high number. For comparison, the investment rate in the United States is only 19%. More capital means higher productivity and higher output. The second is rapid technological progress. One of the strategies followed by the Chinese government has been to encourage foreign firms to relocate and produce in China. As foreign firms are typically much more productive than Chinese firms,

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Table 1-4 Growth, Unemployment, and Inflation in China, 1990–2015

Percent	1990–2007 (average)	2008–2009 (average)	2010–2014 (average)	2015
Output growth rate	**10.2**	**9.4**	**8.6**	**6.8**
Unemployment rate	**3.3**	**4.3**	**4.1**	**4.1**
Inflation rate	**5.9**	**3.7**	**4.2**	**1.2**

Output growth rate: annual rate of growth of output (GDP). Unemployment rate: average over the year.
Inflation rate: annual rate of change of the price level (GDP deflator).

Source: IMF, *World Economic Outlook*, July 2015.

this has increased productivity and output. Another aspect of the strategy has been to encourage joint ventures between foreign and Chinese firms. By making Chinese firms work with and learn from foreign firms, the productivity of the Chinese firms has increased dramatically.

When described in this way, achieving high productivity and high output growth appears easy and a recipe that every poor country could and should follow. In fact, things are less obvious. China is one of a number of countries that made the transition from central planning to a market economy. Most of the other countries, from Central Europe to Russia and the other former Soviet republics, experienced a large decrease in output at the time of transition. Most still have growth rates far below that of China. In many countries, widespread corruption and poor property rights make firms unwilling to invest. So why has China fared so much better? Some economists believe that this is the result of a slower transition: The first Chinese reforms took place in agriculture as early as 1980, and even today, many firms remain owned by the state. Others argue that the fact that the communist party has remained in control has actually helped the economic transition; tight political control has allowed for a better protection of property rights, at least for new firms, giving them incentives to invest. Getting the answers to these questions, and thus learning what other poor countries can take from the Chinese experience, can clearly make a huge difference, not only for China but for the rest of the world.

Tight political control has also allowed for corruption to develop, and corruption can also threaten investment. China is now in the midst of a strong anti-corruption campaign.

At the same time, the recent growth slowdown raises a new set of questions: Where does the slowdown come from? Should the Chinese government try to maintain high growth or accept the lower growth rate? Most economists and, indeed, the Chinese authorities themselves, believe that lower growth is now desirable, that the Chinese people will be better served if the investment rate decreases, allowing more of output to go to consumption. Achieving the transition from investment to consumption is the major challenge facing the Chinese authorities today.

1-5 Looking Ahead

This concludes our whirlwind world tour. There are many other regions of the world and many other macroeconomic issues we could have looked at:

- India, another poor and large country, with a population of 1,270 million people, which, like China, is now growing very fast and becoming a world economic power.
- Japan, whose growth performance for the 40 years following World War II was so impressive that it was referred to as an economic miracle, but it has done very poorly in the last two decades. Since a stock market crash in the early 1990s, Japan has been in a prolonged slump, with average output growth under 1% per year.
- Latin America, which went from high inflation to low inflation in the 1990s, and then sustained strong growth. Recently however, its growth has slowed, as a result, in part, of a decline in the price of commodities.
- Central and Eastern Europe, which shifted from central planning to a market system in the early 1990s. In most countries, the shift was characterized by a sharp decline in output at the start of transition. Some countries, such as Poland, now have high growth rates; others, such as Bulgaria, are still struggling.
- Africa, which has suffered decades of economic stagnation, but where, contrary to common perceptions, growth has been high since 2000, averaging 5.5% per year and reflecting growth in most of the countries of the continent.

MyEconLab Video

There is a limit to how much you can absorb in this first chapter. Think about the issues to which you have been exposed:

- The big issues triggered by the crisis: What caused the crisis? Why did it transmit so fast from the United States to the rest of the world? In retrospect, what could and should have been done to prevent it? Were the monetary and fiscal responses appropriate? Why is the recovery so slow in Europe? How was China able to maintain high growth during the crisis?
- Can monetary and fiscal policies be used to avoid recessions? How much of an issue is the zero lower bound on interest rates? What are the pros and cons of joining a common currency area such as the Euro area? What measures could be taken in Europe to reduce persistently high unemployment?
- Why do growth rates differ so much across countries, even over long periods of time? Can other countries emulate China and grow at the same rate? Should China slow down?

The purpose of this book is to give you a way of thinking about these questions. As we develop the tools you need, I shall show you how to use them by returning to these questions and showing you the answers the tools suggest.

Key Terms

European Union (EU), 29
Euro area, 29
common currency area, 31

Questions and Problems MyEconLab Real-time data exercises are marked .

QUICK CHECK

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1. Using the information in this chapter, label each of the following statements true, false, or uncertain. Explain briefly.

a. Output growth was negative in both advanced as well as emerging and developing countries in 2009.
b. World output growth recovered to its prerecession level after 2009.
c. Stock prices around the world fell between 2007 and 2010 and then recovered to their prerecession level.
d. The rate of unemployment in the United Kingdom is much lower than in much of the rest of Europe.
e. China's seemingly high growth rate is a myth; it is a product solely of misleading official statistics.
f. The high rate of unemployment in Europe started when a group of major European countries adopted a common currency.
g. The Federal Reserve lowers interest rates when it wants to avoid recession and raises interest rates when it wants to slow the rate of growth in the economy.
h. Output per person is different in the Euro area, the United States, and China.
i. Interest rates in the United States were at or near zero from 2009 to 2015.

2. Macroeconomic policy in Europe

Beware of simplistic answers to complicated macroeconomic questions. Consider each of the following statements and comment on whether there is another side to the story.

a. There is a simple solution to the problem of high European unemployment: Reduce labor market rigidities.
b. What can be wrong about joining forces and adopting a common currency? Adoption of the euro is obviously good for Europe.

DIG DEEPER

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3. Chinese economic growth is the outstanding feature of the world economic scene over the past two decades.

a. In 2014, U.S. output was $17.4 trillion, and Chinese output was $10.4 trillion. Suppose that from now on, the output of

China grows at an annual rate of 6.5% per year, whereas the output of the United States grows at an annual rate of 2.2% per year. These are the values in each country for the period 2010–2014 as stated in the text. Using these assumptions and a spreadsheet, calculate and plot U.S. and Chinese output from 2014 over the next 100 years. How many years will it take for China to have a total level of output equal to that of the United States?

b. When China catches up with the United States in total output, will residents of China have the same standard of living as U.S. residents? Explain.

c. Another term for *standard of living* is *output per person*. How has China raised its output per person in the last two decades? Are these methods applicable to the United States?

d. Do you think China's experience in raising its standard of living (output per person) provides a model for developing countries to follow?

4. The rate of growth of output per person was identified as a major issue facing the United States as of the writing of this chapter. Go to the 2015 Economic Report of the President and find a table titled "Productivity and Related Data" (Table B-16). You can download this table as an Excel file.

a. Find the column with numbers that describe the level of output per hour worked of all persons in the nonfarm business sector. This value is presented as an index number equal to 100 in 2009. Calculate the percentage increase in output per hour worked from 2009 to 2010. What does that value mean?

b. Now use the spreadsheet to calculate the average percent increase in output per hour worked for the decades 1970–1979, 1980–1989, 1990–1999, 2000–2009, and 2010–2014. How does productivity growth in the last decade compare to the other decades?

c. You may be able to find a more recent Economic Report of the President. If so, update your estimate of the average growth rate of output per hour worked to include years past 2014. Is there any evidence of an increase in productivity growth?

EXPLORE FURTHER

5. U.S. postwar recessions

This question looks at the recessions over the past 40 years. To work this problem, first obtain quarterly data on U.S. output growth for the period 1960 to the most recent date from the Web site www.bea.gov. Table 1.1.1 presents the percent change in real gross domestic product (GDP). This data can be downloaded to a spreadsheet. Plot the quarterly GDP growth rates from 1960:1 to the latest observations. Which, if any, quarters have negative growth? Using the definition of a recession as two or more consecutive quarters of negative growth, answer the following questions.

a. How many recessions has the U.S. economy undergone since 1960, quarter 2?

b. How many quarters has each recession lasted?

c. In terms of length and magnitude, which two recessions have been the most severe?

6. From Problem 5, write down the quarters in which the six traditional recessions started. Find the monthly series in the Federal Reserve Bank of St. Louis (FRED) database for the seasonally adjusted unemployment rate. Retrieve the monthly data series on the unemployment rate for the period 1969 to the end of the data. Make sure all data series are seasonally adjusted.

a. Look at each recession since 1969. What was the unemployment rate in the first month of the first quarter of negative growth? What was the unemployment rate in the last month of the last quarter of negative growth? By how much did the unemployment rate increase?

b. Which recession had the largest increase in the rate of unemployment? Begin with the month before the quarter in which output first falls and measure to the highest level of the unemployment rate before the next recession.

Further Reading

- The best way to follow current economic events and issues is to read *The Economist*, a weekly magazine published in England. The articles in *The Economist* are well informed, well written, witty, and opinionated. Make sure to read it regularly.

APPENDIX: Where to Find the Numbers

Suppose you want to find the numbers for inflation in Germany over the past five years. Fifty years ago, the answer would have been to learn German, find a library with German publications, find the page where inflation numbers were given, write them down, and plot them by hand on a clean sheet of paper. Today, improvements in the collection of data, the development of computers and electronic databases, and access to the Internet make the task much easier. This appendix will help you find the numbers you are looking for, be it inflation in Malaysia last year, or consumption in the United States in 1959, or unemployment in Ireland in the 1980s. In most cases, the data can be downloaded to spreadsheets for further treatment.

For a Quick Look at Current Numbers

- The best source for the most recent numbers on output, unemployment, inflation, exchange rates, interest rates, and stock prices for a large number of countries is the last four pages of *The Economist*, published each week (www.economist.com). The Web site, like many of the Web sites listed throughout the text, contains both information available free to anyone and information available only to subscribers.
- A good source for recent numbers about the U.S. economy is *National Economic Trends*, published monthly by the Federal Reserve Bank of Saint Louis. (https://research.stlouisfed.org/datatrends/net/)

For More Detail about the U.S. Economy

- A convenient database, with numbers often going back to the 1960s, for both the United States and other countries, is the *Federal Reserve Economic Database* (called *FRED*), maintained by the Federal Reserve Bank of Saint Louis. Access is free, and much of the U.S. data used in this book comes from that database. (www.research.stlouisfed.org/fred2/)
- Once a year, the *Economic Report of the President*, written by the Council of Economic Advisers and published by the U.S. Government Printing Office in Washington, D.C., gives a description of current evolutions, as well as numbers for most major macroeconomic variables, often going back to the 1950s. (It contains two parts, a report on the economy, and a set of statistical tables. Both can be found at www.gpo.gov/erp/)
- A detailed presentation of the most recent numbers for national income accounts is given in the *Survey of Current Business*, published monthly by the U.S. Department of Commerce, Bureau of Economic Analysis (www.bea.gov). A user's guide to the statistics published by the Bureau of Economic Analysis is given in the *Survey of Current Business*, April 1996.
- The standard reference for national income accounts is the *National Income and Product Accounts of the United States.* Volume 1, 1929–1958, and Volume 2, 1959–1994, are published by the U.S. Department of Commerce, Bureau of Economic Analysis (www.bea.gov).
- For data on just about everything, including economic data, a precious source is the *Statistical Abstract of the United States*, published annually by the U.S. Department of Commerce, Bureau of the Census (http://www.census.gov/library/publications/2011/compendia/statab/131ed.html).

Numbers for Other Countries

The **Organization for Economic Cooperation and Development**, OECD for short, located in Paris, France (www.oecd.org), is an organization that includes most of the rich countries in the world (Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States). Together, these countries account for about 70% of the world's output. One strength of the OECD data is that, for many variables, the OECD tries to make the variables comparable across member countries (or tells you when they are not comparable). The OECD issues three useful publications, all available on the OECD site.

- The first is the *OECD Economic Outlook*, published twice a year. In addition to describing current macroeconomic issues and evolutions, it includes a data appendix, with data for many macroeconomic variables. The data typically go back to the 1980s and are reported consistently, both across time and across countries.
- The second is the *OECD Employment Outlook*, published annually. It focuses more specifically on labor-market issues and numbers.
- Occasionally, the OECD puts together current and past data, and publishes a set of OECD Historical Statistics in which various years are grouped together.

The main strength of the publications of the **International Monetary Fund** (IMF for short, located in Washington, D.C.) is that they cover nearly all of the countries of the world. The IMF has 187 member countries and provides data on each of them (www.imf.org).

- A particularly useful IMF publication is the *World Economic Outlook* (WEO for short), which is published twice a year and which describes major economic events in the world and in specific member countries. Selected series associated with the Outlook are available in the WEO database, available on

the IMF site (www.imf.org/external/data.htm). Most of the data shown in this chapter come from this database.

- Two other useful publications are the *Global Financial Stability Report* (GFSR for short), which focuses on financial developments, and the *Fiscal Monitor*, which focuses on fiscal developments. All three publications are available on the IMF Web site (www.imf.org/external/index.htm).

The World Bank also maintains a large data base (data.worldbank.org/), with a wide set of indicators, from climate change to social protection.

Historical Statistics

- For long-term historical statistics for the United States, the basic reference is *Historical Statistics of the United States, Colonial Times to 1970*, Parts 1 and 2, published by the U.S. Department of Commerce, Bureau of the Census (www.census.gov/prod/www/statistical_abstract.html).
- For long-term historical statistics for several countries, a precious data source is Angus Maddison's *Monitoring the World Economy,* 1820–1992, Development Centre Studies, OECD, Paris, 1995. This study gives data going back to 1820 for 56 countries. Two even longer and broader sources are *The World Economy: A Millenial Perspective*, Development Studies, OECD, 2001, and *The World Economy: Historical Statistics*, Development Studies, OECD 2004, both also by Angus Maddison.

Current Macroeconomic Issues

A number of Web sites offer information and commentaries about the macroeconomic issues of the day. In addition to *The Economist* Web site, the site maintained by Nouriel Roubini (www.rgemonitor.com) offers an extensive set of links to articles and discussions on macroeconomic issues (by subscription). Another interesting site is vox.eu (www.voxeu.org), in which economists post blogs on current issues and events.

If you still have not found what you were looking for, a site maintained by Bill Goffe at the State University of New York (SUNY) (www.rfe.org), lists not only many more data sources, but also sources for economic information in general, from working papers, to data, to jokes, to jobs in economics, and to blogs.

And, finally, the site called Gapminder (http://www.gapminder.org/) has a number of visually striking animated graphs, many of them on issues related to macroeconomics.

Key Terms

Organization for Economic Cooperation and Development (OECD), 38
International Monetary Fund (IMF), 38