CHAPTER 1

GROWTH

WHAT IT'S ALL ABOUT

- How to measure the size of the economy and how fast it's growing
- How flows of money move around the economy
- How people's incomes affect their decisions about spending or saving
- How activity moves up and down but generally rises over time
- Why a rise in spending can have a magnified effect on the economy
- What recessions are and why they happen

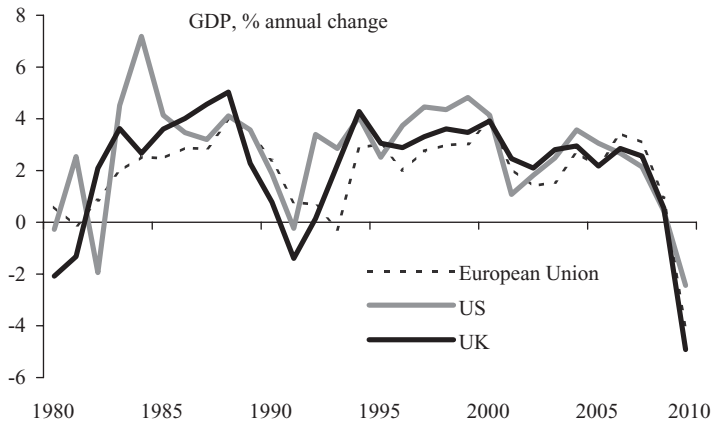
WHAT IS ECONOMIC GROWTH?

We hear regularly on the TV and radio news, and in newspapers and online, about how quickly the economy is expanding or – as has been the case during the financial crisis – contracting. But what exactly is this thing we call 'the economy', and how do we measure its size and rate of growth?

The size of the economy is often referred to as GDP – which stands for 'Gross Domestic Product'. One way to measure the size of the economy is to add up the total amount (Gross) in a country (Domestic) of all the goods & services made (Product). This is called the *output* measure of GDP, but there are two other ways we can get to this number. We can add up the total amount that we *spend* on goods & services. Or we can measure economic activity by looking at the total amount of *income* that has been earned.

We usually measure economic activity over a period of three months – a 'quarter' – or over an entire year. The rate of economic growth is then simply the percentage change in GDP from one quarter to the next (the quarterly growth rate), or from one quarter to the same period a year later (annual growth). Sometimes, the quarterly growth rate is shown as an 'annualised' figure – in other words, how quickly the economy would grow over an entire year if it continued at the rate achieved during that one quarter.

Growth in the US and Europe over the past 30 years



THREE MEASURES OF ACTIVITY

The three measures of GDP, or economic activity, outlined above should be identical, in theory at least, because any *income* earned is then *spent* on the goods & services that have been *produced*. In practice, however, it is difficult to measure economic activity precisely so getting the three measures to equal one another can be difficult. Let's take a closer look at these different ways of working out the size of economy.

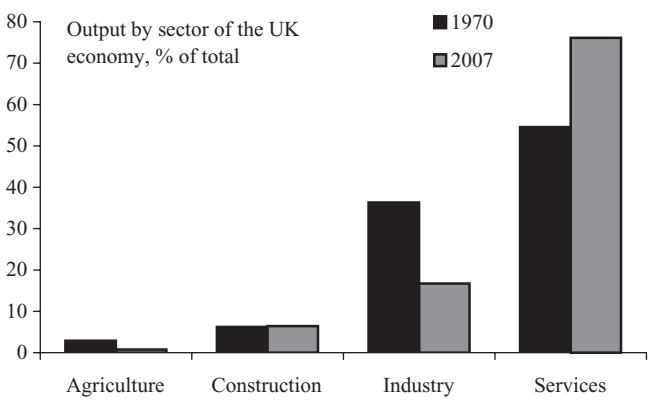
1. Output

The output measure adds up the value of all goods & services produced in the economy. This includes

the output of manufacturing, mining and energy supply companies – collectively called 'industrial production' – as well as construction and agricultural output.

It also includes the output of the service industries, even though they do not make physical products like manufacturers do. These include transport and telecommunications firms, restaurants, hotels, banks, accountants and estate agents to name but a few – all of which provide valuable services to the economy. In developed economies such as the UK, US and Europe, the service sector has become much more important in recent years, while the manufacturing base has become ever smaller.

Shifts in the structure of the UK economy



2. Income

We can measure GDP by adding together how much is earned across the economy. This means adding together wages paid to workers, rent paid to land owners and profits paid to the owners of firms. You may sometimes hear these three key inputs – labour, land and capital – referred to as the 'factors of production'. This is because they are the three basic components, combined together with technological know-how, required when we produce goods & services.

3. Spending

Most importantly, let's turn to the spending measure of GDP. If we were to measure the size of the economy by looking at everyone's outgoings we would need to think not just about how much we spend as individuals, but spending by other groups too. Investment spending by firms, for example, must be included. We often think of investment as the purchase by a firm of buildings and machines, but we must not forget that when firms change their stocks (or inventories) that is also a type of investment because they can be stored and sold at a later date. Governments spend money on goods & services – both current expenditure and for investment purposes – which is also a part of GDP. It is worth noting that we do not include benefit payments like jobseekers' allowance – these will already be included in how much *individuals*

receive from the government which they may then go on to spend, so to include it would be double counting. Finally, we also add in how much is spent by people abroad on our exports, less the amount we spend on imports from abroad (as the latter represents an outflow of money from the economy).

So, in summary total spending in the economy is made up of:

- how much households spend;
- investment by firms (including stock-building);
- spending by the government;
- spending on exports (less imports).

HOW IT ALL FITS TOGETHER

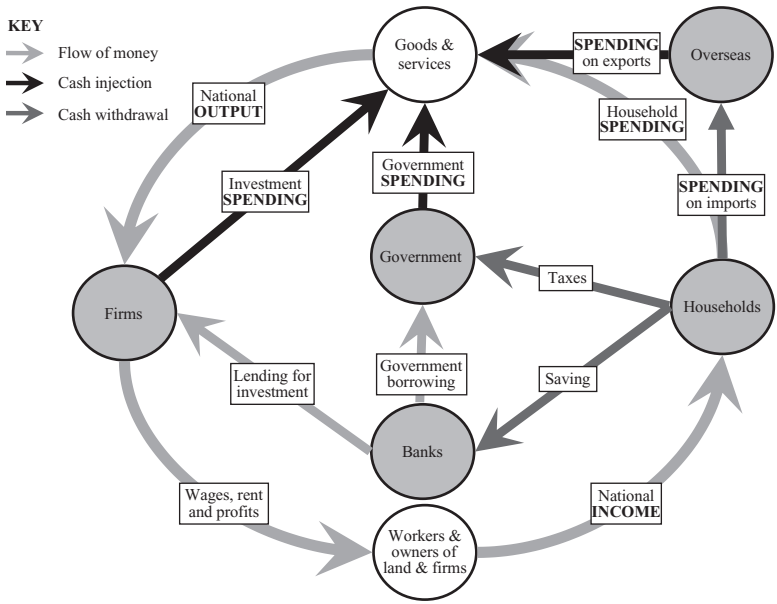
The interaction between these groups – households, firms, the government and the international sector – in an economy is called the 'circular flow of income', and getting a flavour of this helps us understand how economies work. Put simply, firms produce goods & services and pay their employees an income for doing so. Firms also pay rent to landowners while the profits go to the firms' owners. Households then use some of that income up by spending it on the goods & services produced by firms – which is why it is called the *circular* flow of income. The best way to show all of this is in the diagram on page 12.

As you can see, it is not *quite* as simple as that. As income moves round this circular system, some money is removed, but at the same time some money is injected back in. Money can be removed in three ways: (i) by spending on imports (as the money goes abroad), (ii) paying taxes to the government, and (iii) saving money in banks and other financial institutions. Additions of money come about in similar but conceptually opposite ways: (i) people abroad spending money on our exports, (ii) the government spending taxpayers' money on public services, and (iii) firms borrowing people's savings from banks to invest.

When the amount of cash that leaves the circular flow (imports, taxes, savings) is the same as the cash that enters the system (exports, government spending and investment) then we have some sort of happy balance – or, as economists call it, 'equilibrium'. When they don't match up this can cause either the economy to run too fast (additions higher than withdrawals) or alternatively too slow (withdrawals higher than additions).

In the diagram overleaf, the grey circles are the various groups or 'sectors' in the economy, while the white circles show the markets for jobs as well as goods & services. The arrows refer to money flows – the red ones represent money removed from the system, the blue ones money added back in. Take some time to look at this diagram and it should become clear how it all fits together. In particular, it helps to explain why the output, income and spending measures of GDP should all be the same – because they are just measuring the flow of money at

The circular flow of income



WHO SAID IT

An individual is "led by an invisible hand to promote an end which was no part of his intention … By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it."

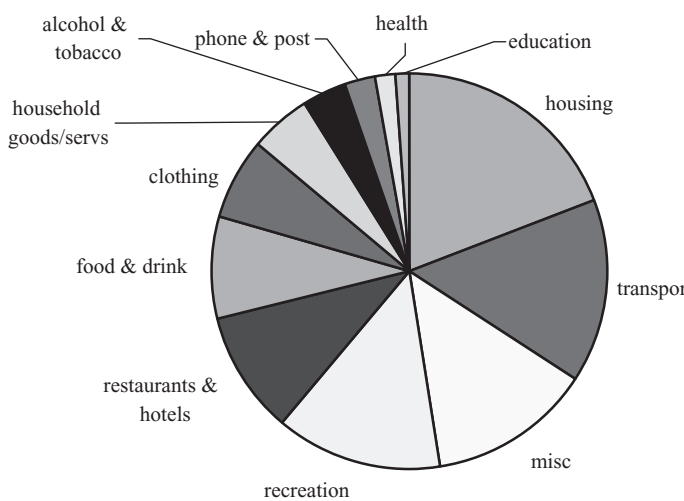
– Adam Smith

different points in the circle (the three measures are shown in capital letters in the diagram above to make them easier to spot).

FOCUS ON HOUSEHOLD SPENDING AND INVESTMENT BY FIRMS

Let's think about the spending measure of GDP. We take a more detailed look at government spending and international trade (exports and imports) later on in the book, so for now let's focus on the main factors influencing spending by households and firms.

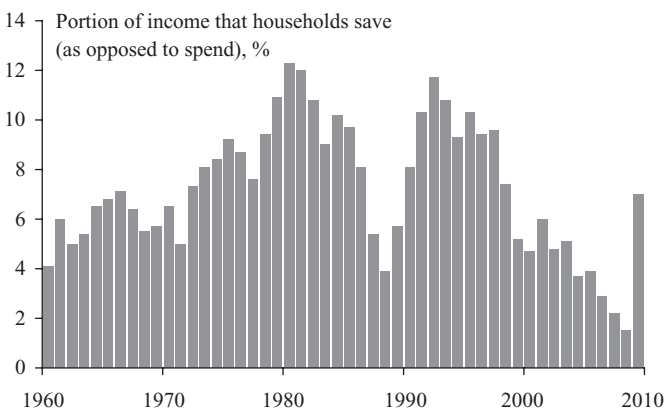
What UK households spend money on



Household spending is one of the most important components of total expenditure because it is worth such a large portion of the economy. In fact, in many advanced economies around two thirds of all spending is done by households. The previous chart shows what we spend our money on in the UK. Close to half of it goes on what we might term necessities – things like housing, transport, food and drink, health and education – which probably does not change that much from one year to the next.

When we choose what portion of our income to spend, we must also make a simultaneous decision about what portion of income we want to save. This is called the household saving ratio and is shown in the chart below for the UK.

Movements in the UK household saving ratio over time



Over the years there has been a lot of important work done to investigate how households decide how much to spend and save at any point in time. There are lots of things that will affect this decision, including interest rates, for example (higher rates dissuade spending because it is more costly to borrow, and encourage saving because of higher returns). Even the value of our homes or the shares we might own could affect how much we spend – the more wealthy we feel, the more likely we are to buy things. This is called the 'wealth effect'.

Leaving these influences aside, one of the biggest debates among economists in the past has been about how the *level of income* affects spending. Back in the 1930s, John Maynard Keynes – one of the most important economists of all time – argued that the amount of money people spend would depend mainly on how much they *currently* earn in their job.

While that might sound reasonable, it seemed too crude to Milton Friedman, an American Nobel Prize winning economist who looked into these issues back in the 1950s and 1960s. He argued that how much people will spend depends not only on their current earnings, but also on how much they think they will earn in the future – something he called 'permanent income'.

This is an important conclusion for two reasons. Firstly, because it means that people will *smooth* their spending over time. In years where a person's earnings have been especially good they may squirrel more of it away, so they

WHO YOU NEED TO KNOW

John Maynard Keynes

John Maynard Keynes was one of the most influential economic thinkers of the twentieth century. Keynes devoted his time looking at a branch of economics called *macroeconomics* – the study of how the economy operates as a whole. In his work published between the two world wars (the most important of which was *The General Theory of Employment, Interest and Money*, 1936) he looked at the factors that determined key economic variables such as interest rates, inflation, output and unemployment.

He argued a key driver of economic activity was the difference between how much people want to save and how much firms want to invest. Unlike the views of his predecessors (the 'classical' economists such as Adam Smith), Keynes believed interest rates would not always be at a level that would equilibrate the two. Too *much* saving would mean not enough spending, which in turn could cause recession. While too *little* saving could cause a boom in consumer spending and in turn lead to higher inflation.

Keynes was a firm believer in intervention by the central bank and the government. Leaving the economy to its own devices (a policy known as 'laissez faire') may mean a prolonged period of too much or too little activity. By changing interest rates and public spending/taxes, economic activity and inflation could be managed by the authorities over a shorter period. He even went as far as to say that if total, or 'aggregate' as economists call it, demand in the economy was too low (and unemployment too high), governments could help by burying banknotes in bottles which people would then dig up and spend! To be a 'Keynesian', therefore, means to support government intervention in the economy through a process of 'demand management'.

can draw upon it in bad years when their income may be lower. Someone who is worried about losing their job, for example, might opt to save more now so that they have savings to see them through their period of expected unemployment. Secondly, it means that government intervention – such as tax cuts – may not have the desired effect to support the economy. The reason is that people may not spend all of their extra disposable income if they think the government will only end up raising taxes again in the future.

The economic data shows this smoothing of consumer spending to be true – the amount households spend is not only one of the largest but also one of the *least variable* components of total spending in the economy. Economists call the proportion of income that people spend – as opposed to save – the 'propensity to consume', which for both individuals and society as a whole will depend on income distribution. For example, people who are less well off tend to spend a greater portion of their income than richer people do.

The relative stability we see in consumption is not the case when we look at how much businesses invest, however. Investment is usually a smaller part of total spending than consumption, but it can change quite quickly. Keynes said this was due to the 'animal spirits' of investors. As a result, investment swings can have a large effect on the rate at which the overall economy grows – both on the upside during the boom and on the downside during recessions.

How do firms decide how much to invest? If firms can't keep up with the amount of demand there is for their product, then they probably need to invest so they can produce more. On the other hand, if they are producing too much relative to what is required then they may need to invest less – or even retire some of their existing plant or machinery. In this case we say the firm has 'spare' or 'excess' capacity.

The cost of increasing the workforce must be accounted for, because more machinery will likely mean more people required to operate it. And the price of what the firm sells compared with the cost of investing – the interest rate – will be an important consideration too. Unlike Keynes, classical economists believed that interest rates in the market should, without intervention, eventually move to a level whereby households will want save as much as firms desire to invest.

VOLUMES, VALUES AND THE SEASONS

Before we begin to look at economic cycles, there are two more things that are important to know about GDP.

First, this may sound obvious but the size of the economy will vary depending on the time of year. For example, economic activity is usually higher from October to December than it is during any other quarter

of the year as production, spending, and income are all raised for Christmas. Distortions such as this can make it difficult to analyse the underlying trend in the economy, so we usually adjust GDP for such seasonal influences. That way, if adjusted output rises strongly towards the end of the year we can be sure it is because of something else other than the usual Christmas effect.

The second issue relates to prices. So far, you might have assumed that we've been talking about GDP in cash, or 'nominal', terms – in other words, the *value* of output produced or bought, or income earned. But normally when we hear about economic activity it is in 'real' terms – the *number* of goods produced or bought, or how many can be bought with the income we earn.

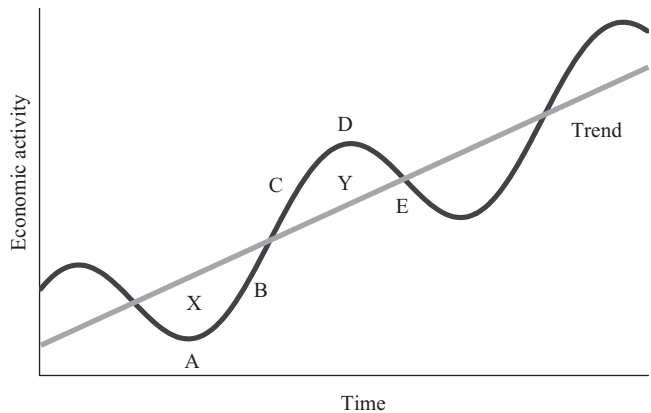
Consider the following example. Imagine the economy only produces handbags, and 100 are sold in the first year at a price of £10 each. In the following year, let's say the same number is sold, but the price has risen to £15 each. *Nominal GDP* in this case would have risen by 50% from £1000 to £1500 between the two years, but *real GDP* – the amount physically produced in the economy – would be unchanged.

There will be occasions when we prefer to look at nominal instead of real activity, but generally speaking when we talk about the growth rate of an economy we are referring to the volume of (or real) GDP.

BUSINESS CYCLES AND TREND GROWTH

As we have seen, the rate at which the economy grows can vary considerably over time. Sometimes activity growth is strong, sometimes it is weak, and on occasion activity actually contracts, as it did sharply in many developed countries during the recent financial crisis. This process of ups and downs in GDP around a generally rising trend is referred to by economists as the 'business cycle'.

The business cycle



Let's examine the phases of a normal business cycle using the graph above, starting at point A. This is pretty much where many advanced economies stood

immediately after the recession of 2008–09. Activity in most countries had stabilised after falling sharply during the banking sector crisis, reflected in the line flattening out.

Following a recession, the next stage of a typical economic cycle is recovery, indicated by points B and C. Economic activity at first begins to increase slowly before speeding up (point B) as it bounds back from its recession-lows (it's worth just reminding ourselves here that the line in the graph above shows the *level* of activity – so the steeper the line, the faster the rate of growth).

As the economy continues to grow, probably supported by the central bank and the government (interest rates and taxes will likely have been lowered, while government spending should be higher too), activity eventually moves back above its trend level (point C). The growth rate here is becoming faster – probably because of something known as the 'accelerator theory'. As GDP recovers so too do firms' profits, in turn leading to greater investment, employment and incomes. Some of that income is then spent on goods & services, which feeds back into greater profits and the process continues.

A good way to understand the accelerator is to think about a football team. As the team's performance improves it moves into a higher league. The team then receives more money which can be spent on better players. That improves performance, resulting in a higher league position, more money and (once again) better players.

Returning to our cycle, after a while growth in economic activity will probably slow. Bottlenecks will be reached as firms simply can't supply goods & services to the economy as quickly as they are being demanded. It takes time for the investment that firms may be making at this point to raise their output – after all, factories can't be built overnight. Firms here are operating above their trend or potential level. At some point, the economy will stop growing (shown by a flattening of the activity line at point D) and a recession will follow again (point E), completing the cycle.

All of this is an over-generalisation, of course. Not all industries will experience the same ups and downs as the cycle as a whole – some will probably be relatively immune from such movements (such as electricity producers, for example, because people don't tend to change their spending on necessities like energy as much as they would the purchase of luxury goods, like handbags, over the cycle). And, in some countries more than others, politics influences the cycle as the government may raise spending ahead of an election to try to win over voters. In reality, every cycle is different.

MULTIPLIERS

No discussion of the business cycle would be complete without mention of what are known as 'multipliers'. The concept is simple – a rise in, say, investment or

government spending will eventually trigger a larger rise in overall GDP than the initial increase in spending.

To explain, let's think about a real life example that happened during the most recent recession. Household spending on cars was badly hit in the 2008–09 recession – such discretionary spending tends to suffer disproportionately when there is economic uncertainty and tighter lending standards. In response, governments in a number of countries opted to support their car industries by introducing schemes encouraging people to buy new vehicles. In the UK it was called the 'car scrappage' scheme, in the US it was 'cash for clunkers'.

The UK scheme gave people £2000 towards a new car if they traded-in one which was over 10 years old, at a cost to the government of £400 million. Relative to the size of the economy this is not a particularly large sum of money – it amounted to just 0.03% of 2009 GDP, and even as a proportion of the total amount that people spent on cars in 2009 it was only worth 1%. However, the impact it had was much bigger. With more cars bought than would otherwise have been the case, more people were employed in the production process.

Those people then spent a portion of their incomes on other goods & services which they would otherwise have not been able to do had they been laid off. On top of that, think of all of the support industries that may have been bankrupted had car production not have been helped – windscreen glass makers, tyre manufacturers,

light bulb factories – and in turn the firms that supply them. The importance of the multiplier effect will depend on the proportion of any extra income received that individuals spend – the higher it is, the more powerful the effect.

It is hardly surprising, then, why Keynes pushed the case for government intervention. If the economy is performing badly, then a dose of government spending should help as it adds more to activity than the amount originally spent. As with all things in economics, however, the argument for intervention is far from one-sided, as the rise in government borrowing can cause problems of its own and the money will eventually have to be paid back.

SPARE CAPACITY AND THE 'OUTPUT GAP'

Spare capacity is a key concept in economics. A manufacturer, for example, would be said to have spare capacity if running its plant at full speed led to over-production relative to what is required. Normally in these conditions a firm would scale back its output by keeping some of its machines idle or even closing plants entirely, laying off some of its workers and asking others to work fewer hours.

At the whole-economy level, spare capacity means that firms in aggregate are able to supply more goods & services than what is being demanded in the economy.

But how can we measure spare capacity? One way might be to look at the unemployment rate, as that tends to rise during periods of spare capacity.

But there is another way we can estimate spare capacity, and that is to calculate what is called an 'output gap' (something that is also referred to as an 'inflationary' or 'deflationary' gap). The easiest way to explain this is to go back to the graph on page 21, which showed the level of economic activity plotted against a trend. Think of this trend as the level of output that *could be* produced without generating inflation. The output gap is then just the difference between actual economic activity (the wavy line) and the trend or potential level of GDP (the grey straight line), normally expressed as a percentage.

An example will help here. Going back to our handbag manufacturer from earlier, if demand is weak and a firm is producing 90 handbags but has the ability to produce 100, then we would have a negative output (or *deflationary*) gap of 10% – area X in the graph on page 21. Alternatively, if demand is so strong that the firm produces 110 handbags by overworking its machines and its staff, then we would say there is a positive output (or *inflationary*) gap of 10% – area Y in the graph on page 21.

Why is this important? The degree of spare capacity can have consequences for inflation and thereby the level of interest rates that the central bank sets. However, estimating output gaps can be complicated because we don't know what trend or potential GDP actually is. Let's now

WHO YOU NEED TO KNOW

Joseph Schumpeter

Like Keynes, Joseph Schumpeter spent much of his time trying to understand the ups and downs of the business cycle although from a somewhat different perspective. He categorised three types of cycle: short ones, which last a year or two and are caused by firms adjusting their stock – or inventory – levels; medium-term ones lasting around a decade such as the ones we discuss in graph on page 21, which are the result of changes in firms' investment decisions; and much longer ones lasting many decades, which can be explained by waves of innovation. Examples of the latter include the Industrial Revolution, or perhaps the advent of the internet more recently.

The theory most associated with Schumpeter is that of 'creative destruction'. Firms continually introduce new and better products, or more efficient ways of producing their output, with the innovating firm reaping the profits and others attempting to copy it. The businesses that really suffer, however,

are the ones that fail to adapt to the new technology or more efficient means of production – they are destroyed by the introduction of these new and superior ways of doing business. A great example of this is the newspaper industry, where printing presses are being rapidly replaced by the internet.

turn to a specific part of the business cycle, where activity falls and moves below its trend level, in turn causing spare capacity. We call these periods recessions and, if bad enough, depressions.

RECESSIONS AND DEPRESSIONS

What is a recession? To be very general, it is when the economy contracts for a period of time. There may be

occasions, however, when economic activity falls over a very short period because of some unusual event, then continues rising thereafter. This is not really the spirit of a recession, so we need a better way to define one than simply any time that activity falls. One definition might be when activity falls over the course of a year – just like the recessions that can be seen in the chart on page 7. The most common definition of a recession, however, is when GDP falls for *two* quarters back to back (in other words over a six-month period) – if this happens then it is difficult to dismiss it as being due to an unusual one-off event.

Still, some countries use different definitions. One of these is the United States, where the National Bureau of Economic Research (NBER) proclaims periods of recession based on a host of important economic indicators, not just activity. As the NBER explains: 'A recession is a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales'.

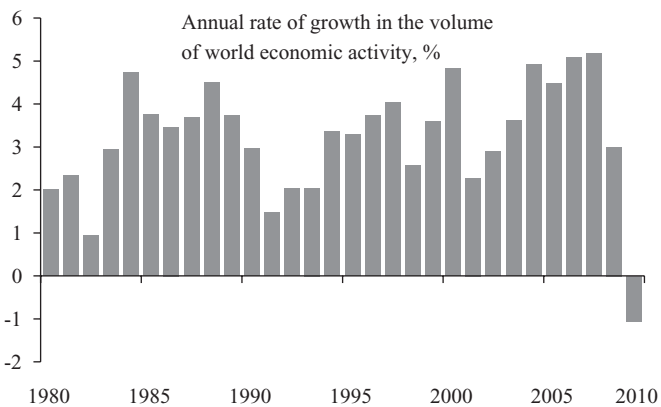
It is worth noting that while these definitions are true for any one country, they are not appropriate for the world as a whole. When we look at the global economy, because we are averaging across a lot of countries the good performers often offset the bad. As such, it is very rare that total world activity declines in any one year. There is an unwritten rule of thumb, therefore, that annual world growth below 2% per year is considered a recession. Still, the 2009 recession was so bad (and, crucially, so

synchronised) that world activity actually *did* decline, as the chart below shows.

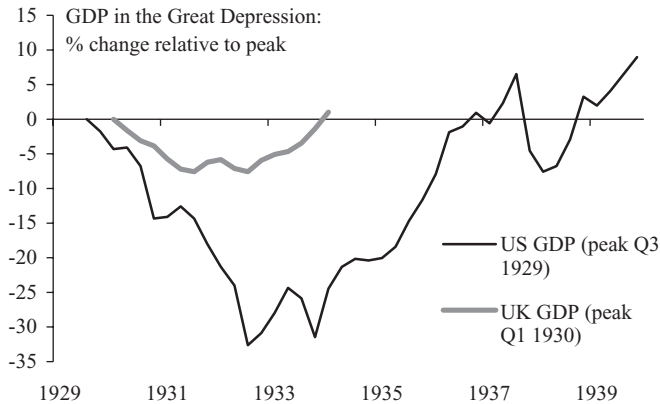
How long do recessions normally last? Just as all economic cycles are different, so too are the periods of recession within those cycles. Economic expansion is the 'default mode' for economies – each year it is usually the case that activity is higher than the previous one, partly because the growing population is consuming and producing more, and partly because the existing population is becoming more productive.

While less common, periods of falling output and spending are still part of the typical business cycle. In the UK, for example, the most recent recessions (those of 2008–09, the early 1990s and the early 1980s) have each lasted just over a year. The reason that the economy continues

World economic growth since 1980



Previous recessions in the UK



to feel weak for an extended period is because – as the graph on page 21 shows – it takes some time until the level of activity and employment returns back to its trend after output has stopped falling. In other words, the deflationary gap can remain negative for a long period after the recession even in the event of strong economic growth.

Some people use the terms 'recession' and 'depression' interchangeably. However, the term depression usually refers to a situation where the level of activity and employment not only falls sharply but subsequently fails to recover, remaining at low levels for a long time. To put it simply, a depression is a bad recession followed by a lacklustre recovery.

The graph above shows how the US and UK economies performed during the 1930s. While the UK experienced

a deep recession (the level of activity fell by 7.5% from its peak to its trough, recovering reasonably quickly afterwards), the US went through a period of depression. Activity fell by more than 30% from peak to trough, and the economy suffered a double dip towards the end of the decade.

Japan's economy can also be described to have been in a state of depression for the last two decades. After experiencing a collapse in growth in the early 1990s, as the housing and stock market bubbles of the late 1980s burst, economic activity in nominal terms failed to recover – it stands at the same level now as it did almost 20 years ago.

Bubbles are a common precursor to recessions. In the good times the prices of assets such as houses and stocks get pushed too high as people lose track in the euphoria of what is the right value. People eventually realise, however, that prices have gone beyond their appropriate or fundamental levels, with the trigger for this often being a change in central bank or government policy (such as a rise in interest rates or taxes) or an external shock (such as oil price rises in the 1970s).

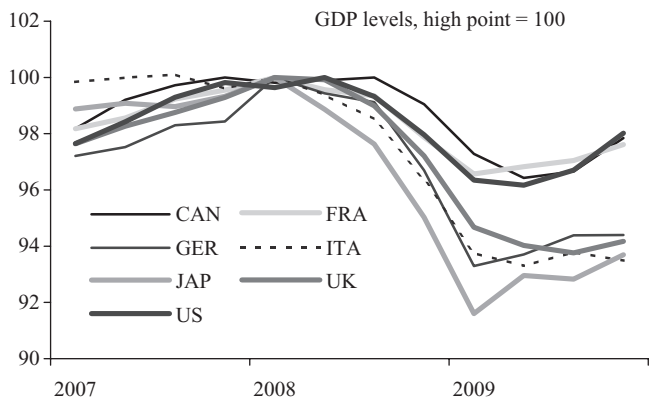
The last recession was no different. Homeowners in the US purchased housing beyond their means, taking out mortgages at exceptionally low interest rates and thereby bidding up house prices. But when interest rates rose they were left high and dry, unable to continue making their repayments. With banks globally holding these debts, a far reaching credit crisis resulted. Economies have become much more interlinked over the past few

WHO SAID IT

"If you owe your bank a hundred pounds, you have a problem. But if you owe your bank a million pounds, it has."
– John Maynard Keynes

decades, not only through international finance but also trade. The result was a sharp and globally synchronised downturn in economic activity, as the graph below shows.

Recessions in advanced countries during the credit crisis



COMPARING ECONOMIES ACROSS THE WORLD

Which economies in the world have the highest activity? In terms of total GDP (in current US dollar terms), the US is the largest economy accounting for a total of just over 20% of world output. It is followed by China (12.5%), then Japan (6%), India (5%) and Germany (4%). The UK, Russia, France and Brazil come next (each worth close to 3% of world GDP) then Italy (2.5%) and Mexico (2%). All other countries have GDP worth less than 2% of the world total.

When making international comparisons we shouldn't just look at total GDP – which tells us what size an economy is relative to others – but also GDP *per head*, which is a better (but not perfect) measure of living standards. For example, while China is a bigger economy than the UK, there are a lot more people living in China who must share that GDP. Qatar, Luxembourg and Norway are the richest three countries in terms of GDP per person, while Liberia, The Congo and Zimbabwe are the poorest three.

The following chart shows both measures of GDP across the G20 group of countries, alongside their world rankings (the observant among you will notice that there are only 19 countries in the G20).

While per head figures are useful for cross-country comparisons in any one year, they are not especially

Comparing the world's major economies

Country	Size (US $ per head)	Rank	Size (% of world GDP)	Rank
Argentina	14,561	53	0.8	23
Australia	38,911	11	1.2	18
Brazil	10,514	76	2.9	9
Canada	38,025	14	1.8	14
China	6,567	100	12.5	2
France	33,679	22	3.0	8
Germany	34,212	21	4.0	5
India	2,941	129	5.1	4
Indonesia	4,157	121	1.4	15
Italy	29,109	28	2.5	10
Japan	32,608	24	6.0	3
Mexico	13,628	61	2.1	11
Russia	14,920	52	3.0	7
Saudi Arabia	23,221	39	0.9	22
South Africa	10,244	78	0.7	25
South Korea	27,978	31	1.9	13
Turkey	12,476	66	1.2	16
UK	34,619	20	3.1	6
USA	46,381	6	20.5	1

helpful for analysing changes in GDP in a country over short periods of time for the obvious reason that population doesn't change very much from one quarter to the next.

WHAT TO WATCH

Let's put what we've learnt so far into practice and take a look at the information that is published about the size

of the economy. The quickest countries to publish GDP do so in the month after the quarter to which the numbers relate. For example, GDP for the first quarter of the year (January to March) is published towards the end of April for both the UK and the US. European countries usually take a little longer. But they are all eclipsed by Singapore and China, both of which release their numbers within two weeks of quarter-end.

For many countries GDP is published so quickly that there is a lot of information missing. When the statistics office computes GDP it relies on company surveys, income and sales tax receipts, details of government spending – all of which take time to be returned. So with early estimates of GDP it's a case of trading data quality for timeliness of publication, as a good portion is based on guesstimates by the statistics office. It is perhaps not surprising, therefore, that GDP often gets revised substantially as more news is received over time about activity in any given quarter.

GDP news can have a significant impact on the financial markets. Interest rate expectations and share prices can move sharply in the event of an unexpectedly high or low economic growth reading. Economists usually have at least an idea of what the early estimate of GDP might look like because many of the components have already been released for some months of the quarter. On the spending side, monthly retail sales (a large portion of overall household spending), government expenditure and import/export data will have been reported for part of the period,

while on the output side we know something about industrial production and service sector output. Still, GDP can be volatile and surprises are not uncommon.

WHAT YOU NEED TO READ

- The National Bureau of Economic Research (NBER) explains how it identifies recessions in the US here: *www.nber.org/cycles/recessions.html*.
- Statistics on growth rates around the world along with interesting research articles can be found on the International Monetary Fund's (IMF) website: *www.imf.org/external/data*.
- The UK statistics office webpage, which explains the practicalities of computing GDP, can be found here: *www.statistics.gov.uk/gdp*.
- A good introductory macroeconomics text book is Joseph G. Nellis and David Parker. *The Essence of the Economy*, Prentice Hall, 2006 (2nd edition).
- For a recent history of the UK economy, as told by the Chancellors of the Exchequer at the time, see Howard Davis, *The Chancellors' Tales*, Polity, 2006.

IF YOU ONLY REMEMBER ONE THING

The way that money flows around the economy means we can measure activity by looking at output, income or spending. Activity moves up and down during the course of the business cycle, causing periods of boom but also recessions.