



An Introduction to Macroeconomic Issues and Ideas

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We turn now to macroeconomics. This will be the subject of the second half of this book. As we have already seen, microeconomics focuses on individual markets. It studies the demand for and supply of, for example, oranges, music downloads, petrol and haircuts; bricklayers, doctors, office accommodation and computers. It examines the choices people make between goods, and what determines their relative prices and the relative quantities produced.

In macroeconomics we take a much broader view. We examine the economy as a whole. We still examine demand and supply, but now it is the total level of spending in the economy and the total level of production. In other words, we examine aggregate demand and aggregate supply.

We still examine output, employment and prices, but now it is national output and its rate of growth, national employment and unemployment, and the general level of prices and their rate of increase (i.e. the rate of inflation).

In this chapter, we identify the major macroeconomic issues facing society. Among these is the volatility of the economy. This volatility is perhaps most evident in the fluctuations we see in the economy's output, but we observe it too in other macroeconomic variables, such as unemployment and inflation.

By providing an overview of macroeconomics, this chapter provides the platform necessary to analyse in subsequent chapters some of the key debates of our time.

15.1 AN OVERVIEW OF KEY MACROECONOMIC ISSUES

Macroeconomics examines various issues affecting whole economies. Many of these are the big issues on which elections are won or lost.

Is the economy growing and, if so, how rapidly? How can we avoid, or get out of, recessions? What causes unemployment and how can the rate be got down? Why is inflation sometimes a problem and what can be done to keep rates of inflation at modest levels? Conversely, why do prices sometimes fall, and does this itself create a problem? What will happen to interest rates? How big a problem is government debt? Are financial institutions lending too much or too little? What affects a country's balance of trade in goods and services? How attractive is the country as a destination for investment by foreign businesses?

Major macroeconomic issues

The questions we have just identified give you a flavour of the macroeconomic issues that we will be studying in the following chapters. For simplicity, we will group them under the following headings: economic growth, unemployment, inflation, economic relationships with the rest of the world, the financial well-being of individuals, businesses and government and the relationship between the financial system and the economy. While we will be studying other issues too, such as consumer behaviour and taxation, these still link to these major macroeconomic issues and, more generally, to how economies function.

The purpose of this section is to provide you with some background on these key issues and to look at some key

macroeconomic data. This allows us to put these issues into context before later considering them in more depth.

Economic growth and the business cycle

One of the most basic concerns for macroeconomists is understanding what affects the level of an economy's output and, in turn, what causes it to rise or fall. **Economic growth** is the term economists use to describe the change in the level of an economy's output from period to period. The rate of economic growth measures the percentage change in output. This is usually measured over short periods, such as 12 or 3 months. If we measure the **rate of growth** over a 12-month period we are measuring the economy's annual rate of growth, while if we measure it over a 3-month period we are measuring the quarterly rate of growth.

One of the most important observations to make about economic growth is its **volatility**. This is evident from Figure 15.1, which plots the annual rates of growth of a selection of economies.

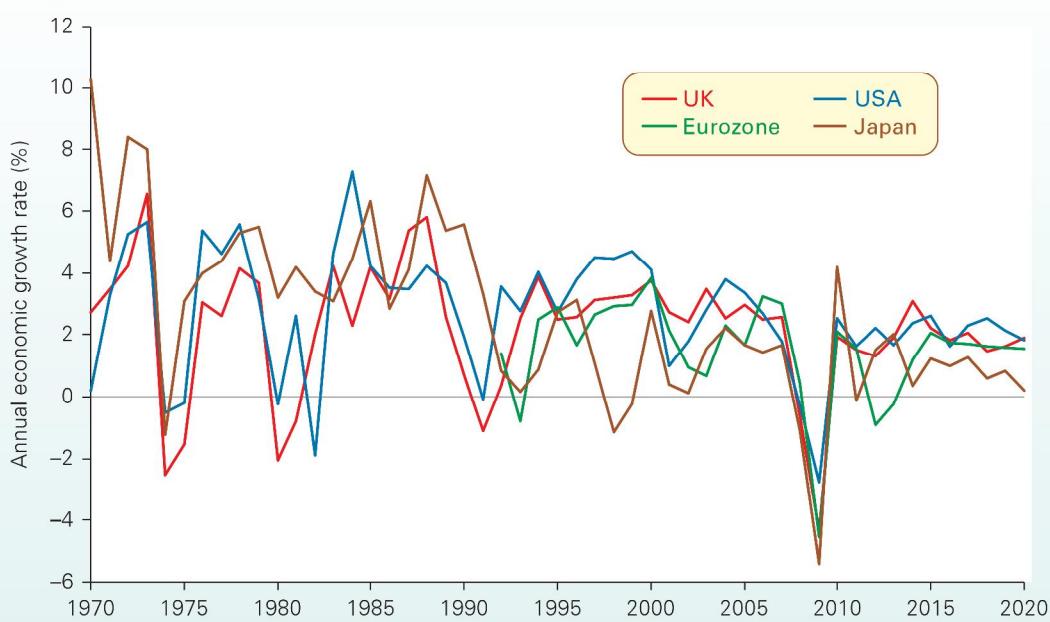
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Economies suffer from inherent instability. As a result, economic growth and other macroeconomic indicators tend to fluctuate.

Definitions

Rate of economic growth The percentage increase in national output, normally expressed over a 12-month or 3-month period.

Figure 15.1 Growth rates in selected industrial economies



Notes: 2017 to 2020 based on forecasts; eurozone figures are the weighted average of the countries using the euro in any given year; the euro was introduced in 1999; the eurozone figures before 1999 are the weighted average of the original members.

Source: Based on data in AMECO Database, European Commission, DGECFIN.

Countries rarely experience stable economic growth; instead, growth rates tend to fluctuate. Understanding the volatility of economic growth and its effects is the focus of much analysis by macroeconomists. After all, fluctuating activity levels are likely to affect the behaviour and well-being of many of us. In 2009, for example, the UK economy shrank by 4.5 per cent, unemployment levels rose from 1.6 million during 2007 to 2.7 million by 2011 and the government experienced a 4.5 per cent fall in its receipts between tax years 2007/8 and 2009/10.

The significance of the volatility of short-term economic growth makes it our next threshold concept. It is the volatility of growth that gives rise to the well-known phenomenon of the **business cycle**. The business cycle refers to the fluctuations we observe in the path traced out from period to period in an economy's output level. Because rates of economic growth affect an economy's output path, the more growth rates vary the more marked are the fluctuations in this path.

To illustrate the effect of fluctuating growth rates on an economy's output path consider Figure 15.2. This shows the volume of output and the annual rate of economic growth in three advanced economies, France, the UK and the USA, since 1990.

The fluctuating nature of economic growth is most starkly illustrated in the late 2000s. In 2009 the volume of output shrunk by around 3 per cent in France and the USA compared with the year before and by 4.5 per cent in the UK. Compare this, for example, with growth rates in the period 1998–2000, when output rose by over 3 per cent per year in all three countries.

The key point here is that if the rate of growth from year to year were constant, then the bars would be the same height and the output level lines would be smoothly upward sloping.¹ Clearly, this is not the case and it is the fluctuations in short-term growth rates, including periods when economic growth is very weak or even negative, that gives rise to the business cycle. In other words, economies experience neither constant growth nor continued expansion.

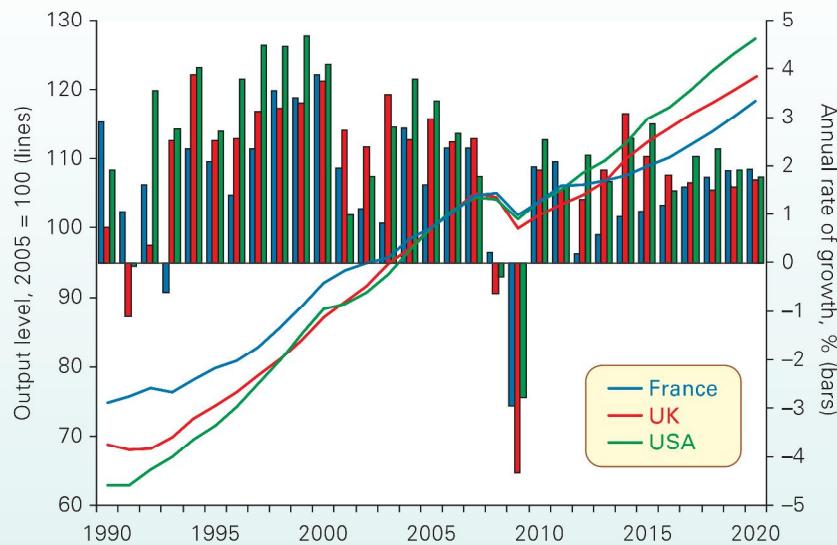
We will refer frequently to the volatility of economies in the second half of the book. But, given its central importance to much of the subsequent analysis we will provide an overview of economists' thinking on this important issue in section 15.3.

Definitions

Business cycle or trade cycle The periodic fluctuations of national output. Periods of rapid growth are followed by periods of low growth or even decline in national output.

¹ With the index plotted on the vertical axis, a constant growth rate would be shown by a line whose slope gradually increased, as a constant percentage increase would give a steeper line, the higher the index. For example, a 5 per cent annual growth rate from an index of 100 in year 1, would give an index of 105 in year 2, whereas a 5 per cent annual growth rate from an index of 200 in, say, year 10 would give an index of 210 in year 11. Thus the slope between years 10 to 11 would be twice that between years 1 and 2 and yet the growth rate would be identical. If the vertical axis were measured in a *log scale*, then a constant growth rate would be shown as a straight line.

Figure 15.2 Output paths and growth rates of France, UK and USA



Notes: Data for 2017 onwards are based on forecasts.

Source: Based on data in *World Economic Outlook Database* (IMF, October 2017).

THRESHOLD CONCEPT 12**SHORT-TERM GROWTH IN A COUNTRY'S OUTPUT TENDS TO FLUCTUATE****THINKING LIKE AN ECONOMIST**

Countries rarely experience stable economic growth. Instead they experience *business cycles*. Periods of rapid economic growth can be followed by periods of low growth or even negative growth (falling output).

Explaining volatility

Sometimes rising or falling output can be explained by the deliberate actions of governments or central banks (such as the Bank of England). For example, a rise in government spending, a reduction in taxes or a reduction in interest rates may stimulate the economy and raise the rate of economic growth.

But fluctuations in economic growth can often be explained by the working of the market system.

Some economists see the problem as rooted in fluctuations in *aggregate demand*: in other words, in the total demand for the economy's goods and services, whether by individuals or firms (see page 459). What is more, changes in the demands of individuals and firms may interact with each other, affecting the character of the business cycle. For example, a rise in consumer expenditure could stimulate firms to invest in order to build up capacity to meet the extra demand. This, in turn, generates more employment, additional national income and

so more consumption. A similar effect could occur if banks felt able to lend more in response to the growing economy, which would further stimulate the economy as these funds are spent.

Other economists see the problem as rooted in fluctuations in *aggregate supply*: in other words, in the total amount of goods and services firms plan to supply at a given level of prices (see page 462). These 'real-business-cycle' economists argue that changes in aggregate supply occur if the price, availability or effectiveness of the inputs in firms' production processes are in some way affected. One example could be technological changes that boost output and employment. Often such changes come in waves, which would contribute to the observed volatility of output.

But whatever the cause, it is vital to recognise the fundamental instability of market economies. This is what makes the volatility in short-term growth rates a threshold concept.



- If people believe that the economy's output level is about to fall, how may their actions aggravate the problem?*
- Why will some people suffer more than others from a downturn in economic activity?*

Longer-term economic growth

Although growth rates fluctuate, most economies experience positive growth over the longer term. In other words, most economies have output paths that trend upwards over time. We can see this in Figure 15.2, for example. Therefore, we need to distinguish between short-run and long-run economic growth.

While an analysis of short-run growth involves understanding the determinants of the business cycle, analysing long-run economic growth involves understanding what affects a country's capacity to produce. This is because, for growth to be sustained over the longer term, the economy's capacity must increase.

Table 15.1 shows the average annual growth in output by decade since the 1960s for selected countries. As you can see, the differences between countries are quite marked. There are also big differences between the growth rates of individual countries in different periods. Look, for example, at the figures for Japan. From being an 'economic miracle' in the 1960s, by the 1990s Japan had become a laggard, with growth rates well below the OECD average.

The final column of the table takes an even longer-term perspective by focusing on the average annual rate of economic growth from 1960 to 2019. We still observe differences in growth rates, even when averaged over many years.

Table 15.1 Economic growth rates (average % per annum)

	1960s	1970s	1980s	1990s	2000s	2010s	1960–2019
Australia	4.9	3.4	3.4	3.2	3.2	2.7	3.5
Canada	5.3	4.1	2.9	2.4	2.1	2.1	3.2
France	5.6	3.7	2.4	2.0	1.4	1.3	2.7
Germany	4.4	3.3	2.0	2.2	0.8	1.8	2.4
Ireland	4.4	4.7	3.1	7.0	3.8	5.1	4.7
Italy	5.8	4.0	2.6	1.5	0.5	0.2	2.4
Japan	10.1	5.2	4.4	1.5	0.6	1.3	3.9
Spain	7.8	3.9	2.7	2.7	2.8	0.9	3.5
UK	3.4	2.6	2.7	2.1	1.8	1.9	2.4
USA	4.5	3.2	3.1	3.2	1.8	2.2	3.0
OECD ^a	5.3	3.7	2.9	2.6	1.8	2.0	3.1

^aThe Organisation for Economic Co-operation and Development (OECD) is an organisation of 35 major industrialised countries.

Note: Figures for 2017–19 are forecasts.

Source: OECD.

While some of the differences may not appear particularly large, it is important to bear in mind is that even small differences in the figures have potentially significant implications for economic development and the well-being of nations when you consider that these differences are being compounded year after year.



Compare economic growth rates in the early 2010s with those in other periods. What explanations can you offer for the differences?

Unemployment

The inherent instability of economies has implications for the number of people in work and so for the number unable to find work. After all, higher levels of economic activity will tend to decrease unemployment numbers, while reduced economic activity will tend to increase them.

In addition, many countries have seen significant effects on the labour market of rapid industrial change, technological advance and globalisation. Hence, labour markets need to be able to adapt to the dynamic environment in which they operate, not only for the sake of those who are made unemployed, but also because it represents a waste of human resources and because unemployment benefits are a drain on government revenues.

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Unemployment can be expressed either as a number (e.g. 1.5 million) or as a percentage (e.g. 5 per cent). The most usual definition that economists use for the **number unemployed** is: *those of working age who are without work, but who are available for work at current wage rates*. If the figure is to be expressed as a percentage, then it is a percentage of the total **labour force**. The labour force is defined as *those in employment plus those unemployed*. Thus if 30 million people were employed and 1.5 million people were unemployed, the **unemployment rate** would be:

$$\frac{1.5}{30 + 1.5} \times 100 = 4.76\%$$

When comparing unemployment across countries it is sensible to compare *rates* of unemployment. Table 15.2 shows average unemployment rates across a sample of

countries since the 1960s. It shows how in the 1980s and early 1990s unemployment rates were significantly higher than in the 1960s and 1970s. Then, in the late 1990s and early 2000s, it fell in some countries, such as the UK and USA. In others, such as Germany and France, it remained stubbornly high. However, the global financial crisis and subsequent economic slowdown meant that unemployment rates were to rise generally in the late 2000s and into the early 2010s.

We take a preliminary look at the nature and causes of unemployment in section 15.5.



Have unemployment rates generally risen or fallen over the decades or is there no discernible pattern? Does the answer vary by country?

Inflation

By inflation we mean a general rise in prices throughout the economy. Government policy here is to keep inflation both low and stable. One of the most important reasons for this is that it will aid the process of economic decision making. For example, businesses will be able to set prices and wage rates, and make investment decisions with far more confidence.

The **rate of inflation** measures the annual percentage increase in prices. Typically, when we hear about inflation it is in relation to **consumer prices**. The UK government publishes

Definitions

Number unemployed (economist's definition) Those of working age who are without work, but who are available for work at current wage rates.

Labour force The number employed plus the number unemployed

Unemployment rate The number unemployed expressed as a percentage of the labour force.

Rate of inflation The percentage increase in prices over a 12-month period.

Table 15.2 Average unemployment rates (%)

	1960s	1970s	1980s	1990s	2000s	2010s	1960–2019
Australia	1.7	3.8	7.6	8.8	5.5	5.4	5.5
Canada	5.0	6.7	9.4	9.5	7.0	7.1	7.5
France	1.7	3.1	7.6	9.7	8.4	9.7	6.7
Germany	0.7	2.0	5.8	7.8	8.9	5.0	5.0
Ireland	5.3	7.5	14.2	12.1	5.4	10.4	9.2
Italy	4.8	5.9	8.4	10.2	7.9	10.9	8.0
Japan	1.3	1.7	2.5	3.1	4.7	3.7	2.8
Spain	2.4	4.5	16.3	18.0	11.2	20.8	12.2
UK	1.6	3.5	9.5	8.0	5.4	6.3	5.7
USA	4.8	6.2	7.3	5.8	5.5	6.4	6.0

Note: Figures for 2017–19 are forecasts.

Source: AMECO (European Commission, Economic and Financial Affairs).

a consumer prices index (CPI) each month, and the rate of inflation is the percentage increase in that index over the previous 12 months. This index is used throughout the EU, where it generally goes under its full title of the harmonised index of consumer prices (HICP). The HICP covers virtually 100 per cent of consumer spending (including cross-border spending) and uses sophisticated weights for each item (see Appendix 1, page A:7 for an analysis of weighting in indices).

In most developed countries, governments now have a target for the rate of consumer price inflation. This is frequently around 2 per cent, as is the case in the UK, USA and eurozone. Central banks, such as the Bank of England, the US Federal Reserve Bank (the Fed) and the European Central Bank, then adjust interest rates to try to keep inflation on target (we see how this works in Chapter 22). The advent of inflation-rate targeting has tended to narrow differences in inflation rates between countries, as have the increasing economic ties between countries.

Table 15.3 helps to show how, in recent years, people in many developed economies have become accustomed to inflation rates of around 2 or 3 per cent. Yet it was many years ago that inflation in most developed countries was in double figures. Many countries saw relatively high rates of inflation during the 1970s, with the inflation rate in the UK, for example, reaching 24 per cent in 1975.

Today inflation rates are significantly lower and some countries have experienced periods of negative inflation rates or what is sometimes called ‘deflation’.

We will take a preliminary look at the factors affecting rates of inflation in section 15.6.



Would it matter if all prices rose by 20 per cent, but everyone's income also rose by 20 per cent? (We consider this issue in section 15.6.)

Foreign trade and global economic relationships

A country's macroeconomic environment is shaped not only by domestic conditions but also by its economic relationships with other countries. These relationships evolve

as the global economy develops and the world order changes. Take, for example, the rapid economic growth observed over the past couple of decades or more in economies like China and India, just to name a couple.

International economic relationships also evolve as countries or groups of countries come together to shape their economic relationships with other economies. Following the UK referendum on EU membership in 2016, the decision to leave meant that, over time, a new set of economic relationships between the UK and its foreign partners would emerge.

One way of viewing the economic relationship between a country and other economies is through its **balance of payments account**. This records all transactions between the residents of that country and the rest of the world. These transactions enter as either debit items or credit items. The debit items include all payments to other countries: these include the country's purchases of imports, the investments it makes abroad and the interest and dividends paid to people abroad who have invested in the country. The credit items include all receipts from other countries: these include the sales of exports, inflows of investment into the country and earnings of interest and dividends from abroad.

The sale of exports and any other receipts earn foreign currency. The purchase of imports or any other payments abroad requires foreign currency. If a country starts to spend more foreign currency than it earns, then its balance of payments will go into deficit. If the government does nothing to correct the

Definitions

Balance of payments account A record of the country's transactions with the rest of the world. It shows the country's payments to or deposits in other countries (debits) and its receipts or deposits from other countries (credits). It also shows the balance between these debits and credits under various headings

Table 15.3 Average consumer price inflation rates (%)

	1960s	1970s	1980s	1990s	2000s	2010s	1960–2019
Australia	2.5	9.8	8.4	2.5	3.2	2.3	4.8
Canada	2.5	7.4	6.5	2.2	2.1	1.8	3.8
France	3.9	8.8	7.4	1.9	1.7	1.2	4.2
Germany	2.4	4.9	2.9	2.6	1.6	1.4	2.6
Ireland	4.0	12.7	9.3	2.3	3.2	0.6	5.4
Italy	3.7	12.3	11.2	4.2	2.3	1.3	5.8
Japan	5.3	9.0	2.5	1.2	-0.3	0.5	3.7
Spain	5.6	14.4	10.2	4.2	3.0	1.3	6.5
UK	3.5	12.6	7.1	3.3	1.9	2.3	5.1
USA	2.3	7.1	5.6	3.0	2.6	1.9	3.8

Notes: Figures for 2017–19 are forecasts; Ireland 1960–1975, Central Statistics Office.

Source: OECD.

balance of payments deficit, the **exchange rate** of the country's currency must fall. The exchange rate is the rate at which one currency exchanges for another. For example, the exchange rate of the pound into the dollar might be £1 = \$1.40.

A falling exchange rate (e.g. from \$1.40 to \$1.20) is a problem because it pushes up the price of imports and so reduces people's purchasing power and can fuel inflation. This was the situation facing the UK in the aftermath of the vote to leave the European Union, when the pound fell sharply. Exchange-rate fluctuations can also be problematic because they can cause great uncertainty for traders and can damage international trade and economic growth.

What are the underlying causes of balance of payments problems? How do the balance of payments and the exchange rate relate to the other macroeconomic issues? What are the best policies for governments to adopt? We take an initial look at these questions in section 15.7 and then examine them in more detail in Chapters 25 and 26.

Financial well-being

The financial system is an integral part of most economies. Financial markets, financial institutions and **financial instruments** have become increasingly important in determining the financial well-being of nations, organisations, government and people. The increasing importance of the financial system to economies is known as **financialisation**.

The most immediate evidence of financialisation is the extent to which many of us interact with financial institutions and our use of financial instruments. Financialisation is most frequently associated with the level of indebtedness of **economic agents**, such as households and firms, to banks. In the UK, for example, by the end of 2016 households had debt outstanding borrowed from banks and building societies to the value of £1.3 trillion.

The importance of financial stability and the problem of financial distress. It is important for policy makers to ensure the stability of the financial system and the general financial well-being of economic agents. This importance was most starkly demonstrated by the events surrounding the financial crisis of 2007–9, when many banks looked as if they might become bankrupt. The crisis showed starkly how the financial distress of banks and other financial institutions can lead to global economic turmoil. Because of the global interconnectedness of financial institutions and markets, problems can spread globally like a contagion.

And it was not just financial institutions that were distressed in the late 2000s; we also witnessed financially distressed households and businesses, many of which were burdened by unsustainable levels of debt.

Subsequently, the financial distress was to affect government too, especially in advanced economies. Governments were burdened by growing levels of debt as they spent more to offset rapidly weakening private-sector spending. At the same time, tax revenues fell because of weakening economic growth. The consequence has been a prolonged period

during which many governments have felt it necessary to tighten their budgets. And this constraint on government spending has been a brake on economic growth.

Financial accounts. In thinking about financial well-being or distress, three key accounts can be considered. These are compiled for the main sectors of the economy: the household, corporate and government sectors, and the whole economy.

First, there is the *income account* which records the various flows of income (a credit) alongside the amounts either spent or saved (debits). Economic growth refers to the annual real growth in a country's income flows (i.e. after taking inflation into account).

Next, there is the *financial account*. There are two elements here. First, we can record financial flows, which determine the net acquisition of financial wealth by each sector. These comprise new saving, borrowing or repayments. Reductions in the flows of borrowing, in countries like the UK and USA, were very important in explaining the credit crunch and subsequent deep recession of the late 2000s/early 2010s.

The other element of the financial account is its **balance sheet**. A balance sheet is a record of stocks of **assets** and **liabilities** of individuals or institutions. An asset is something owned by or owed to you. A liability is a debt: i.e. something you owe to someone else. In the case of the financial account, we have a complete record of the stocks of financial assets (arising from saving) and financial liabilities (arising from borrowing) of a sector, and include things such as currency, bank deposits, loans, bonds and shares. The flows of borrowing during the 2000s meant that many individual and organisations experienced a significant increase in stocks of financial liabilities.

Definitions

Exchange rate The rate at which one national currency exchanges for another. The rate is expressed as the amount of one currency that is necessary to purchase *one unit* of another currency (e.g. £1.20 = £1).

Financial instruments Tradable financial assets, such as shares ('equities'), bonds, foreign currency and bank account deposits.

Financialisation A term used to describe the process by which financial markets, institutions and instruments becoming increasingly significant in economies.

Economic agents People or institutions making economic decisions. These could be individuals as consumers, workers, borrowers or savers, or firms, governments or other public institutions.

Balance sheet A record of the stock of assets and liabilities of an individual or institution.

Asset Possessions of an individual or institution, or claims held on others.

Liability Claims by others on an individual or institution; debts of that individual or institution.

Finally, there is the *capital account*, which looks at flows and stocks of *physical assets* and liabilities. Again, there are two elements. The first records the capital *flows* of the various sectors, which occur when acquiring or disposing of physical assets, such as property and machinery. The second records the *stock* of physical wealth held by the various sectors.

The national balance sheet. This is a measure of the wealth of a country (i.e. the nation's financial and physical stock of net assets). It shows the *composition* of a country's wealth and the contribution of each of the main *sectors* of the economy.

The balance of a sector's or country's stock of financial and non-financial assets over its financial liabilities is referred to as its *net worth*. An *increase* in the net worth of the sectors or the whole country implies greater financial well-being. However, during the 2000s many sectors experienced increases in net worth as asset values rose, despite the rising stock of financial liabilities. Subsequently, the increase in the stock of liabilities was not financially sustainable and asset prices were to fall.

These various accounts are part of an interconnected story detailing the financial well-being of a country's households, companies and government. To illustrate how, consider what would happen if, over a period of time, you were to spend more than the income you receive. This would result in your income account deteriorating. To finance your excess spending you could perhaps draw on any financial wealth that you have accumulated through saving. Alternatively, you might fund some of your spending through a loan from a financial institution, such as a bank. Either way, your financial balance sheet will deteriorate. Or you may dispose of some physical assets, such as property. However your excess spending is financed, your capital balance will deteriorate: your net worth declines.

The importance of balance-sheet effects in influencing behaviour and, hence, economic activity has been increasingly recognised by both economists and policy makers, especially since the financial crisis of 2007–9. Understanding these effects and their consequences is crucial in devising the most appropriate policies.

KEY IDEA 35

Balance sheets affect people's behaviour. The size and structure of governments', institutions' and individuals' liabilities (and assets too) affect economic well-being and can have significant effects on behaviour and economic activity.

Government macroeconomic policy

From the above issues we can identify a series of macroeconomic policy objectives that governments might typically pursue:

- High and stable economic growth.
- Low unemployment.
- Low inflation.
- The avoidance of balance of payments deficits and excessive exchange rate fluctuations.
- A stable financial system and the avoidance of excessively financially distressed sectors of the economy, including government itself.

Unfortunately, these policy objectives may conflict. For example, a policy designed to accelerate the rate of economic growth may result in a higher rate of inflation, a balance of payments deficit and excessive lending. Governments are thus often faced with awkward policy choices.

KEY IDEA 36

Societies face trade-offs between economic objectives. For example, the goal of faster growth may conflict with that of greater equality; the goal of lower unemployment may conflict with that of lower inflation (at least in the short run). This is an example of opportunity cost: the cost of achieving one objective may be achieving less of another. The existence of trade-offs means that policy makers must make choices.

Definitions

Net worth The market value of a sector's stock of financial and non-financial wealth.

Section summary

1. Macroeconomics, like microeconomics, looks at issues such as output, employment and prices; but it looks at them in the context of the whole economy.
2. Economies are inherently volatile, as evidenced by fluctuations in short-term economic growth rates. These fluctuations cause an economy's output path to fluctuate, generating what economists call the business cycle.
3. Among the macroeconomic goals that are generally of most concern to governments are: economic growth,

reducing unemployment, reducing inflation, avoiding balance of payments and exchange rate problems, a stable financial system and the avoidance of excessively financially distressed economic agents.

4. Unfortunately, these goals are likely to conflict. Governments may thus be faced with difficult policy choices.

15.2 MEASURING NATIONAL INCOME AND OUTPUT

A consistent theme of section 15.1 was the inherent volatility of economies. One of the principal ways in which we observe this is through the volatility of national income or output. But just how do we measure national income or output? The measure we use is called *gross domestic product (GDP)*.

This section focuses on how GDP is calculated. It also looks at difficulties in interpreting GDP statistics. Can the figures be meaningfully used to compare one country's standard of living with another? The appendix to this chapter goes into more detail on the precise way in which the statistics for GDP are derived.

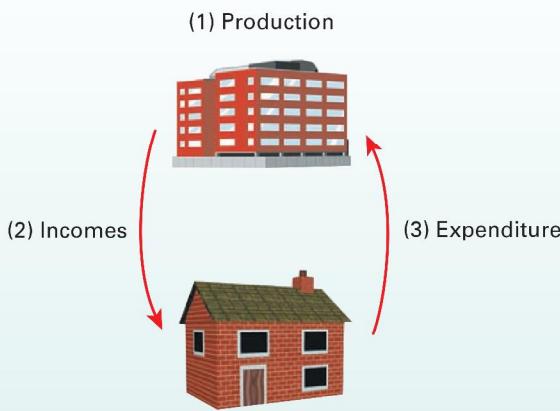
The three ways of measuring GDP

GDP can be calculated in three different ways, which should all result in the same figure. These three methods can be understood in the context of the *circular flow of income model*, which we introduced in Chapter 1 (see page 17). This model allows us to trace the resources and, as its name suggests, the income flows that pass between the major groups in the economy.

A simplified version of the model is shown in Figure 15.3. In the diagram, the economy is divided into two major groups: *firms* and *households*. Each group has two roles. Firms are producers of goods and services; they are also the employers of labour and other factors of production. Households (which include all individuals) are the consumers of goods and services; they are also the suppliers of labour and various other factors of production.

The first method of measuring GDP is to add up the value of all the goods and services produced in the country, industry by industry. In other words, we focus on firms and add up all their production. This first method is known as the *product method*.

Figure 15.3 The circular flow of income



The production of goods and services generates incomes for households in the form of wages and salaries, profits, rent and interest. The second method of measuring GDP, therefore, is to add up all these incomes. This is known as the *income method*.

The third method focuses on the expenditures necessary to purchase the nation's production. In this simple model of the circular flow of income, whatever is produced is sold. The value of what is sold must therefore be the value of what is produced. The *expenditure method* measures this sales value.

Because of the way the calculations are made, the three methods of calculating GDP *must* yield the same result. In other words,

$$\begin{aligned}\text{national product} &= \text{national income} \\ &= \text{national expenditure}\end{aligned}$$

In the appendix to this chapter, we look at each of the three methods in turn, and examine the various factors that have to be taken into account to ensure that the figures are accurate.

Taking account of inflation

If we are to make a sensible comparison of one year's national income with another, we must take inflation into account. For example, if this year national income is 10 per cent higher than last year, but at the same time prices are also 10 per cent higher, then the average person will be no better off at all. There has been no *real* increase in income (see discussion in Appendix 1 at the end of the book on page A:6).

An important distinction here is between *nominal GDP* and *real GDP*. *Nominal GDP*, sometimes called 'money GDP', measures GDP in the prices ruling at the time and thus takes no account of inflation. *Real GDP*, sometimes called 'GDP at constant prices', measures GDP in the prices that ruled in some particular year – the *base year*. Thus we could measure each year's GDP in, say, 2015 prices. This would enable us to see how much *real* GDP had changed from one year to another. In other words, it would eliminate increases in money GDP that were merely due to an increase in prices.

The official statistics give both nominal and real figures. (Case Study 15.1 on the student website shows in more detail how real GDP figures are calculated.) Figure 15.4 shows nominal GDP and GDP at constant 2015 prices since 1955 in the

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pA:6

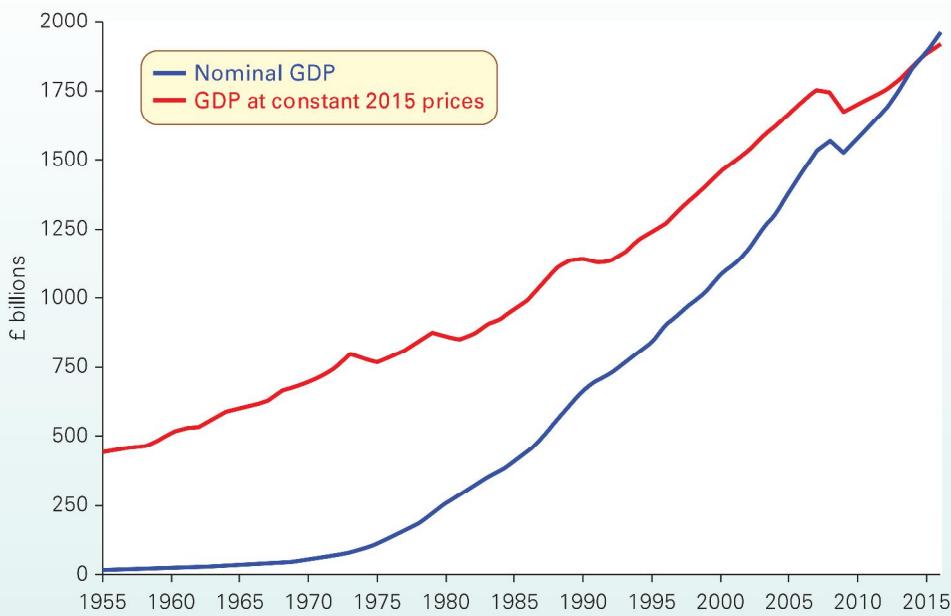
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p453

Definitions

Gross domestic product (GDP) The value of output produced within the country over a 12-month period.

Nominal GDP GDP measured at current prices.

Real GDP GDP after allowing for inflation: i.e. GDP measured in *constant* prices, in other words in terms of the prices ruling in some base year.

Figure 15.4 Nominal and constant-price GDP, UK 1955–2016

Source: Based on *Time Series Data*, series YBHA and ABMI (Office for National Statistics).

UK. If we had mistakenly used the nominal GDP figures to compare the size of output between these two dates we would have thought that the economy was over 100 times larger. In fact, the real figures show the UK economy was actually only 4.3 times larger in 2016 than in 1955.

As well as revealing the extent of long-term economic growth, the real figures also show the *variability* of economic

growth from year to year. We can see falls in output in the mid-1970s, early 1980s and early 1990s that are not directly observable from nominal GDP. Instead, nominal GDP continued to increase because of rising price levels. However, in 2009 output fell by over 4.2 per cent, which meant that even nominal GDP fell. In other words, price rises were not enough to offset a substantial decline in the volume of output.

THRESHOLD CONCEPT 13

THE DISTINCTION BETWEEN REAL AND NOMINAL VALUES

THINKING LIKE AN ECONOMIST

Which would you rather have: (a) a pay rise of 5 per cent when inflation is 2 per cent, or (b) a pay rise of 10 per cent when inflation is 9 per cent? Which debt would you rather have: (a) one where the interest rate is 10 per cent and inflation is 8 per cent, or (b) one where the interest rate is 5 per cent and the inflation rate is 1 per cent?

To answer these questions, you need to distinguish between real and nominal values. *Nominal values* are measured in current prices and take no account of inflation. Thus in the questions above, the nominal pay rises are (a) 5 per cent and (b) 10 per cent; the nominal interest rates are (a) 10 per cent and (b) 5 per cent. In each case it might seem that you are better off with alternative (b).

But if you opted for answers (b), you would be wrong. Once you take inflation into account, you would be better off in each case with alternative (a). What we need to do is to use real values. Real values take account of inflation. Thus in the first question, although the nominal pay rise in alternative (a) is 5 per cent, the real pay rise is only 3 per cent, since 2 of the 5 per cent is absorbed by higher prices. You are only 3 per cent better off in terms of what you can buy. In alternative (b) the real pay rise is

only 1 per cent, since 9 of the 10 per cent is absorbed by higher prices. Thus in real terms, alternative (a) is better.

In the second question, although in alternative (a) you are paying 10 per cent in nominal terms, your debt is being reduced in real terms by 8 per cent and thus you are paying a real rate of interest of only 2 per cent. In alternative (b), although the nominal rate of interest is only 5 per cent, your debt is being eroded by inflation by only 1 per cent. The real rate of interest is thus 4 per cent. Again, in real terms, you are better off with alternative (a).

The distinction between real and nominal values is a threshold concept, as understanding the distinction is fundamental to assessing statistics about the economy.

It's easy to make the mistake of using nominal figures when we should really be using real ones. This is known as 'money illusion': the belief that a rise in money terms represents a real rise.



When comparing two countries' GDP growth rates, does it matter if we use nominal figures, provided we use them for both countries?

Taking account of population: the use of per capita measures

The figures we have been looking at up to now are *total* GDP figures. Although they are useful for showing how big the total output or income of one country is compared with another, we are often more interested in output or income *per head*. Luxembourg obviously has a much lower total national income than the UK, but it has a higher GDP per head. In 2009 China overtook Japan to become the second largest economy in the world, and some estimate that it will become the biggest economy by 2025. But these are total figures. Despite China's rapid growth, it is estimated that by 2020 GDP per capita in China will still be only around 20 per cent of that of the USA.

Other per capita measures are sometimes useful. For example, measuring GDP per head of the *employed* population allows us to compare how much the average worker produces. A country may have a relatively high GDP per head of population, but also have a large proportion of people at work. Its output per worker will therefore not be so high.

 By what would we need to divide GDP in order to get a measure of labour productivity per hour?

Taking account of exchange rates: the use of PPP measures

There is a big problem with comparing GDP figures of different countries. They are measured in the local currency and

thus have to be converted into a common currency (e.g. dollars or euros) at the current exchange rate. But the exchange rate may be a poor indicator of the purchasing power of the currency at home. For example, £1 may exchange for, say, 150 yen. But will £1 in the UK buy the same amount of goods as ¥150 in Japan? The answer is almost certainly no.

To compensate for this, GDP can be converted into a common currency at a *purchasing-power parity rate*. This is a rate of exchange that would allow a given amount of money in one country to buy the same amount of goods in another country after exchanging it into the currency of the other country. For example, the OECD publishes PPP rates against the US dollar for all OECD currencies. Using such rates to measure GDP gives the *purchasing-power standard (PPS) GDP*.

Box 15.1 compares GDP with PPS GDP for various countries.

Definitions

Purchasing-power parity (PPP) exchange rate An exchange rate corrected to take into account the purchasing power of a currency. \$1 would buy the same in each country after conversion into its currency at the PPP rate.

Purchasing-power standard (PPS) GDP GDP measured at a country's PPP exchange rate.

BOX 15.1 WHICH COUNTRY IS BETTER OFF?

CASE STUDIES AND APPLICATIONS

Comparing national income statistics

Using PPS GDP figures can give a quite different picture of the relative incomes in different countries than using simple GDP figures. The table shows the GDP per head and PPS GDP per head in various countries. The figures are expressed as a percentage of the average of the EU-15 countries (i.e. those that were members prior to the entry of 10 new members in May 2004).

Thus in 2017, GDP per head in Denmark was estimated to be 45 per cent higher than the EU-15 average. But, because of higher Danish prices, the average person in Denmark could buy only 15 per cent more goods and services. By contrast, GDP per head in the Czech Republic was only 51 per cent of the EU-15 average but, because of lower prices in the Czech Republic, the average person there could buy 82 per cent as much as the average citizen of the EU-15 countries.

 Referring to the figures in the table, which countries' actual exchange rates would seem to underestimate the purchasing power of their currency?

GDP per head as a percentage of the EU-15 average, 2017

	GDP per head	GDP (PPS) per head
Poland	34.8	65.6
Greece	49.4	62.7
Czech Republic	50.8	82.1
Portugal	54.3	71.6
Spain	73.0	85.5
Italy	82.3	88.4
France	99.6	97.0
UK	104.7	99.1
Japan	107.0	96.9
Germany	113.8	113.4
Canada	120.6	105.4
Netherlands	122.9	118.8
Sweden	139.9	114.7
Denmark	145.4	115.4
Australia	152.9	113.3
USA	163.4	133.5
Ireland	172.0	169.5
Luxembourg	284.6	251.3

Notes: Figures based on forecasts; EU-15 = the 15 members of the EU prior to the accession of additional countries in May 2004.

Source: AMECO database, Table 6.2 (European Commission, DGECFIN).

Do GDP statistics give a good indication of a country's standard of living?

If we take into account both inflation and the size of the population, and use figures for *real* per capita PPS GDP, will this give us a good indication of a country's standard of living? The figures *do* give quite a good indication of the level of production of goods and the incomes generated from it, provided we are clear about the distinctions between the different measures.

But when we come to ask the more general question of whether the figures give a good indication of the welfare or happiness of the country's citizens, then there are serious problems in relying exclusively on GDP statistics.

Problems of measuring national output

The main problem here is that the output of some goods and services goes unrecorded and thus the GDP figures will understate the nation's output. There are two reasons why items are not recorded.

 **Non-marketed items.** If you employ a decorator to paint your living room, this will be recorded in the GDP statistics. If, however, you paint the room yourself, it will not. Similarly, if a nanny is employed by parents to look after their children, this childcare will form part of GDP. If, however, a parent stays at home to look after the children, it will not. The exclusion of these 'do-it-yourself' and other home-based activities means that the GDP statistics understate the true level of production in the economy.

If over time there is an *increase* in the amount of do-it-yourself activities that people perform, the figures will also understate the *rate of growth* of national output. On the other hand, if in more and more families both partners go out to work and employ people to look after their children, this will overstate the rate of growth in output. The childcare that was previously unrecorded now enters into the GDP statistics.



If we were trying to get a 'true' measure of national production, which of the following activities would you include: (a) washing-up; (b) planting flowers in the garden; (c) playing an educational game with children in the family; (d) playing any game with children in the family; (e) cooking your own supper; (f) cooking supper for the whole family; (g) reading a novel for pleasure; (h) reading a textbook as part of studying; (i) studying holiday brochures? Is there a measurement problem if you get pleasure from the do-it-yourself activity itself as well as from its outcome?

The 'underground' or 'shadow' economy. The underground economy consists of illegal and hence undeclared transactions. These could be transactions where the goods or services are themselves illegal, as with drugs, guns and prostitution. Alternatively, they could be transactions that are illegal only in that they are not declared for tax purposes. For example, to avoid paying VAT, a garage may be prepared to repair your car slightly more cheaply if you pay cash. Another example is that of 'moonlighting', where

people do extra work outside their normal job and do not declare the income for tax purposes. For example, an electrician employed by a building contractor during the day may rewire people's houses in the evenings, again for cash. Unemployed people may do casual jobs that they do not declare, to avoid losing benefits.

Problems of using GDP statistics to measure welfare

GDP is essentially an indicator of a nation's *production*. But production may be a poor indicator of society's well-being for the following reasons.

Production does not equal consumption. Production is desirable only to the extent that it enables us to *consume* more. If GDP rises as a result of a rise in *investment*, this will not lead to an increase in *current* living standards. It will, of course, help to raise *future* consumption.

The same applies if GDP rises as a result of an increase in exports. Unless there is a resulting increase in imports, it will be consumers abroad that benefit, not domestic consumers.

Production has human costs. If production increases, this may be due to technological advance. If, however, it increases as a result of people having to work harder or longer hours, its net benefit will be less. Leisure is a desirable good, and so too are pleasant working conditions, but these items are not included in the GDP figures.

GDP ignores externalities. The rapid growth in industrial society is recorded in GDP statistics. What the statistics do not record are the environmental side effects: the polluted air and rivers, the ozone depletion, the problem of global warming. If these external costs were taken into account, the *net* benefits of industrial production might be much less.



Name some external benefits that are not included in GDP statistics.

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p10

KI 1
p356

The production of certain 'bads' leads to an increase in GDP. Some of the undesirable effects of growth may in fact *increase* GDP! Take the examples of crime, stress-related illness and environmental damage. Faster growth may lead to more of all three. But increased crime leads to more expenditure on security; increased stress leads to more expenditure on health care; and increased environmental damage leads to more expenditure on environmental clean-up. These expenditures *add* to GDP. Thus, rather than reducing GDP, crime, stress and environmental damage actually increase it.

Total GDP figures ignore the distribution of income. If some people gain and others lose, we cannot say that there has been an unambiguous increase in welfare. A typical feature of many rapidly growing countries is that some people grow very rich while others are left behind. The result is a growing inequality. If this is seen as undesirable, then clearly total GDP statistics are an inadequate measure of welfare.

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p14

Conclusions

If a country's citizens put a high priority on a clean environment, a relaxed way of life, greater self-sufficiency, a less materialistic outlook, more giving rather than selling, and greater equality, then such a country will probably have a lower GDP than a similarly endowed country where the pursuit of wealth is given high priority. Clearly, we cannot

conclude that the first country will have a lower level of well-being.

However, this does not mean that we should reject GDP statistics as a means of judging economic performance. While GDP statistics are not a good measure of economic welfare, they are an effective measure of *output* or *income*, and should be seen in that context.

BOX 15.2

CAN GDP MEASURE NATIONAL HAPPINESS?

EXPLORING ECONOMICS

An alternative perspective on well-being

The domains of national well-being

GDP is not a complete measure of economic welfare; nor is it meant to be. Consequently, there is considerable interest in alternative methods of establishing the level of human well-being and happiness.

In 2010 the UK's Office for National Statistics launched its *Measuring National Well-being (MNW) programme*.¹ The principal aim was to develop a set of national statistics which would both help people to gain a better understanding of well-being and allow well-being to be monitored. The data, for instance, would enable policy makers to make more informed policy decisions by better understanding the impact of their choices across society.

The MNW programme has identified a series of 'domains' with associated measures. There are 10 domains: personal well-being, our relationships, health, what we do, education and skills, where we live, personal finance, the economy, governance and the natural environment. These 10 domains produce a series of indicators – 43 as of 2016.

In the three-year period to September 2016 the ONS reported that of the 35 measures where data allowed for comparison, 22 measures had improved, 5 showed no overall change and 8 deteriorated.

Domains such as 'personal finance' and 'where we live' included several indicators showing improvement. For example, real median disposable income rose, the number of people reporting financial hardship fell and the number accessing the natural environment weekly rose.

Meanwhile the number of crimes against the person (per thousand of the population) had risen and the numbers reporting satisfaction with their job and with the amount of leisure time fell.

Personal well-being and social capital

Since 2011, adults in the UK over 16 have been asked the following four questions in an attempt to monitor individual well-being:

- Overall, how satisfied are you with your life nowadays?
- Overall, to what extent do you feel the things you do in your life are worthwhile?
- Overall, how happy did you feel yesterday?
- Overall, how anxious did you feel yesterday?

Respondents give their answers using a scale of 0 to 10 where 0 is 'not at all' and 10 is 'completely'.

Since 2013 the ONS has published regional indicators of personal well-being. In its review of personal well-being in financial year 2015/16,² the ONS reports that the average level of personal well-being was highest in Northern Ireland. One possible explanation, it argues, might be higher levels of feelings of belonging to a neighbourhood and a sense that people are prepared to help others. These are elements of what is known as *social capital*. Social capital captures social connections and networks which affect the cohesiveness of societies. Our social connections, whether through relationships with family and friends, local communities or wider society, help to bind societies together.

As well as affecting personal well-being, social capital is important for national well-being and has economic significance. Examples of the impact of social capital include the economic value of the informal care of the sick and vulnerable, the provision of local amenities through volunteers or social enterprise, the economic benefits from membership of clubs, societies and other organisations, including the social bonds that are created.

Our understanding of both national and individual well-being continues to evolve. However, it is, of course, debatable how close any measures of well-being can come to measuring such a thing. Further, how should the results of such investigations help governments devise policy? Will governments be any closer to measuring the costs and benefits of any policy decisions?



1. Is well-being the same as happiness or utility?
2. For what reasons might a person have a high income but a poor level of well-being?

1 *Measuring National Well-being in the UK, Domains and Measures: September 2016* (Office for National Statistics, September 2016).

2 *Personal Well-being across the UK, 2015/16* (Office for National Statistics, July 2016).

Definitions

Social capital (OECD definition) Networks, together with shared norms, values and understandings, that facilitate co-operation within or among groups.

Section summary

1. National income is usually expressed in terms of gross domestic product. This is simply the value of domestic production over the course of the year. It can be measured by the product, expenditure or income methods.
2. Real national income takes account of inflation by being expressed in the prices of some base year.
3. In order to compare living standards of different countries, national income has to be expressed per capita and at purchasing-power parity exchange rates.
4. Even if it is, there are still problems in using national income statistics for comparative purposes. Certain items will not be included: items such as non-marketed products, services in the family and activities in the underground economy. Moreover, the statistics include certain 'bads' and ignore externalities, and they also ignore questions of the distribution of income.

15.3 THE BUSINESS CYCLE

The distinction between actual and potential growth

Economies are volatile as evidenced by the volatility of growth. They experience not only periods of expansion but also periods when growth is negative – when output levels contract. For many, the defining feature of the business cycle is the very absence of growth in times of recession.

The published statistics on growth show *actual growth*: the percentage change in national output over a period of time. As we saw in section 15.1, this is commonly measured over a year (12 months) or a quarter (3 months).

We should be careful to distinguish between actual growth and potential growth. *Potential growth* is the speed at which the economy *could* grow. It is the percentage annual increase in the economy's *capacity* to produce: the rate of growth in *potential output*.

Potential output (i.e. potential GDP) is the level of output when the economy is operating at 'normal capacity utilisation'. This allows for firms having a planned degree of spare capacity to meet unexpected demand or for hold-ups in supply. It also allows for some unemployment as people move from job to job. Because potential output is normal-capacity output, it is somewhat below full-capacity output, which is the absolute maximum that could be produced with firms working flat out.

The output gap. The difference between actual and potential output is known as the *output gap*. Thus if actual output exceeds potential output, the output gap is positive: the economy is operating above normal capacity utilisation. If actual output is below potential output, the output gap is negative: the economy is operating below normal capacity utilisation. Box 15.3 looks at the output gap since 1970 for five major industrial economies.

Assume that the actual growth rate is less than the potential growth rate. This will lead to an increase in spare capacity and probably an increase in unemployment. In turn, the output gap will become less positive or perhaps more negative, depending on the economy's starting point.

In contrast, if the actual growth rate were to exceed the potential growth rate, there would be a reduction in spare capacity and the output gap would become less negative or more positive. However, periods when actual growth exceeds potential growth can only be temporary. In the long run, the actual growth rate will be limited to the potential growth rate.

Factors affecting potential output and potential growth

Although our focus in section 15.3 is on short-term volatility and hence on actual growth, it is worth briefly considering the principal factors that contribute to potential economic growth. We look at this in much more depth in Chapter 23.

Explanations tend to focus on the role of the economy's resources. This is the 14th of our threshold concepts, which states that long-term growth in a country's output depends on a growth in the quantity and/or productivity of its resources.

First, there is the issue of quantity. An increase in resources, whether they are natural resources, labour or capital, enables the economy's potential output to increase.

Definitions

Actual growth The percentage increase in national output actually produced.

Potential growth The percentage increase in the capacity of the economy to produce.

Potential output The sustainable level of output that could be produced in the economy: i.e. one that involves a 'normal' level of capacity utilisation and does not result in rising inflation.

Output gap The difference between actual and potential output. When actual output exceeds potential output, the gap is positive. When actual output is less than potential output, the gap is negative.

Second, there is the issue of the effectiveness or productivity of resources. An increase in the effectiveness of the resources used, perhaps through advances in technology, improved labour skills or improved organisation, also enables growth in potential output.

Although the growth in potential output varies to some extent over the years – depending on the rate of advance of technology, the level of investment and the discovery of new raw materials – it nevertheless tends to be much steadier than the growth in actual output.



How might the volatility of an economy affect the growth of potential output?

The hypothetical business cycle

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Actual growth tends to fluctuate. In some years, countries will experience high rates of economic growth: the country experiences a boom. In other years, economic growth is low or even negative: the country experiences a slowdown or recession.² This cycle of expansion and slowdown causes fluctuations in the path of output.

Figure 15.5 illustrates a hypothetical business cycle. While it is a stylised representation of the business cycle, it is useful for illustrating four identifiable ‘phases’ of the cycle.

² In official statistics, a recession is defined as when an economy experiences falling real GDP (negative growth) for two or more successive quarters.

1. *The upturn.* In this phase, a contracting or stagnant economy begins to recover, and growth in actual output resumes, or begins to accelerate.
2. *The expansion.* During this phase, there is rapid economic growth: the economy is booming. A fuller use is made of resources, and the gap between actual and potential output narrows.
3. *The peaking out.* During this phase, growth slows down or even ceases.
4. *The slowdown, recession or slump.* During this phase, there is little or no growth or even a decline in output. Increasing slack develops in the economy. The economy is operating with a negative output gap.

A word of caution: do not confuse a high *level* of output with a high rate of *growth* in output. The level of output is highest in phase 3. The rate of growth in output is highest in phase 2 (i.e. where the curve is steepest).



Figure 15.5 shows a decline in actual output in recession. Redraw the diagram, only this time show a mere slowing down of growth in phase 4.

Long-term output trend

A line can be drawn showing the trend of national output over time (i.e. ignoring the cyclical fluctuations around the trend). This is shown as the dashed line in Figure 15.5. If, over time, firms on average operate with a ‘normal’ degree of capacity utilisation (a zero output gap), the trend output

THRESHOLD CONCEPT 14

LONG-TERM GROWTH IN A COUNTRY'S OUTPUT DEPENDS ON A GROWTH IN THE QUANTITY AND/OR PRODUCTIVITY OF ITS RESOURCES

THINKING LIKE AN ECONOMIST

In the short term, economic growth is likely to be influenced by changes in aggregate demand. If the economy is in recession, an expansion in aggregate demand will help to bring the economy out of recession and move it closer to full employment.

Actual output, however, cannot continue growing faster than potential output over the longer term. Firms will start reaching capacity and actual growth will then have to slow. The rate of potential growth thus places a limit to the rate of actual growth over the longer term.

What then determines the rate of growth in potential output? The answer lies on the supply side. It depends on the rate of growth of factors of production. There are two key elements here. The first is growth in the *quantity* of factors: growth in the size of the workforce, of the available land and raw materials, and of the stock of capital. The second is productivity growth. This involves elements such as growth in the educational attainments and skills of the workforce, growth in technology, and growth in the efficiency with which resources are used.

To recognise the importance of resources and their productivity in determining long-term growth is a threshold concept. It helps in understanding the importance of designing appropriate supply-side policies: policies that focus on increasing aggregate supply rather than managing aggregate demand. It is easy to worry too much about the short term.

This is not to say that the short term should be neglected. The famous economist John Maynard Keynes argued that it was fundamentally important to focus on aggregate demand and the short term to avoid severe economic fluctuations, with the twin problems of high unemployment in recessions and high inflation in periods of unsustainably high growth. He used the famous phrase, ‘In the long term we’re all dead.’

But although we all have to die sometime, we may have many years left to reap the benefits of appropriate supply-side policy. And even if we don’t, our children will.



1. Give some examples of supply-side policy (see Chapter 23 for some ideas if you are stuck).
2. If there is an increase in aggregate supply, will this result in an increase in potential growth?

line will be the same as the potential output line. Also, if the average level of capacity that is unutilised stays constant from one cycle to another, the trend line will have the same slope as the full-capacity output line. In other words, the trend (or potential) rate of growth will be the same as the rate of growth of capacity.

If, however, the level of unutilised capacity changes from one cycle to another, then the trend line will have a different slope from the full-capacity output line. For example, if unemployment and unused industrial capacity *rise* from one peak to another, or from one trough to another, the trend line will move further away from the full-capacity output line (i.e. it will be less steep).



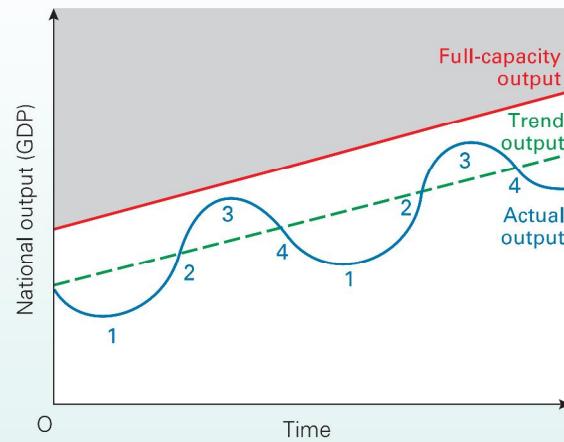
If the average percentage (as opposed to the average level) of capacity that was unutilised remained constant, would the trend line have the same slope as the potential output line?

The business cycle in practice

The hypothetical business cycle illustrated in Figure 15.5 is nice and smooth and regular. Drawing it this way allows us to make a clear distinction between each of the four phases. In practice, however, business cycles are highly irregular. They are irregular in two important ways:

- *The length of the phases.* Some booms are short-lived, lasting only a few months or so. Others are much longer, lasting perhaps several years. Likewise some recessions are short while others are long.
- *The magnitude of the phases.* Sometimes in phase 2 there is a very high rate of economic growth, perhaps 4 per cent per annum or more. On other occasions in phase 2 growth is much gentler. Sometimes in phase 4 there is a recession, with an actual decline in output, as occurred in 2008–9. On other occasions, phase 4 is merely a ‘pause’, with growth simply being low.

Figure 15.5 Hypothetical business cycle



An international business cycle

All countries tend to experience business cycles. Typically the timing is similar from one country to another. In other words, there is an international business cycle. Figure 15.6 shows the annual rate of growth in real GDP in the global economy alongside that in the UK and USA. Global growth rates varied from 5.6 per cent in 2007 to just below zero in 2009.

Figure 15.6 illustrates how global economic volatility is mirrored, at least in part, by the economic volatility in the UK and USA. More generally, this suggests that countries’ business cycles have both a national and a global component. With increased global economic ties, many countries have seen the global component increase in its relative importance.

Aggregate demand and the business cycle

The focus of much of the analysis of business cycles is on fluctuations in *aggregate demand (AD)*. This is the total spending on goods and services made within the country ('domestically produced goods and services'). It consists of spending by four groups of people: consumers on goods and services (*C*), firms on investment (*I*), the government on goods, services and investment (such as education, health and new roads) (*G*) and people abroad on this country's exports (*X*). From these four we have to subtract any imports (*M*) since aggregate demand refers only to spending on *domestic* firms. Thus

$$AD = C + I + G + X - M$$

Periods of rapid growth are associated with periods of rapid expansion of aggregate demand. Periods of recession are associated with a decline in aggregate demand.

Fluctuations in private-sector expenditure

When analysing the role played by the private sector as a source of economic volatility, it makes sense to begin by looking at consumer spending. This is because, by value, it is the largest expenditure component of aggregate demand. In the UK, for example, it frequently accounts for over 60 per cent of national income. This means that even small fluctuations in consumer expenditure can be significant for aggregate demand. As Figure 15.7 shows, annual rates of economic growth mirror fairly closely those in real household consumption.

Definitions

Aggregate demand Total spending on goods and services produced in the economy. It consists of four elements, consumer expenditure (*C*), investment (*I*), government expenditure (*G*) and the expenditure on exports (*X*), less any expenditure on foreign goods and services (*M*). Thus $AD = C + I + G + X - M$.

BOX 15.3 **OUTPUT GAPS****A measure of excess or deficient demand**

If the economy grows, how fast and for how long can it grow before it runs into inflationary problems? On the other hand, what minimum rate must be achieved to avoid rising unemployment?

To answer these questions, economists have developed the concept of 'output gaps'.¹ The output gap is the difference between actual output and potential output, i.e. normal-capacity output.

If actual output is below potential output (the gap is negative), there will be a higher than normal level of unemployment as firms are operating below their normal level of capacity utilisation. There will, however, be a downward pressure on inflation, resulting from a lower than normal level of demand for labour and other resources.

If actual output is above potential output (the gap is positive), there will be excess demand and a rise in inflation.

Generally, the gap will be negative in a recession and positive in a boom. In other words, output gaps follow the course of the business cycle.

Measuring the output gap

But how do we measure the output gap? There are two principal statistical techniques.

De-trending techniques. This approach is a purely mechanical exercise which involves smoothing the actual GDP figures. In doing this, it attempts to fit a trend growth path. This is illustrated by the dashed line in Figure 15.5. The main disadvantage of this approach is that it is not grounded in economic theory and therefore does not account for those factors likely to determine normal-capacity output.

Production function approach. Many institutions, such as the European Union, use an approach which borrows ideas from economic theory. Specifically, this uses the idea of a production function which relates output to a set of inputs. Estimates of potential output are generated by using statistics

on the size of a country's capital stock (see Box 23.1), the potential available labour input and, finally, the productivity or effectiveness of these inputs in producing output.

In addition to these statistical approaches, use could be made of *business surveys*. In other words, we ask businesses directly about normal capacity working and current levels of output. However, survey-based evidence can provide only a broad guide to rates of capacity utilisation and whether there is deficient or excess demand.

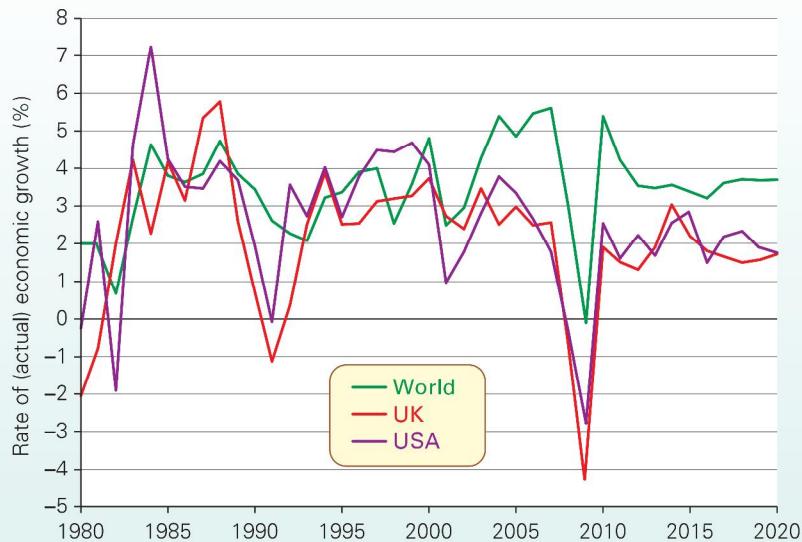
International evidence

The chart shows output gaps for five countries from 1970 estimated using a production function approach. What is apparent from the chart is that all the countries have experienced significant output gaps, both positive and negative. This is consistent with a core theme of this chapter and one to which we will return repeatedly throughout the second half of the book: economies are inherently volatile. In other words, countries experience business cycles.

The chart shows that the characteristics of countries' business cycles can differ, particularly in terms of depth and duration. But we also see evidence of an international business cycle (see page 459), which results from national cycles appearing to share characteristics. This global component of countries' business cycles is clearly evident in the late 2000s and into the 2010s. Increasing global interconnectedness from financial and trading links meant that the financial crisis of the late 2000s spread like a contagion.

While output gaps vary from year to year, over the longer term the average output gap tends towards zero. As we can see from the table, this means that for our selection of countries from 1970 the actual rate of economic growth is approximately the same as the potential rate.

Figure 15.6 UK and global economic growth



Note: Figures from 2017 are forecasts

Source: *World Economic Outlook Database* (IMF, October 2017)

Average annual growth in actual and potential output, % (1970–2018)

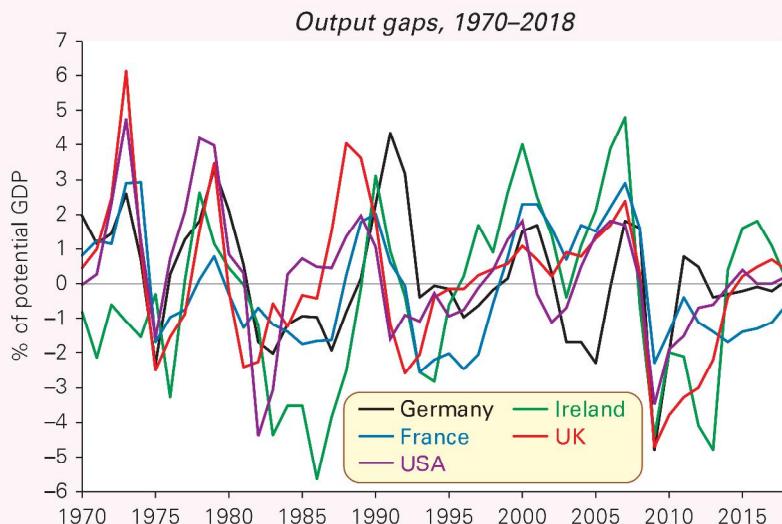
	Average annual growth rates (%)	
	Actual output (real GDP)	Potential output
Germany	2.04	2.05
Ireland	4.79	4.77
France	2.24	2.24
UK	2.21	2.20
USA	2.71	2.75

Source: AMECO database (European Commission, DGECFIN).



Under what circumstances would potential output (i.e. a zero output gap) move further away from the full-capacity output ceiling shown in Figure 15.5?

1 See C. Giorno et al., 'Potential output, output gaps and structural budget balances', *OECD Economic Studies*, no. 24 (1995), p. 1.

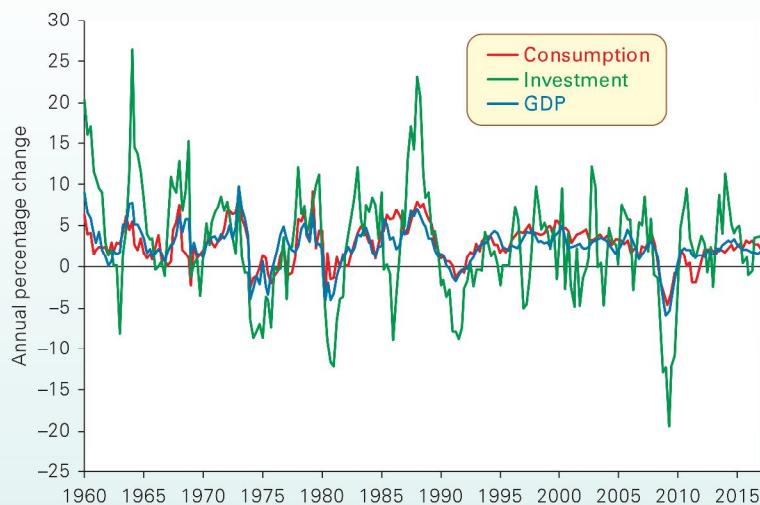


Note: Figures for Germany based on West Germany prior to 1992; figures from 2017 based on forecasts.

Source: Based on data from AMECO database (European Commission, DGECFIN).

Figure 15.7

Annual growth of UK consumption, investment and output



Note: Annual growth rates are calculated using constant-price data.

Source: Based on data in *Quarterly National Accounts*, series KGZ7, KG7T and IHYR (National Statistics).

Yet this still leaves many important questions to be addressed. What factors affect consumption? Which are most important? How do changes in consumption then affect the macroeconomic environment? Are the effects always the same? These are questions we will examine in section 17.1.

Another component of aggregate demand is investment. If we look again at Figure 15.7, we can see that fluctuations in the annual rate of growth of real investment spending (also known as gross capital formation) are considerably greater than those in output (real GDP).

It appears then that the volatility of investment is one of the factors contributing to the ups and downs of the business cycle. However, this does not mean that the fluctuations in investment are the primary cause of the economy's short-term volatility. They can be, but, as we will discuss in Chapter 17, some economists emphasise more the role that investment plays in *amplifying* the business cycle. The argument here is that investment decisions are affected by the growth in national income. Rising national income may encourage firms to invest to meet increasing demand. But this also has the effect of increasing aggregate demand, which further boosts national income. In contrast, an economy experiencing weak growth, or one where national income is contracting, might see investment levels fall, perhaps very sharply. This, of course, weakens aggregate demand, further amplifying already weak or negative economic growth.

The role of the financial sector

One sector that clearly plays a crucial role in affecting economic activity is the financial sector. While we will focus in detail on the markets, institutions and products and services which comprise the financial sector in Chapter 18, the economic significance of the sector means that it will be referred to frequently in subsequent chapters.

Given the financial crisis of the late 2000s, the interest in the role that the financial sector might play in affecting the business cycle is unsurprising. Some economists argue that the financial sector is a major *source* of economic volatility.

Some go as far as to say that the behaviour of financial institutions through their lending and investments generates unsustainable economic growth which inevitably ends with an economic downturn.

Other economists argue that the financial sector *amplifies* economic shocks. The argument here is not that financial institutions are the source of fluctuations in economic growth but rather that they magnify the shocks that affect the economy. They can do this by boosting lending when growth is strong or reducing lending when growth is weak.

Aggregate supply and the business cycle

While much of the economic analysis of business cycles stresses the importance of fluctuations in aggregate demand, economists recognise that fluctuations in *aggregate supply* can also cause fluctuations in output. Sudden sharp changes to input prices, such as in the price of oil, can be one such cause.

Some economists go further and argue that shifts in aggregate supply are the *primary* source of economic volatility. They argue that these aggregate supply shocks affect the economy's potential output. Consequently, the business cycle is the result of fluctuations in potential output, which in turn affect actual output.

They argue that economies are frequently affected by supply shocks, many of which might be described as 'technological shocks'. As well as changes to input prices, these could include changes to production methods, the regulatory climate or the political environment. These shocks affect production processes and levels of productivity. Some of these changes affect potential output positively, some negatively.

Definitions

Aggregate supply The total amount that firms plan to supply at any given level of prices.

Section summary

- Actual growth must be distinguished from potential growth. The actual growth rate is the percentage annual increase in the output that is actually produced, whereas potential growth is the percentage annual increase in the capacity of the economy to produce (whether or not this capacity is utilised).
- Actual growth will fluctuate with the course of the business cycle. The hypothetical business cycle can be broken down into four phases: the upturn, the expansion, the peaking out, and the slowdown or recession. In practice, the length and magnitude of these phases will vary: the cycle is thus irregular.
- Countries' business cycles may have both national and international components. The international component has tended to increase over time as countries have become increasingly interconnected, for example through trade and growing financial ties.
- Explanations of the business cycle tend to focus on fluctuations originating in aggregate demand. This requires a deeper understanding of the behaviour of the components of aggregate demand, including that of private-sector behaviour.
- However, fluctuations in aggregate supply can also result in economic instability. Some economists go further and argue that business cycles can result from fluctuations in potential output caused by frequent technology shocks.

15.4 THE CIRCULAR FLOW OF INCOME

As we have seen, the economic choices of people, businesses and organisations can have profound effects for the macro-economy. One model which allows us to develop an understanding of the impact of these choices for economic growth and which does so by focusing on aggregate demand is the *circular flow of income model*.

We encountered the circular flow model in section 15.2 when looking at how we measure GDP. Consider Figure 15.8. As before, the economy is divided into two major groups: *firms* and *households*. Each group has two roles. Firms are producers of goods and services; they are also the employers of labour and other factors of production. Households (which include all individuals) are the consumers of goods and services; they are also the suppliers of labour and various other factors of production. In the diagram there is an inner flow and various outer flows of incomes between these two groups.

Before we look at the various parts of the diagram, a word of warning. Do not confuse *money* and *income*. Money is a *stock* concept. At any given time, there is a certain quantity of money in the economy (e.g. £1 trillion). But that does not tell us the level of national *income*. Income is a *flow* concept (as is expenditure). It is measured as so much *per period of time*. The relationship between money and income depends on how rapidly the money *circulates*: its ‘velocity of circulation’. (We will examine this concept in detail later on: see pages 495 and 588.) If there is £1 trillion of money in the economy and each £1 on average is paid out as income twice per year, then annual national income will be £2 trillion.

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The inner flow, withdrawals and injections

The inner flow

Firms pay money to households in the form of wages and salaries, dividends on shares, interest and rent. These payments are in return for the services of the factors of production – labour, capital and land – that are supplied by households. Thus on the left-hand side of the diagram, money flows directly from firms to households as ‘factor payments’.

Households, in turn, pay money to domestic firms when they consume domestically produced goods and services (C_d). This is shown on the right-hand side of the inner flow. There is thus a circular flow of payments from firms to households to firms and so on.

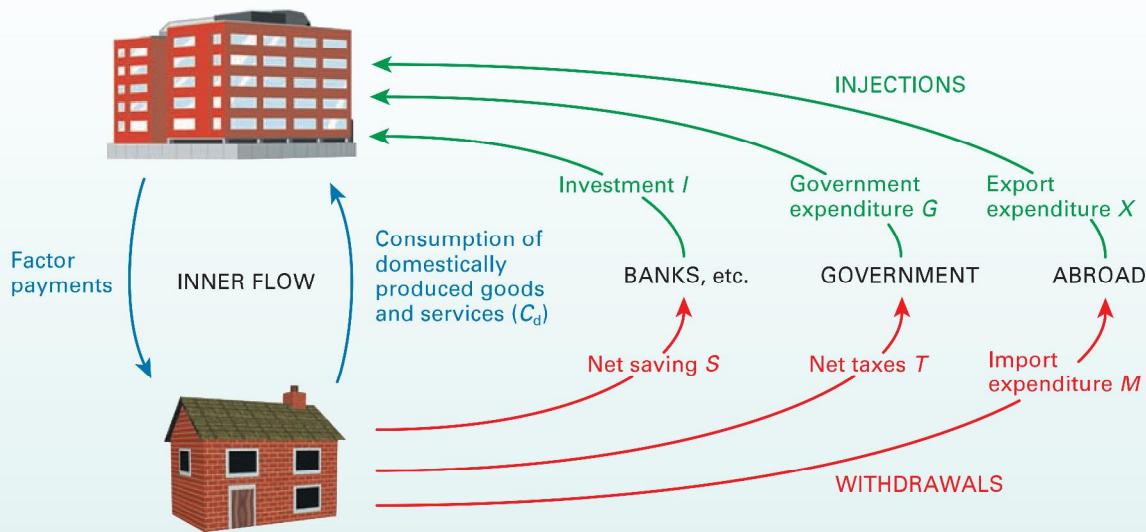
If households spend *all* their incomes on buying domestic goods and services, and if firms pay out *all* this income they receive as factor payments to domestic households, and if the velocity of circulation does not change, the flow will continue at the same level indefinitely. The money just goes round and round at the same speed and incomes remain unchanged.



Would this argument still hold if prices rose?

In the real world, of course, it is not as simple as this. Not all income gets passed on round the inner flow; some is *withdrawn*. At the same time, incomes are injected into the flow from outside. Let us examine these withdrawals and injections.

Figure 15.8 The circular flow of national income and expenditure



Withdrawals (W)

Only part of the incomes received by households will be spent on the goods and services of domestic firms. The remainder will be withdrawn from the inner flow. Likewise, only part of the incomes generated by firms will be paid to UK households. The remainder of this will also be withdrawn. There are three forms of *withdrawals* (or '*leakages*' as they are sometimes called).

Net saving (S). Saving is income that households choose not to spend but to put aside for the future. Savings are normally deposited in financial institutions such as banks and building societies. This is shown in the bottom centre of the diagram. Money flows from households to 'banks, etc.'. What we are seeking to measure here, however, is the net flow from households to the banking sector. We therefore have to subtract from saving any borrowing or drawing on past savings by households to arrive at the *net saving* flow. Of course, if household borrowing exceeded saving, the net flow would be in the other direction: it would be negative.

Net taxes (T). When people pay taxes (to either central or local government), this represents a withdrawal of money from the inner flow in much the same way as saving; only, in this case, people have no choice. Some taxes, such as income tax and employees' national insurance contributions (called social contributions in some countries), are paid out of household incomes. Others, such as VAT and excise duties, are paid out of consumer expenditure. Others, such as corporation tax, are paid out of firms' incomes before being received by households as dividends on shares. For simplicity, however, taxes are shown in Figure 15.8 as leaving the circular flow at just one point.

When, however, people receive *benefits* from the government, such as unemployment benefits, child benefit and pensions, the money flows the other way. Benefits are thus equivalent to a 'negative tax'. These benefits are known as *transfer payments*. They transfer money from one group of people (taxpayers) to others (the recipients).

In the model, 'net taxes' (T) represents the *net flow* to the government (central and local) from households and firms. It consists of total taxes minus benefits.

Import expenditure (M). Not all consumption is of totally home-produced goods. Households spend some of their incomes on imported goods and services, or on goods and services using imported components. Although the money that consumers spend on such goods initially flows to domestic retailers, it will eventually find its way abroad, either when the retailers or wholesalers themselves import them, or when domestic manufacturers purchase imported inputs to make their products. This expenditure on imports constitutes the third withdrawal from the inner flow. This money flows abroad.

Total withdrawals are simply the sum of net saving, net taxes and the expenditure on imports:

$$W = S + T + M$$

Injections (J)

Only part of the demand for firms' output arises from consumers' expenditure. The remainder comes from other sources outside the inner flow. These additional components of aggregate demand are known as *injections* (J). This important insight means that we can write aggregate demand as:³

$$AD = C_d + J$$

There are three types of injection.

Investment (I). This is the money that firms spend after obtaining it from various financial institutions – either past savings or loans, or through a new issue of shares. They may invest in plant and equipment or may simply spend the money on building up stocks of inputs, semi-finished or finished goods.

Government purchases (G). When the government spends money on goods and services produced by firms, this counts as an injection. Examples of such government expenditure include spending on roads, hospitals and schools. (Note that government expenditure in this model does not include state benefits, hence, the use of the term 'government purchases'. Benefits are transfer payments, as we saw above. They are the equivalent of negative taxes and have the effect of reducing the *T* component of withdrawals.)

Export expenditure (X). Money flows into the circular flow from abroad when residents abroad buy our exports of goods and services.

Total injections are thus the sum of investment, government expenditure and exports:⁴

$$J = I + G + X$$

³ Note that this definition of aggregate demand ($AD = C_d + J$) is equivalent to the one we gave on page 459, i.e. $AD = C + I + G + X - M$, since both the terms C_d and J exclude expenditure on imports.

⁴ We assume, for simplicity in this equation that all investment, government expenditure and export expenditure is on domestic products. Where any part of these three is on imports, we need to subtract this imported element to arrive at *I*, *G* or *X*.

Definitions

Withdrawals (W) (or leakages) Incomes of households or firms that are not passed on round the inner flow.
Withdrawals equal net saving (S) plus net taxes (T) plus import expenditure (M): $W = S + T + M$.

Transfer payments Money transferred from one person or group to another (e.g. from the government to individuals) without production taking place.

Injections (J) Expenditure on the production of domestic firms coming from outside the inner flow of the circular flow of income. Injections equal investment (I) plus government purchases (G) plus expenditure on exports (X).

The relationship between withdrawals and injections

There are indirect links between saving and investment, taxation and government expenditure, and imports and exports, via financial institutions, the government (central and local) and foreign countries respectively. If more money is saved, there will be more available for banks and other financial institutions to lend out. If tax receipts are higher, the government may be keener to increase its expenditure. Finally, if imports increase, incomes of people abroad will increase, which will enable them to purchase more of our exports.

These links, however, do not guarantee that $S = I$ or $G = T$ or $M = X$. Firms may wish to invest (J) more or less than people wish to save (S); governments can spend (G) more than they receive in taxes (T) or vice versa; and exports (X) can exceed imports (M) or vice versa.

A major point here is that the decisions to save and invest are made by different people, and thus they plan to save and invest different amounts. Likewise the demand for imports may not equal the demand for exports. As far as the government is concerned, it may choose not to make $T = G$. It may choose not to spend all its tax revenues: to run a 'budget surplus' ($T > G$). Or it may choose to spend more than it receives in taxes – to run a budget deficit ($G > T$) – by borrowing or printing money to make up the difference.

Thus planned injections (J) may not equal planned withdrawals (W).



In terms of the UK economy, are the following net injections, net withdrawals or neither? If there is uncertainty, explain your assumptions.

- (a) Firms are forced to take a cut in profits in order to give a pay rise.
- (b) Firms spend money on research.
- (c) The government increases personal tax allowances.
- (d) The general public invests more money in banks and building societies.

- (e) UK investors earn higher dividends on overseas investments.
- (f) The UK government purchases US military aircraft.
- (g) People draw on their savings to finance holidays abroad.
- (h) People draw on their savings to finance holidays in the UK.
- (i) The government runs a budget deficit (spends more than it receives in tax revenues) and finances it by borrowing from the general public.
- (j) The government runs a budget deficit and finances it through new money created by the central bank.

Equilibrium in the circular flow

We saw earlier in the chapter how fluctuations in aggregate demand cause short-term growth rates to fluctuate. The circular flow of income model helps us understand the process.

If planned injections do not equal planned withdrawals, aggregate demand will change and so too will national income. Take the case where injections exceed withdrawals. Perhaps there has been a rise in business confidence so that investment has risen. Or perhaps there has been a tax cut so that withdrawals have fallen. As we have seen, the excess of injections over withdrawals will lead to a rise in national income.

But as national income rises, so households will not only spend more on domestic goods (C_d), but also save more (S), pay more taxes (T) and buy more imports (M). In other words, withdrawals will rise too. This will continue until they have risen to equal injections. At that point, national income will stop rising, and so will withdrawals. Equilibrium has been reached. Thus equilibrium is where:

$$W = J$$

Similarly, if withdrawals exceed injections, the resulting fall in national income will lead to a fall in withdrawals. Again, this will continue until $W = J$.

Section summary

1. The circular flow of income model depicts the flows of money round the economy. The inner flow shows the direct flows between firms and households. Money flows from firms to households in the form of factor payments, and back again as consumer expenditure on domestically produced goods and services.
2. Not all incomes get passed on directly round the inner flow. Some is withdrawn in the form of net saving, some is paid in net taxes, and some goes abroad as expenditure on imports.
3. Likewise, not all expenditure on domestic firms is by domestic consumers. Some is injected from outside the inner flow in the form of investment expenditure, government purchases and expenditure on the country's exports.
4. Planned injections and withdrawals are unlikely to be the same.
5. If injections exceed withdrawals, national income will rise and the economy grows. The reverse will happen if withdrawals exceed injections.
6. If injections exceed withdrawals, the resulting rise in national income will lead to a rise in withdrawals. This will continue until $W = J$. At this point, the circular flow will be in equilibrium.

15.5 UNEMPLOYMENT

Understandably one of the most emotive of all macroeconomic issues is that of unemployment, not least because of the very personal costs to those affected by unemployment. Box 15.4 considers in more detail these and the broader costs to the economy of unemployment.

In this section, we look briefly at the potential causes of unemployment. What does the volatility of economies mean for unemployment? Is unemployment merely the result of the business cycle? If not, what other factors might be important? Before addressing these questions we do two things. First, we look at how we measure unemployment. Second, we look at evidence on the composition of unemployment and the duration that people are unemployed.

Claimant unemployment and standardised unemployment

Two common measures of unemployment are used in official statistics. The first is **claimant unemployment**. This is simply a measure of all those in receipt of unemployment-related benefits. Claimant statistics have the advantage of being very easy to collect. However, they exclude all those of working age who are available for work at current wage rates, but who are *not* eligible for benefits. The net effect is that the claimant statistics tend to underestimate the true level of unemployment. They are also sensitive to government changes in the eligibility conditions for unemployment-related benefits.

Because of the weaknesses of claimant statistics many governments use the **standardised unemployment rate** as the main measure of unemployment. In this measure, the unemployed are defined as people of working age who are without work, available to start work within two weeks and *actively seeking employment* or waiting to take up an appointment.

This is the measure used by the International Labour Organization (ILO) and the Organisation for Economic Co-operation and Development (OECD), two international organisations that publish unemployment statistics for many countries. The figures are compiled from the results of national labour force surveys. A representative cross-section of the population is asked whether they are employed, unemployed (using the above definition) or economically inactive. From their replies, national rates of unemployment can be extrapolated. In the UK, the Labour Force Survey is conducted quarterly.

As we have seen, the standardised rate is likely to be higher than the claimant rate to the extent that it includes people seeking work who are nevertheless not entitled to claim benefits. However, it will be lower to the extent that it excludes those who are claiming benefits and yet who are not actively seeking work.

Generally, the standardised rate is significantly higher than the claimant rate. Over the five-year period from 2012 to 2016, for example, the average claimant count rate in the UK was 3.7 per cent while the average standardised unemployment rate (for all aged 16 and over) was 6.8 per cent.



How does the ILO/OECD definition differ from the economist's definition? What is the significance of the phrase 'available for work at current wage rates' in the economist's definition?

The composition of unemployment

Unemployment rates can vary enormously between countries and between different groups within countries. In part, this is likely to reflect structural factors. Countries and regions within countries can, for example, have very different labour markets. Countries often have very different policies on unemployment, training schemes, redundancy, etc., and demonstrate very different attitudes of firms towards their workers.

Table 15.4 highlights differences between countries, age groups and men and women for the period from 2009 to 2016.

In many countries, female unemployment has traditionally been higher than male unemployment. Causes have included differences in education and training, discrimination by employers, more casual or seasonally related employment among women and other social factors. In many countries, as highlighted by Table 15.4, the position has changed in recent years. One important reason has the decline in many of the older industries, such as coal and steel, which employed mainly men.

Table 15.4 does, however, show some stark differences in unemployment rates across different age groups. Rates in the under-25 age group are higher than the average, and substantially so in many countries. Higher youth unemployment rates can be explained by the suitability (or unsuitability) of the qualifications of school leavers, the attitudes of employers to young people, and the greater willingness of young people to spend time unemployed looking for a better job or

Definitions

Claimant unemployment Those in receipt of unemployment-related benefits.

Standardised unemployment rate The measure of the unemployment rate used by the ILO and the OECD. The unemployed are defined as persons of working age who are without work, are available to start work within two weeks and either have actively looked for work in the last four weeks or are waiting to take up an appointment.

Table 15.4 Standardised unemployment rates by age and gender, average 2009–2016

	All ages			Less than 25 years			25 to 74 years		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Eurozone (19 countries)	10.7	10.6	10.9	22.3	22.8	21.7	9.6	9.3	9.8
Belgium	8.0	8.2	7.8	21.5	22.2	20.7	6.8	6.9	6.7
France	9.8	9.9	9.8	24.1	24.4	23.6	8.3	8.2	8.4
Germany	5.6	5.9	5.3	8.4	14.0	7.6	5.3	5.5	5.0
Greece	20.9	18.0	24.8	45.8	40.5	52.0	19.2	16.5	22.7
Ireland	12.1	14.4	9.3	25.0	29.4	20.2	10.6	12.8	7.9
Italy	10.5	9.6	11.6	34.8	33.3	37.0	8.7	8.0	9.9
Netherlands	6.0	5.6	6.4	11.4	11.8	11.0	5.0	4.6	5.4
Norway	3.7	4.0	3.3	9.2	10.5	7.9	2.8	3.0	2.5
Poland	8.8	8.4	9.3	23.3	22.1	25.0	7.4	7.0	7.9
Portugal	13.2	13.1	13.3	31.8	30.7	33.1	11.6	11.6	11.7
Spain	22.0	21.4	22.8	47.5	48.3	46.4	19.9	19.2	20.8
Sweden	7.9	8.1	7.7	22.8	23.9	21.5	5.7	5.8	5.6
UK	6.9	7.4	6.4	18.4	20.6	15.9	5.0	5.3	4.7
USA	7.5	7.8	7.0	15.1	16.6	13.4	6.2	6.5	6.0

Source: Based on data from *Statistics Database* (Eurostat, European Commission).

BOX 15.4**THE COSTS OF UNEMPLOYMENT****EXPLORING ECONOMICS****Who loses and by how much?**

The most obvious cost of unemployment is to the unemployed themselves. There is the direct financial cost of the loss in their earnings. Then there are the personal costs of being unemployed. The longer people are unemployed, the more dispirited they may become. Their self-esteem is likely to fall, and they are more likely to succumb to stress-related illness.

Beyond the unemployed themselves, there are the costs to their family and friends. Personal relations can become strained, and there may be an increase in domestic violence and the number of families splitting up.

Then there are the broader costs to the economy. Unemployment represents a loss of output. In other words, actual output is below potential output. Apart from the loss of disposable income to the unemployed themselves, this underutilisation of resources leads to lower incomes for other people too:

- The government loses tax revenues, since the unemployed pay no income tax and national insurance and, given that the unemployed spend less, they pay less VAT and excise duties. The government also incurs administrative costs associated with the running of benefit offices. It may also have to spend extra on health care, the social services and the police.
- Firms lose the profits that could have been made if there had been full employment.
- Other workers lose any additional wages they could have earned from higher national output.

What is more, the longer people remain unemployed, the more deskilled they tend to become. This scarring effect reduces potential as well as actual income.

 *Why have the costs to the government of unemployment benefits not been included as a cost to the economy?*

Finally, there is some evidence that higher unemployment leads to increased crime and vandalism. This obviously imposes a cost on the sufferers.

The costs of unemployment are to some extent offset by benefits. If workers voluntarily quit their jobs to look for better ones, then they must reckon that the benefits of a better job more than compensate for their temporary loss of income. From the nation's point of view, a workforce that is prepared to quit jobs and spend a short time unemployed will be a more adaptable, more mobile workforce – one that is responsive to changing economic circumstances. Such a workforce will lead to greater allocative efficiency in the short run and more rapid economic growth over the longer run.

Long-term involuntary unemployment is quite another matter. The costs clearly outweigh any benefits, both for the individuals involved and for the economy as a whole. A demotivated, deskilled pool of long-term unemployed is a serious economic and social problem.



Which of the above costs would be recorded as a reduction in GDP?

waiting to start a further or higher education course. The difference in rates is less in Germany, which has a well-established apprenticeship system.

The duration of unemployment

A few of the unemployed may never have had a job and maybe never will. For most, however, unemployment lasts only a certain period. For some it may be just a few days while they are between jobs. For others it may be a few months. For others – the long-term unemployed – it could be several years. Figure 15.9 shows the composition of standardised unemployment in the UK for all aged 16 and over by duration.

What determines the average duration of unemployment? There are three important factors here.

The number unemployed (the size of the stock of unemployment). Unemployment is a ‘stock’ concept (see Box 10.10). It measures a *quantity* (i.e. the number unemployed) at a particular *point in time*. The higher the stock of unemployment, the longer will tend to be the duration of unemployment. There will be more people competing for vacant jobs.

The rate of inflow and outflow from the stock of unemployment. The people making up the unemployment total are constantly changing. Each week some people are made redundant or quit their jobs. They represent an inflow to the stock of unemployment. Other people find jobs and thus represent an outflow from the stock of unemployment. The various inflows and outflows are shown in Figure 15.10.

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Unemployment is often referred to as ‘the pool of unemployment’. This is quite a good analogy. If the water flowing into a pool exceeds the water flowing out, the level of water in the pool will rise. Similarly, if the inflow of people into unemployment exceeds the outflow, the level of unemployment will rise.

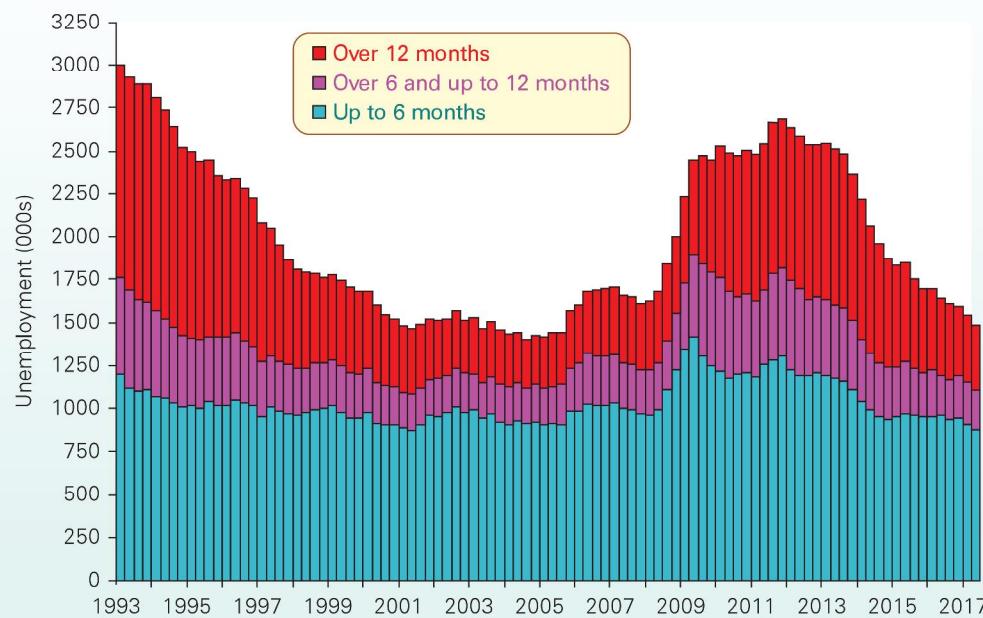
The duration of unemployment will depend on the *rate* of inflow and outflow. The rate is expressed as the number of people per period of time. The bigger the flows are relative to the total number unemployed, the less will be the average duration of unemployment. This is because people move into and out of the pool more quickly, and hence their average stay will be shorter.



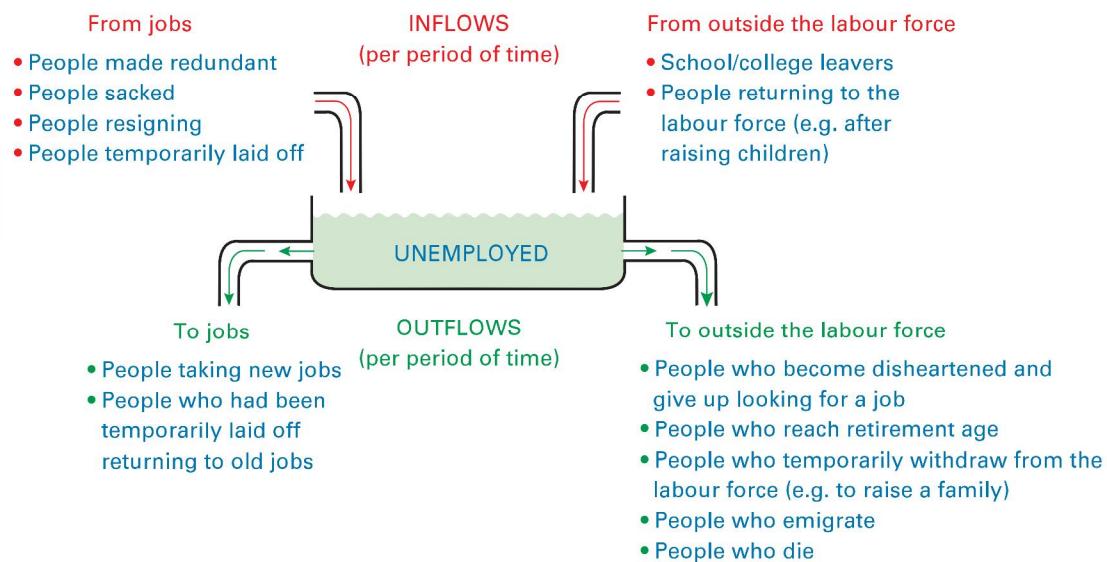
1. If the number unemployed exceeded the total annual outflow, what could we conclude about the average duration of unemployment?
2. Make a list of the various inflows to and outflows from employment from and to (a) unemployment; (b) outside the workforce.

The phase of the business cycle. The duration of unemployment also depends on the phase of the business cycle. At the onset of a recession, unemployment will rise, but as yet the average length of unemployment is likely to have been relatively short. Once a recession has lasted for a period of time, however, people will on average have been out of work longer, and this long-term unemployment is likely to persist even when the economy is pulling out of recession.

Figure 15.9 UK standardised unemployment by duration



Source: Based on data from dataset UNEM01 SA: Unemployment by age and duration (seasonally adjusted) (ONS).

Figure 15.10 Flows into and out of unemployment

*LOOKING AT THE MATHS

The average duration of unemployment (D_U) will equal the stock of unemployment (U) as a proportion of the outflow (F) from unemployment.

$$D_U = \frac{U}{F}$$

Thus the bigger the stock of unemployment relative to the outflow from it, the longer will unemployment last. Taking the UK figures

for 2015, where the number unemployed (U) was 1.78 million and the total outflow from unemployment (F) was 3.44 million:

$$D_U = \frac{1.781}{3.344} = 0.533$$

Thus the average duration of unemployment was 0.533 years or 195 days. By contrast, in 2012, the average duration was $2.572/3.945 = 0.652$ years or 239 days.

Causes of unemployment

There are various possible causes of unemployment. It is important when thinking about policies to tackle unemployment to understand its determinants. The following are among those most commonly identified by economists.

Real wage rates

Nominal wage rates are the actual value of wage rates paid to workers. The real wage rate is the wage rate expressed in terms of its purchasing power to workers and the purchasing cost to employers. In other words, the real wage is the nominal wage corrected for inflation.

$$W_r = \frac{W_n}{P}$$

where W_r is the real wage rate; W_n is the nominal wage rate; and P is the price index (e.g. the CPI).

Real-wage unemployment occurs when trade unions use their monopoly power to drive wages *above* the

market-clearing level. It could also be caused by the government setting the national minimum wage too high.

A rise in real wage rates increases the effective cost to firms of employing workers. This is because the wage rates paid by firms have increased *relative* to the prices of their goods and services. Excessive real wage rates were blamed by the Conservative governments under Thatcher and Major for the high unemployment of the 1980s and 1990s. The possibility of higher real-wage unemployment was also one of the reasons for their rejection of a national minimum wage.

Definition

Real-wage unemployment Disequilibrium unemployment caused by real wages being driven up above the market-clearing level.

One effect of high real wage rates, however, may help to reduce real-wage unemployment. The extra wages paid to those who are still employed could lead to extra *consumer* expenditure. Higher real wage rates increase the purchasing power of workers. This addition to aggregate demand could, in turn, lead to firms demanding more labour, as they attempt to increase output to meet the extra demand.



If the higher consumer expenditure and higher wages subsequently led to higher prices, what would happen to (a) real wages; (b) unemployment (assuming no further response from unions)?

The phase of the business cycle

We have seen throughout this chapter how volatile economies are. Changes in output associated with the business cycle will result in changes in employment and unemployment. In a recession, unemployment is likely to rise, whereas in a boom, it is likely to fall.

Demand-deficient is the name we give to unemployment associated with falling aggregate demand. As aggregate demand falls, firms find that they are unable to sell their current level of output. For a time they may be prepared to build up stocks of unsold goods, but sooner or later they will start to cut back on production and cut back on the amount of labour they employ.

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As aggregate demand begins to grow again and firms increase output, so demand-deficient unemployment will start to fall again. Because demand-deficient unemployment fluctuates with the business cycle, it is sometimes referred to as *cyclical unemployment*. Figure 15.11 shows the fluctuations in unemployment in industrialised economies. If you compare this figure with Figure 15.1 on page 445, you can see how unemployment tends to rise in recessions and fall in booms.

Demand-deficient unemployment is also referred to as 'Keynesian unemployment', after John Maynard Keynes (see pages 492 and 498 below and Case Study 16.6 on the student website for a profile of the great economist), who saw a deficiency of aggregate demand as the cause of the high unemployment between the two world wars. Today, many economists are known as 'Keynesian'. Although there are many strands of Keynesian thinking, these economists all see aggregate demand as important in determining a nation's output and employment.

The more that aggregate demand fluctuates, the more significant the cyclical component of unemployment becomes. But what affects the amount that unemployment rises following a fall in aggregate demand?

One consideration is the magnitude and persistence of the fall in aggregate demand. This will affect the aggregate demand for labour. A large or enduring downturn could result in a large rise in unemployment as the aggregate demand for labour falls. On the other hand, a small or transitory downturn is more likely to have a smaller impact on unemployment.

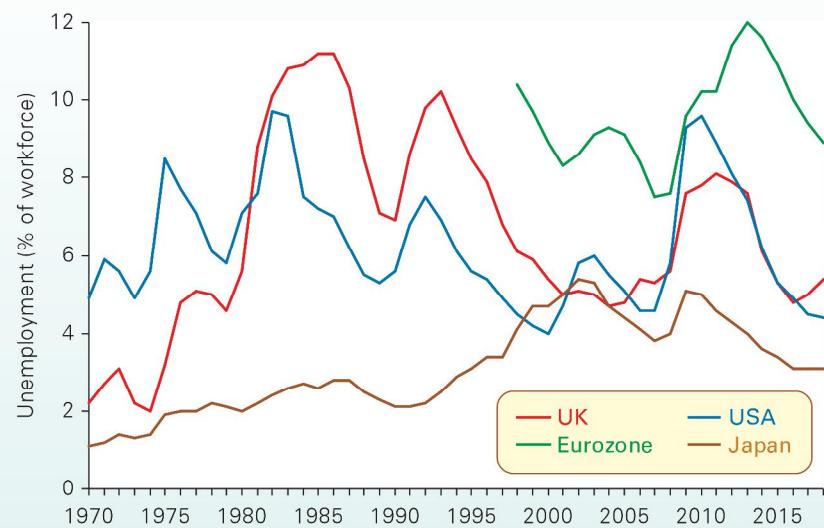
Another consideration is the extent to which, if at all, the *real* average wage rate falls. A fall in real wage rates reduces the effective cost to firms of employing workers and thus helps to offset some of the fall in employment that arises from the general reduction in firms' demand for labour. The UK has a relatively 'flexible' labour market with many

Definition

Demand-deficient or cyclical unemployment

Disequilibrium unemployment caused by a fall in aggregate demand with no corresponding fall in the real wage rate.

Figure 15.11 Standardised unemployment rates in selected industrial economies



Notes: 2017 to 2018 based on forecasts; eurozone figures are the weighted average of the countries using the euro in any given year.
Source: Based on data in AMECO Database (European Commission, DGECFIN).

people on zero-hour, part-time or 'self-employed' contracts and having no union representation. In the recession that followed the financial crisis in the late 2000s, many workers faced cuts in real wages, but unemployment rose less than in some other countries with less flexible labour markets.



Is it only in the interest of workers to resist falls in real wage rates?

For some Keynesian economists, however, the problem is much more fundamental than a downward stickiness in real wages. For them the problem is that the low level of aggregate demand causes an *equilibrium* in the goods market at an output that is too low to generate full employment. Firms' supply is low (below the full-employment level of supply) because aggregate demand is low.

This low-level equilibrium in the goods market, and the corresponding disequilibrium in the labour market, may *persist*. This is the result of a lack of confidence on the part of firms. After all, why should firms produce more and take on more workers if they believe that the recession will persist and that they will therefore not sell any more? The economy remains trapped in a low-output equilibrium. In such cases, a fall in real wages would not cure the unemployment. In fact, it might even make the problem worse.



If this analysis is correct, namely that a reduction in wages will reduce the aggregate demand for goods, what assumption must we make about the relative proportions of wages and profits that are spent (given that a reduction in real wage rates will lead to a corresponding increase in rates of profit)?

Information

Frictional (search) unemployment occurs when people leave their jobs, either voluntarily or because they are sacked or made redundant, and are unemployed for a period of time while they are looking for a new job. They may not get the first job they apply for, despite a vacancy existing and despite their being suitably qualified.

The problem is that information is imperfect. Employers are not fully informed about what labour is available; workers are not fully informed about what jobs are available and what they entail. Both employers and workers, therefore, have to search: employers searching for the right labour and workers searching for the right jobs.

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One obvious remedy for frictional unemployment is to provide better job information through government job centres, private employment agencies or the media. Another much more controversial remedy is for the government to reduce the level of unemployment benefit. This will make the unemployed more desperate to get a job and thus prepared to accept a lower wage.

Structural change

Structural unemployment occurs where the structure of the economy changes. Many countries have witnessed rapid structural change over recent years. This has seen

employment in some industries expand while in others it has contracted. There are two main reasons for this.

A change in the pattern of demand. Some industries experience declining demand. This may be due to a change in consumer tastes as certain goods go out of fashion; or it may be due to competition from other industries or from competition overseas. For example, consumer demand may shift away from coal and to other fuels. This will lead to structural unemployment in mining areas.

A change in the methods of production (technological unemployment). New techniques of production often allow the same level of output to be produced with fewer workers (see Case Study 15.11 on the student website). This is known as 'labour-saving technical progress'. Unless output expands sufficiently to absorb the surplus labour, people will be made redundant. This creates **technological unemployment**. An example is the loss of jobs in the banking industry caused by the increase in the number of cash machines and by the development of telephone and Internet banking.

Structural unemployment often occurs in particular regions of the country when industries located in those regions decline or introduce labour-saving technology. When it does, it is referred to as **regional unemployment**.

The level of structural unemployment depends on three factors:

- The degree of *regional concentration* of industry. The more that industries are concentrated in particular regions, the greater will be the level of structural unemployment if particular industries decline. For example, the collapse in the South Wales coal-mining industry led to high unemployment in the Welsh valleys.
- The *speed of change* of demand and supply in the economy. The more rapid the rate of technological change or the shift in consumer tastes, the more rapid will be the rate of redundancies.

Definitions

Frictional (search) unemployment Equilibrium unemployment that occurs as a result of imperfect information in the labour market. It often takes time for workers to find jobs (even though there are vacancies) and in the meantime they are unemployed.

Structural unemployment Equilibrium unemployment that arises from changes in the pattern of demand or supply in the economy. People made redundant in one part of the economy cannot immediately take up jobs in other parts (even though there are vacancies).

Technological unemployment Structural unemployment that occurs as a result of the introduction of labour-saving technology.

Regional unemployment Structural unemployment occurring in specific regions of the country.

- The *immobility of labour*. The less able or willing workers are to move to a new job, the higher will be the level of structural unemployment. In Chapter 10 we made the distinction between geographical and occupational immobility (see pages 281–2). Geographical immobility is a particular problem with regional unemployment. Occupational immobility is a particular problem with technological unemployment where old skills are no longer required.

There are two broad approaches to tackling structural unemployment: *market-orientated* and *interventionist*.

A market-orientated approach involves encouraging people to look more actively for jobs, if necessary in other parts of the country. It involves encouraging people to adopt a more willing attitude towards retraining, and if necessary to accept some reduction in wages.

An interventionist approach involves direct government action to match jobs to the unemployed. Two examples are providing grants to firms to set up in areas of high unemployment (regional policy), and government-funded training schemes.

Policies to tackle structural unemployment are examined in detail in sections 23.5 and 23.6.

Seasonal factors

Seasonal unemployment occurs when the demand for certain types of labour fluctuates with the seasons of the year. This problem is particularly severe in holiday areas, such as Cornwall, where unemployment can reach very high levels in the winter months. Policies for tackling seasonal unemployment are similar to those for structural unemployment.

Section summary

- Who should be counted as ‘unemployed’ is a matter for some disagreement. The two most common measures of unemployment are claimant unemployment (those claiming unemployment-related benefits) and ILO/OECD standardised unemployment (those available for work and actively seeking work or waiting to take up an appointment). Standardised unemployment measures are based on labour force surveys.
- The ‘stock’ of unemployment will grow if the inflow of people into unemployment exceeds the outflow (to jobs or out of the labour market altogether). The more rapid these flows, the shorter the average duration of unemployment.
- In most countries, unemployment is unevenly distributed across geographical regions, between women and men, between age groups and between different ethnic groups.
- The costs of unemployment include the financial and other personal costs to the unemployed person, the costs to relatives and friends, and the costs to society at large in terms of lost tax revenues, lost profits and lost wages to other workers, and in terms of social disruption.
- When thinking about possible policies to tackle unemployment it is important to understand its causes.
- Possible causes include excessive real wages (real-wage unemployment), deficient aggregate demand (demand-deficient or cyclical unemployment), poor information in the labour market and hence a time lag before people find suitable jobs (frictional unemployment), structural change in the economy (structural unemployment – specific types being technological and regional unemployment), or seasonal fluctuations in the demand for labour (seasonal unemployment).

15.6 INFLATION

The rate of inflation refers to the annual percentage increase in price levels. By this is meant the percentage increase in a specific price index.

Different inflation rate measures

As we saw in section 15.1, the term ‘rate of inflation’ is typically used to refer to the annual percentage change in *consumer* prices. The index that is normally used is the consumer prices index (CPI), which is used throughout the EU. Sometimes in the UK an older measure is used, the retail price index (RPI). Unlike CPI, RPI includes housing costs. The CPI is seen as more sophisticated as it is based on a geometric mean of the basket of goods making up the index, whereas the RPI is based on an arithmetic mean. The effect is to make

the RPI typically around 1.2 percentage points higher than the CPI. People whose incomes are increased in line with inflation will thus fare better if this is based on the RPI rather than the CPI.⁵

⁵ See Julian Champkin, ‘RPI versus CPI: what’s the difference? Why does it matter? Will it make you poorer or richer?’, *Significance* (RSS/ASA, 10 January 2013).

Definition

Seasonal unemployment Unemployment associated with industries or regions where the demand for labour is lower at certain times of the year.

A broader measure of inflation relates to the rate at which the prices of all domestically produced goods and services are changing. The price index used in this case is known as the **GDP deflator** (see Case Study 15.1 on the student website). Figure 15.12 shows inflation rates for selected industrialised countries using the GDP deflator.

* LOOKING AT THE MATHS

The inflation rate (π) is calculated from the following formula:

$$\pi_t = \frac{P_t - P_{t-1}}{P_{t-1}} \times 100$$

where P_t is the price index for year t and P_{t-1} is the price index for the previous year. Thus if the price index for year 1 is 140.0 and that for year 2 is 149.1, then inflation in year 2 is

$$\pi = \frac{149.1 - 140.0}{140.0} \times 100 = 6.5\%$$

It is also possible to give the rates of inflation for other prices. For example, indices are published for commodity prices, for food prices, for house prices, for import prices, for prices after taking taxes into account and so on. Their respective rates of inflation are simply their annual percentage increases. Likewise it is possible to give the rate of inflation of wage rates ('wage inflation').

Figure 15.13 shows three inflation rate measures for the UK from 2001. Of the three inflation rates, the annual growth of average weekly earnings shows the most variability. This has implications for the purchasing power of workers. We can see, for example, a marked erosion of purchasing

power in 2009 following the financial crisis and again, to some degree, during 2014 and 2017.

Before we proceed, a word of caution: be careful not to confuse a rise or fall in *inflation* with a rise or fall in *prices*. A rise in inflation means a *faster* increase in prices. A fall in inflation means a *slower* increase in prices (but still an increase as long as inflation is positive). (See Box A1.1 on page A:11.)



Make a list of those who are most likely to gain and those who are most likely to lose from inflation.

Causes of inflation

Demand-pull inflation

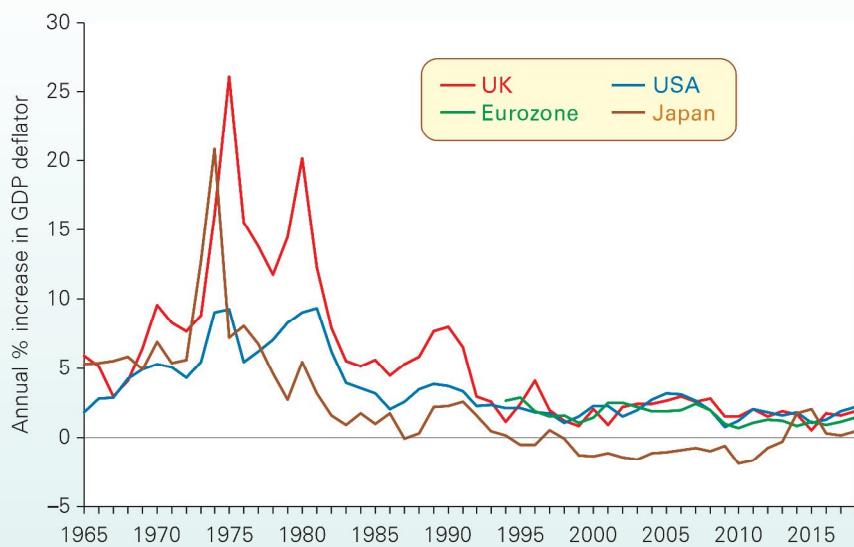
Demand-pull inflation is caused by continuing rises in aggregate demand. Firms will respond to a rise in demand partly by raising prices and partly by increasing output. Just how much they raise prices depends on how much their costs rise as a result of increasing output. The closer actual output gets to potential output, and the less slack there is in the economy, the more will firms respond to a rise in

Definitions

GDP deflator The price index of all final domestically produced goods and services, i.e. all those items that contribute towards GDP.

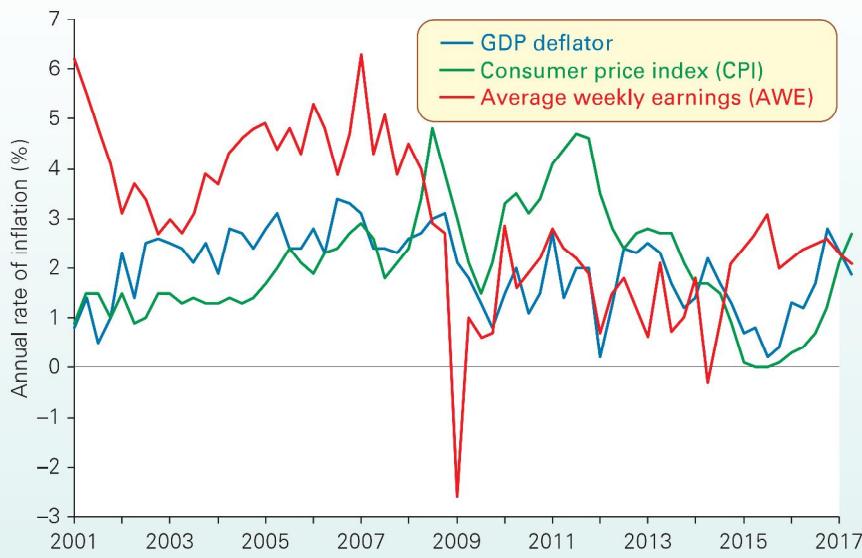
Demand-pull inflation Inflation caused by persistent rises in aggregate demand

Figure 15.12 Inflation rates in selected industrial economies



Notes: (i) Based on GDP deflator (ii) Figures from 2017 based on forecasts; (iii) Eurozone figures are the weighted average of the countries using the euro in any given year.

Source: Based on data in AMECO Database (European Commission, DGECFIN).

Figure 15.13 Selection of annual UK inflation rates

Notes: AWE is the average regular weekly pay (including bonuses) over the latest three months.

Source: Based on *Time Series Data*, series IHYU, D7G7 and KAC3 (ONS).

demand by raising their prices. On the other hand, the greater the spare capacity, the more will firms respond by raising output and the less by raising prices.

Sometimes there may be a *single* increase in demand (or a ‘demand shock’). This could be due, for example, to an increased level of government expenditure. The effect is to give a *single* rise in the price level. Although this causes inflation in the short run, once the effect has taken place, inflation will fall back to zero. For inflation to persist, there must be *continuing* increases in aggregate demand and thus continuing rises in the price level. If inflation is to rise, the rate of increase in aggregate demand must also rise.

Demand-pull inflation is typically associated with a booming economy. Many economists therefore argue that it is the counterpart of demand-deficient unemployment. When the economy is in recession, demand-deficient unemployment is high, but demand-pull inflation is low. When, on the other hand, the economy is near the peak of the business cycle, demand-pull inflation is high, but demand-deficient unemployment is low.

Cost-push inflation

Cost-push inflation is associated with continuing rises in costs which occur *independently* of aggregate demand.

If firms face a rise in costs, they will respond partly by raising prices and passing the costs on to the consumer, and partly by cutting back on production. Just how much firms raise prices and cut back on production depends on the impact of price changes on aggregate demand. The less responsive is aggregate demand to price changes, the less will sales fall as a result of any price rise. This allows firms to pass on more of the rise in their costs to consumers as higher prices. On the other hand, the more sensitive aggregate

demand is to price changes, the less able are firms to pass on their higher costs to consumers: hence prices rise by less.

Note that the effect on output and employment is the opposite of demand-pull inflation. With demand-pull inflation, output and hence employment tends to rise. With cost-push inflation, however, output and employment tends to fall.

As with demand-pull inflation, we must distinguish between *one-off* increases in cost (a ‘supply shock’) from *continuing* increases. If there is a one-off increase in costs, there will be a one-off rise in the price level. For example, if the government raises the excise duty on petrol and diesel, there will be a single rise in fuel prices and hence in firms’ fuel costs. This will cause *temporary* inflation while the price rise is passed on through the economy. Once this has occurred, prices will stabilise at the new level and the rate of inflation will fall back to zero again. If cost-push inflation is to continue over a number of years, therefore, then costs must *continually* increase. If cost-push inflation is to *rise*, the rate of increase in costs must also rise.

Sources of cost-push inflation. Rises in costs may originate from a number of different sources, such as trade unions pushing up wages, firms with monopoly power raising prices in order to increase their profits, or increases in international commodity prices. With the process of globalisation and

Definition

Cost-push inflation Inflation caused by persistent rises in costs of production (independently of demand).

BOX 15.5 THE COSTS OF INFLATION**EXPLORING ECONOMICS****Who loses and by how much?**

A lack of growth is obviously a problem if people want higher living standards. Unemployment is obviously a problem, both for the unemployed themselves and also for society, which suffers a loss in output and has to support the unemployed. But why is inflation a problem? If prices go up by 10 per cent, does it really matter? Provided your wages kept up with prices, you would have no cut in your living standards.

If people could correctly anticipate the rate of inflation and fully adjust prices and incomes to take account of it, then the costs of inflation would indeed be relatively small. For us as consumers, they would simply be the relatively minor inconvenience of having to adjust our notions of what a 'fair' price is for each item when we go shopping. For firms, they would again be the relatively minor costs of having to change price labels, or prices in catalogues or on menus, or adjust slot machines. These are known as ***menu costs***.

In reality, people frequently make mistakes when predicting the rate of inflation and are not able to adapt fully to it. This leads to the following problems, which are likely to be more serious the higher the rate of inflation becomes and the more the rate fluctuates.

Redistribution. Inflation redistributes income away from those on fixed incomes and those in a weak bargaining position, to those who can use their economic power to gain large pay, rent or profit increases. It redistributes wealth to those with assets (e.g. property) that rise in value particularly rapidly during periods of inflation, and away from those with types of savings that pay rates of interest below the rate of inflation and hence whose value is eroded by inflation.

Elderly people who rely on the interest from their savings may be particularly badly hit by rapid inflation.

Uncertainty and lack of investment. Inflation tends to cause uncertainty among the business community, especially when the rate of inflation fluctuates. (Generally, the higher the rate of inflation, the more it fluctuates.) If it is difficult for firms to predict their costs and revenues, they may be discouraged from investing. This will reduce the rate of economic growth. On the other hand, as will be explained below, policies to

reduce the rate of inflation may themselves reduce the rate of economic growth, especially in the short run. This may then provide the government with a policy dilemma.

Balance of payments. Inflation is likely to worsen the balance of trade. If a country suffers from relatively high inflation, its exports will become less competitive in world markets. At the same time, imports will become relatively cheaper than home-produced goods. Thus exports will fall and imports will rise. This is known as an international substitution effect. As a result, the balance of trade will deteriorate and/or the exchange rate will fall. Both of these effects can cause problems.

Resources. Extra resources are likely to be used to cope with the effects of inflation. Accountants and other financial experts may have to be employed by companies to help them cope with the uncertainties caused by inflation.

The costs of inflation may be relatively mild if inflation is kept to single figures. They can be very serious, however, if inflation gets out of hand. If inflation develops into 'hyperinflation', with prices rising perhaps by several hundred per cent or even thousands per cent per year, the whole basis of the market economy will be undermined. Firms constantly raise prices in an attempt to cover their soaring costs. Workers demand huge pay increases in an attempt to stay ahead of the rocketing cost of living. Thus prices and wages chase each other in an ever-rising inflationary spiral. People will no longer want to save money. Instead they will spend it as quickly as possible before its value falls any further. People may even resort to barter in an attempt to avoid using money altogether. (Case Study 15.14 on the student website looks at historical cases of hyperinflation in Germany in the 1920s, Serbia in the 1990s and Zimbabwe in the 2000s.)



1. Do you personally gain or lose from inflation? Why?
2. Make a list of those who are most likely to gain and those who are most likely to lose from inflation.

increased international competition, cost-push pressures have tended to decrease in recent years. One major exception has been the oil shocks that have occurred from time to time. For example, the near tripling of oil prices from \$51 per barrel in January 2007 to \$147 per barrel in July 2008, and again from \$41 a barrel in January 2009 to \$126 a barrel in April 2011, put upward pressure on costs and prices around the world.

Temporary supply shocks can come from bad harvests. Longer-term supply-side problems can come from the depletion of natural resources, such as the gradual running down

of North Sea oil, pollution of the seas and hence a decline in incomes for nations with large fishing industries, and, perhaps the most devastating of all, the problem of 'desertification' in sub-Saharan Africa.

Definition

Menu costs of inflation The costs associated with having to adjust price lists or labels.

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BOX 15.6 THE PHILLIPS CURVE**Is higher inflation the price for lower unemployment?**

If inflation tends to be higher when the economy is booming and if unemployment tends to be higher in recessions, does this mean that there is a 'trade-off' between inflation and unemployment: that lower unemployment tends to be associated with higher inflation, and lower inflation with higher unemployment? Such a trade-off was observed by the New Zealand economist Bill Phillips (see Case Study 15.15 on the student website), and was illustrated by the famous *Phillips curve*.

The original Phillips curve

In 1958, Phillips showed the statistical relationship between wage inflation (ω) on the vertical axis and the unemployment rate (U) on the horizontal axis, a scatter of points was obtained. Each point represented the observation for a particular year. The curve that best fitted the scatter has become known as the 'Phillips curve'. It is illustrated in Figure (a) and shows an inverse relationship between inflation and unemployment.¹

Given that wage increases over the period were approximately 2 per cent above price increases (made possible because of increases in labour productivity), a similar-shaped, but lower curve could be plotted showing the relationship between *price* inflation and unemployment.

The curve has often been used to illustrate the effects of changes in aggregate demand. When aggregate demand rose (relative to potential output), inflation rose and

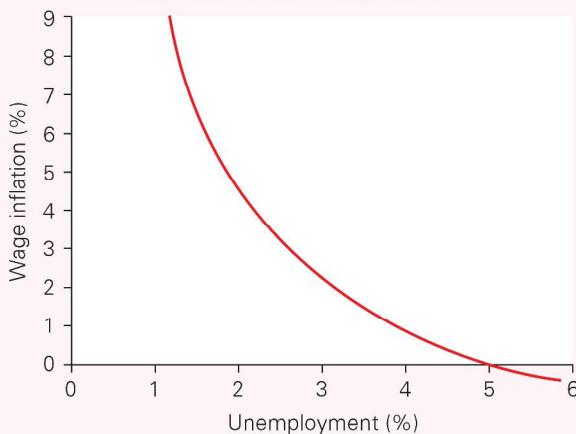
unemployment fell: there was an upward movement along the curve. When aggregate demand fell, there was a downward movement along the curve.

There was also a second reason given for the inverse relationship. If wages rose, the unemployed might have believed that the higher wages they were offered represented a *real* wage increase. That is, they might not have realised that the higher wages would be 'eaten up' by price increases: they might have suffered from *money illusion*. They would thus have accepted jobs more readily. The average duration of unemployment therefore fell. This is a reduction in *frictional* unemployment.

The Phillips curve was bowed in to the origin. The usual explanation for this is that, as aggregate demand expanded, at first there would be plenty of surplus labour, which could meet the extra demand without the need to raise wages very much. But as labour became increasingly scarce, firms would find they had to offer increasingly higher wages to obtain the labour they required, and the position of trade unions would be increasingly strengthened.

The *position* of the Phillips curve depended on *non-demand* factors causing inflation and unemployment: frictional and structural unemployment; and cost-push, structural and expectations-generated inflation. If any of these non-demand factors changed so as to raise inflation or unemployment, the curve would shift outwards to the right. The relative stability of the curve over the hundred years or so observed by Phillips suggested that these non-demand factors had changed little.

The Phillips curve seemed to present governments with a simple policy choice. They could trade off inflation against unemployment. Lower unemployment could be bought at the cost of higher inflation, and vice versa. Unfortunately, the experience since the late 1960s has suggested that no such simple relationship exists beyond the short run.

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p451(a) *The original Phillips curve***The interaction of demand-pull and cost-push inflation**

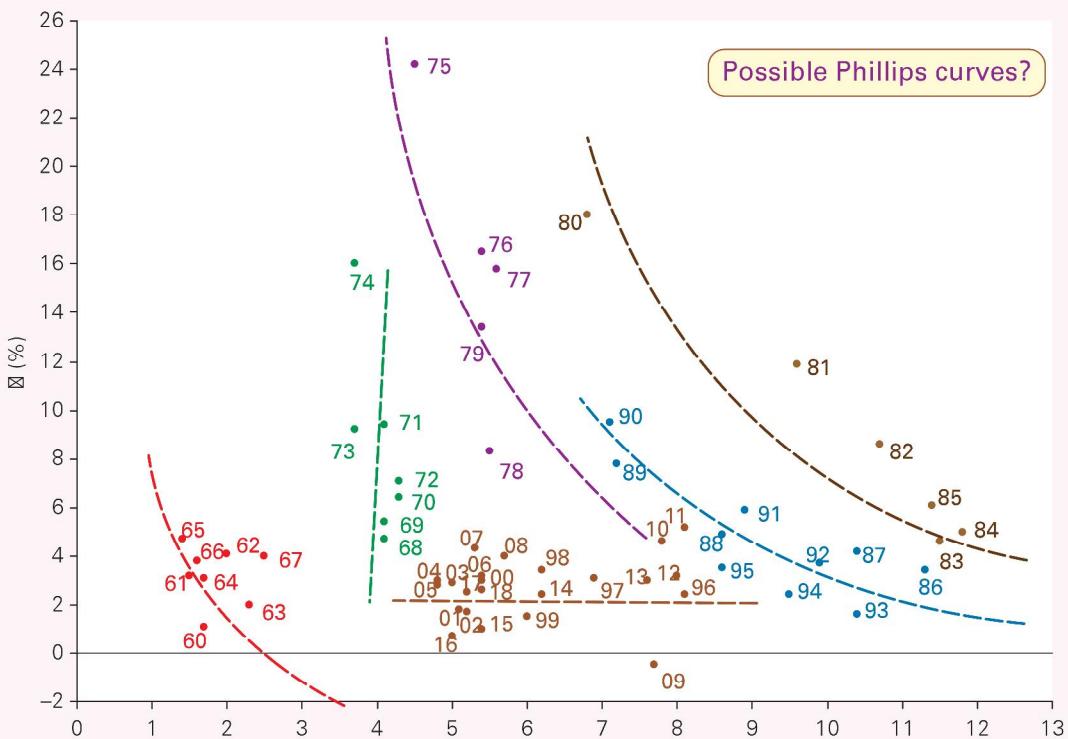
Demand-pull and cost-push inflation can occur together, since wage and price rises can be caused both by increases in aggregate demand and by independent causes pushing up costs. Even when an inflationary process *starts* as either demand-pull or cost-push, it is often difficult to separate the two. An initial cost-push inflation may encourage the government to expand aggregate demand to offset rises in unemployment. Alternatively, an initial demand-pull

Definitions

Phillips curve A curve showing the relationship between (price) inflation and unemployment. The original Phillips curve plotted wage inflation against unemployment for the years 1861–1957

Money illusion When people believe that a money wage or price increase represents a real increase: in other words, they ignore or underestimate inflation.

(b) Breakdown of the Phillips curve



Source: Based on data from the Office for National Statistics; forecasts based on data from *World Economic Outlook Database (IMF)*.

curve could no longer fit the data; but whether the curve shifted to the right and then back again somewhat (the broken lines), or whether the relationship broke down completely, or whether there was some quite different relationship between inflation and unemployment, is not clear by simply looking at the data.

Since 1997, the Bank of England has been targeting inflation (see section 22.3). For much of this period the 'curve' would seem to have become a virtually horizontal straight line. However, from the late 2000s, against a backdrop of significant economic volatility and uncertainty, the range of inflation rates increased despite inflation rate targeting. A contributory factor to this was the volatility experienced in commodity prices. In the middle of the 2010s, for example, inflation fell

below the target as commodity prices fell reflecting sluggish demand in the eurozone and elsewhere.

Over the years, there has been much debate among economists about the relationship between inflation and unemployment. The controversy will be examined in later chapters and particularly in Chapter 21. One thing does seem clear, however: the relationship is different in the short run and the long run.



Assume that there is a trade-off between unemployment and inflation, traced out by a 'Phillips curve'. What could cause a leftward shift in this curve?

¹ Phillips' estimated equation was $\pi = -0.9 + 9.638U^{-1.394}$.

inflation may strengthen the power of certain groups, which then use this power to drive up costs.

Expectations and inflation

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Workers and firms take account of the *expected* rate of inflation when making decisions.

Imagine that a union and an employer are negotiating a wage increase. Let us assume that both sides expect a rate of

inflation of 5 per cent. The union will be happy to receive a wage rise somewhat above 5 per cent. That way the members would be getting a *real* rise in incomes. The employers will be happy to pay a wage rise somewhat below 5 per cent. After all, they can put their price up by 5 per cent, knowing that their rivals will do approximately the same. The actual wage rise that the two sides agree on will thus be somewhere around 5 per cent.

Now let us assume that the expected rate of inflation is 10 per cent. Both sides will now negotiate around this benchmark, with the outcome being somewhere round about 10 per cent. Thus the higher the expected rate of inflation, the

higher will be the level of pay settlements and price rises, and hence the higher will be the resulting *actual* rate of inflation.

Just how expectations impact on inflation depends on how they are formed. We examine this in Chapter 21.

Section summary

1. Demand-pull inflation occurs as a result of increases in aggregate demand. This can be due to monetary or non-monetary causes.
2. Cost-push inflation occurs when there are increases in the costs of production independent of rises in aggregate demand. If there is a single supply-side shock, the inflation will peter out. For cost-push inflation to persist, there must be continuous increases in costs.
3. Cost-push and demand-pull inflation can interact to form spiralling inflation.
4. Expectations play a crucial role in determining the rate of inflation. The higher people expect inflation to be, the higher it will be.

15.7 THE OPEN ECONOMY

All countries trade with and have financial dealings with the rest of the world. In other words, all countries are *open economies*. Indeed, over time the economies of nations have become ever more intimately linked. Key drivers of this global interconnectedness of economies are globalisation, financialisation and improved communications.

Global interconnectedness means economic events in one part of the world, such as changes in interest rates or a downturn in economic growth, can have myriad knock-on effects for the international community at large – from the international investor, to the foreign exchange dealer, to the domestic policy maker, to the business which exports or imports, or which has subsidiaries abroad. Consequently, the international component of countries' business cycles has tended to become ever more important.

The balance of payments account

The flows of money between residents of a country and the rest of the world are recorded in the country's *balance of payments account*.

Receipts of money from abroad are regarded as *credits* and are entered in the accounts with a positive sign. *Outflows* of money from the country are regarded as *debits* and are entered with a negative sign.

There are three main parts of the balance of payments account: the *current account*, the *capital account* and the *financial account*. Each part is then subdivided. We shall look at each part in turn, and take the UK as an example. Table 15.5 gives a summary of the UK balance of payments for 2016, while also providing an historical perspective.

The current account

The *current account* records payments for imports and exports of goods and services, plus incomes flowing into and out of the country, plus net transfers of money into and out of the country. It is normally split into four subdivisions.

The trade in goods account. This records imports and exports of physical goods (previously known as 'visibles'). Exports result in an inflow of money and are therefore a credit item. Imports result in an outflow of money and are therefore a debit item. The balance of these is called the *balance on trade in goods* or *balance of visible trade* or *merchandise balance*. A *surplus* is when exports exceed imports. A *deficit* is when imports exceed exports.

The trade in services account. This records imports and exports of services (such as transport, tourism and insurance). Thus the purchase of a foreign holiday would be a debit, since it represents an outflow of money, whereas the purchase by an overseas resident of a UK insurance policy would be a credit to the UK services account. The balance of these is called the *services balance*.

Definitions

Open economy One that trades with and has financial dealings with other countries.

Balance of payments account The record of all the economic transactions between the residents of a specific country with the rest of the world for a specific time period, typically a year or a quarter. It records all the inflows and outflows of money under various headings. Inflows are recorded as credits; outflows are recorded as debits.

Current account of the balance of payments The record of a country's imports and exports of goods and services, plus incomes and transfers of money to and from abroad.

Balance on trade in goods or balance of visible trade or merchandise balance Exports of goods minus imports of goods.

Table 15.5 UK balance of payments

	2016		Average 1987–2016 as % of GDP
	£m	% of GDP	
CURRENT ACCOUNT			
Balance on trade in goods	−135 391	−6.9	−4.1
Balance on trade in services	92 378	4.7	2.4
Balance of trade	☒ 43 013	☒ 2.2	☒ 1.7
Income balance	−50 417	−2.6	−0.3
Net current transfers	−22 025	−1.1	−0.8
Current account balance	☒ 115 455	☒ 5.9	☒ 2.7
CAPITAL ACCOUNT			
Capital account balance	☒ 1 344	☒ 0.1	0.0
FINANCIAL ACCOUNT			
Net direct investment	184 345	9.4	−0.6
Portfolio investment balance	139 194	7.1	2.8
Other investment balance	−175 851	−9.0	0.5
Balance of financial derivatives	−21 615	−1.1	0.0
Reserve assets	−6 511	−0.3	−0.2
Financial account balance	119 562	6.1	2.6
Net errors and omissions	☒ 2 763	☒ 0.1	0.2
Balance	0	0.0	0.0

Source: *Balance of Payments* (ONS).

The balance of both the goods and services accounts together is known as the *balance on trade in goods and services* or simply the *balance of trade*.

Income flows. These consist of wages, interest and profits flowing into and out of the country. For example, dividends earned by a foreign resident from shares in a UK company would be an outflow of money (a debit item).

Current transfers of money. These include government contributions to and receipts from the EU and international organisations, and international transfers of money by private individuals and firms for the purpose of *consumption*. Transfers out of the country are debits. Transfers into the country (e.g. money sent from Greece to a Greek student studying in the UK) would be a credit item.

The *current account balance* is the overall balance of all the above four subdivisions. A *current account surplus* is where credits exceed debits. A *current account deficit* is where debits exceed credits. Figure 15.14 shows the current account balances of a selection of countries as a proportion of their GDP since 1960. The chart shows how global imbalances on the current account have tended to increase over time, particularly since the 1980s. In conjunction with Table 15.5 we can also see that the UK has consistently run a current account deficit over the past three decades or so. This has been driven by a large trade deficit in goods.



Why are the US and UK current balances approximately a 'mirror image' of the Japanese and German current balances?

The capital account

The *capital account* records the flows of funds into the country (credits) and out of the country (debits), associated with the acquisition or disposal of fixed assets (e.g. land or intangibles, such as patents and trademarks), the transfer of funds by migrants, the payment of grants by the government for overseas projects, debt forgiveness by the government and the receipt of money for capital projects (e.g. from the EU's Agricultural Guidance Fund).

As Table 15.5 shows, the balance on the capital account is small in comparison to that on the current and financial accounts.

The financial account¹

The *financial account* of the balance of payments records cross-border changes in the holding of shares, property, bank deposits and loans, government securities, etc. In

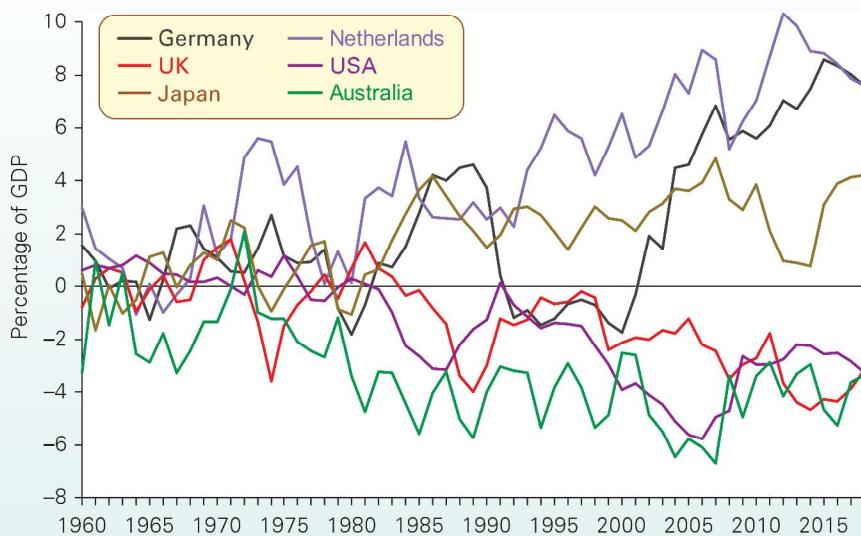
Definitions

Balance on trade in goods and services or balance of trade Exports of goods and services minus imports of goods and services.

Balance of payments on current account The balance on trade in goods and services plus net investment incomes and current transfers.

Capital account of the balance of payments The record of the transfers of capital to and from abroad.

Financial account of the balance of payments The record of the flows of money into and out of the country for the purposes of investment or as deposits in banks and other financial institutions.

Figure 15.14 Current account balance as percentage of GDP in selected countries

Note: Figures from 2017 based on forecasts; German figures are West Germany up to 1991.

Source: Based on data in AMECO Database (European Commission, DGECFIN).

other words, unlike the current account, which is concerned with money *incomes*, the financial account is concerned with the purchase and sale of *assets*. Case Study 15.16 on the student website considers some of the statistics behind the UK's financial account.

Investment (direct and portfolio). This account covers primarily long-term investment.

■ **Direct investment.** This involves a significant and lasting interest in a business in another country. If a foreign company invests money from abroad in one of its branches or associated companies in the UK, this represents an inflow of money when the investment is made and is thus a credit item. (Any subsequent profit from this investment that flows abroad will be recorded as an *investment income outflow* on the current account.) Investment abroad by UK companies represents an outflow of money when the investment is made. It is thus a debit item.

Note that what we are talking about here is the acquisition or sale of assets: e.g. a factory or farm, or the takeover of a whole firm, not the imports or exports of equipment.

■ **Portfolio investment.** This relates to transactions in debt and equity securities which do not result in the investor having any significant influence on the operations of a particular business. If a UK resident buys shares (equity securities) in an overseas company, this is an outflow of funds and is hence a debit item.

Other financial flows. These consist primarily of various types of short-term monetary movement between the UK and the rest of the world. Deposits by overseas residents in banks in the UK and loans to the UK from abroad are credit items, since they represent an inflow of money. Deposits by UK residents in overseas banks and loans by UK banks to

overseas residents are debit items. They represent an outflow of money.

Short-term monetary flows are common between international financial centres to take advantage of differences in countries' interest rates and changes in exchange rates.



1. Why may inflows of short-term deposits create a problem?
2. Where would interest payments on short-term foreign deposits in UK banks be entered on the balance of payments account?

Note that in the financial account, credits and debits are recorded *net*. For example, UK investment abroad consists of the net acquisition of assets abroad (i.e. the purchase *less* the sale of assets abroad). Similarly, foreign investment in the UK consists of the purchase *less* the sale of UK assets by foreign residents. Note that in either case the flow could be in the opposite direction. For example, if UK residents purchased fewer assets abroad than they sold, this item would be a net credit, not a debit (there would be a net return of money to the UK).

By recording financial account items *net*, the flows seem misleadingly modest. For example, if UK residents deposited an extra £100bn in banks abroad but drew out £99bn, this would be recorded as a mere £1bn net outflow on the other financial flows account. In fact, *total* financial account flows vastly exceed current plus capital account flows.

Flows to and from the reserves. The UK, like all other countries, holds reserves of gold and foreign currencies. From time to time the Bank of England (acting as the government's agent) will sell some of these reserves to purchase sterling on the foreign exchange market. It does this normally as a means of supporting the rate of exchange (see below). Drawing on reserves represents a *credit* item in the

balance of payments accounts: money drawn from the reserves represents an *inflow* to the balance of payments (albeit an outflow from the reserves account). The reserves can thus be used to support a deficit elsewhere in the balance of payments.

Conversely, if there is a surplus elsewhere in the balance of payments, the Bank of England can use it to build up the reserves. Building up the reserves counts as a debit item in the balance of payments, since it represents an outflow from it (to the reserves).

When all the components of the balance of payments account are taken together, the balance of payments should exactly balance: credits should equal debits. As we shall see below, if they were not equal, the rate of exchange would have to adjust until they were, or the government would have to intervene to make them equal.

When the statistics are compiled, however, a number of errors are likely to occur. As a result, there will not be a balance. To 'correct' for this, a *net errors and omissions* item is included in the accounts. This ensures that there will be an exact balance. The main reason for the errors is that the statistics are obtained from a number of sources, and there are often delays before items are recorded and sometimes omissions too.



With reference to the above, provide an assessment of the UK balance of payments in each of the years illustrated in Table 15.5.

Figure 15.15 graphically summarises the main accounts of the UK's balance payments: current, capital and financial accounts. It presents each as a percentage of national income (see also right-hand column of Table 15.5). In conjunction with the net errors and omissions item, which averages close to zero over the long run, we can see how the accounts

combine to give a zero overall balance. For much of the period since the late 1980s, current account deficits have been offset by surpluses on the financial account.

What causes deficits to occur on the various parts of the balance of payments? The answer has to do with the demand for and supply of sterling on the foreign exchange market. Thus before we can answer the question, we must examine this market and in particular the role of the rate of exchange.

Exchange rates

An exchange rate is the rate at which one currency trades for another on the foreign exchange market.

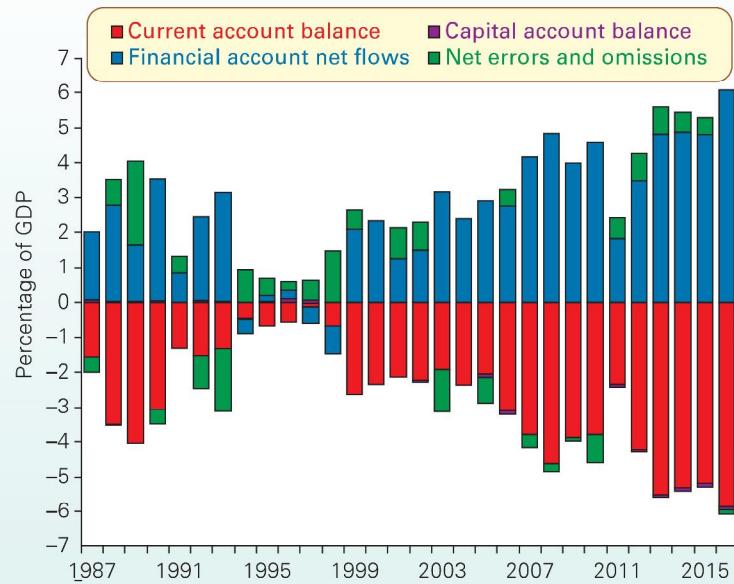
If you live in the UK and go abroad, you will need to exchange your pounds into euros, dollars, Swiss francs or whatever. You will get the money at the exchange rate in operation at the time you draw it from a cash machine abroad or from a bank: for example, €1.15 to the pound, or \$1.25 to the pound.

It is similar for firms. If an importer wants to buy, say, some machinery from Japan, it will require yen to pay the Japanese supplier. It will thus ask the foreign exchange section of a bank to quote it a rate of exchange of the pound into yen. Similarly, if you want to buy some foreign stocks and shares, or if companies based in the UK want to invest abroad, sterling will have to be exchanged into the appropriate foreign currency.

Likewise, if Americans want to come on holiday to the UK or to buy UK assets, or US firms want to import UK goods or to invest in the UK, they will require sterling. They will get it at an exchange rate such as £1 = \$1.25. This means that they will have to pay \$1.25 to obtain £1 worth of UK goods or assets.

Exchange rates are quoted between each of the major currencies of the world. These exchange rates are constantly

Figure 15.15 UK balance of payments as a percentage of GDP



changing. Minute by minute, dealers in the foreign exchange dealing rooms of the banks are adjusting the rates of exchange. They charge commission when they exchange currencies. It is important for them, therefore, to ensure that they are not left with a large amount of any currency unsold. What they need to do is to balance the supply and demand of each currency: to balance the amount they purchase to the amount they sell. To do this, they will need to adjust the price of each currency, namely the exchange rate, in line with changes in supply and demand.

Not only are there day-to-day fluctuations in exchange rates, but also there are long-term changes in them. Figure 15.16 shows the average quarterly exchange rates between the pound and various currencies since 1980.

One of the problems in assessing what is happening to a particular currency is that its rate of exchange may rise against some currencies (weak currencies) and fall against others (strong currencies). In order to gain an overall picture of its fluctuations, therefore, it is best to look at a weighted average exchange rate against all other currencies. This is known as the *exchange rate index*. The weight given to each currency in the index depends on the percentage of UK trade in goods and services done with countries using that currency. The weights are revised annually. Figure 15.16 also shows the sterling exchange rate index based on 2005 = 100.



From looking at Figure 15.16, how has the pound 'fared' compared with the US dollar and the yen from 1980? What conclusions can be drawn about the relative movements between these currencies?

Note that all the exchange rates must be consistent with each other. For example, if £1 exchanged for \$1.50 or 150 yen, then \$1.50 would have to exchange for 150 yen directly

(i.e. $\$1 = 100$ yen), otherwise people could make money by moving around in a circle between the three currencies in a process known as *arbitrage*.

The determination of the rate of exchange in a free market

In a free foreign exchange market, the rate of exchange is determined by demand and supply. This is known as a *floating exchange rate*, and is illustrated in Figure 15.17.

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For simplicity, assume that there are just two countries: the UK and the USA. When UK importers wish to buy goods from the USA, or when UK residents wish to invest in the USA, they will *supply* pounds on the foreign exchange market in order to obtain dollars. The higher the exchange rate, the more dollars they will obtain for their pounds. This will effectively make US goods cheaper to buy, and investment more profitable. Thus the *higher* the exchange rate, the *more*

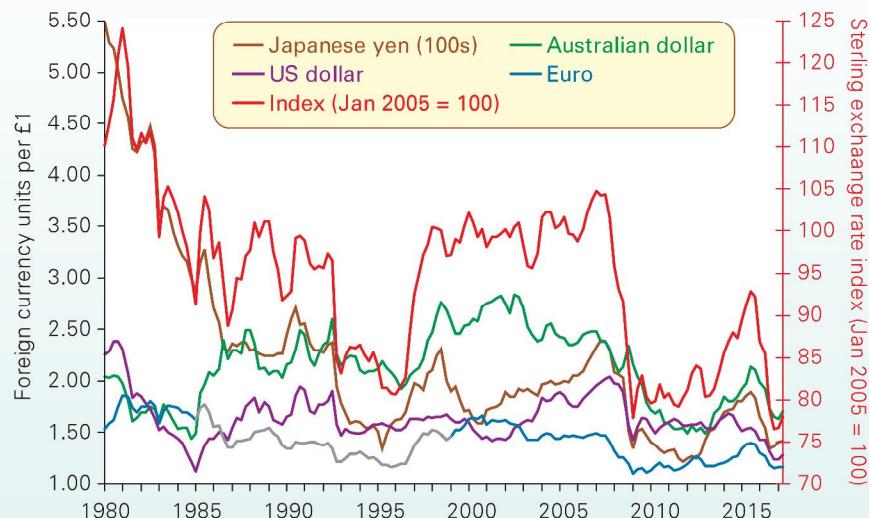
Definitions

Exchange rate index A weighted average exchange rate expressed as an index, where the value of the index is 100 in a given base year. The weights of the different currencies in the index add up to 1

Arbitrage Buying an asset in a market where it has a lower price and selling it again in another market where it has a higher price and thereby making a profit.

Floating exchange rate When the government does not intervene in the foreign exchange markets, but simply allows the exchange rate to be freely determined by demand and supply.

Figure 15.16 Sterling exchange rates against selected currencies

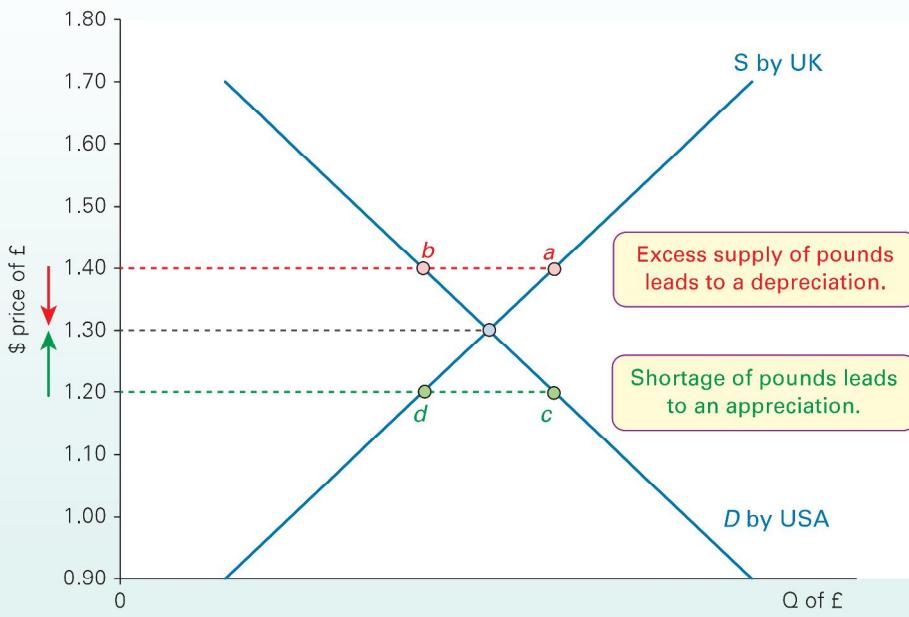


Notes: The euro was introduced in 1999, with notes and coins circulating from 2001. The euro figures prior to 1999 (in grey) are projections backwards in time based on the average exchange rates of the currencies that made up the euro.

Source: Based on data in *Time Series Data* (ONS).

Figure 15.17

Determination of the rate of exchange



pounds will be supplied. The supply curve of pounds, therefore, typically slopes upwards.

When US residents wish to purchase UK goods or to invest in the UK, they will require pounds. They *demand* pounds by selling dollars on the foreign exchange market. The lower the dollar price of the pound (the exchange rate), the cheaper it will be for them to obtain UK goods and assets, and hence the more pounds they are likely to demand. The demand curve for pounds, therefore, typically slopes downwards.

The equilibrium exchange rate is where the demand for pounds equals the supply. In Figure 15.17 this is at an exchange rate of £1 = \$1.30. But what is the mechanism that equates demand and supply?

If the current exchange rate were above the equilibrium, the supply of pounds being offered to the banks would exceed the demand. For example, in Figure 15.17, if the exchange rate were \$1.40, there would be an excess supply of pounds of $a - b$. The banks, wishing to make money by *exchanging* currency, would have to lower the exchange rate in order to encourage a greater demand for pounds and reduce the excessive supply. They would continue lowering the rate until demand equalled supply.

Similarly, if the rate were below the equilibrium, say at \$1.20, there would be a shortage of pounds of $c - d$. The banks would find themselves with too few pounds to meet all the demand. At the same time, they would have an excess supply of dollars. The banks would thus raise the exchange rate until demand equalled supply.

In practice, the process of reaching equilibrium is extremely rapid. The foreign exchange dealers in the banks are continually adjusting the rate as new customers make

new demands for currencies. What is more, the banks have to watch each other closely since they are constantly in competition with each other and thus have to keep their rates in line. The dealers receive minute-by-minute updates on their computer screens of the rates being offered around the world.

Shifts in the currency demand and supply curves

Any shift in the demand or supply curves will cause the exchange rate to change. This is illustrated in Figure 15.18, which shows the euro/sterling exchange rate. If the demand and supply curves shift from D_1 and S_1 to D_2 and S_2 respectively, the exchange rate will fall from €1.40 to €1.20. A fall in the exchange rate is called a *depreciation*. A rise in the exchange rate is called an *appreciation*.

But why should the demand and supply curves shift? The following are the major possible causes of a depreciation:

- *A fall in domestic interest rates.* UK rates would now be less competitive for savers and other depositors. More UK residents would be likely to deposit their money abroad (the supply of sterling would rise), and fewer people abroad would deposit their money in the UK (the demand for sterling would fall).

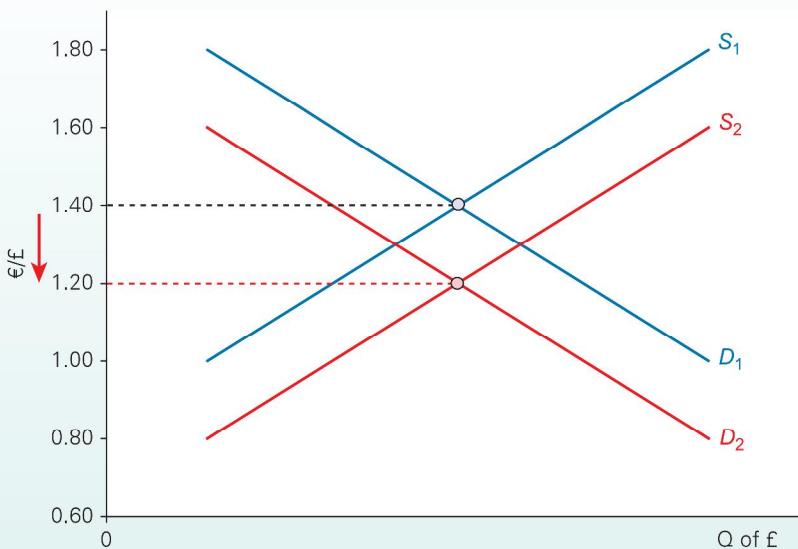
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Definitions

Depreciation A fall in the free-market exchange rate of the domestic currency with foreign currencies.

Appreciation A rise in the free-market exchange rate of the domestic currency with foreign currencies.

Figure 15.18 Floating exchange rates: movement to a new equilibrium

- *Higher inflation in the domestic economy than abroad.* UK exports will become less competitive. The demand for sterling will fall. At the same time, imports will become relatively cheaper for UK consumers. The supply of sterling will rise.
- *A rise in domestic incomes relative to incomes abroad.* If UK incomes rise, the demand for imports, and hence the supply of sterling, will rise. If incomes in other countries fall,

the demand for UK exports, and hence the demand for sterling, will fall.

- *Relative investment prospects improving abroad.* If investment prospects become brighter abroad than in the UK, perhaps because of better incentives abroad, or because of worries about an impending recession in the UK, again the demand for sterling will fall and the supply of sterling will rise.

BOX 15.7 DEALING IN FOREIGN EXCHANGE

CASE STUDIES AND APPLICATIONS

A daily juggling act

Imagine that a large car importer in the UK wants to import 5000 cars from Japan costing ¥15 billion. What does it do?

It will probably contact a number of banks' foreign exchange dealing rooms in London and ask them for exchange rate quotes. It thus puts all the banks in competition with each other. Each bank will want to get the business and thereby obtain the commission on the deal. To do this it must offer a higher rate than the other banks, since the higher the ¥/£ exchange rate, the more yen the firm will get for its money. (For an importer a rate of, say, ¥160 to £1 is better than a rate of, say, ¥140.)

Now it is highly unlikely that any of the banks will have a spare ¥15 billion. But a bank cannot say to the importer, 'Sorry, you will have to wait before we can agree to sell them to you.' Instead the bank will offer a deal and then, if the firm agrees, the bank will have to set about obtaining the ¥15 billion. To do this, it must offer to obtain pounds for Japanese who are supplying yen at a sufficiently low ¥/£ exchange rate.

(The lower the ¥/£ exchange rate, the fewer yen the Japanese will have to pay to obtain pounds.)

The banks' dealers thus find themselves in the delicate position of wanting to offer a *high* enough exchange rate to the car importer in order to gain its business, but a *low* enough exchange rate in order to obtain the required amount of yen. The dealers are thus constantly having to adjust the rates of exchange in order to balance the demand and supply of each currency.

In general, the more of any foreign currency that dealers are asked to supply (by being offered sterling), the lower will be the exchange rate they will offer. In other words, a higher supply of sterling pushes down the foreign currency price of sterling (see Figure 15.18).

Assume that a firm based in the USA wants to import Scotch whisky from the UK. Describe how foreign exchange dealers will respond.

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- KI 10 p70**
- *Speculation that the exchange rate will fall.* If businesses involved in importing and exporting, and also banks and other foreign exchange dealers, think that the exchange rate is about to fall, they will sell pounds *now* before the rate does fall. The supply of sterling will thus rise. People thinking of buying pounds will wait until the rate does fall and hence, in the meantime, the demand for sterling will fall. Speculation thus helps to bring about the very effect people had anticipated (see pages 70–73).
 - *Longer-term changes in international trading patterns.* Over time the pattern of imports and exports is likely to change as (a) consumer tastes change, (b) the nature and quality of goods change and (c) the costs of production change. If, as a result, UK goods become less competitive than, say, German or Japanese goods, the demand for sterling will fall and the supply will rise. These shifts, of course, are gradual, taking place over many years.



Go through each of the above reasons for shifts in the demand for and supply of sterling and consider what would cause an appreciation of the pound.

Exchange rates and the balance of payments

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In a free foreign exchange market, the balance of payments will *automatically* balance. But why?

The credit side of the balance of payments constitutes the demand for sterling. For example, when people abroad buy UK exports or assets, they will demand sterling in order to

pay for them. The debit side constitutes the supply of sterling. For example, when UK residents buy foreign goods or assets, the importers of them will require foreign currency to pay for them. They will thus supply pounds. A floating exchange rate ensures that the demand for pounds always equals the supply. It thus also ensures that the credits on the balance of payments are equal to the debits: that the balance of payments balances.

This does not mean that each part of the balance of payments account will separately balance, but simply that any current account deficit must be matched by a capital plus financial account surplus and vice versa.

For example, suppose initially that each part of the balance of payments *did* separately balance. Then let us assume that interest rates rise. This will encourage larger short-term financial inflows as people abroad are attracted to deposit money in the UK: the demand for sterling would shift to the right (e.g. from D_2 to D_1 in Figure 15.18). It will also cause smaller short-term financial outflows as UK residents keep more of their money in the country: the supply of sterling shifts to the left (e.g. from S_2 to S_1 in Figure 15.18). The financial account will go into surplus. The exchange rate will appreciate.

As the exchange rate rises, this will cause imports to be cheaper and exports to be more expensive. The current account will move into deficit. There is a movement up along the new demand and supply curves until a new equilibrium is reached. At this point, any financial account surplus is matched by an equal current (plus capital) account deficit.

Section summary

1. The balance of payments account records all payments to and receipts from foreign countries. The current account records payments for imports and exports, plus incomes and transfers of money to and from abroad. The capital account records all transfers of capital to and from abroad. The financial account records inflows and outflows of money for investment and as deposits in banks and other financial institutions; it also includes dealings in the country's foreign exchange reserves.
2. The whole account must balance, but surpluses or deficits can be recorded on any specific part of the account.
3. The rate of exchange is the rate at which one currency exchanges for another. Rates of exchange are determined

by demand and supply in the foreign exchange market. Demand for the domestic currency consists of all the credit items in the balance of payments account. Supply consists of all the debit items.

4. The exchange rate will depreciate (fall) if the demand for the domestic currency falls and/or the supply increases. These shifts can be caused by increases in domestic prices or incomes relative to foreign ones, reductions in domestic interest rates relative to foreign ones, worsening investment prospects at home compared with abroad, or the belief by speculators that the exchange rate will fall. The opposite in each case would cause an appreciation (rise).

APPENDIX: CALCULATING GDP

As explained in section 15.2, there are three ways of estimating GDP. In this appendix, we discuss each method in more detail. We also look at some alternative measures of national income.

The product method of measuring GDP

This approach simply involves adding up the value of everything produced in the country during the year: the output of cars, timber, lollipops, shirts, etc.; and all the

myriad of services, such as football matches, haircuts, bus rides and insurance services. In the national accounts these figures are grouped together into broad categories such as manufacturing, construction and distribution. The figures for the UK economy for 2015 are shown in Figure 15.19.

When we add up the output of various firms, we must be careful to avoid *double counting*. For example, if a manufacturer sells a television to a retailer for £600 and the retailer sells it to the consumer for £800, how much has this television contributed to GDP? The answer is *not* £1400. We do not add the £600 received by the manufacturer to the £800 received by the retailer: that would be double counting. Instead we either just count the final value (£800) or the *value added* at each stage (£600 by the manufacturer + £200 by the retailer).

The sum of all the values added at each of the stages of production by all the various industries in the economy is known as *gross value added at basic prices (GVA)*.

Figure 15.19 UK GVA by product-based measure, 2015



Some qualifications

Stocks (or inventories). We must be careful only to include the values added in the *particular year in question*. A problem here is that some goods start being produced *before* the year begins. Thus when we come to work out GDP, we must ignore the values that had previously been added to stocks of raw materials and goods. Similarly, other goods are only sold to the consumer *after* the end of the year. Nevertheless we must still count the values that have been added during *this year* to these stocks of partially finished goods.

A final problem concerned with stocks is that they may increase in value simply due to increased prices. This is known as **stock (or inventory) appreciation**. Since there has been no real increase in output, stock appreciation must be deducted from value added.

Government services. The output of private industry is sold on the market and can thus be easily valued. This is not the case with most of the services provided by the government. Such services (e.g. health and education) should be valued in terms of what they cost to provide.

Ownership of dwellings. When a landlord rents out a flat, this service is valued as the rent that the tenant pays. But owner-occupiers living in their own property do not pay rent and yet they are ‘consuming’ a similar ‘service’. Here a rental value for owner-occupation is ‘imputed’. In other words, a figure corresponding to a rent is included in the GDP statistics under the heading ‘letting of property’ in the real estate activities category.

Taxes and subsidies on products. Taxes paid on goods and services (such as VAT) and any subsidies on products are *excluded* from gross value added (GVA), since they are not part of the value added in production. Nevertheless the way GDP is measured throughout the EU and most other countries of the world is at *market prices*: i.e. at the prices actually paid at each stage of production. Thus **GDP at market prices** (sometimes referred to simply as GDP) is GVA *plus* taxes on products *minus* subsidies on products.

Definitions

Gross value added at basic prices (GVA) The sum of all the values added by all industries in the economy over a year. The figures exclude taxes on products (such as VAT) and include subsidies on products

Stock (or inventory) appreciation The increase in monetary value of stocks due to increased prices. Since this does not represent increased output, it is not included in GDP

GDP (at market prices) The value of output (or income or expenditure) in terms of the prices actually paid.

GDP = GVA + taxes on products – subsidies on products.

The income method of measuring GDP

The second approach focuses on the incomes generated from the production of goods and services. This must be the same as the sum of all values added, since value added is simply the difference between a firm's revenue from sales and the costs of its purchases from other firms. This difference is made up of wages and salaries, rent, interest and profit: the incomes earned by those involved in the production process.

Since GDP is the sum of all values added, it must also be the sum of all incomes generated: the sum of wages and salaries, rent, interest and profit.



If a retailer buys a product from a wholesaler for £80 and sells it to a consumer for £100, then the £20 of value that has been added will go partly in wages, partly in rent and partly in profits. Thus £20 of income has been generated at the retail stage. But the good actually contributes a total of £100 to GDP. Where, then, is the remaining £80 worth of income recorded?

Figure 15.20 shows how these incomes are grouped together in the official statistics. By far the largest category is 'compensation of employees': in other words, wages and salaries. As you can see, the total in Figure 15.20 is the same as in Figure 15.19, although the components are quite different. In other words, GDP is the same whether calculated by the product or the income method.

Some qualifications

Stock (inventory) appreciation. As in the case of the product approach, any gain in profits from inventory appreciation must be deducted, since they do not arise from a real increase in output.

Transfer payments. GDP includes only those incomes that arise from the production of goods and services. We do not, therefore, include *transfer payments* such as social security benefits, pensions and gifts.

Direct taxes. We count people's income *before* the payment of income and corporation taxes, since it is this *gross* (pre-tax) income that arises from the production of goods and services.

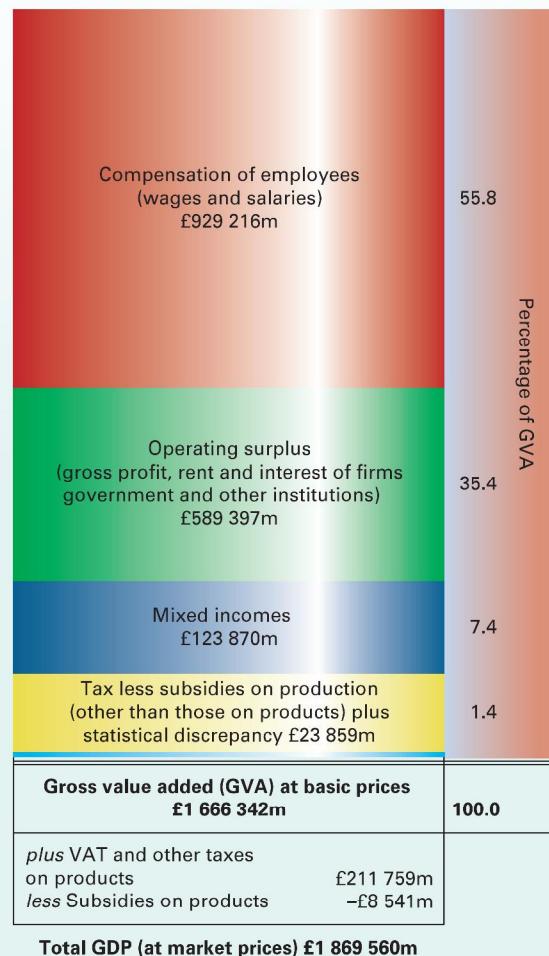
Taxes and subsidies on products. As with the product approach, if we are working out GVA, we measure incomes before the payment of taxes on products or the receipt of subsidies on products, since it is these pre-tax-and-subsidy incomes that arise from the value added by production. When working out GDP, however, we add in these taxes and subtract these subsidies to arrive at a *market price* valuation.

The expenditure method of measuring GDP

The final approach to calculating GDP is to add up all expenditure on final output (which will be at market prices). This will include the following:

Figure 15.20

UK GVA by category of income, 2015



- **Consumer expenditure (C).** This includes all expenditure on goods and services by households and by non-profit institutions serving households (NPISH) (e.g. clubs and societies).
- **Government expenditure (G).** This includes central and local government expenditure on final goods and services. Note that it includes non-marketed services (such as health and education), but excludes transfer payments, such as pensions and social security payments.
- **Investment expenditure (I).** This includes investment in capital, such as buildings and machinery. It also includes the value of any increase (+) or decrease (-) in inventories, whether of raw materials, semi-finished goods or finished goods.
- **Exports of goods and services (X).**

We then have to *subtract* imports of goods and services (*M*) from the total in order to leave just the expenditure on *domestic* product. In other words, we subtract the part of consumer expenditure, government expenditure and investment that

Table 15.6

UK GDP at market prices by category of expenditure, 2015

	£ million	% of GDP
Consumption expenditure of households and NPISH (C)	1 216 113	65.0
Government final consumption (G)	360 828	19.3
Gross capital formation (I)	327 855	17.5
Exports of goods and services (X)	510 340	27.3
Imports of goods and services (M)	-548 908	-29.4
Statistical discrepancy	3 332	0.2
GDP at market prices	1 869 560	100.0

Source: UK National Accounts, *The Blue Book: 2016* (ONS).

goes on imports. We also subtract the imported component (e.g. raw materials) from exports.

$$\text{GDP (at market prices)} = C + I + G + X - M$$

Table 15.6 shows the calculation of the 2015 UK GDP by the expenditure approach.

From GDP to national income

Gross national income

Some of the incomes earned in this country will go abroad. These include wages, interest, profit and rent earned in this country by foreign residents and remitted abroad, and taxes on production paid to foreign governments and institutions (e.g. the EU). On the other hand, some of the incomes earned by domestic residents will come from abroad. Again, these can be in the form of wages, interest, profit or rent, or in the form of subsidies received from governments or institutions abroad. Gross *domestic* product, however, is concerned only with incomes generated *within* the country, irrespective of ownership. If, then, we are to take 'net income from abroad' into account (i.e. these inflows minus outflows), we need a new measure. This is *gross national income (GNI)*.⁶ It is defined as follows:

$$\begin{aligned} \text{GNI at market prices} &= \text{GDP at market prices} \\ &\quad + \text{Net income from abroad} \end{aligned}$$

Thus GDP focuses on the value of domestic production, whereas GNI focuses on the value of incomes earned by domestic residents.

Net national income

The measures we have used so far ignore the fact that each year some of the country's capital equipment wears out or becomes obsolete: in other words, they ignore capital depreciation. If we subtract from gross national income an allowance for *depreciation* (or 'capital consumption' as it is called in the official statistics), we get *net national income (NNI)*.

$$\begin{aligned} \text{NNI at market prices} &= \text{GNI at market prices} \\ &\quad - \text{Depreciation} \end{aligned}$$

Table 15.7

UK GDP, GNY and NNY at market prices, 2015

	£ million
Gross domestic product (GDP)	1 869 560
Plus net income from abroad	-37 016
Gross national income (GNY)	1 832 544
Less capital consumption (depreciation)	245 144
Net national income (NNY)	1 587 400

Source: UK National Accounts, *The Blue Book: 2016 Tables* (ONS).

Table 15.7 shows the 2015 GDP, GNY and NNY figures for the UK.

Although NNY gives a truer picture of a nation's income than GNY, economists tend to use the gross figures because depreciation is hard to estimate accurately.

Households' disposable income

Finally, we come to a measure that is useful for analysing consumer behaviour. This is called *households' disposable income*. It measures the income that people have available for spending (or saving): i.e. after any deductions for income tax, national insurance, etc. have been made. It is the best measure to use if we want to see how changes in household income affect consumption.

How do we get from GNY at market prices to households' disposable income? As GNY measures the incomes that firms receive from production⁷ (plus net income from abroad), we must deduct that part of their income that is *not* distributed to households. This means that we must deduct taxes that firms pay – taxes on goods and services (such as VAT), taxes on profits (such as corporation tax) and any other taxes – and add in any subsidies they receive. We must then subtract

Definitions

Gross national income (GNI) GDP plus net income from abroad.

Depreciation The decline in value of capital equipment due to age, or wear and tear.

Net national income (NNI) GNI minus depreciation.

Households' disposable income The income available for households to spend: i.e. personal incomes after deducting taxes on incomes and adding benefits.

⁶ In the official statistics, this is referred to as GNI. We use Y to stand for income, however, to avoid confusion with investment.

⁷ We also include income from any public-sector production of goods or services (e.g. health and education) and production by non-profit institutions serving households.

allowances for depreciation and any undistributed profits. This gives us the gross income that households receive from firms in the form of wages, salaries, rent, interest and distributed profits.

To get from this to what is available for households to spend, we must subtract the money that households pay in income taxes and national insurance contributions, but add

all benefits to households, such as pensions and child benefit: in other words, we must *include* transfer payments.

Households' disposable income = GNY at market prices

- Taxes paid by firms + Subsidies received by firms
- Depreciation – Undistributed profits – Personal taxes
- + Benefits

Section summary

1. The product method measures the values added in all parts of the economy. Care must be taken in the evaluation of stocks, government services and the ownership of dwellings.
2. The income method measures all the incomes generated from domestic production: wages and salaries, rent, interest and profit. Transfer payments are not included, nor is stock appreciation.
3. The expenditure method adds up all the categories of expenditure: consumer expenditure, government expenditure, investment and exports. We then have to deduct the element of each that goes on imports in order to arrive at expenditure on domestic products. Thus $GDP = C + G + I + X - M$.
4. GDP at market prices measures what consumers pay for output (including taxes and subsidies on what they buy). Gross value added (GVA) measures what factors of production actually receive. GVA, therefore, is GDP at market prices minus taxes on products plus subsidies on products.
5. Gross national income (GNI) takes account of incomes earned from abroad (+) and incomes earned by people abroad from this country (-). Thus GNI = GDP plus net income from abroad.
6. Net national income (NNI) takes account of depreciation of capital. Thus NNI = GNI – depreciation.
7. Personal disposable income is a measure of household income after the deduction of income taxes and the addition of benefits.

END OF CHAPTER QUESTIONS

1. In 1974, the UK economy shrank by 2.5 per cent before shrinking by a further 1.5 per cent in 1975. However, actual GDP rose by 13 per cent in 1974 and by 24 per cent in 1975. What explains these apparently contradictory results?
2. Economists sometimes refer to the 'twin characteristics of economic growth'. What are these characteristics?
3. (i) What do you understand by the term financialisation? (ii) How might we assess the financial well-being of households?
4. Explain how equilibrium would be restored in the circular flow of income if there were a fall in investment.
5. Explain the circumstances under which an increase in pensions and child benefit would (a) increase national income; (b) leave national income unaffected; (c) decrease national income.
6. For what reasons might GDP be a poor indicator of (i) the level of development of a country; (ii) its rate of economic development?
7. (i) Will the rate of actual growth have any effect on the rate of potential growth? (ii) For what possible reasons may one country experience a persistently faster rate of economic growth than another?
8. Why will investment affect both actual (short-term) growth and the long-term growth in potential output? What will be the implications if these two effects differ in magnitude?
9. At what phase of the business cycle is the average duration of unemployment likely to be the highest? Explain.
10. Consider the most appropriate policy for tackling each of the different types of unemployment.
11. Do any groups of people gain from inflation?
12. If everyone's incomes rose in line with inflation, would it matter if inflation were 100 per cent or even 1000 per cent per annum?
13. Imagine that you had to determine whether a particular period of inflation was demand-pull, or cost-push, or a combination of the two. What information would you require in order to conduct your analysis?
14. Explain how the current account of the balance of payments is likely to vary with the course of the business cycle.
15. The overall balance of payments must always balance. If this is the case, why might a deficit on one part of the balance of payments be seen as a problem?
16. List some factors that could cause an increase in the credit items of the balance of payments and a decrease in the debit items. What would be the effect on the exchange rate (assuming that it is freely floating)? What effect would these exchange rate movements have on the balance of payments?
17. Explain how you would derive a figure for households' disposable income if you were starting from a figure for GDP.