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Thomas Coskeran Durham Business School



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Dr Thomas Coskeran is Senior Teaching Fellow at Durham University Business School. He has been an advisor for both the NHS and HM Treasury. His research interests include the cost-effectiveness of preventing radon poisoning, and the determinants of waste recycling amongst householders.

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ECONOMICS

A complete introduction

To Margaret

Teach[®]
Yourself

ECONOMICS

A complete introduction

Thomas Coskeran

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Contents

1	Introducing economics	1
PART ONE MICROECONOMICS		21
2	How markets work	22
3	How consumers behave	47
4	How firms behave	67
5	How markets distribute incomes	91
6	Markets for (almost) everything	110
7	Why markets fail	125
8	Government intervention in markets	145
PART TWO MACROECONOMICS		165
9	Measuring the economy's size	166
10	Money's role in the economy	192
11	Macroeconomic objectives	213
12	Achieving full employment and stable prices	235
13	Achieving sustainable economic growth	261
14	The economy and the rest of the world	279
15	Globalization and regional trading blocs	307
	Taking it further	327
	Answers	337
	Index	339

Welcome to *Economics: A Complete Introduction!*

In 2008 the world economy contemplated disaster. Banks were in deep trouble, countries faced economic ruin, and the livelihoods of hundreds of millions worldwide were threatened. Suddenly, economic problems were again at the heart of public debate and no longer confined to classrooms, business seminars, or finance ministries.

As somebody with a PhD in economics, who has taught the subject for 30 years in schools, colleges and universities, and worked as an economic adviser to government, it might seem that I should have welcomed this development. Matters I had long studied were no longer the preserve of economists but were being discussed regularly in the media, workplaces, pubs, and perhaps even the gym.

Yet I did not see it that way. What had happened was a failure. Economists had made grievous errors. In the worst cases, we had forgotten lessons learned in the past and repeated mistakes made by previous generations. Instead of a triumph, the focus on economics felt more like an embarrassment.

This book represents a response to those events. I would like people who know of economics only from the failures of 2008 also to know of its successes and the insights it provides. Gaps in economic knowledge persist, as the 2008 crisis spectacularly demonstrated. But, I believe, economics still promotes progress in human societies. And, in my view, the more who know about economic ideas, the less likely we are to repeat past mistakes.

I hope this brief, introductory book shows what the subject can offer, stimulates interest in economic affairs, and promotes a continuing study of economic thought. I also hope that you, dear reader, enjoy the book.

Thomas Coskeran

1

Introducing economics

Defining economics

Let us start at the heart of economics: the universal belief among economists that human beings have insatiable or infinite wants, are never satisfied with what they have and always want more. This belief is not based on scientific evidence or testing. Economists assert it as true. They are unlikely, though, to be the only ones holding it. Many parents probably share this view of human nature after spending so much time explaining to their children why they cannot have all they want.

Yet this take on people, even if shared by non-economists, can give economists a bad name. It suggests a jaundiced view of human beings as selfish, and is apparently confirmed by economists' notion of 'economic man', a person who is self-centred and always out to get the best for him or herself.

Insatiable wants need not, however, imply selfishness. We might want more for others and never be satisfied with what they have had given to them, which is a much more positive view of human beings. But, whatever our wants, whether for ourselves or others, experience suggests that believing we are insatiable is reasonable.

Despite granting that people might consider others, economists usually do think (although not always) that people want things for themselves. Economists accept that people can be concerned for others and most economists, if not all, would argue that they care for their fellow human beings. The difficulty is that economists have found they can better predict people's actions by assuming they are self-absorbed. We might consider the economist's view a triumph of experience over hope.

Humanity's insatiable wants seem an odd starting point in a book about economics but they are central to the subject because of a harsh reality. The earth lacks the resources to satisfy these wants. The earth's resources are, in the term used by economists, scarce. Although a few might be in enough supply to satisfy all wants, such as the air we breathe, they are the exception of 'free goods' which prove the rule that most resources are scarce.



Economic and free goods

We can divide goods into economic goods and free goods. Any good that is scarce is an economic good. A free good is in enough supply to meet every imaginable human want. But goods that people do not pay for are not necessarily free. The NHS in the UK is free to users but for economists it is not a free good. Scarce resources are used in providing health care making it an economic good.

The earth's resources

Economists divide the earth's scarce resources into four factors of production: land, labour, capital and enterprise. They are combined to produce goods and services people want. A good or a service satisfies a human want. Apples and Ferraris are goods; haircuts, music concerts, and taking an economics course at university are services. For each example, when the good or service is supplied a human want is satisfied and production has taken place.



The factors of production

Land – resources provided by nature, such as oil and, yes, land. In economics, land includes the sea, a good example of economists giving a familiar word a different meaning

Labour – those available to work

Capital – goods used when producing other goods, for example buildings and machinery

Enterprise – those who, as entrepreneurs, combine the other three factors to produce goods and services

The economic problem

Insatiable wants, combined with scarce resources, create a problem for human societies. If we cannot have all we want, we must choose how to allocate our scarce resources. This is the economic problem and economics is the discipline that studies

how to tackle it. If all wants could be satisfied, or if resources were unlimited, the economic problem would disappear, no choices would be required and the subject of economics would be unnecessary. But these conditions do not exist.



Production ...

... is any activity that satisfies a human want. If you bake a cake for your mother's birthday, you are engaged in production, even if you are not paid for it (which, presumably, you would not be). It is the satisfaction of a want, not receiving a payment, that makes your cake-baking production.

Instead, economists study the economic problem to ensure that societies make choices which get the most from the available resources. Some wants will be unsatisfied, given the earth's limited resources, but we should try to satisfy as many as possible. Failing to maximize the potential of existing resources would be wasteful.

John Maynard Keynes (1883–1946), arguably the most important economist of the twentieth century, had this idea in mind when he described economists as 'the trustees not of civilization but of the possibility of civilization.' By minimizing the effects of the economic problem economists create conditions that allow for a civilized life.

In these terms economics is a noble calling. Ensuring a society makes the most of its resources, means economists help people to enjoy better lives. If we are excessively concerned about material needs, such as having to feed and clothe ourselves, we cannot enjoy the important things in life. Economists can minimize these concerns by understanding the choices to be made and how best to make them.

What economics is not

Economics is a subject that attracts misconceptions. The first is that studying it makes people rich. But the discussion above shows it has other aims. Rather, as the old joke has it, economics might not make you rich but at least you

understand why you are poor. Another common confusion is that economics is about money. Economists do study money as a topic (see, for example, Chapter 10 in this book), but only because it addresses the economic problem. Nor will knowledge of economics make somebody successful in business. They might be better at business, but economics alone does not provide the skills needed for success.

Economics does, though, help us to understand human societies. At all times and in all places societies must decide how resources are allocated. And how they make these choices is central to how people live. Economics helps us to think differently about social questions and applying the economist's approach challenges conventional wisdom in many areas of human behaviour.



Xenophon

Concerns about the economic problem in human societies have been around for centuries. The Greek philosopher, Xenophon, wrote *Oeconomicus* in the fourth century BC. His book was mainly concerned with the problems of running a household, but in discussing these he raised issues familiar to modern economists, such as efficient use of resources, trade, and the division of labour.

The economy

The choices that the economic problem requires societies to make are:

- ▶ which goods and services to produce with the available resources;
- ▶ who receives the goods and services produced; and
- ▶ which factors of production are used to produce them.

A country's economy, such as that of the United Kingdom, is the system through which these choices are made. Economists establish how economic choices should be made, propose ideas on how to make them, and outline how different possible approaches affect the economy. But economists do not make the choices. Their

role ends once they have formed ideas and proposed an action. After that, humility requires they leave decisions to others.

Somebody, though, must make the choices. Economists specify three principal groups or sectors that do this in the economy. We ignore for now a fourth: overseas residents. Economists often simplify a discussion like this to concentrate on the central features of a problem. Omitting the overseas sector leaves the basic argument unaffected, although it is considered later in this book.

The first of these sectors comprises consumers or households. Household is the term for a group of consumers, such as a family, who participate in the economy as though they are a single consumer. Consumers make choices about the goods and services they buy to satisfy their wants. Anybody buying this book (or deciding to consume it, as an economist would say) made such a choice.

The second sector comprises producers or firms that are the form of organization often used by producers. The sector produces some of the goods and services consumers buy. Producers make choices about how many people to employ, which goods to produce, and whether to buy new machines or buildings to help them produce. The large and small businesses that form this sector are well-known. We buy and use their goods and services and we might even work for one.

The third sector is the government or state. It includes national and local government, public corporations owned by the government that produce goods and services, and executive agencies that are independent of government but financed by them. The government sector decides which of society's scarce resources it should use to provide goods and services to the other two sectors. These include health services, education, defence, and transport. The government usually obtains its resources from taxes but sometimes by charging consumers and producers for the goods and services. The government also passes and frames the laws by which the economy operates. In that sense, the government is both a player in the economy and the referee.

Each of us participates in the economy in one or more of these sectors. Some can be involved in all three, such as a businesswoman who is a local councillor. But however we participate, we all have an idea of how the economy works. We know some of its rules, even if we have not thought about them in detail. Studying economics allows us to do this systematically.

Economic systems

Economists have identified two ways to organize an economy: the market economy and the planned (or command) economy.

In a market economy, decisions of consumers and producers determine how scarce resources are allocated. We spend much of this book considering how market economies work. In a planned economy the government decides how to allocate resources. Whichever system is used, the economic problem remains and choices must be made.



The market economy

The system in which producers (firms) and consumers (households) solve the economic problem by voluntarily exchanging goods and services with each other for their mutual benefit.

In reality, neither exists in its pure form. Real economies combine the two. For example, the United States is often described as a market economy. But the government still allocates some resources, such as deciding the size of the country's defence forces. Similarly, the former Soviet Union, often quoted as an example of a planned economy, contained features of the market economy, such as peasant farmers selling their own produce.

Although all economies are mixed, they differ in the nature of the mix. The United States relies on the market economy while others, like North Korea today, emphasize the planned. We can place a national economy on a spectrum, at one end of which is the pure market economy and at the other the pure planned economy. Figure 1.1 illustrates the idea and places some real economies along the spectrum.

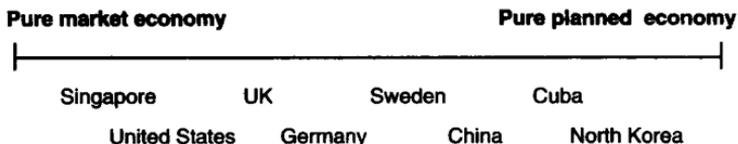


Figure 1.1 A spectrum of economies

Classifying economies like this shows how economists work. Neither type of economy exists in reality, but identifying them creates a framework economists can use when seeking to improve how the economy works.

For example, the United States is the world's largest economy. We might conclude this is because it relies on the market economy rather than the planned and then propose that all economies should become like the United States so they too become bigger.

By identifying ideal types and comparing them with reality, economists suggest how an economy might work better. While creating and understanding idealized models of how an economy works can seem pointless to non-economists, for economists it is central to their work.



The theory of economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus of the mind, a technique of thinking, which helps its possessor to draw correct conclusions.

John Maynard Keynes (1922)

Positive and normative economics

A question often asked is whether economics is a science. To answer it, we must first define a science. It is a subject that allows positive statements which can be proved or disproved by checking them against facts. If economics is a science, economists should be able to make positive statements about the economy.

In positive economics, economists believe they can. They regard themselves as scientists seeking the truth, that they will ultimately find, about how to organize the economy. Their work

leads them to a clear statement of how best to organize the economy. This view of an economist as an impartial observer of the economy links economics to the natural sciences, such as physics and chemistry.



Economic experiments

Some economists perform experiments in laboratories, an approach matching that of the natural sciences. These experiments aim to discover how people react in different economic situations. Their reliability is questionable, but economics experiments have provided valuable insights, especially into consumer behaviour. These include the idea that consumers dislike losses much more than they like gains.

A problem with positive economics, however, is the difficulty of using experiments to test and confirm positive statements, as happens in the natural sciences. Economists do not have the chance to verify another economist's statement as a chemist might repeat a laboratory experiment to confirm results a colleague obtained. The economy cannot be re-run every year under different conditions to test different statements.

For this reason, economics is defined as a social science alongside subjects such as politics, sociology and anthropology. All are disciplines that study human behaviour, albeit from different perspectives. And all attempt to apply the positive methods of the natural sciences while recognizing the limits of doing so when studying the often random behaviour of human beings. Seeing economics as a social science acknowledges a limit to how far economists can deliver clear-cut results about the nature of economic activity. As economists have often failed to understand economic events, this cautious approach is probably correct.

That does not, however, imply failure. Scientists in subjects like physics are increasingly discovering that they cannot solve the problems they study with positive science. Reaching definitive conclusions based on experiment and observation might be unattainable. Physicists studying the universe's origins face the same problems as economists in being unable to test ideas. But the uncertainties of economics are arguably part of its appeal.

As long as debates about how economies work cannot be resolved using positive methods, economics will challenge and excite those studying it.



(E)conomics consists largely of making explicit ideas which appeal strongly to commonsense and which are already held in a vague sort of way. This is a necessary step, because loose thinking about vaguely formed ideas is a quick route to error in economics. Furthermore, the jargon, the single word or phrase given to the common-sense idea becomes necessary in the interests of brevity of expression as the subject is built up.

R. G. Lipsey (1983)

Positive economics contrasts with normative economics. Normative statements about the economy are based on a person's moral beliefs or value judgements. These statements are unsupported by evidence and can be neither proved nor disproved. They usually contain the word 'should' or 'ought', although not necessarily. Often they reflect opinions about how to organize the economy rooted in moral, religious or political beliefs and not economic argument. When an economist makes normative statements, which they are entitled to do as individuals, they act outside their professional capacity.

An example of how normative and positive economics are related occurs when economists work in government. A policy objective is a normative statement of a policymaker's desired goal, which might be cutting unemployment from eight to four per cent, because everybody should have a job. Given this value judgement, the economist uses positive economics to show how best to achieve the cut. Ultimately, the economist's mantra has to be to accentuate the positive, eliminate the normative.

Microeconomics and macroeconomics

When studying the economy, economists distinguish between microeconomics and macroeconomics. In microeconomics, economists analyse how individual consumers and producers behave. This includes examining how they interact with one

another in markets. In contrast, in macroeconomics economists study the economy as a single entity.



Political economy

For much of the nineteenth century a subject called economics did not exist. Instead, there was political economy. This had a normative character and political economists would discuss ethical and moral issues as well as economic.

The change to a positive approach began in the 1870s and has continued to this day. With the change came the subject's new name of economics.

Today, the term political economy refers to that part of economics which studies: how different groups pursuing their own interests influence the economy; how these groups shape economic policy; how different economies organize production and consumption with different institutions; and the effects such institutions can have.

This division of the subject is important. Most introductory books on the subject, including this one, and most courses in schools, colleges and universities are organized around the two headings. And professional economists tend to view themselves as specialists in one or the other. Even so, understanding both is important as the line between the two can become blurred. In particular, economists have wanted to understand the microeconomic foundations of macroeconomics. We cannot properly appreciate how the economy works as a whole unless we can relate that to how individuals behave in the economy.



Microeconomics and macroeconomics

Micro is Greek for 'small'; while macro is Greek for 'large'.

Microeconomics studies households and firms or the small parts of the economy. Macroeconomics studies the entire or 'large' economy.

Economic theory

Those new to economics are often bothered by the emphasis on studying economic theories that relate little to how economies work in practice, appear highly abstract, do not describe how

people behave and are unlike the world that people themselves experience.

Unease over economic theory can arise from the belief that economics is about describing the economy. It is not. Instead, economics is a subject that aims to discover how the world might be different. We have already seen an example of this when defining the two main economic systems. Neither exists in reality, only as ideas designed to help us think about improving the economy.

From this viewpoint, economists are idealists that reject the world as it is and hope to improve it using their theories. Idealism might seem unhelpful, given that economists are meant to be tackling problems rooted in the 'real world'. But a practical by-product of this approach is that governments and other large organizations value economists as problem-solvers whose training causes them to reflect on how the world could be changed.



Economic theory

Economic theory attempts to capture the main features of an economic relationship without describing it in detail. An example is the economic theory that as wages rise workers will work more. While higher wages might not be the only reason workers work more, they are important enough to help economists understand how workers behave.

The economist Milton Friedman (1912–2006) suggested that economists should judge a theory by how accurately it predicted. Whether it matched reality was irrelevant. Indeed, because Friedman thought simple theories were best, he thought most theories would be unrealistic. But a lack of realism can be ignored if a theory predicts well. Friedman's view has been contested but remains influential.

In this book we meet many economic theories, some (if not all) of which might, at first, seem highly unrealistic. But the theories exist because economists have tried and tested them and found them valuable for understanding how the economy works and for delivering consistently good predictions about the future.



Understanding theory

To understand a theory's value, even when it is unrealistic, consider a sequence of words:

economics ordinal diminishing

and then identify the next word in the sequence.

To find the word, we must find a link between the three words in the sequence. We need a theory that explains why one word follows the next. Examining the sequence and, possibly, describing the words in it might help us derive a theory, but description alone will not help to predict the next word.

Economists think about the economy like this. They examine it not to describe it, but to help them derive theories. They then use the theories to explain what has been happening in the economy and to predict the future. Doing either is more valuable than any description.

Returning to our problem, we note that the third letter in 'economics', the first word, is the first letter in 'ordinal', the second word. Similarly, the third letter of ordinal is the first letter of diminishing, the third word. We have a 'theory of the third letter.'

Based on this theory, which we have derived from observation and some limited description, we could now predict the fourth word. It should begin with the letter 'm', so we might predict the word marginal. Our theory provides a prediction. A description of the sequence could never do this. For predictive purposes, theory trumps description every time.

Why do economists disagree?

Economic theory helps to explain why economists often disagree in contrast to, say, two chemists who, when asked about the likely result of a chemical reaction between different substances, will give the same answer. But ask two economists about the economy and two different answers are likely. It infuriates many politicians seeking economic advice and has given economists a poor reputation for making forecasts. At any given time, it is suggested, somebody wanting an economic forecast will have as many forecasts as there are economists available. It can seem that the recipient of the forecasts must decide which is correct.

One reason such differences occur is because theory only provides part of the answer. In the case study above, the prediction, based on a 'theory of the third letter', was that the next word in a sequence would be 'marginal'. Yet somebody else, using the same theory, could reasonably have predicted 'managerial', 'mystery' or 'mercury', all of which fit the theory. Economists can disagree, even when using the same theory, because theory does not describe the future precisely.

Disagreement can also arise when theories, for reasons usually unknown at the time, cease to predict well. This happened during the world financial crisis that dominated the news in 2008 and 2009. Only a few economists predicted the crisis and this led to a dispute about what had happened and, importantly, why the crisis was not predicted. The dispute reflected disagreement about which theory economists should have used. Those who correctly predicted the crisis used different theories that now seem to explain recent events. They will replace the older, now discredited, theories until perhaps they, too, cease to predict accurately.

Such change is usual in economics. Economists must constantly review theories in the light of experience. In doing so, they will disagree about explaining events and what they imply for the future. And in the absence of a clear theory economists must find new theories with which to understand the world. The search for these is one of the subject's fascinations.



Economists and forecasting

Forecasting errors made by economists regularly inspire mockery. For example, a well-known joke goes: 'Why is there economic forecasting? Because it makes astrology respectable.' It is easy to agree that not only is this hurtful to economists, it is a bad joke.

Disputes among economists can also occur because of different schools of economic thought. The economics in this book is drawn from the ideas of the neo-classical school. Although the mainstream school, to which most economists belong, it represents only one branch of economics. Economists with different viewpoints, the heterodox schools of thought as they

are called, use different theories when analysing a problem from those used by economists in the neo-classical school. They are also likely to offer different explanations and predictions.

Examples of these schools include the Austrian school, institutional economics, Marxist economics and New Classical economics. It would take another few books to give these other schools proper attention, so they are not discussed here. But recognizing there are ideas about the economy besides those of the neo-classical school is important.



Neo-classical economics

Neo-classical economics is the school of economic thought principally taught to students in schools, colleges and universities. Its main focus is on how producers and consumers interact in markets and how prices are determined by markets.

We must acknowledge that economists do disagree, and sometimes the disputes are spectacular in their ferocity. And yet the reasons for the differences are usually small. Economists agree about far more than they disagree and often use the same theory to analyse a problem, but how they interpret the detail differs. When next you see or hear economists disagreeing in public, please try and remember this!

Key economic concepts

This introduction concludes with four key concepts that mark out economics from other subjects. Applying them with confidence is a sign of a competent economist. Used well, they give insights unavailable from other subjects.

OPPORTUNITY COST

Scarcity implies that when we use a resource we could have put it to another use. For example, if a government decides to build a hospital, insatiable wants mean that it has given up other opportunities. The government could have built a school or a road or done any of an infinite number of other things. The next best among these is the opportunity cost of the hospital.

The same applies to a person's time. At any time, whatever a person is doing, they could be doing something else. Their next preferred option is the opportunity cost of their time. Any good that has an opportunity cost is an economic good. Opportunity cost is vital for economists as it highlights scarcity and choices that must be made. It is more important to them than the financial or money cost of a good.

THE MARGIN

Economists maintain that people decide based on the next event or 'at the margin'. For example, a consumer wondering whether to buy a cup of coffee thinks only of whether they will enjoy drinking the next, or marginal, cup. The benefit they receive is the marginal benefit. It is hard to overstate how important the margin is as a concept in neo-classical economics, the school of thought where it originated.

THE COST-BENEFIT PRINCIPLE

The cost-benefit principle states that people make decisions by weighing the costs and benefits of an action. If benefits exceed costs, people act; if costs exceed benefits they do not. When economists talk of people being rational, they mean that they are adopting this principle.



Rationality

Rationality in economics means adopting the cost-benefit principle. The word, though, creates difficulties. When economists argue an action is rational, it suggests that anybody disagreeing must be irrational, and who would want to be thought that? Being aware of how economists give meanings to words that differ from everyday usage is important, especially when it cuts off valid arguments about decisions.

The principle connects with that of the margin. The consumer thinking about buying a cup of coffee compares marginal benefit from the coffee with the marginal cost, usually the price they must pay. The decision to buy, economists think, is made using the cost-benefit principle. This might not describe how consumers buy cups of coffee but remember why we have theory.

Adhering to the cost-benefit principle, economists argue, ensures a society makes the most of its available resources. By not making choices where costs exceed benefits, and sticking to those where benefits exceed costs, we will be as well off as possible. It is a valuable principle with which to confront the economic problem.

EQUILIBRIUM

Economists use the idea of equilibrium in both microeconomics and macroeconomics. The concept comes from physics where it refers to situations in which all forces are in balance and nothing changes. Economists give it the same meaning. When equilibrium exists in an economy, only a change shocks the economic system from its equilibrium to a new one. We will see in this book how economists spend time identifying where equilibrium occurs and examining how shocks disrupt the equilibrium.

Conclusion

That, then, is economics. The subject of scarcity and choice, a noble calling conducted by idealists seeking to change the world for the better, even if, occasionally, they disagree with one another.



For all their quarrelsomeness, economists know a lot. Some of it is obvious, the common sense of adults, such as that many things are scarce and that therefore we can't have everything. The postulate of scarcity is what makes economics hard to teach to young adults, who believe they live among the blessed.

D. McCloskey (1994)

This picture is at odds with the often-quoted description of economics as the 'dismal science'. But that label is associated with ideas promoted by the classical school of economic thought that prevailed in the nineteenth century. However, like many areas of human endeavour, economics has advanced since then. So in this book, we ignore outdated portrayals of the subject and stress how economics helps to tackle social problems and ensure society takes best advantage of its resources. We now address that agenda.



Fact-check

- 1 A good's opportunity cost is:
 - A the total money cost of the factors of production used to produce it
 - B the alternative good that the factors of production could have produced
 - C the cost to the entrepreneur of the workers who produced the good
 - D the chance that the good benefits those who buy it
- 2 Which of the following is a normative statement?
 - A unemployment should be reduced
 - B the price of coal is £20 per kilogram
 - C the inflation rate is 3%
 - D the market system is one way for societies to solve the economic problem
- 3 In a planned economy the economic problem is mainly addressed by:
 - A applying the market system
 - B the wants of households and firms
 - C the government
 - D the price mechanism
- 4 Scarcity means that:
 - A consumers cannot buy anything
 - B human wants exceed the earth's finite resources
 - C the government can choose to tax firms and households
 - D employing factors of production is pointless
- 5 Economic theory:
 - A describes the economy
 - B helps economists in understanding economic events
 - C helps businesses to reach their productive potential
 - D allows economists to show their intellectual superiority
- 6 Neo-classical economics is the school of economic thought that:
 - A emphasizes the economic analysis of ancient Greek philosophers such as Xenophon

- B** uses the planned economy as a blueprint for tackling the economic problem
 - C** studies the market's role in tackling the economic problem
 - D** is primarily concerned with how the government's planning mechanism operates
- 7** Which of the following best illustrates the economist's concept of the margin?
- A** the benefit received from attending every home game played by your favourite football team
 - B** the benefit received from attending the last home game played by your favourite football team
 - C** the cost of building the stadium where your favourite football team plays
 - D** none of the above
- 8** A government's decision to buy a new aircraft carrier best illustrates the economic concept of:
- A** the market
 - B** equilibrium
 - C** the margin
 - D** opportunity cost
- 9** Economists avoid normative statements because:
- A** they have no views on moral or ethical matters
 - B** no agreed framework of moral values exists to which they can refer
 - C** economic issues are not moral questions
 - D** they have no authority to pronounce on moral or ethical matters
- 10** A consumer pays £100 to buy a ticket to attend the opera. What is her opportunity cost?
- A** £100
 - B** £100 minus any benefits she might receive from being at the opera
 - C** the other things she could have bought with the £100
 - D** being able to avoid the queue at the ticket office on the night of the performance



Dig deeper

- 1** When people use the National Health Service in the UK for health care, their treatment is normally free. But the NHS is an economic good. To confirm that resources are scarce, go to the NHS website, www.nhs.uk, and find out which treatments patients must pay for. Then visit the website www.maryfreebed.com/About-Us/Patient-Visitor-Information/PatientFinancialServices. You will see how, in the United States, the scarce resource health care is treated as a market transaction, which has a price on it. The two systems also show the contrast between the market and the planned economy. Why do you think the two countries have different approaches to providing health care?
- 2** One of the few famous female economists, Joan Robinson, (1903–83) once said: 'The purpose of studying economics is not to acquire a set of ready-made answers to economic questions, but to learn how to avoid being deceived by economists.' Why do you think she said this?
- 3** Go to the website, www.nobelprize.org/nobel_prizes/economics/laureates/. You will see a list of economists who have won the Nobel Prize since it was first awarded in 1969. Select any five and see why they won it. Explain how their work fits with the idea that economics is a social science concerned with allocating scarce resources among infinite human wants.

Part One

Microeconomics

2

How markets work

Introduction

Humans have achieved much that has contributed to our success as a species. The most significant of these achievements is a matter for debate. It could be discovering fire, inventing the wheel, steam engine and computer, or exploring space. But ask an economist and they are likely to identify the social arrangement called the market.

An economist with an artistic outlook might point to the market's aesthetic qualities as engineers refer to those of, say, a suspension bridge. They might marvel at the inherent beauty of a system that ensures people co-ordinate their activities without coercion or instruction and in which everyone participates out of self-interest. But even though individuals in a market pursue their own interests the final outcome is in everybody's interest. As Bernard Mandeville (1670–1733), an early economist, put it, there is private vice but public benefit, a feature which just enhances how wonderful the market is.

And yet at its core the market has a simple idea. People exchange goods and services they produce and consume out of self-interest using the prices attached to the goods and services to help their decision-making. And prices tell people what they need to know about a good. In this way, the market helps them to satisfy their material wants.

Like many of humanity's best ideas, the invention of markets cannot be attributed to any individual or group of individuals. Its origins are lost in the fog of history. But while economists did not invent the market system it has fallen to them to analyse it and explain how it works. This chapter outlines some of their conclusions.



What's in a name?

The market economy goes under various guises: the market mechanism, the price mechanism, the market system, the free enterprise system, laissez-faire, and capitalism. But they all refer to a system that is supposed to produce the best for society by allowing individuals to pursue their own, often selfish, interests.

Properties of the market

Economists suggest markets have the following features:

- ▶ Consumers want to buy (or demand) goods and services from producers who are prepared to produce (or supply) them.
- ▶ Both consumers and producers pursue their self-interest (they are all 'economic man')
- ▶ Goods and services have prices usually denominated in money.
- ▶ Demand and supply determine prices.
- ▶ Prices inform everyone how scarce goods and services are. The lower a good's price, the more abundant it is; the higher the price, the scarcer it is.



Market locations

Markets occur where consumers and producers interact with each other. It can be, but does not have to be, a physical location. Markets can form on the telephone, the internet, or through mail order.

The importance of prices in markets has caused economists to think carefully about them. Through this process they have concluded that prices are determined by the forces of supply and demand. In considering how markets work, we examine each of these forces separately before combining them to show how economists think prices are set. We consider first the nature of demand.



The existence of a free market does not of course eliminate the need for government. On the contrary, government is essential both as a forum for determining the 'rule of the game' and as an umpire to interpret and enforce the rules decided on.

Milton Friedman (2002)

Consumer demand and price

Demand is the amount of goods and services that consumers (or households) wish to buy in a particular time period. Consumers buy goods and services to try and maximize their own benefit or 'utility', as economists call it.

Economists maintain that demand for a good depends on:

- ▶ The price of the good itself
- ▶ The prices of other goods
- ▶ Consumer incomes
- ▶ Consumer tastes.

The good's price is extremely important. Economists suppose that as price changes, quantity demanded also changes, an idea illustrated in economics by the demand curve. Figure 2.1 is an example. These curves show an idea with which we are almost certainly familiar. If goods get cheaper we buy more.

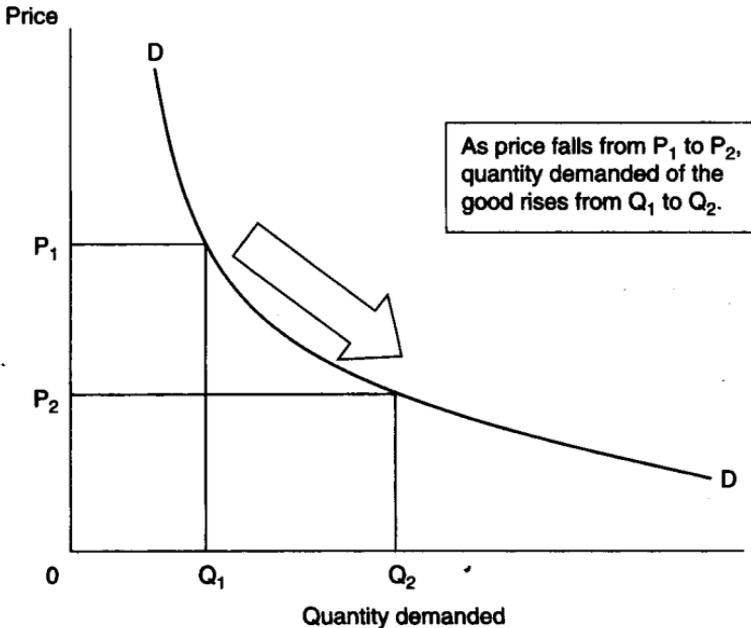


Figure 2.1 The demand curve



Supply and demand

'Teach a parrot the terms "supply and demand" and you've got an economist' (Thomas Carlyle). But it was Carlyle who thought economics a dismal science, which is clearly untrue, so we can ignore his implied insult.

The demand curve can represent either an individual consumer's demand or that for all consumers in a market. In this chapter, we consider the demand for all consumers in the market but in Chapter 3, we examine an individual consumer's demand. The market demand curve is the horizontal sum of individual demand curves. That is, at each price we sum the demand of every consumer to give the total market demand.

The link between price and quantity demanded can also be presented in a demand schedule as in Table 2.1

Plotting the values from Table 2.1 on a graph produces the demand curve. Normally, however, economists are happy to use demand curves that sketch the link between price and quantity demanded without being exact depictions of that link.



The demand curve

The demand curve illustrates the relationship between price and quantity demanded by consumers. It shows that as goods become cheaper people buy more of them.

Price	[£]	Quantity demanded (thousands per week)
100	50	
200	42	
300	34	
400	25	
500	17	
600	8	

Table 2.1 A demand schedule for smartphones



Mathematics and economics

A curve like the demand curve allows economists to use mathematics. By assuming the curve is a straight line, we could represent it with a mathematical equation instead of a diagram. In advanced economics, mathematics has become the language economists use to express ideas in both microeconomics and macroeconomics. This book does not present economic ideas mathematically. We can gain a good understanding of the subject without mathematics. But higher study of economics does require mathematical competence.

Economists have, though, an uneasy relationship with mathematics. We see this in the portrayal of the demand curve. As quantity demanded depends on price, to be mathematically correct, the demand curve should be drawn with quantity demanded on the graph's vertical axis and price on the horizontal axis. But, as we have seen, economists have price on the vertical axis.

Views differ on why economists make this error but Alfred Marshall (1842–1924), the economist credited with popularizing these curves, is often blamed. It can upset mathematicians new to economics but if mathematics is not your favourite subject, you might be starting to feel at home among economists.

Shifting demand curves

Shifting the demand curve illustrates the other factors that affect demand.

The prices of other goods shift the curve in two possible ways. First, if other goods are substitutes, or alternatives to the good, a change in price of the other goods affects demand by changing the relative price. For example, if an android smartphone is seen as a substitute for an iPhone and iPhone prices increase, we would expect demand for android phones to rise. Consumers switch to them because they have become relatively cheaper. Similarly, the demand for android phones could fall if iPhone prices fall. But if consumers think the iPhone is unique, none of this happens. The impact of other price changes depends as much on consumers' perceptions of products as on the nature of the products themselves.

Price (£)	Quantity demanded (price of iPhones = 200)	Quantity demanded (price of iPhones = 300)
1	50	55
2	42	46
3	34	37
4	25	28
5	17	19
6	8	9

Table 2.2 A demand schedule for smartphones

Goods can also be complements, or goods consumed together. For a smartphone, this might be apps used on the phone. If the price of apps rose significantly we might expect demand for smartphones to fall if a primary reason for having a smartphone was using apps on them.

In both examples the good's price remains unchanged. But demand changes because another good's price has changed. If we consider a demand schedule for a smartphone where the price of a substitute, the iPhone, has risen, the change in demand shown in Table 2.2 would result. As the table suggests, demand for smartphones has risen at every price. On the demand curve diagram this is shown by plotting new values for quantity demanded against each price, as in Figure 2.2. The demand curve before iPhone prices rose D_1 , has shifted rightwards to D_2 . The shift has happened because of the increased price of a substitute.

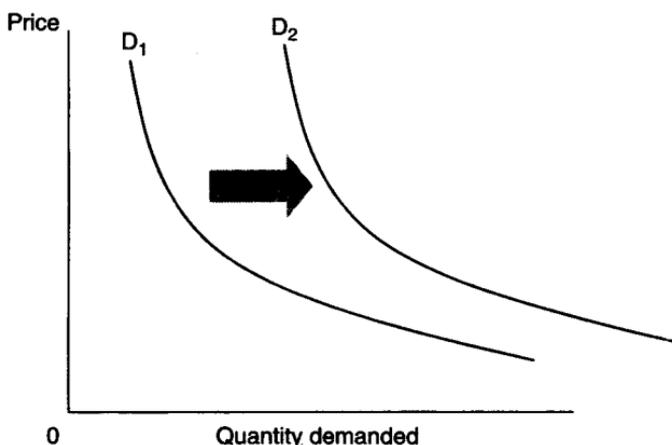


Figure 2.2 The demand curve for smartphones shifts to the right

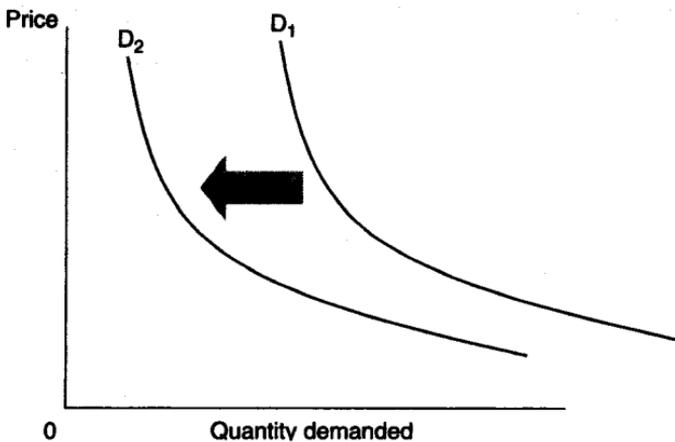


Figure 2.3 The demand curve shifting to the left

And the curve would shift to the left if the price of iPhones fell and demand for smartphones fell at every price.

Similar effects occur when a complement's price changes. Figure 2.3 shows a demand curve shifting to the left from D_1 to D_2 , as demand falls following a rise in the complement's price.

We can now distinguish between two different movements: those along the demand curve, and those due to shifting demand curves. Movements along the curve are caused by changes in the good's own price. Shifts of the curve are caused by what economists call 'other things': the price of other goods, income and tastes.

A demand curve suggests demand depends on the good's price, 'other things being equal'. This famous expression used by economists suggests that if any of the 'other things' do not remain equal and change, the demand curve shifts and a new relationship between price and quantity demanded results. But each demand curve is drawn assuming that 'other things' remain unchanged.

Changing income and tastes

We can apply the same approach to demand curves if consumer incomes change. At every price we would expect that a consumer could afford more of the good. The demand curve would, therefore, shift to the right as in Figure 2.2. And

if income fell it would shift to the left as in Figure 2.3. These outcomes apply for most goods, which economists call normal goods. Smartphones are in this group.

Some goods, though, are not normal because as income rises, demand for them falls. An example of such a good might be a cheap, simple, phone. When income rises people can afford to switch to a smartphone and so their demand for simple phones falls. Other examples include margarine, shoe repairs and dry-cleaning services. Consumers of these switch to dearer alternatives as income rises. Changes in income shift the demand curve for such goods, which economists call 'inferior' goods, in the opposite way to normal goods.

Finally, 'tastes' affect demand. For economists, these are influences on demand that include the personal preferences of consumers, social norms about which goods to consume, cultural influences on demand such as fashion, and advertising and marketing. Changes in any of these can shift the demand curve. If, for example, a good becomes fashionable because a celebrity has used it, we might expect the demand curve to shift to the right. Equally, bad publicity for a good, such as a health scare that put off consumers from buying it, would shift the curve to the left.

Determining supply

The analysis of supply mirrors that of demand. As with demand, economists use a diagram to present the way producers react to prices in a market. The supply curve has the same axes as those used for the demand curve, which is a useful quality. Figure 2.4 provides an example.

The curve shows that as a good's price rises the quantity supplied by producers rises. The idea behind this curve might be less obvious than was the case for the demand curve. But a moment's thought explains its shape. When prices rise selling is more profitable for producers so they increase production to make more profit.

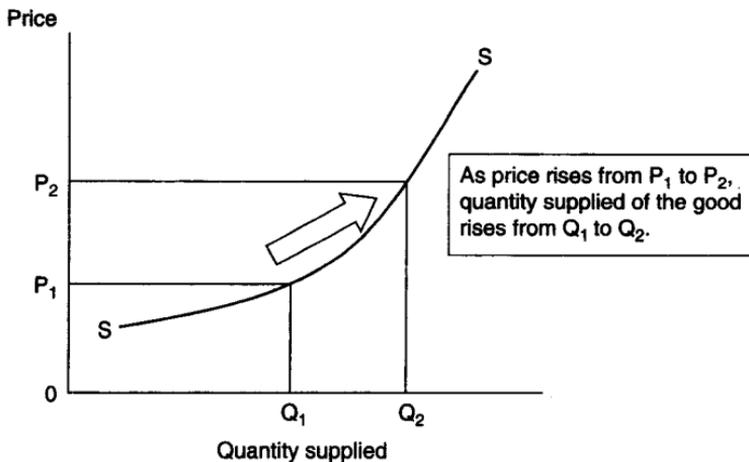


Figure 2.4 The supply curve



The supply curve

The supply curve shows the link between price and the quantity supplied by producers. It slopes upwards to confirm that as prices rise, producers want to produce and sell more.

As with demand, we can identify a supply schedule, shown in Table 2.3. And as with demand curves, price changes cause movements along the supply curve, or changes in quantity supplied, and ‘other things’ that affect supply cause shifts in the supply curve, or changes in supply.

For the supply curve, the other things are:

- ▶ Production costs
- ▶ The price of other goods

Price (£)	Quantity supplied (number per week)
1	12
2	22
3	34
4	47
5	61
6	80

Table 2.3 A supply schedule for smartphones

- ▶ Technical progress
- ▶ Government taxes and subsidies
- ▶ Natural influences
- ▶ Producer tastes
- ▶ Expectations about the future

If any of these change, costs change. Profits at every price then alter and the supply curve shifts in one of the ways shown in Figure 2.5.

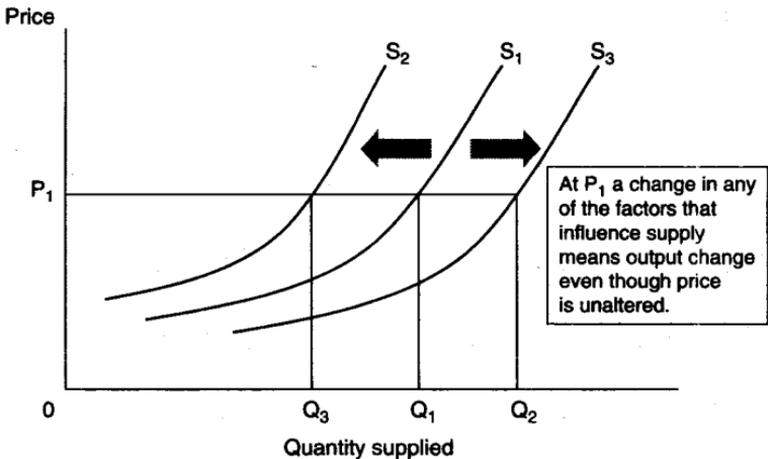


Figure 2.5 Shifts in the supply curve



Profit

Producers make profit from selling goods. Profit is the total revenue from selling the goods *minus* the total cost of producing them. Total revenue is the number sold times the price of each good sold. So when prices alter profits do as well. Similarly, changes in costs alter profits. Changes in prices and costs, therefore, cause changes in quantity supplied and changes in supply respectively.

The market

Clearly, demand and supply curves can go on the same diagram, as in Figure 2.6. Where they cross is the market or equilibrium price (P_e). The associated quantity supplied and demanded

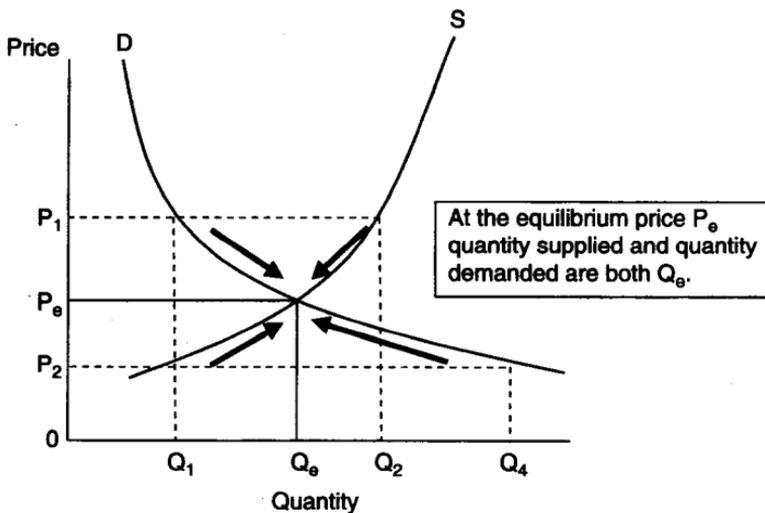


Figure 2.6 The market

(Q_e) is the equilibrium quantity or output. In equilibrium, the quantity of a good producers will supply exactly matches the quantity consumers want to buy.

What impresses about the market equilibrium, as far as economists are concerned, is that it results without external influence. We can see how this happens by considering what happens if price in Figure 2.6 were P_1 rather than P_e .

With price at P_1 , quantity supplied would equal Q_2 and quantity demanded Q_1 . Output of the good would exceed what consumers want and producers would be left with unsold goods on their hands. To dispose of them producers could cut the price, as happens during sales when retailers wish to sell unsold goods.

As price fell, consumers would demand more of the good and producers produce less. These changes are shown by the downward arrows in Figure 2.6. The process continues until supply and demand are equal at the equilibrium price. The forces causing price and quantities to adjust ensure a price that equates supply and demand and eliminates the surplus, unsold goods.

Similarly, if price were at P_2 and quantity demanded exceeded quantity supplied, some consumers would bid up the price they were prepared to pay for the good. Something like this happens when tickets for a concert or sporting event are in short supply and some consumers are prepared to pay above the ticket's face value. As price rises, producers increase output and consumers demand less until price reaches its equilibrium. Movements along both curves follow the paths shown by the upward arrows in Figure 2.6.

In these situations, the key force driving the market towards the equilibrium price and quantity is consumer demand. When price is too high, producers must cut prices to encourage consumers to buy more. And when it is too low, consumers bid up the price, which encourages producers to produce more. The power consumers are said to have in determining what goods are produced leads economists to talk of consumer sovereignty. Consumers rule the market.



Market equilibrium

Price and quantity remain the same in the market until something happens to shock the system out of its equilibrium. In markets, these shocks result from changes in the 'other things' that determine supply and demand. Changes in either will alter equilibrium price and quantity in the market.

The market also ensures an outcome without surpluses or shortages and does so without government intervention. Consumers are prepared to pay the price on offer and producers are prepared to produce the amount required at that price. Neither group is forced to do anything; they pursue their self-interest by responding to the signal sent out by the good's price. Adam Smith (1723–90) thought they were guided as if by an 'invisible hand', a term still often used as shorthand for describing the market process.

Even its detractors must admit that, in these terms, the market is impressive. Without coercion or bureaucratic procedures, it determines both a good's output and who receives it. And in Chapter 5 we will see that it determines how goods are produced, which is, we recall, the other dimension of the economic problem.



Price and value

Oscar Wilde famously remarked: 'An economist is somebody who knows the price of everything and the value of nothing.' Witty, but wrong. When markets work properly, prices tell economists something about the value consumers place on goods and services. So by knowing prices, economists also have a good idea about value. While he was great at one-liners, Wilde's economics was sometimes lacking.

Shifting demand and supply curves

Economists expect equilibrium price and quantity to continue as long as the other things that affect demand or supply remain unaltered. But, if shocks occur and 'other things' change, equilibrium price and quantity alter.

Suppose, for example, consumer incomes rise and the demand curve shifts to the right (from D_1 to D_2 in Figure 2.7). The diagram demonstrates (and this is a good reason for using them) that rising consumer incomes increase equilibrium price from P_1 to P_2 and equilibrium quantity from Q_1 to Q_2 . The approach applies to any shift in supply and demand curves, whatever the cause.

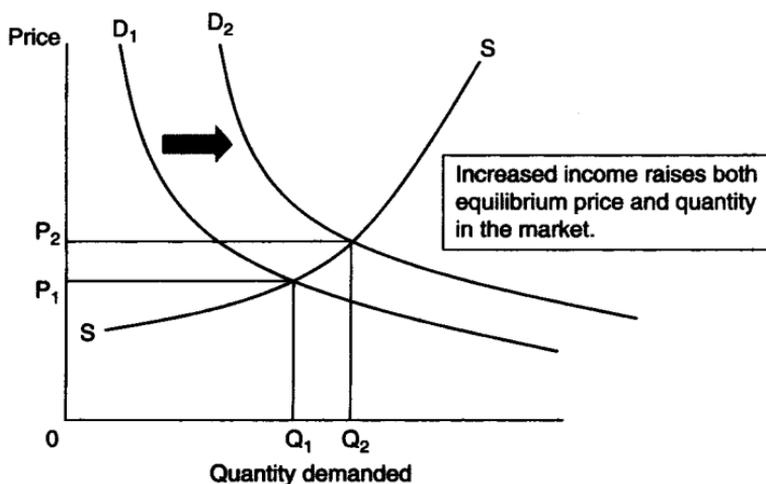


Figure 2.7 Increasing consumer incomes

Analysing how changing demand and supply conditions affect market equilibrium is known as partial equilibrium analysis. It is 'partial' in that we only consider changes in the market for one good or service. In Figure 2.7, therefore, we ignore how the good's higher price affects other markets even though this almost certainly happens. For example, when oil prices rise, because it is a raw material, costs in other markets rise and cause prices to increase there as well. The supply curve has shifted to the left. Equally, goods can be substitutes and complements so that a changing price in one market affects others.

It would, though, become complicated to try and identify every possible way in which a price change in one market might affect all other markets. Far easier to assume, as we will do, that these effects are very small or non-existent and so can be ignored. General equilibrium analysis, as it is called, does consider them, but its complexity makes it one of the most advanced forms of economics.



Why do economists use diagrams?

Using diagrams, rather than words, makes it easier to explain sometimes complicated relationships; makes the links between different relationships easier to spot; and makes it easier to predict by identifying changes on a diagram.

Price as a rationing device

Put simply, prices ration goods. If consumers are able and willing to pay the price for a good, they can have it. If not, they go without.

As prices ration goods among consumers, it implies that without the market another rationing system must be used instead. In planned economies of the former Soviet bloc, for example, the government would decide what to produce and fix prices for the available goods. These goods had then to be allocated among consumers. If demand was too high at the fixed prices it meant consumers had to queue to obtain the goods they wanted. Queuing is a common form of non-price rationing when prices do not ration goods.

Queuing is, of course, found outside planned economies. In supermarkets, for example, queuing rations access to checkouts

when there are more customers wishing to pay for their goods than there are checkouts. In principle, prices could be used to ration this access. Customers wanting to get through the checkouts quickly would pay a higher price. Anyone who has ever stood in a queue and had a pressing appointment elsewhere would recognize the possible benefits of the price mechanism in situations like this.

Usually, though, supermarkets do not do this because the costs of organizing a market – the transaction costs – would be excessive. These costs limit how far the market system can be applied. But if they are low enough, such rationing occurs. Some airports now have ‘fast’ or ‘priority’ lanes through security checks, so travellers can choose to pay to avoid a long wait. This illustrates how prices and queues are both rationing devices.

Property rights

Although consumers and producers trade with each other in markets without government direction, governments still play an important role. They ensure markets work properly by giving consumers and producers property rights. These are the sole right to use or sell a good or factor of production. Without them, consumers would see little point buying goods if another person could use or sell them, and producers would feel it pointless to produce goods that they had no right to sell for profit.

The government confirms and upholds property rights through the legal system. Consumer and producer rights are guaranteed in contract law, to which they can turn if their rights are threatened. Even the purest market economy requires the government to do this.

An interesting feature of illegal markets, such as those for drugs and human-trafficking, is the control organized crime exercises. Even though governments will fail to protect property rights in these markets, the job must still be done. Organized crime, such as the Mafia or Chinese Triad gangs, then do what the government does in legal markets. They ensure that the economic gains from illegal activity are protected and the system is not undermined.



In essence, economics is the study of property rights. Without scarce resources, property rights are pointless. The allocation of scarce resources in a society is the assignment of rights to uses of resources. So the question of economics, or of how prices should be determined, is the question of how property rights should be defined and exchanged, and on what terms.

A. Alchian (1967)

Markets and Pareto-efficiency

Economists describe market outputs as Pareto-efficient. It means that any change to a different output would make somebody worse off. The idea is presented on the production possibility frontier shown in Figure 2.8.

The diagram shows a simple economy in which only two goods, guns and roses, are produced. The line AB shows the combinations of guns and roses that can be produced given the factors of production available. If all factors were used to produce guns the number of guns produced would be represented by the distance OA; if all were allocated to rose production, the number of roses produced would be given by OB.

Every combination of guns and roses along the line AB is productively efficient. At each point, the output of each good, given that of the other, is maximized. It is important for the

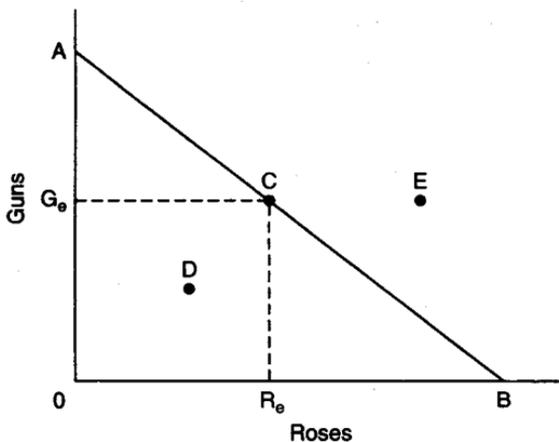


Figure 2.8 A production possibility frontier

economy to be on the production possibility frontier, as in a world of scarcity the economy should make the most of its resources.

Points inside the line, such as D, are inefficient as more of one good could be produced without reducing the output of the other, an undesirable result in a world of scarcity. In contrast, point E is desirable as the economy would produce more roses with the same number of guns. But it is unattainable given the economy's current resources.

The question is at which of the many productively efficient points along AB the economy should be. Point C on the diagram shows one productively efficient combination of the two goods, where R_c roses are produced and G_c guns are produced in the



Pareto-efficiency and Heathrow Airport Terminal Five

Vilfredo Pareto (1848–1923) argued that the best outcome for a society comes when nobody can be made better off unless somebody else is made worse off. This Pareto criterion means a policy cannot happen if it makes anybody worse off. Everything remains as it was.

But if this criterion was applied in practice, it is hard to imagine any airports or nuclear power stations, for example, ever being built. When London Heathrow airport's fifth terminal was proposed, local residents, environmentalists and planners raised several objections. Under the Pareto criterion, these alone should have stopped the terminal being built.

As an alternative, the economists John Hicks (1904–89) and Nicholas Kaldor (1908–86) developed the Kaldor–Hicks criterion. Much less strict, it states that a policy could go ahead if those gaining from it can compensate those losing. It is sometimes, for obvious reasons, called the compensation criterion and clearly applies the cost-benefit principle.

Analysis of the costs and benefits of Heathrow's Terminal Five suggested its benefits outweighed its costs. As gainers could compensate losers, under the Kaldor–Hicks criterion building the terminal was efficient even if under the Pareto criterion it was not.

market. The market produces this combination because it is in producers' interests to be as efficient as possible. That way they maximize their profits as consumers buy from the most efficient, cheapest producers.



Efficiency

Efficiency comes in different forms but is always concerned with doing the best with what is available. The production possibility frontier shows the productively efficient combinations of goods where the economy obtains the most output from the factor inputs at its disposal.

The market is also allocatively or Pareto-efficient as it allocates goods among consumers to maximize everybody's benefits. Once a market is in equilibrium, society cannot improve welfare by moving from the equilibrium. Higher output raises benefits but costs increase more; lower output cuts benefits more than it cuts costs. The market equilibrium output is therefore both Pareto- and productively efficient.

Assumptions of the supply and demand diagram

The supply and demand curve diagram does not describe how real markets operate. It symbolizes how they work based on some important assumptions. These are:

- ▶ perfect information: all consumers and producers are fully informed about the market
- ▶ homogeneous goods: all goods produced are exactly the same
- ▶ perfect mobility of factors of production: capital and labour can move freely in and out of the market
- ▶ consumers and producers are price-takers: none of the many producers and consumers is powerful enough to make or fix prices

Taken together, these assumptions describe the economist's idea of perfect competition or a perfect market. Real markets with these qualities are unlikely to exist. And yet these assumptions

underlie the model of supply and demand that economists adopt when analysing markets. The apparent lack of realism is immaterial for two reasons.

First, the assumptions are how economists would like the world to be. They represent a benchmark for economists when analysing real markets. If infringed in reality, economists argue that we should try, where possible, to ensure they are not.

The other reason these unrealistic assumptions are beside the point is that if supply and demand diagrams predict the future reasonably well that is good enough. And over the years they have done so in markets that might not be perfect but broadly match the assumptions. Agricultural markets are like this. Using supply and demand analysis to predict how these markets react to changes is likely to prove accurate. We return to the significance of these assumptions in later chapters.



Hedgehogs and foxes

The philosopher Isaiah Berlin divided thinkers into hedgehogs and foxes. Hedgehogs have one idea that they apply to understand the world. Foxes know many things, none of which on their own explain the world. Economists are hedgehogs. The market is their big idea.

Conclusion

Much of the art of being an economist depends upon identifying when it is appropriate to apply a particular economic model or theory. The model of markets presented in this chapter suggests that supply and demand determine the prices and quantities produced of many goods and services. It is a view of markets that economists have found useful for many years.

The market is also important for its role in economic analysis. Indeed, if you can recognize when to apply supply and demand to analysing economic problems, you will quickly start to become an economist. You will also impress non-economists with your new-found ability to predict the future, sometimes correctly. These are significant gains.

In the following chapters we consider how consumers and producers operate in markets to maximize their benefits. We also consider why sometimes markets fail to work as they should. This chapter has suggested that markets are best for addressing the economic problem, but limits exist to how far they can be applied. Knowing when not to rely on the market, we will see, is as important as knowing when we should.



It is not from the benevolence of the butcher, the brewer or the baker, that we expect our dinner, but from their regard to their own self interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages. He, generally, indeed, neither intends to promote the public interest nor know how much he is promoting it ... he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his original intention.

Adam Smith (1776)



Fact-check

- Which of the following applies to the market system?
 - producers are given output targets by the government
 - consumer goods are limited in supply to those fixed by the government
 - prices allocate resources in the economy
 - the interests of individual consumers are ignored when allocating resources
- Points along a production possibility frontier for two goods show:
 - the output of two goods that lead to unemployment
 - output when there is X-inefficiency
 - unattainable output for the economy
 - none of the above
- The demand curve for tea shifts to the left. Which of the following is unlikely to have caused this shift?
 - falling consumer incomes
 - a lower price for coffee
 - higher costs of producing chocolate
 - higher prices of milk and sugar
- Which of the following shifts the demand curve for books to the right?
 - a higher price of books
 - increasing consumer incomes
 - increased television watching and use of the internet
 - a new tax on books
- Which of the following causes the supply curve for wheat to shift to the left?
 - the development of a new strain of disease-resistant wheat
 - the introduction of a subsidy for wheat farmers by the government
 - an increased cost of combine harvesters
 - an increased price of wheat

- 6 The government introduces a maximum price for chocolate set below the current market equilibrium price. Which of the following would an economist be likely to predict?
- A demand will exceed supply at the equilibrium price
 - B a shortage of chocolate will result and lead to non-price rationing
 - C supply will exceed demand at the maximum price for chocolate
 - D it is impossible to say what will happen in the market for chocolate
- 7 Cheese and wine are complements. How would an increase in the price of wine affect equilibrium price and quantity in the market for cheese?
- A equilibrium price will be higher and equilibrium quantity lower
 - B equilibrium price will be higher and equilibrium quantity higher
 - C equilibrium price will be lower and equilibrium quantity lower
 - D equilibrium price will be lower and equilibrium quantity higher
- 8 The government has set a minimum price for beef at £5 per kilogram. The market equilibrium price before the minimum price was introduced was £7 per kilogram. Which of the following is most likely to occur?
- A beef falls in price from £7 per kilogram to £5 per kilogram
 - B beef remains at a price of £7 per kilogram
 - C beef rises in price from £7 per kilogram
 - D it is impossible to say from the information how the price of beef is affected
- 9 Economists assume that consumers:
- A aim to achieve reasonable satisfaction when buying goods
 - B aim to maximize their utility from consuming goods
 - C concentrate on consuming goods that are scarce
 - D have an income that generates diminishing marginal utility
- 10 Which of the following could cause house prices to fall?
- A an increased cost of building land
 - B a higher mortgage rate
 - C rising consumer incomes
 - D higher rents for domestic properties



Dig deeper

- 1 Consider the market for MP3 players.
 - a) How would the following affect the demand curve for MP3 players?
 - i) digital music increases in price;
 - ii) consumer incomes fall;
 - iii) the price of headphones rises;
 - iv) the cost of producing MP3 players falls;
 - v) a TV advertising campaign convinces people to replace CD players with MP3 players.
 - b) How is the supply curve for MP3 players likely to be affected by:
 - i) a rise in sales taxes imposed on MP3 players?
 - ii) the cost of raw materials used to produce MP3 players falling?
 - iii) an increased desire among MP3 player manufacturers to earn higher profits?
 - iv) the release of a report claiming that MP3 players can cause health problems?
 - v) an expected fall in consumer incomes over the coming year?
- 2 Using a supply and demand diagram, predict what happens to equilibrium price and quantity in the market for hamburgers, if consumer incomes fall and consumers consider hamburgers to be an inferior good. In doing this, you are acting like an economist and will see why economists find supply and demand diagrams so useful in analysing how changes affect markets. Explain why hamburgers might be an inferior good.
- 3 In January 2011 the UK government increased the VAT rate on most goods from 17.5% to 20%. But some goods, such as domestic gas and electricity bills, attract VAT of 5%, and others, like food, books, and children's clothing, a zero rate. Both these rates were left unchanged.

Using supply and demand analysis, predict how the VAT rise affects equilibrium price and quantity in the markets for:

- i) TV sets, which have VAT imposed at the highest rate
- ii) Domestic fuel bills
- iii) Children's clothing.

What must you assume when conducting the analysis?

Why did the UK government act as it did?

3

How consumers behave

Introduction

Chapter 2 showed how economists use the demand curve to portray consumers' responses both to market changes (the good's price and the prices of other goods) and changes in the consumers' own circumstances (income and tastes). The account of how consumers react is likely to have matched our own experience of buying goods, especially the idea that consumers buy more of a good as prices fall.

Economists have tried to understand why consumers respond as they do because it will help them better predict consumer behaviour and so make better policy suggestions. Consumer sovereignty also puts consumers at the heart of the market system so they deserve the economist's attention.

In this chapter, we consider a theory that helps to explain the shape of the demand curve. It is, though, incomplete so we need another to gain a fuller picture of consumer behaviour. This is a good example of how, when one theory fails to explain a phenomenon fully, economists look elsewhere to fill the gaps in the original theory.

We also consider the individual consumer's demand and not that of the market as we did in Chapter 2. We can still, though, obtain market demand by summing the demands of individual consumers.

How consumers decide

To consider why consumers want to buy more as price falls, we must ask why they want to buy goods and services. The economist's answer is that consumers desire utility.

The concept of utility originates from the late eighteenth century when the philosopher Jeremy Bentham (1748–1832) identified it as a driving force in human behaviour. Societies, he felt, should be organized to try and maximize pleasure or minimize pain. His philosophy of utilitarianism would ensure rational social policy. Economists, such as William Jevons (1835–82), later took up the concept, and applied it to consumer demand.

A problem with utility is that it is hard to measure. If I eat a chocolate bar, for example, I enjoy it but I would find it hard to describe that enjoyment, never mind expect another person to gauge how much I had experienced.

Utility

The benefit or satisfaction consumers receive when they consume a good or service. Like the wind, we cannot see it but we know it is there.

Economists try, though, to solve this problem as follows. If a consumer buys a good at a certain price their utility must at least equal the price. If price exceeds utility, economists reason, the consumer will not buy the good. This is applying the cost-benefit principle to consumer behaviour. The good's price is the cost to the consumer, and the utility is the benefit. If benefit matches or exceeds cost, the rational consumer, in economic terms, buys the good.

When we observe a consumer buying a good, therefore, we deduce that the consumer's utility equals or exceeds the price. This illustrates a principle economists regularly adopt. Observing people's behaviour is more important than listening to what they say they would do. Economists are sceptical about people's assertions until they are backed by action.

Seeing is believing

A well-known example of how saying and doing can differ relates to taxes. Surveys among voters can suggest they would pay higher taxes for improved government services. In elections, however, they then vote for parties promising lower taxes. When deciding if people like higher taxes, economists are guided by how voters behave in real elections rather than what they say they will do in a survey. But if voters backed high-tax parties, economists would accept that as evidence of what voters want.

In believing that consumers weigh up costs and benefits when buying a good, economists assume that consumers want to maximize their utility. This might not describe how consumers really behave but it has served economists well when analysing

and predicting consumer behaviour. For that reason the idea of the rational, utility-maximizing consumer is retained in economics.

The logic of this view of human behaviour is that a consumer who buys a good where the cost (price) exceeds the benefit (utility) would be irrational if they wanted to maximize utility. They could have bought another good that gave more utility than the price and increased their overall utility.

Why demand curves slope downwards

The notion of how consumers decide to buy goods can be used to explain the slope of the demand curve once we add another idea: as consumers obtain more of a good they obtain less utility from each extra unit of the good. It is an idea that appeals to our own experience.

Think for example, of that first cup of coffee (or your favourite morning drink) of the day. It can be satisfying. A second cup, while enjoyable, is less enjoyable than the first. And a third might actually be unpleasant depending on your tolerance to caffeine.

Economists refer to this effect as the law of diminishing marginal utility. It states that each extra, or marginal, unit consumed of a good gives utility that diminishes or falls compared with the previous unit. The consumer's total utility is still increasing, as each marginal unit gives the consumer extra utility, but more slowly with each extra unit. By the way, this is the first time we apply the concept of the margin.

The pattern of diminishing marginal utility only applies over a fixed period of time. On another day or week, the consumer could once again experience the higher marginal utility. The first cup of coffee on the next morning will be equally satisfying.



The term 'marginal revolution' is usually taken to refer to the nearly simultaneous but completely independent discovery in the early 1870s by Jevons, Menger and Walras of the principle of diminishing marginal utility as the fundamental building block of a new kind of static microeconomics.

M. Blaug (1972)



Diminishing marginal utility

As consumption increases, each extra, or marginal, unit of a good gives less utility than the one before. It is an idea that cannot be proved by measurement but it feels right!

The law can be illustrated in tables and in diagrams but to do this, we must set aside the idea that utility cannot be measured and suppose that utility is measured in units called 'utils'. These are imaginary units of measure that exist only in the minds of economists trying to understand consumer behaviour.

Table 3.1 shows utility a consumer obtains from drinking cups of coffee during a day. The first cup provides 240 utils, but the second only 180 utils. This is diminishing marginal utility. The third column shows that although marginal utility diminishes with the second cup the consumer's total utility has increased from 240 to 420 utils. And so it continues with the third, fourth and fifth cups.

When we get to the sixth cup of coffee, the consumer experiences negative marginal utility, or marginal disutility, of 60 utils. The sixth cup perhaps made the consumer feel ill. Economists would think the consumer irrational to drink this cup as it conflicts with the idea of the consumer maximizing total utility. Table 3.1 shows that total utility falls from 600 to 540 utils with the sixth cup.

The figures in Table 3.1 are plotted in Figure 3.1. The graph in panel (A), shows diminishing marginal utility. Panel (B) shows total utility increasing, but at a diminishing rate, until five cups of coffee are consumed. With the sixth cup utility starts to fall. That is, marginal utility is negative.

Cup of coffee	Utility from cup of coffee (utils)	Total utility from cups of coffee (utils)
1st	240	240
2nd	180	420
3rd	120	540
4th	60	600
5th	0	600
6th	-60	540

Table 3.1 Utility from drinking cups of coffee in a day

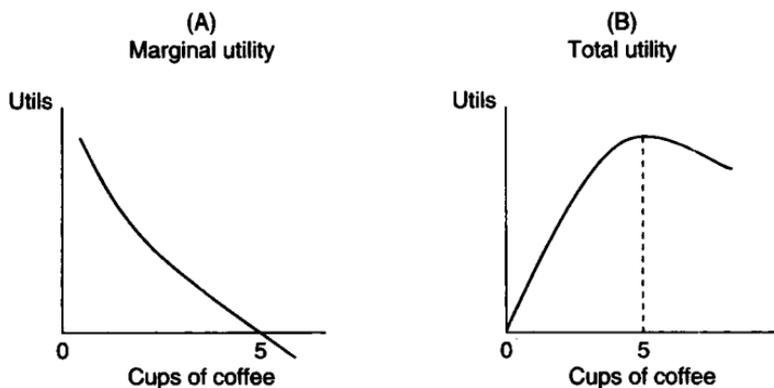


Figure 3.1 Marginal and total utility

We now give utility a money value. Let us say one util is worth one penny (1p). Non-economists often have difficulty with this idea, as it suggests everything in life is reduced to money terms. But for economists it simply expresses the benefits of consumption (which they realize cannot be measured) in a way that allows comparison with the money price of the good.

This assumption allows us to calculate how many cups of coffee the consumer buys if the price per cup were £1.80. From Table 3.1, the first cup of coffee has a marginal utility for the consumer in money of 240p or £2.40. Applying the cost-benefit principle, the consumer buys the first cup. The benefit (£2.40) exceeds the cost (£1.80). For the second cup, marginal utility is worth £1.80 which matches the price. The consumer buys this cup too as its benefit compensates for the cost. But the marginal utility of the third cup worth £1.20 is less than £1.80. A rational utility-maximizing consumer does not buy the third cup. They could use the £1.80 to buy something else that gave more utility: perhaps a cake to go with the coffee.

The consumer's marginal utility tells us that if a cup of coffee costs £1.80, the consumer buys two cups. But this is the consumer's demand for cups of coffee at that price which we observe on the consumer's demand curve. We conclude that the consumer's marginal utility curve is the consumer's demand curve and the demand curve slopes downwards because consumers experience diminishing marginal utility as they consume more of a good.



Consumer surplus

The coffee-drinking consumer's first cup of coffee gives utility of £2.40. For this they pay £1.80. The consumer obtains some utility (60p) for which they did not have to pay. This is consumer surplus. We might ask why the firm selling the coffee does not charge the consumer £2.40. The answer is that they do not know what each consumer's utility is as it cannot be observed. If they could, they would charge the higher price!

Problems with diminishing marginal utility

While the law of diminishing marginal utility explains why demand curves slope downwards, it has a limitation. It cannot explain an upward-sloping demand curve like that in Figure 3.2.

Giffen and Veblen goods are supposed to have demand curves like this.

Giffen goods are usually cheap, staple foods like bread and rice that are a large part of a poor consumer's spending. If a Giffen good's price rises, the consumer's ability to buy other goods,

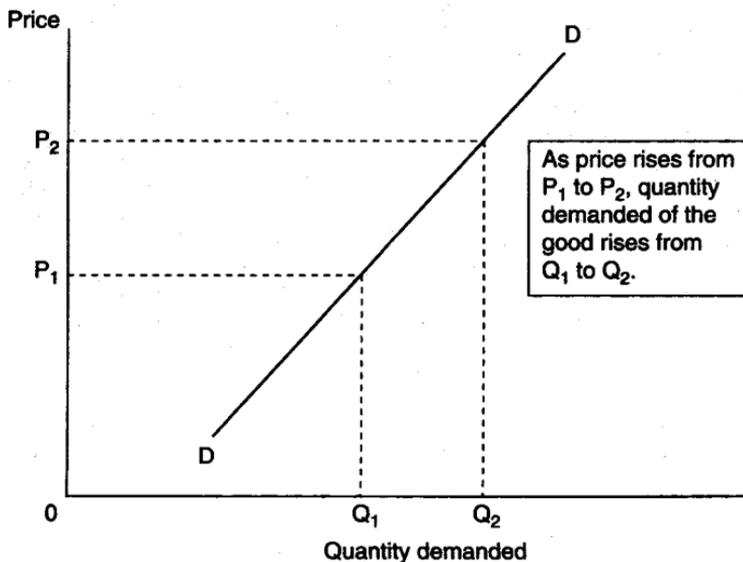


Figure 3.2 An upward-sloping demand curve

including more expensive types of food, is greatly affected. To deal with this problem, the consumer buys more of the Giffen good, even though its price has risen, to maintain their overall consumption of food. At the same time, they reduce their consumption of more expensive food. As a result, the demand curve for Giffen goods slopes upwards. Giffen goods are, though, a special class of goods that are rare in practice. There are few examples of individual goods that on their own make up a large part of a consumer's total spending.



There is an endless variety of wants but there is a limit to each separate want. This familiar and fundamental tendency of human nature may be stated in the law of satiable wants or of diminishing utility... The marginal utility of a thing to anyone diminishes with every increase in the amount of it he (sic) already has.

A. Marshall (1922)



Giffen goods

The name comes from the statistician Sir Robert Giffen (1837–1910). He observed that German peasants in the nineteenth century bought more black bread, their staple food, when its price rose.

Veblen goods are at the other extreme. They are consumed by richer consumers who want to show off their wealth to others. Also known as 'conspicuous consumption' goods, examples include expensive clothing, cars and property. A higher price for a Veblen good increases its appeal to richer consumers as it distinguishes them from others. Similarly, if its price falls, demand for the good among the rich falls, as it loses its exclusivity.



Veblen goods

Thorstein Veblen (1857–1929) was the social scientist who first identified conspicuous consumption goods. They are named after him. He thought they were wasteful and contributed nothing to society, a point worth bearing in mind when next buying a pair of trainers.

Another explanation for downward-sloping demand curves

Diminishing marginal utility cannot explain the slope of a Giffen or Veblen good's demand curve. But we can explain the demand curve for Giffen goods (although not Veblen goods) using an approach to consumer demand that relies on price changes having two effects: the substitution effect and the income effect.

The substitution effect occurs because a good's price changes relative to that of other goods. If its price falls, the consumer buys more as it has become relatively cheaper. For example, a lower price of coffee means the consumer is likely to buy more coffee and less tea or other substitutes. If price rises and the good becomes relatively dearer, the consumer substitutes another good.

The income effect occurs because a change in the good's price affects a consumer's real income or the total amount of goods that the consumer can buy. If price rises, the consumer's demand for all goods is affected as real income has gone down. And normally, as we saw in Chapter 2, if income goes down demand falls.

Real and money income

Real income is the amount of goods consumers are able to consume. It depends on two factors: income measured in money, or money income, and the prices consumers pay for goods. Increases in money income only increase real income if prices stay the same or rise by less than the change in money income. If, for example, money income doubles from £100 per week to £200 per week, real income only increases if prices have not doubled. If they have, the consumer is no better off.

If we combine income and substitution effects, when prices rise demand normally falls. Both substitution and income effects cause demand to fall. This result is consistent with a downward-sloping demand curve.

These effects can, though, also explain upward-sloping demand curves. To do this, we recall the case of inferior goods, for which demand increases when income falls.

For inferior goods, the substitution and income effects of a price change no longer work in the same direction. If price goes up, the substitution effect causes the consumer to buy less of the good (it always does), but the income effect causes the consumer to buy more (lower real income increases demand).

Mostly, the substitution effect of a price rise, which causes demand to fall, exceeds the income effect that causes demand to rise. When price rises, therefore, demand usually falls. But if the income effect exceeds the substitution effect a higher price causes demand to rise, as happens with Giffen goods, which are particular types of inferior goods. If their price rises, real income declines greatly because a Giffen good comprises a large part of the consumer's spending. The large income effect exceeds the substitution effect.



When I buy my Hershey bar at 50 cents a bar, and it's the fourth one I ate that week, having the first one is more valuable to me, in utility terms, than the fourth one, because there's the law of diminishing marginal utility. But I don't pay more for the first than I pay for the last one, so I'm getting a consumer surplus on all the intra-marginal units, that's the lingo, and to be born in the modern, rich world is to be born with a silver spoon in your mouth. What's that silver spoon? It's to be splashed with consumer surplus.

Paul Samuelson

(www.pbs.org/newshour/businessdesk/2009/12/samuelson-on-consumer-surplus.html)



Applying diminishing marginal utility

It might seem this law only explains a demand curve's slope. But businesses can apply it when considering how to price the goods they sell to their customers. They could charge less for second and subsequent units of their good to offset a consumer's diminishing marginal utility.

Price elasticity of demand

Apart from explaining the nature of the demand curve, economists also identify how much quantity demanded changes when price alters. They do so using the idea of price elasticity of demand (PED). This is defined as:

$$\frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

The number obtained from this formula is negative if the demand curve is downward-sloping. When price rises, demand falls and vice versa. As this applies to the vast majority of goods, economists sometimes drop the negative sign, although usage is inconsistent.

An example shows how calculating PED works. Suppose the demand for bread is 10 loaves per week when the price is £1 but falls to 9 per week when price rises to £1.20. The percentage rise in price is 20% and the percentage fall in demand is 10%. In this case, PED is $-10/20 = -0.5$ or just 0.5.

When the absolute value of the PED (the negative sign is ignored) is below one, economists refer to demand as inelastic or, more precisely, price-inelastic. If PED is greater than one, demand is elastic or price-elastic. And if equal to one, demand is unit elastic.

PED does not remain constant as price changes. Table 3.2 shows the demand schedule from Chapter 2 with PED calculated as price rises.

Table 3.2 shows how at higher prices PED is higher. Each part of the demand curve has its own PED. When quoting the PED,

Price (£)	Quantity demanded (number per week)	PED
100	50	-
200	42	-0.16
300	34	-0.38
400	25	-0.79
500	17	-1.28
600	8	-2.65

Table 3.2 Price elasticity of demand for a good

therefore, it must be 'at the price ruling'. It does not apply to the good regardless of price.



Elasticity of demand

Economists use elasticity to identify how much demand responds to changes in any of the factors that explain demand. Large changes are elastic. Demand changes readily, like a rubber band stretches easily when pulled. Small changes are inelastic just as steel wires respond little when pulled.

PRICE ELASTICITY OF DEMAND'S SIGNIFICANCE

An important effect of PED is how it affects a firm's total revenue. In Chapter 2 we saw that revenue is what the firm receives from selling goods it has produced. If it sells 500 cars at £10,000 each, its revenue will be $500 \times £10,000 = £5$ million.

In other words:

Total revenue = Price \times Quantity demanded

As price and quantity demanded are both elements in the PED formula, a firm can establish how changing the price of its good affects revenue if it knows the PED of its goods.

For example, when demand is price-inelastic, increasing price cuts demand, but the fall is less in percentage terms than the price rise. Mathematically, revenue must rise. If demand is elastic, though, and the firm increases price, the percentage fall in quantity demanded is greater and revenue falls. Table 3.3 shows how price changes affect revenue for the different PED.

Revenue, however, is not profit. Profit is what remains to the firm after subtracting from revenue the costs of producing the goods so that:

Profit = Total revenue – Total costs

	Price elasticity of demand		
	Inelastic	Unit	Elastic
Price rise	Increase	None	Decrease
Price fall	Decrease	None	Increase

Table 3.3 How total revenue changes when price changes

If price falls when demand is elastic, revenue increases. But costs rise too as the firm must produce more to meet higher demand. Profits only rise if the increased revenue exceeds the increased costs. Many firms cutting prices have seen profits fall when costs increased more than revenue.

Where no ambiguity exists, though, is if demand is inelastic. Increasing price must cause profits to rise. Revenue increases, as we have seen, but as demand falls, the firm produces fewer goods and so costs must fall. Rising revenue and falling costs lead to only one conclusion: profits rise.

Governments will also be interested in the PED of a good. Their interest comes because changing certain taxes affects the price of goods. If demand for a good is elastic, increasing a tax would lower revenue. Better, therefore, to tax goods where demand is likely to be inelastic. Goods such as cigarettes and alcohol that governments tax tend to have a demand that is price-inelastic which, given our knowledge of PED, makes them ideal for this purpose.



Profits and revenue

These can be presented as two simple equations:

Profits = Total Revenue *minus* Total Cost

Total Revenue = Price per unit *multiplied by* Quantity sold of the good

WHAT DETERMINES PRICE ELASTICITY OF DEMAND

The key determinant of PED is the number of substitutes for a good. If a good has many and its price rises, consumers can easily switch to an alternative. Demand will be elastic. If alternatives are few or non-existent, consumers must continue to use the good and demand will be inelastic.

We have also seen that price itself can determine PED. At lower prices, demand tends to be inelastic (or less elastic) because the good's price is a smaller proportion of the consumer's income. Price changes will not affect demand as greatly. For a similar reason, consumers on higher incomes tend to have a lower PED

for all goods they consume as price is a smaller proportion of their total income.

Goods bought less frequently are likely to have an inelastic demand. Consumers will be unaware of the price and so less responsive to it. But some goods bought infrequently can have elastic demand. Consumer durables, like televisions, are in this group. If price rises, consumers can put off buying a new set and keep their old one a little longer.

Demand might also be more elastic in the long run than in the short run. If, for example, petrol prices increase, consumers will, in the short run, continue to buy petrol as they need it for their car. To keep the car running, the consumer must pay the higher price. But in time consumers can find alternatives to buying petrol such as using public transport, or buying a fuel-efficient car that cuts demand for petrol. PED becomes more elastic.

For some goods, such as cigarettes, time has the opposite effect. A price rise causes a relatively large fall in quantity demanded in the short run but in the longer run demand increases again as habit and a lack of effective substitutes become apparent to the consumer. Demand is elastic in the short run but inelastic in the long run.

INCOME AND CROSS-PRICE ELASTICITY OF DEMAND

We can also measure how demand responds to other changes. Economists usually do this for income and the price of other goods. The formula for these other elasticities takes the same form as that for PED.

Income elasticity of demand is defined as:

$$\frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income.}}$$

Unlike PED, economists cannot be relaxed about whether to use a plus or minus sign. With income elasticity the sign matters and we must specify it.

We normally expect the sign to be positive as demand rises when income rises and falls when income falls. But for inferior goods the sign will be negative given that demand falls when

income rises. The sign of the income elasticity demand for a good therefore tells us if the good is normal or inferior.

If the value of the income elasticity of demand for a good is less than +1, demand is said to be income-inelastic and the good is a 'necessity'. Food is an example. If the value exceeds +1, demand is income-elastic and the good is a 'luxury'. These groups are broad, however, and are guides rather than definitive statements about a good's nature.

The response of demand for a good when the price of other goods changes, is measured by cross-price (or just cross) elasticity of demand. For goods X and Y, the formula is:

$$\frac{\text{Percentage change in quantity demanded of good X}}{\text{Percentage change in price of good Y}}$$

As with income elasticity, the sign for cross-elasticity matters. A positive sign means good Y's higher price has caused demand for good X to increase. This implies the two goods are substitutes. If the sign is negative, and demand for X fell, when the price of Y rose, the goods must be complements. And if the demand for X does not change, the two goods are independent of each other.

Cross-elasticity of demand formally measures the relationship between the markets for different goods. We do not speculate whether tea and coffee are substitutes or bread and butter are complements. Instead, we calculate cross elasticity of demand.

In advanced economics, cross-price elasticities of demand for every good in the economy show how a change in one market affects other markets. For this reason they can be used in general equilibrium analysis where policy-makers can consider any possible cross-effects, as they are known. For example, it might be thought a good idea to tax petrol to reduce demand for it and so cut pollution. But policy-makers also want to know how the change will affect other related markets and consider these before acting. Cross-elasticities of demand identify which markets these are.

Conclusion

In this chapter, we have considered how economists think consumers behave. In doing so, we have introduced ideas that will reappear when examining other topics in the book. Economic analysis often considers how consumers react in different situations so the tools in this chapter will prove useful for analysing the economy.

As we saw in Chapter 2, the market economy also requires producers, the firms who supply consumers with the goods they consume. To have a full understanding of the market economy, we must understand how firms as well as consumers behave. Economists' ideas about firms are the subject of the next chapter.



Fact-check

The table below shows a consumer's demand schedule for beer.

Price per pint (£)	Pints demanded per week
5	1
4	2
3	3
2	4
1	5

Questions 1 and 2 refer to the table.

- Marginal utility of the third pint is the equivalent of
 - £5
 - £4
 - £3
 - £2
- The consumer's total utility from consuming four pints of beer is:
 - £15
 - £14
 - £2
 - cannot be derived from the information available
- A Giffen good is a good for which quantity demanded:
 - rises as price rises
 - falls as income rises
 - rises as price falls
 - rises as income rises
- John buys a cup of tea for £2. The value of his marginal utility from drinking the cup of tea is equivalent to £5. This indicates that John:
 - has not enjoyed his cup of tea
 - obtains consumer surplus equivalent to £3 from his cup of tea
 - only buys more tea if the price falls
 - has an upward-sloping demand curve
- The law of diminishing marginal utility states that:
 - total enjoyment declines as you consume more of a good
 - enjoyment of each extra unit of a good declines the more you have of it

- C** enjoyment of each extra unit of a good declines the less you have of it
- D** the more of a good that is produced the lower is its price
- 6** A consumer's income rises from £300 per week to £330 per week. One year later, prices have risen by 5%. The consumer is:
- A** neither better nor worse off in real terms than at the start of the year
- B** better off in real terms than at the start of the year
- C** worse off in real terms than at the start of the year
- D** there is insufficient data to answer the question
- 7** The price of bananas rises from £2 per kg to £2.25 per kg. A consumer's demand for bananas falls from 2kgs per week to 1.5kgs per week. The consumer's price elasticity of demand for bananas at the price ruling is:
- A** - 0.5
- B** - 1
- C** -2
- D** -4
- 8** A firm selling dresses estimates price elasticity of demand for its products to be -1.5. If the firm raises its prices its profits:
- A** increase
- B** decrease
- C** stay the same
- D** cannot be determined
- 9** A consumer's income elasticity of demand for smartphones is +1.2. This means that smartphones are NOT:
- A** luxury goods
- B** normal goods
- C** Giffen goods
- D** in great demand
- 10** The price of bread rises by 10%. Demand for butter then falls by 5%. This means cross-price elasticity of demand for butter and bread is:
- A** -2 and the goods are substitutes
- B** -0.5 and the goods are substitutes
- C** -0.5 and the goods are complements
- D** -2 and the goods are complements



Dig deeper

- 1
 - a) How does a restaurant owner benefit from knowing about the law of diminishing marginal utility?
 - b) Does diminishing marginal utility mean that people will never be happier?
 - c) Some economists have measured people's willingness to pay for certain goods not traded in markets such as lakes and beaches. The contingent valuation method, which involves asking people their views in a questionnaire survey, is one way of doing this.
 - i) Can responses to a survey measure the utility people obtain from 'consuming' these goods?
 - ii) What problems might using a survey like this present?
 - iii) How could information obtained about consumer demand from such surveys be used?
- 2 The following demand schedule shows demand for tickets to a Justin Timberlake concert:

Ticket price (\$)	Quantity demanded
20	10,000
30	8,000
40	5,000
60	2,000
100	1,000

- a) What is price elasticity of demand if the price rose from \$20 to \$30? And from \$30 to \$40?
 - b) At which price would the concert promoter maximize her revenue from the concert? Would you advise her to charge this price?
 - c) The cross-price elasticity of demand between Justin Timberlake tickets and those for Beyonce concert tickets is +1.5. What does this tell us about the relationship between the demand for the concert tickets of these two artists?
- 3 Recent estimates have put the price elasticity of demand for beer bought outside licensed premises in the UK at -0.8 and

that for cider at -1.3 . The cross elasticity of demand between beer and wine bought outside licensed premises has been estimated at -0.2 while that between cider and wine has been estimated at $+0.16$.

- a)** What do the two estimates of price elasticity of demand for beer and cider suggest the government should do if it wishes to raise the tax revenue it receives from alcohol?
- b)** Explain what the cross-elasticities of demand quoted tell us about the relationship between the demand for the different goods.
- c)** How is a tax increase on wine likely to affect the UK government's revenue from wine, beer and cider?
- d)** The demand for food stuffs is usually thought to be inelastic. Why does the UK government not tax food when, given the price elasticity of demand, it could raise plenty of revenue by doing so?



How firms behave

Introduction

Just as consumers aim to maximize utility, so, economists assume, firms aim to maximize profits. Both maximize; only the target differs.

As we have seen, economists define profit as total revenue minus total costs. To understand how firms maximize profits, therefore, we must consider what determines a firm's costs and revenues. This understanding underpins how economists analyse firms' behaviour.

Economic theories of the firm also reveal that markets, like much in life, might not be as perfect as described in Chapter 2. In this chapter, we consider different market structures, as they are known, and the outcomes they forecast. By doing this, we will see the limits of perfect markets as a way of explaining how firms behave.



Production sectors

Economists classify production into three sectors: primary, secondary and tertiary.

The primary sector contains agriculture and extractive industries such as mining for ores and minerals.

The secondary sector comprises manufacturing industries that produce consumer goods and capital goods, like machinery, for other businesses.

The tertiary sector consists of service industries. These include retailing, banking, insurance, education, and personal services such as hairdressing.

The economies of poorer countries tend to be dominated by the primary sector. As an economy grows, the secondary sector becomes more important, and then the tertiary. In rich economies, like the United States and those of Europe, the tertiary sector is generally the largest.

Costs of production

In considering costs, economists distinguish between fixed and variable costs. Fixed costs do not change with output. Examples include rent paid for a firm's premises and fees paid

to audit a company's accounts. Whatever output is, these costs remain the same. In contrast, variable costs change as output changes. Variable costs include the costs of labour and raw materials used in producing a good. The more the firm produces, the higher these are. The sum of these is total costs. Thus:

$$\text{Total costs} = \text{Fixed costs} + \text{Variable costs}$$

Figure 4.1 illustrates them.

The graph shows three curves: total costs (TC); variable costs (VC); and fixed costs (FC).

A firm's total costs are also the costs of the different factors of production: land, labour, capital and enterprise. The rewards each of these receives, rent, wages, interest and profit respectively, are, for the firm, the cost of producing the good.

A cost that looks unusual to the non-economist is the profit paid to the factor enterprise or the entrepreneur. After all, we defined profits earlier as the amount left over once costs of production were paid out of revenue. But economists include in production costs an element that goes to the entrepreneur. This is called normal profit and is that necessary to keep an entrepreneur in the industry in which he or she is working.

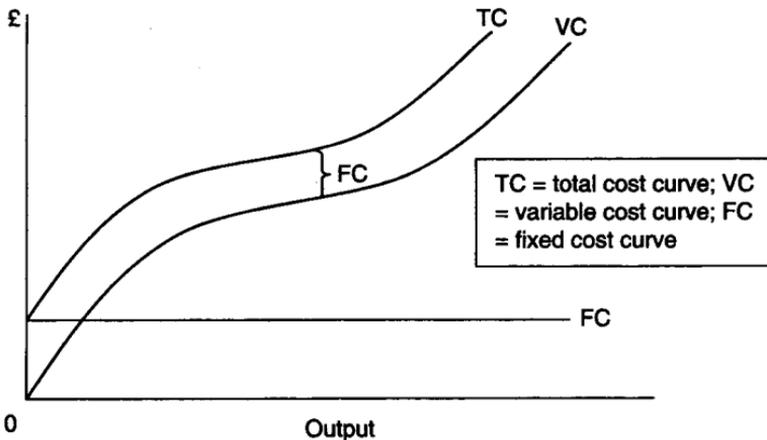


Figure 4.1 A firm's costs of production

It is the opportunity cost of the effort put in by the entrepreneur, who could earn normal profit in their next best alternative employment.



Profits again

In accounting, profit is the difference between sales revenue and total cost. In economics, though, profit is divided into normal and economic profit. Normal profit is that needed to keep the entrepreneur in the industry. The rest is economic profit.

The profit defined earlier is that remaining once the firm has paid all its costs including normal profit. This 'economic' or 'excess' profit is above that necessary to keep the entrepreneur in the industry. We will return to the distinction between normal and economic profit but the key point is that economists include some profit in costs.

Average and marginal costs

Other types of cost identified by economists build on the basic identity that $TC = FC + VC$. The first of these, average total cost, is total cost divided by output (Q) or the cost per unit of output. (Economists often refer to average total cost as average cost but that is shorthand for the correct term.)

If we suppose a firm has fixed costs of £1000 per year and it costs £100 to produce each unit of the good, the total of 5 units of output is $£1000$ (FC) + $£500$ (VC) = $£1500$ (TC). Average total cost of the 5 units is $£1500/5 = £300$.

We can also divide fixed and variable costs by output to obtain average fixed cost and average variable cost of production respectively. The sum of average fixed cost and average variable cost equals average total cost. Using the same example, when output is 5, average fixed cost = $£1000/5 = £200$. And average variable cost = $£500/5 = £100$. A feature of average fixed cost is that as output increases it keeps falling as fixed costs are divided over more output.



The entrepreneur

Economists use this French word to identify the person or persons who organize the other factors to produce goods and services. A strict translation of 'entrepreneur' is 'undertaker', but that does not work well in English. The profit paid to the entrepreneur is a reward for risk-taking in organizing production. Unlike the other factors, the entrepreneur's reward is not guaranteed. The number of entrepreneurs in a society is often seen as a measure of an economy's dynamism. When favourably comparing the dynamism of the United States' economy with that of France, President George W. Bush is said to have commented that their economy so lacked dynamism that the French do not even have a word for entrepreneur. But the story may have been invented and spread by political opponents.

Marginal cost is the firm's equivalent of consumers' marginal utility and is the cost of an extra unit of output. It only reflects variable costs of production as fixed costs, by definition, do not alter with each extra unit. In our example, the marginal cost of every unit of output is £100.

The law of diminishing returns

We can show average total cost and marginal cost curves on a diagram that illustrates how they change with output (Figure 4.2). The shape of the curves is explained by a famous law in economics: the law of diminishing returns.

This uses the idea of marginal output or product: the extra output a firm gains from employing another unit of a factor of production such as a worker. If employing an extra worker means output rises by 10 units then that is the worker's marginal output.



The law of diminishing returns

Formally, the law states that as more of one variable factor of production (for example, labour) is added to a fixed factor (capital), the marginal output (or return) of the variable factor will, after a certain point, start to diminish. This happens because workers start interfering with each other's ability to work efficiently. Informally, the law states that too many cooks spoil the broth.

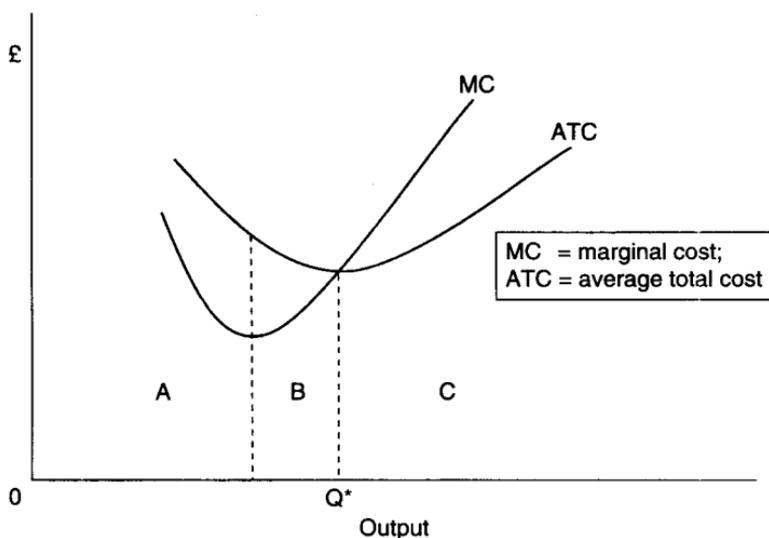


Figure 4.2 Marginal and average total costs

Figure 4.3 illustrates how the law works. It shows that as the number of workers employed increases, marginal product first rises but, after point A, starts to fall. Total output is still rising but at a diminishing rate.

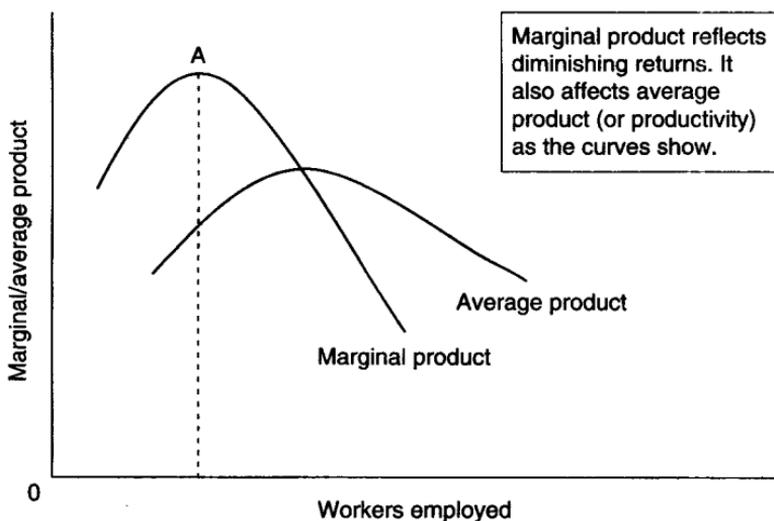


Figure 4.3 The law of diminishing returns

How the law affects costs is seen if we assume each worker's wage is the same. When production begins, marginal cost falls. The cost of an extra worker's output is spread over more units of output. But once diminishing returns set in, marginal output falls and marginal cost rises, as Figure 4.2 shows. The U-shaped marginal cost curve is the counterpart of the marginal product curve. Both result from the law of diminishing returns.

The shape of the marginal cost curve also affects the average total cost curve. Figure 4.2 shows three stages in the relationship between marginal and average total cost. In A, when marginal cost falls, average total cost falls. In B, marginal cost starts to rise, but average total cost continues to fall because the continuing fall in average fixed costs outweighs the rising marginal cost. In stage C, rising marginal cost outweighs the fall in average fixed cost and average total cost rises.

The output where marginal cost equals average total cost (Q^*) is where average total cost is at a minimum. In economic terms, Q^* is the firm's productively efficient output and is equivalent to being on the production possibility frontier discussed in Chapter 3. For the reasons described there, this output is desirable in a world of scarcity.

The short and the long run

Fixed costs assume that certain costs do not alter with output. But, ultimately, these costs can change. For example, the firm's rent could rise if the firm were to lease another factory or re-negotiate the rental contract.

In economics, a change in fixed costs defines the difference between the short and the long run. The short run is the period during which some costs are fixed. The long run is when no costs are fixed and all are variable. Neither period is defined by time. The short-run in some industries might be months or even weeks. In others, it will be years. It depends on the technology used in production.



The long run in oil production

It can take many years for capacity to change in oil production so the short run is actually quite a long time. To develop a new oil field, even once it is discovered, requires building new drilling platforms, moving them into place, laying down pipelines and perhaps expanding refining capacity. From discovering North Sea oil to bringing the first oil into production took at least ten years. In contrast, a firm like MacDonal'd's can open a new branch in under a year making their short run much shorter!

The long run is also the period in which a firm's capacity or size can change. When it does, fixed costs change. Increases in a firm's size are significant as they allow a firm to achieve economies of scale. As the firm gets bigger its average total cost of production falls in the long run. Figure 4.4 shows this.

The falling average cost in Figure 4.4 differs from that in Figure 4.3, which is due to falling average fixed cost and falling marginal cost. Instead, Figure 4.4 reflects how firms benefit from being large by being able to:

- ▶ Buy raw materials in bulk more cheaply
- ▶ Produce on a larger scale, which is cheaper per unit of output
- ▶ Use mass-marketing tools that are cheaper per unit of output.

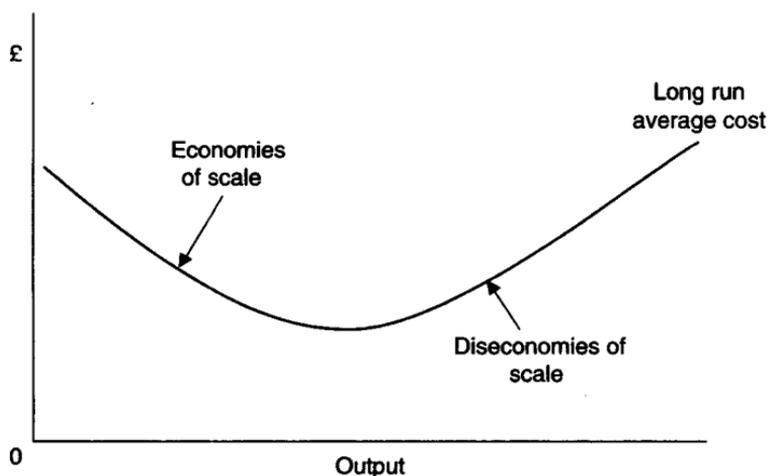


Figure 4.4 Economies of scale and long run average cost

Economies of scale mean large firms can produce and sell goods more cheaply than small firms. And yet small firms survive because they have other advantages. They can offer consumers personalized services and respond quickly to changes in demand when fashion or other economic circumstances alter. Also, as firms become bigger managing them becomes harder. This can cause diseconomies of scale and rising average total costs, as Figure 4.4 illustrates. Small firms might still be able to compete on price when this happens.

The firm's revenue

In Chapter 3 we defined a firm's total revenue as price per unit sold times the number of units sold. But we did not apply the average and the margin to revenue as we have done for costs. We can now do this.

First, average revenue is total revenue divided by the number of goods sold. This is the revenue per unit sold, or the good's price. The average revenue curve is, therefore, the demand curve.

Marginal revenue is revenue from the last or extra unit sold of a good. As demand increases, it falls, but more quickly than average revenue. The following example shows why.

Suppose that average and marginal revenue for the first good sold are the same and equal £6. Average revenue from the second good sold is £5. This means total revenue from selling one good is £6 and from selling two goods is £10 ($£5 \times 2$). The marginal revenue of the second good is therefore £4 ($£10 - £6$). This happens because the firm must not only reduce the second unit's price by £1, it must also reduce the first unit's price by £1. At the margin, the firm loses £2. Figure 4.5 shows marginal and average revenue curves for a firm with a downward-sloping demand curve.

Maximizing profits

Firms maximize profits at the output where marginal revenue equals marginal cost. To see why, consider a firm producing cars.

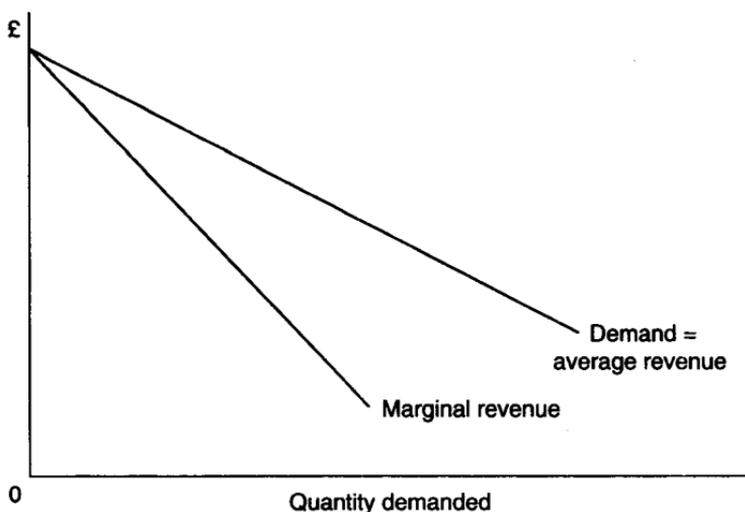


Figure 4.5 The firm's average and marginal revenue curves

If revenue from selling an extra car exceeds the cost of producing it, the firm's profits rise. In making its decision, the firm only considers variable costs, which is the marginal cost. In the short run it cannot alter fixed costs; these must be paid. Similarly, the firm only considers the extra or marginal revenue it receives from selling the car.

Once marginal cost exceeds marginal revenue, the firm stops selling cars. If it did not, profits would fall. To maximize profits, therefore, the firm produces where marginal cost equals marginal revenue. This outcome is shown in Figure 4.6. The firm makes a profit on the final unit of output where marginal cost equals marginal revenue, as marginal cost includes normal profit.

The profit-maximizing rule is important for economists in analysing how firms behave. Applying the cost-benefit principle, firms weigh up the costs and benefits to them of deciding whether to produce. But firms do not actually calculate their marginal cost and revenue curves, as anybody working in business will confirm. Rather, the idea allows economists to predict how firms behave when different market structures exist.

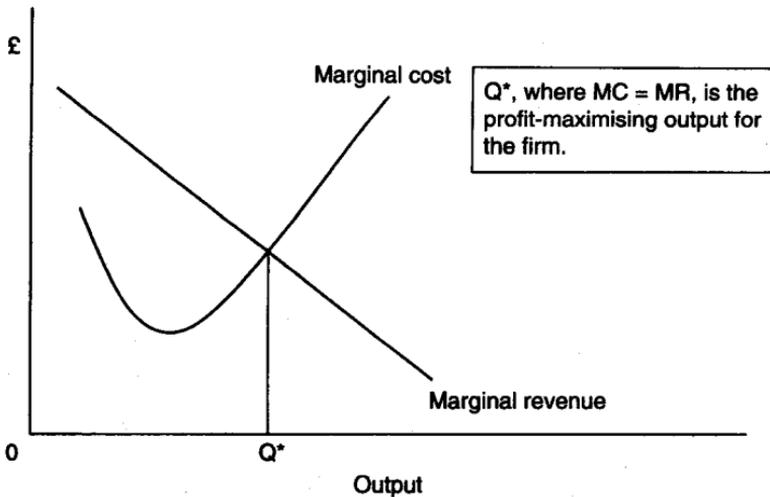


Figure 4.6 Profit-maximizing output



Profit maximization

The rule that marginal cost should equal marginal revenue (or $MC = MR$, as economists often say) applies whether a firm makes profits or losses. If total costs exceed total revenue, the firm minimises its losses when marginal cost equals marginal revenue. Meeting this condition keeps losses to a minimum because the firm can pay off some of the fixed costs it would have to pay even if it produced nothing.

Types of market structure

Chapter 2 introduced perfect competition as the best possible market economists can imagine. But economists have identified other market structures which are less than perfect, as Figure 4.7 shows. Table 4.1 summarizes their different characteristics. Firms behave differently depending upon where they are on the spectrum of competition. The following sections discuss how.

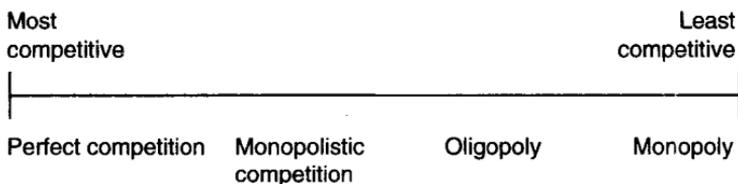


Figure 4.7 A spectrum of market structures



Firms and industries

Industries consist of firms. The number of firms in an industry tells economists something, although not everything, about the nature of prices and output in the industry.

	Perfect competition	Monopolistic competition	Oligopoly	Monopoly
Perfect information	✓	✓	✓	✓
Homogeneous goods	✓		✓	
Perfect mobility	✓	✓		
Price-takers	✓	✓		
Number of firms	Many	Many	A few	One

Table 4.1 Characteristics of market structures

Note: ✓ indicates the structure possesses the characteristic.

Perfect competition

Firms in perfect competition face a price set by market supply and demand. They are price-takers that cannot fix their own price. It means their demand curve is a horizontal line as Figure 4.8 shows. Firms can sell what they like at the market equilibrium price but they cannot raise their price. If they did, demand for their goods would fall to zero as consumers would switch to one of the many other firms in the industry. The demand curve is both the average revenue and marginal revenue curve for the firm.

Firms will not, though, sell an infinite amount. Instead, they must consider their costs and relate these to revenue. Economists assume all firms have the same costs in perfect competition, so Figure 4.8 applies to every firm in the industry. As Figure 4.8 shows, they produce where marginal cost equals marginal revenue to maximize profits.

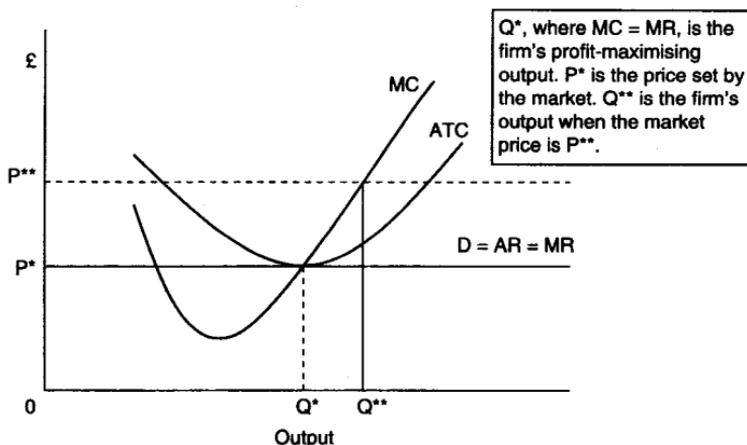


Figure 4.8 Equilibrium in perfect competition

Their profits are, though, only normal profits (average total cost = average revenue). If price went above P^* , firms could earn economic profits. But this would attract new firms to the industry, as factors of production are mobile. Industry supply would rise pushing the market price back down to P^* . (Drawing the supply and demand diagram would show this.) Firms in perfect competition can, therefore, only make economic profits in the short run.

Crucially, as average total cost equals marginal cost firms are productively efficient. The significance of Figure 4.8 is that it confirms perfect markets to be the most efficient way of organizing production.

While, unfortunately, perfect markets do not exist, the perfect market concept allows economists to predict reasonably well how firms are likely to behave and to suggest policy ideas. Even if real markets will never be perfect, policy changes can make them a little more so.

Years ago, economists used to regard perfect competition as the ideal; any deviation from it was regarded as a 'bad thing'. Today, we realize that all the world is an exception to perfect competition. Were we to chop off the head of everyone who is an imperfect competitor, there would be few heads left.

P. Samuelson [1951]



Marginal cost and the supply curve

Price P^* in Figure 4.8 means the firm produces output Q^* . At different prices, the firm would produce different outputs. At P^{**} , for example, output would be Q^{**} . For every price, output is determined where the price (or marginal revenue) line meets the marginal cost curve. The marginal cost curve, in other words, gives the output for a particular price. But that is another way of describing the supply curve. In fact, the supply curve is that part of the marginal cost curve above the average total cost curve. We now see why changes in costs shift the supply curve, as this curve is a cost curve.

Only part of the marginal cost curve is, however, relevant. If price were below the average total cost curve the firm would make a loss and would produce nothing. To confirm this, note how the marginal cost curve above the average total cost curve slopes upwards like the supply curves we have shown previously.

Monopoly

At the other end of the competitive spectrum is monopoly, in which the industry comprises one firm, the monopolist, whose position is protected by barriers to entry into the industry. These barriers include the high costs of setting up a new firm in the industry with new machinery etc., the ability of the monopolist to cut prices if a competitor tries to enter the industry, and legal devices, such as patents, copyright laws, or trade restrictions imposed by government.

Figure 4.9 shows equilibrium for a monopolist. As it is the only firm in the industry, the monopolist faces the downward-sloping demand or average revenue curve for the industry with the associated marginal revenue curve. The two cost curves indicate the profit-maximizing output where marginal cost equals marginal revenue, and the economic profit derived from the difference between average cost and average revenue.

The monopolist's economic profit, unlike that in perfect competition, persists in the long run. Other firms cannot enter the industry as barriers to entry stop them. The monopolist is also likely to produce at an output that is not the most efficient.



Price elasticity of supply

The supply curve in perfect competition allows us to estimate price elasticity of supply. This tells us how firms respond to changes in price and matches the price elasticity of demand identified for consumers in Chapter 3.

The formula for it is similar:

$$\frac{\text{The percentage change in quantity supplied}}{\text{The percentage change in price}}$$

But the result from the calculation differs. The supply curve suggests that if price rises, supply rises. This implies that the sign for price elasticity of supply will, unlike that for demand, be positive.

The same rules apply, though, to identifying elastic and inelastic supply. If the value exceeds +1, supply is elastic. If it is less than +1, it is inelastic.

In Figure 4.9 output is below that where the firm is productively efficient (average total cost is at a minimum).

Output is also allocatively inefficient. The industry's demand curve is the monopolist's average revenue curve. And if it were competitive, the supply curve would be the monopolist's

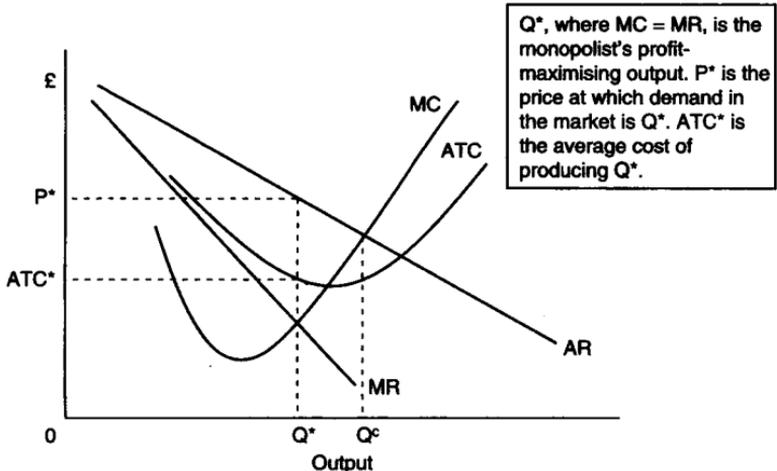


Figure 4.9 Equilibrium in monopoly

marginal cost curve above the average total cost curve. In perfect competition, therefore, the Pareto-efficient output occurs where average revenue and marginal cost are equal (Q^e). Output is higher and price lower in a competitive market.

The case against monopoly is that it does not deliver the most efficient output. Policymakers have accepted this economic analysis and created laws and structures called competition policy that limit firms from becoming and remaining monopolists. In the UK, the Competition Commission enforces legislation and is legally obliged to encourage competition and to discourage practices that restrict competition and lead to monopoly. Similar arrangements for competition policy exist in the European Union, which also affects UK firms. In the United States, anti-trust policy, as competition policy is known there, has the same goal of controlling monopolies.

But monopoly can outperform competition. The monopolist might use their economic profit to invest in research and development or to buy modern, productive machines. And as monopolists tend to be bigger firms, they might achieve economies of scale that could mean lower rather than higher prices for consumers.

Such potential benefits mean competition authorities do not automatically assume a monopoly is harmful. Instead, they look at each case on its own merits, weigh up the costs and benefits, and decide whether or not they wish to act to stop a monopoly being created or to undo an existing one. It is the cost-benefit principle again.

Similarly, monopolies protected by the law of patents (the sole right to produce a good) give firms an incentive to develop new products that will earn economic profit. But where the law allows this, the monopoly is not permanent. It normally lasts only for a fixed period. In the European Union this period is 20 years, which reflects economic thinking that a monopoly might be justified for a period, but in the longer run the inefficiency caused outweighs the benefits of the monopolist's innovation.

A difficulty with controlling monopoly is that just because an industry only has one firm, it does not necessarily mean that it is a monopoly. In contestable markets, which have a single firm, the firm must keep the same prices as in perfect competition because there are no barriers to entry, information is perfect, and there are no sunk costs. The latter costs refer to capital that can only be used in one industry. Given these circumstances, if the firm increased its prices to earn economic profit, new firms would enter the industry and undercut the existing firm. Profits become losses and either the original firm or the new entrants leave the industry.

An example of a contestable market is an airline operating on a particular route. Should the airline raise its fares, other airlines with planes on other routes, could move in quickly and start flying the route. In principle, the existing airline should never raise its fares. If it did, competitors would enter. The theory caused the deregulation of the airline industry around the world. It is no longer necessary to regulate which airline flies a route if the market is contestable.

Monopolistic competition

As the name suggests, this market structure is a hybrid of monopoly and perfect competition. The monopolistic part is that firms produce goods which differ from their competitors' goods. The firm has a form of monopoly in what they produce, although their good also has close substitutes. An example might be a branded product. Heinz, for example, have a monopoly in producing their own baked beans but other baked beans are available.

Heinz might be able to charge a higher price as some consumers will think Heinz baked beans unique, but at higher prices, consumers could switch to competitors' products. In this respect, the market is competitive. In addition, the market has no barriers to entry so firms can enter or leave it, depending on profits or losses, as in perfect competition.



As the nineteenth century wore along ... the behaviour of the economy became empirically more at odds with the competitive model. ... In the twentieth century economists in the central tradition began to accommodate the competitive model to these seeming facts of life. Instead of pure competition there was monopolistic competition or imperfect competition. With this came more doubts. Who could be sure that a blending of competition and monopoly would be benign? Might not such oddly assorted parents produce a mis-shapen progeny?

J. K. Galbraith (1998)

The two contrasting features of this market structure mean the firm's demand curve is downward sloping as in monopoly but not as steep. In terms we met in Chapter 3, demand for the firm's products is more price-elastic because of the availability of substitutes. Figure 4.10 shows the outcome for the firm.

The firm's demand curve is at a tangent to its average cost curve so the firm is only making normal profits (average cost equals average revenue). The firm also maximizes profits as marginal cost equals marginal revenue at the equilibrium output. If the firm made economic profits, other firms would enter the industry causing its demand curve to shift to the left. Consumers can buy similar products from the new firms entering the

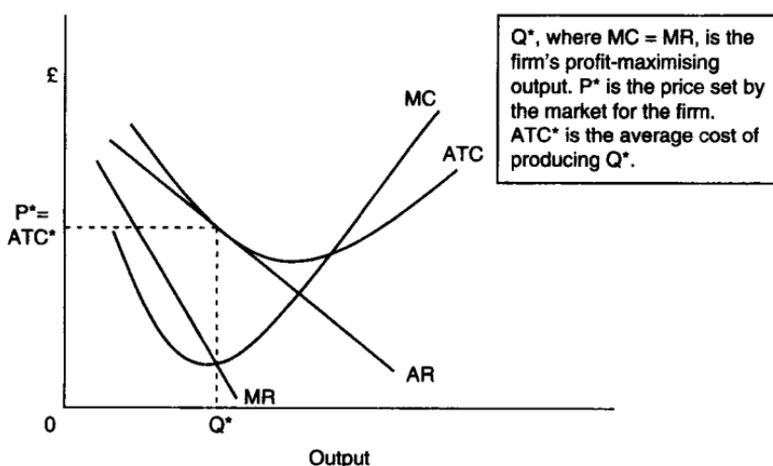


Figure 4.10 Equilibrium in monopolistic competition

industry. The process continues until the demand curve is at a tangent to the average total cost curve.

Although these firms only make normal profits, as in perfect competition, they are not productively or allocatively efficient. As in monopoly, they do not produce at the lowest average total cost nor do they produce where supply (marginal cost) equals demand (average revenue).

Oligopoly

An oligopoly is a market with a 'few' firms, few usually being three to five. A market with two firms is a duopoly. Firms in an oligopoly are generally large and in reality many markets match this market structure. Examples include the banking, car, gas and mobile phone industries.

As the few firms can interact with one another, oligopoly is not as easy for economists to analyse as the other three market structures. It is usually considered using game theory which, as the name suggests, treats the interaction between the firms as though it were a game. The game requires each player (the firm) to set prices and output to maximize profits. But because there are only a few competitors, each firm must consider how others in the industry will react as the players in, say, a football match must consider how the opposition will play.

In oligopoly, for example, if a firm cuts its prices and the other firms react by doing the same, the price change is unlikely to affect the firm's demand and will only reduce profits. But if the other firms do not cut their prices, the firm could make higher profits. Uncertainty about how competitors will react makes it hard to predict the effect a firm's decisions will have.

Analysis using game theory usually leads to the conclusion that firms in oligopoly will all charge the same price and keep that price stable. Provided all make normal profits (or better), firms have no incentive to change price and output as the risks of doing so are too great. A lower price might spark a 'price war' that leaves everybody worse off. The firms are in a Nash equilibrium where every firm is doing the best it can, given the pricing and output strategies of the other firms.

Fortunately, the outcome with a Nash equilibrium corresponds to firms' behaviour in real oligopolies. Prices and output tend to remain constant over time. Price wars between firms occur rarely and, like geologists find with earthquakes, are hard for economists to predict and difficult to explain. In short, economists essentially describe an oligopoly's behaviour in real markets.

Alternative theories of the firm

The discussion of market structures assumes firms aim to maximize profits. But this assumption has been controversial in economics and some economists have objected to it.

The economist H. A. Simon (1916–2001), for example, argued it was impossible in practice for a firm to know when they were maximizing profits. Instead they aimed for 'satisfactory' profits. He called this behaviour 'satisficing'. He did not explain, though, what a satisfactory profit might be.

Another economist, J. R. Hicks (1904–89), argued monopolists would not want to maximize profits. Excess profits would alert the government and others, and expose the monopolist to potential legal challenges. To avoid this, monopolists would prefer what Hicks called 'a quiet life' in which they aimed for profits that kept shareholders happy but did not attract the attention of legislators.

Other economists such as W. Baumol (1922–), who also developed the idea of contestable markets, R. Marris (1924–) and O. Williamson (1932–) argued that firms would want to maximize sales or growth and not profits because of a separation of ownership and control.

The interests of managers who run the firm differ from those of the shareholders who own it. The owners might want to maximize profits but managers, who are in control and make the day-to-day decisions, seek to maximize the firm's size even at the expense of profits. The bigger the firm, the less likely it is to fail or be allowed to fail. The control they have means the managers' objective of job security prevails over the owners' wish for maximum profits.



The firm has to compete not simply for profit but for our confidence and trust. To achieve this, it has to abandon profit-maximization, or even shareholder satisfaction, as the exclusive objectives of the organization. Its explicit mission has to lie elsewhere: in product quality, customer satisfaction, ethical business practices and environmentally friendly policies, for example.

G. Hodgson (1999)

R. Cyert (1921–98) and J. March (1928–) took this a step further by arguing that firms consist of different interest groups including shareholders, managers, employees, consumers, the media and government. Any firm's objectives reflected the outcome of negotiations between the different groups. Economists could not be certain which group would dominate in a particular firm so could not, in practice, identify firms' objectives.

Conclusion

While other theories of how firms behave remain a valid focus of discussion, it is the theory of the firm discussed in this chapter that still dominates in neo-classical economics. We will continue to use it when examining production in future chapters.

None of the theories in this chapter, however, describe how firms actually behave. But they have been good in predicting how firms behave and as benchmarks for making policy about how industries should be organized. What economists decide is which structure should be applied when analysing how firms behave. In that lies the art of being a good economist so it is a subject to which we will return.



Fact-check

- The Law of Diminishing Returns states that:
 - as more of a good is consumed, the marginal utility obtained from it declines
 - a factor's marginal product exceeds average product at every employment level
 - after a certain level of employment, marginal product of a factor starts to decline
 - marginal product of a factor is always less than average product
- A firm produces ten cars a week. If the total cost of producing the cars is \$40,000 and fixed costs are \$5,000:
 - the average variable cost of the cars is \$4,000
 - the average fixed cost of the cars is \$5,000
 - variable costs equal \$35,000
 - average total cost of the cars is \$3,000
- The table below shows a firm's costs at different outputs

Output (units)	Total costs (£)
0	30
1	85
2	120
3	175
4	240
5	320

- fixed costs continue to fall as output rises
 - average total cost first falls and then starts to rise
 - fixed costs are equal to 85
 - marginal costs are always less than average total costs
- Economies of scale arise because of:
 - diminishing returns
 - firms becoming larger
 - firms becoming smaller
 - consumers wishing to buy the cheapest good.
 - Which of the following apply in perfect competition?
 - Consumers and producers have perfect information about the market.

- ii) Goods produced by firms in the market differ
 - iii) Firms have freedom of entry and exit from the industry
- A** all of them
B none of them
C ii) and iii) only
D i) and iii) only
- 6** Compared to firms in perfect competition, a monopolist will charge:
- A** a higher price and produce more output
B a lower price and produce more output
C a higher price and produce less output
D the same price and produce less output
- 7** Firms operating in monopolistic competition:
- A** do not produce where marginal cost equals marginal revenue
B cannot make economic profit in the short run
C only make economic profit in the long run
D produce where average revenue equals average total cost in the long run.
- 8** A firm employing 20 workers pays each of them £100 per day. To employ an extra worker the firm must increase its wages to £105 per worker per day. The marginal cost per day of the extra worker is:
- A** £5
B £105
C £205
D £305
- 9** Which of the following is NOT a reason why firms do not maximize profits?
- A** the interests of shareholders and manager differ.
B working for a large firm benefits managers so they put growth of the firm before profits.
C managers cannot calculate marginal revenue and marginal cost.
D different groups within the firms have objectives other than maximizing profits.
- 10** In economics the long run is:
- A** when all costs are variable
B when all costs are fixed
C about 10 years
D unknowable



Dig deeper

- 1 Using the diagrams in this chapter, explain how a firm's price and output will change if demand for its products increases in:
 - a) perfect competition
 - b) monopoly
 - c) monopolistic competition
 - d) oligopoly
- 2 Water companies in the UK are sometimes criticized for exploiting monopoly power and charging high prices for the supply of water to households.
 - a) Explain to a disgruntled consumer why it might be beneficial for the water companies to be monopolies.
 - b) How could competition between the water companies be created?
- 3 According to their website the Competition Commission in the UK 'is an independent body which helps to ensure healthy competition between companies in the UK for the ultimate benefit of consumers and the economy. It conducts in-depth investigations into mergers and markets and also has certain functions with regard to the major regulated industries'. (www.competition-commission.org.uk, accessed August 2012).
Using the example of the investigation that the Commission undertook into an acquisition of JJB Sports stores by the firm Sports Direct, show how the Commission fulfilled these functions in the particular case. Details of the investigation can be found at: www.competition-commission.org.uk/our-work/directory-of-all-inquiries/sportsdirect-jjb-sports

5

How markets distribute incomes

Introduction

In this chapter, we examine how markets determine the factors of production used in producing goods and the effect this has on the distribution of income among the different factors of production.

Factor markets operate on the same principles of supply and demand found in markets for goods. The difference is that in factor markets the roles of households and firms are reversed. Firms demand and households supply. Firms demand factors because they need them to produce goods that will earn them profits. Households supply factors because they want the income they receive from doing so.

Each factor of production, labour, land, capital and enterprise, receives its own form or income or reward: wages, rent, interest and profit respectively. And markets determine these rewards. The discussion in this chapter mainly concerns labour markets, although, we consider features of other factor markets. But, in general, the principles that apply in the labour market apply to the other three factors.

The labour market

The demand for labour from firms is derived. Firms do not want to employ workers for their own sake as consumers want goods for their own sake. Instead, firms wish to employ workers because they will produce goods, which the firm can sell to consumers at a profit.

To attract labour, firms pay wages. From the firm's perspective, these wages are the price of labour. As with goods, the demand for labour is likely to fall as its price rises giving a demand curve like that in Figure 5.1.



A perfect labour market

Just as markets exist for goods like oranges, so they exist for workers like IT engineers. In perfect labour markets, there are many firms, many identical workers, nobody can fix wages, and everybody has full information about the nature of the market. They are just like perfect goods markets.

The price axis is now labelled wages – the price of labour – and the quantity axis the labour employed. But in all other respects this is the demand curve from Chapter 2.

The supply of labour comes from households. In labour markets, economists suggest, more workers are prepared to work when wages are high than when they are low. We obtain a familiar-looking upward-sloping supply curve for labour as shown in Figure 5.1.

The market generates an equilibrium wage of W^* and employment of L^* through similar processes to those observed in goods markets. If wages are above equilibrium, some workers will be unemployed (supply exceeds demand). They will be prepared to work at lower wages. This increases demand for labour among firms and cuts the supply of workers until equilibrium results. Similarly, if wages are below equilibrium, firms will offer workers higher wages to attract them into employment. The supply of labour then rises.

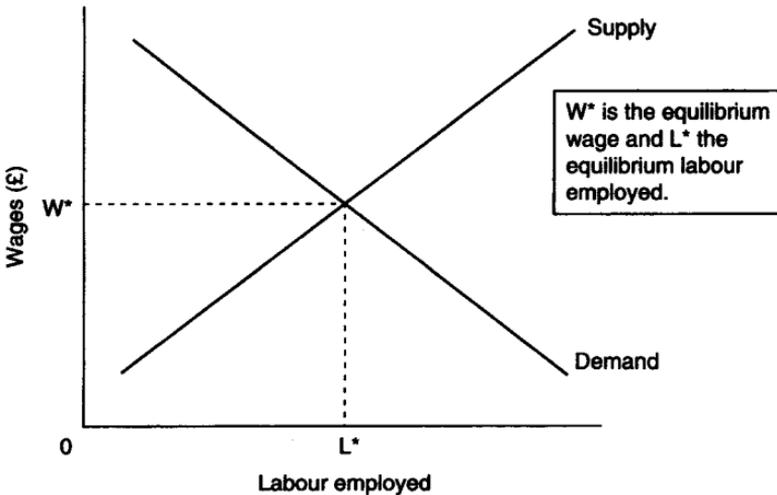


Figure 5.1 The market for labour



The labour market is the most important one most of us will ever participate in. Although people themselves cannot be sold in markets, selling human services is perfectly legal. The market for these services is subject to the same laws of supply and demand that apply in product markets. When the supply of carpenters increases, carpenters' wage rates tend to fall. If the demand for computer programmers rises, we expect their wage rates to rise.

R. Frank (2008)

The law of diminishing returns revisited

As we saw in Chapter 4, this law of diminishing returns determines a firm's cost curves. But it also helps to explain why a factor of production's demand curve slopes downwards.

A firm employing labour to produce, say, beds using a fixed amount of capital (machinery, buildings, etc.) will find that as its workforce increases, total output, or physical product as economists like to call it in this context, will increase, but after a certain point does so at a diminishing rate. Table 5.1 illustrates how marginal physical product declines once the third worker is employed. These are the diminishing returns to which the law refers.

Diminishing returns mean that firms only employ more workers if wages fall. This is because the falling marginal product of workers cuts the revenue a firm obtains from selling the worker's output. The marginal revenue product, as economists call it, is why firms want to employ workers. If this benefit from employing workers falls below the wage the firm has to pay (its cost), the firm makes a loss from employing the worker. That does not make sense if the firm wants to maximize profits. In Table 5.1, for example, if wages are £400 per week, it would not pay the firm to employ the seventh worker, who would only generate £300 of revenue for the firm.

As a worker's wage is the firm's marginal cost of employing the worker, falling marginal revenue product due to diminishing

Number of workers	Total physical product (number of beds)	Average physical product	Marginal physical product	Marginal revenue product (£) (price of beds = £300)
0	0	-	-	-
1	10	10	10	3000
2	24	12	14	4200
3	33	11	9	2700
4	40	10	7	2100
5	45	9	5	1500
6	48	8	3	900
7	49	7	1	300

Table 5.1 Weekly output of workers in a bed factory

returns, means the firm only employs more workers if wages fall. The firm's demand curve for labour slopes downwards, therefore, because of diminishing returns and because firms are profit-maximizers.

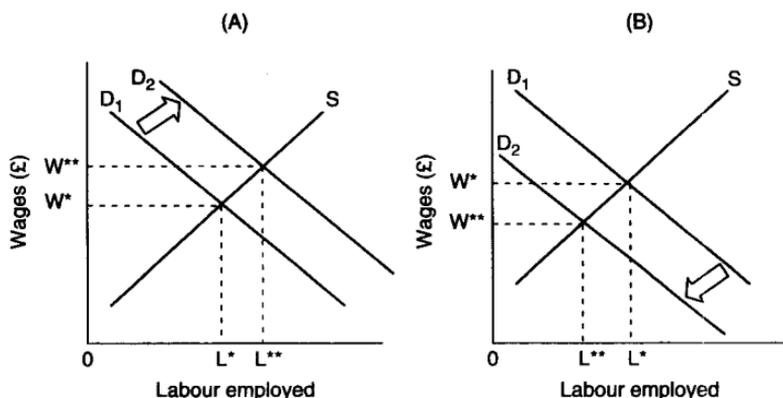
Shifting demand and supply in factor markets

As in goods markets, supply and demand curves in factor markets can shift. The demand curve for labour will shift to the right (demand increases) if workers become more productive. This means marginal physical product increases and, along with it, marginal revenue product. At a given wage, firms then employ more workers as marginal revenue product exceeds the worker's marginal cost.

Marginal revenue product also rises if the price at which output is sold rises and the demand curve shifts to the right. Of course, if price falls, the curve shifts to the left.

If demand for labour rises because productivity or prices rise, wages and employment will rise as shown in Panel A of Figure 5.2. Panel B shows falling demand and its effects.

Labour supply will increase, and the supply curve shift to the right, in three main circumstances. First, if wages in other



W^* is the equilibrium wage; L^* is the equilibrium employment of labour **before** demand for labour changes. W^{**} is the equilibrium wage; L^{**} is the equilibrium employment of labour **after** demand for labour changes.

Figure 5.2 Changes in demand for labour

industries fall, working in the industry becomes more attractive and workers switch to it. Secondly, workers might migrate from other countries. Thirdly, social attitudes could change as, for example, with the changing view of the role of women in labour markets in the last 50 years. The effect of an increased labour supply can be shown on a diagram similar to Figure 5.2.



Increasing demand for computers

If the demand for computers rises, the demand curve for computers shifts to the right and the price of computers rises. The price rise means the marginal revenue product of workers producing computers increases. Firms will then want to employ more of them. This is how a rise in demand for a good converts into a rise in demand for the workers producing the good and a rise in their income.

A backward-sloping supply curve

Factor supply curves usually slope upwards like those for goods. But sometimes they can slope backwards as in Figure 5.3. This happens because workers have the alternative of not working; they can substitute leisure for work. But if they do, they give up wages they could have earned. This makes wages the opportunity cost of leisure. If they rise, the cost to the worker of not working rises.

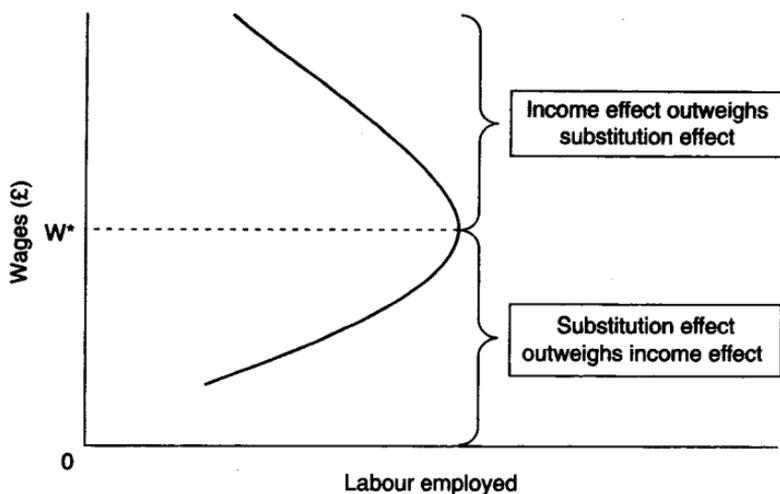


Figure 5.3 The backward-sloping supply curve for labour

As leisure is more expensive, workers substitute work for leisure. The substitution effect of a wage increase causes workers to work more, a result consistent with an upward-sloping supply curve

But as wages rise, demand among workers for leisure also rises if we assume leisure is a normal good, the demand for which rises with increasing income. It is reasonable to assume that the better off workers become, the more they will want to enjoy the goods and services they can buy. This is the income effect of a wage rise. It causes workers to work less when income rises.

Clearly, the two effects oppose each other so how a wage rise affects the labour supply is uncertain. If the substitution effect is larger, labour supply rises. If the income effect dominates, labour supply falls. In Figure 5.3, below the wage W^* the substitution effect dominates. Above it the income effect does.



Backward-sloping supply curves

These provide a good example of why two economists might disagree. If wages rise, one might say less labour will be supplied, the other might say more. Both are using the same principles to analyse the problem but have different views on the size of the two effects (income and substitution) that establish supply.

Economists usually, however, ignore the backward-sloping supply curve of labour. They argue that while it might apply to individual workers, in total more workers will want to supply extra labour as wages rise than will want to supply less.

Economic rent and transfer earnings

Economists divide factor rewards into two components. The first is the reward a factor requires to remain in a given form of employment or transfer earnings. For example, if an IT engineer will only remain in her job if she is paid £600 per week, this is her transfer earnings. If she does not earn this, she will transfer to other work. It depends on her potential earnings in her next best alternative employment, which might be as a plumber. If she could only earn £450 per week in IT she could switch to plumbing and earn £600 per week doing that.



There is no evidence and no reason to suppose that the supply of executive talent requires the stimulation of the present prices. The number of able and eager candidates is consistently large. Those who get the largest pay have the most pleasant jobs. They are also the people whose performance depends least on pay – those who most pride themselves on their moral commitment to their work. In contrast, those who do the most unpleasant and soul-destroying jobs get the least pay. And these are the people for whom pay is most important in extracting effort.

J. K. Galbraith (1973)

Suppose, however, that she was actually paid £800 per week. This income clearly exceeds what she requires to stay in the job. The extra she receives (£200) is her economic rent, or just her rent as economists often say.

A firm's economic profit is also economic rent for the factor enterprise. The firm does not need it to remain in the industry. For that, it just needs normal profit, which is its transfer earnings.

Figure 5.4 shows how factor earnings are divided between economic rent and transfer earnings in the labour market. The breakdown between the two occurs because the supply

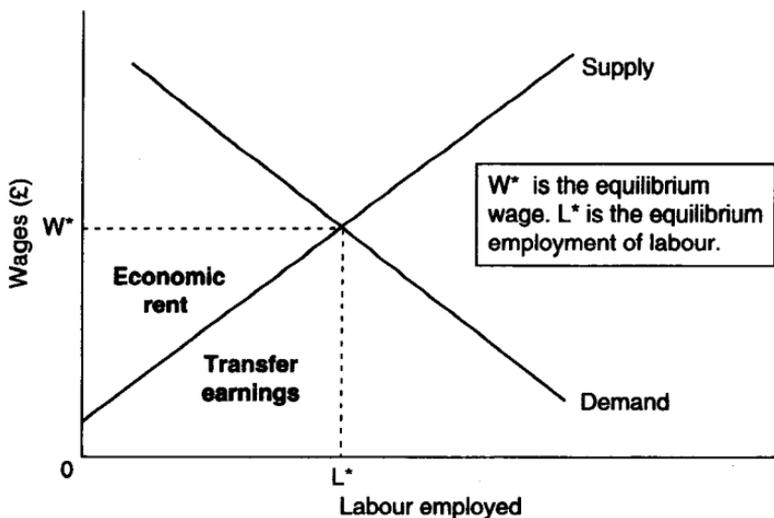


Figure 5.4 Economic rent and transfer earnings

curve indicates the wage a worker needs to receive to supply his or her labour. In other words, it shows each worker's transfer earnings. But as all workers receive the equilibrium wage the difference between that wage and what they would be prepared to work for is economic rent. The only worker who receives no economic rent is the last, or marginal, worker who comes into the market attracted by the equilibrium wage. Most workers therefore receive some economic rent.

Economic rent

Income above that needed to keep a factor of production in its current use is called rent, which might seem confusing, given rent also refers to the return landowners receive. This usage among economists, introduced by David Ricardo (1772–1823), occurs because early economists thought the rent received by landowners with the best land was all a surplus the landowners did not need. Rent simply resulted from increased demand for land as the economy developed and landowners did not need it. This surplus was thought to apply only to land. But later economists realized that the same could be said for other factors in limited supply, such as certain types of labour. The term rent was therefore applied to the surplus earnings of all factors.

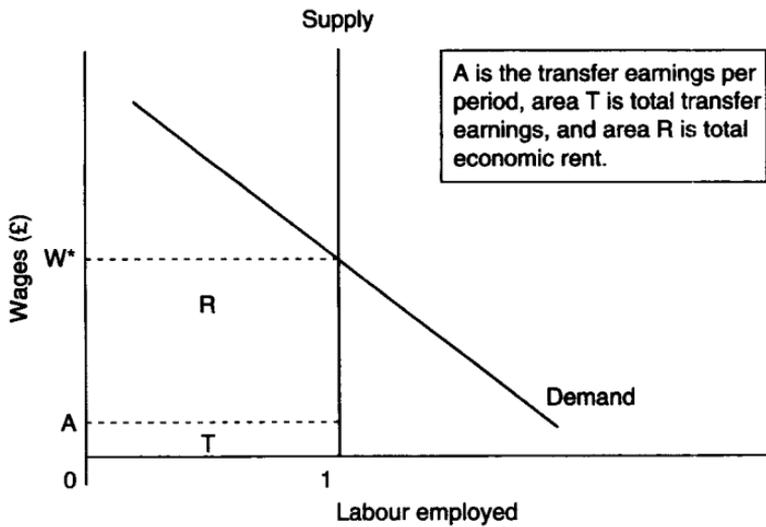


Figure 5.5 Economic rent for a unique factor of production

Rent most obviously occurs in labour markets when labour is in fixed supply as, for example, applies to the footballer Wayne Rooney. Demand alone determines the incomes of such workers, as Figure 5.5 shows.

The vertical supply curve in the diagram indicates there is only one Wayne Rooney. As demand for his services rises his income rises. Assuming that he could not earn nearly as much in his next best alternative employment, the majority of his earnings will be economic rent. If income A in Figure 5.5 is transfer earnings, area T is total transfer earnings and R total economic rent.

Economic rent raises the possibility that a government could tax a factor's economic rent without it affecting the factor's supply. The economist Henry George (1839–97) suggested such a tax, although he restricted its coverage to rent received by landowners, which, he thought, was all surplus. The principle could, though, be applied to other factors of production. If, for example, Wayne Rooney's economic rent were taxed he would continue to play football provided he still received his transfer earning.

The UK government would, though, be unlikely to try this. If they did, Wayne Rooney could play his football in Italy, Spain, or any other country that did not tax him so highly. In a world of national tax regimes, taxing all his economic rent might be an own goal for the UK government. That said, the temporary tax on bankers' bonuses that the UK government introduced in 2009 was a tax on economic rent. Most bankers' earnings exceed their transfer earnings so taxing them should not affect their supply of labour. And so it proved, at least in the short run. But were the tax to become permanent, banks in London might consider relocating to other financial centres.



Transfer earnings and economic rent

Transfer earnings are the minimum a factor must earn to remain in its current form of employment. Economic rent is any earnings above this minimum.

Intervening in labour markets

As the wages of workers affect standards of living and overall well-being in the population, governments often intervene in labour markets to protect the lowest-paid using minimum wages. And workers have themselves formed trade unions to maintain and increase wages in labour markets.

From an economist's standpoint, both governments and trade unions interfere with how a perfect market operates. By fixing wages, they undermine the idea that in a perfect market nobody can influence the wage rate.



Contrary to the central prediction of the textbook model of the minimum wage, but consistent with a number of recent studies based on cross-sectional time-series comparisons of affected and unaffected markets or employers, we find no evidence that the rise in New Jersey's minimum wage reduced employment at fast-food restaurants in the state.

D. Card and A. Krueger (1994)

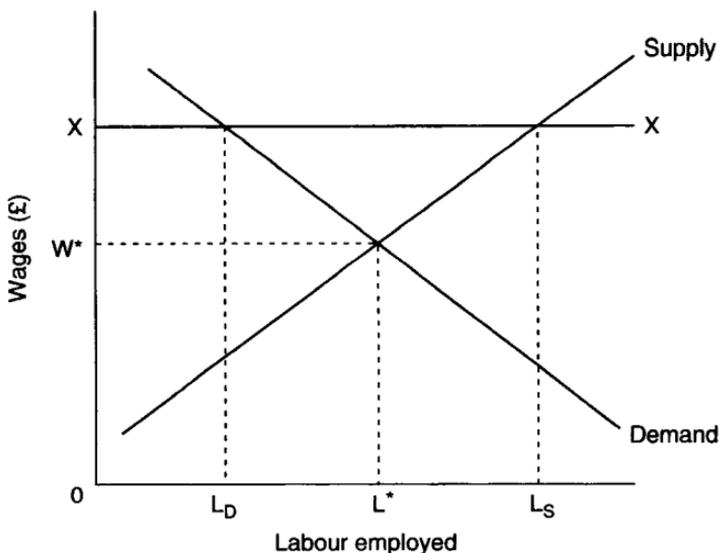


Figure 5.6 Labour market intervention

The effects of intervening can be seen in the supply and demand diagram in Figure 5.6. The line XX represents either a wage negotiated by a trade union or a minimum wage set by a government above the equilibrium wage W^* . At the wage XX labour supplied (L_S) exceeds demand (L_D). But, being fixed, wages do not fall. Trade unions and minimum wages cause unemployment illustrated by the distance $L_S - L_D$.

The discussion introduces us to what happens when markets cannot operate as they are meant to do.

The key result of the supply and demand analysis is to suggest that trade unions should be disbanded and minimum wages abolished if we do not want to see unemployment rising. For those possibly worried at the illiberal turn the discussion has taken, however, we can show how trade unions and minimum wages might create employment.

Monopsony in the labour market

As we have seen, a market with a single producer is a monopoly. In contrast, one with a single consumer is a monopsony. Labour

markets are often considered to be more like monopsonies than perfect markets and must be analysed differently. That analysis shows that wages and employment are lower when an industry has a monopsonistic employer that can exploit its buying power when hiring labour.



Monopsonies

In the UK, large employers dominate industries such as health and education. They are, if not the only buyer of labour in the labour markets, at least a very important one. The NHS for example has a major influence on the demand for health professionals. Monopsonistic employers can also be found in single-industry towns such as St Helens in Lancashire, where employment is dominated by the glass industry and the firm Pilkington.

Minimum wages affect monopsonistic labour markets differently than perfect labour markets. In monopsonies the minimum wage counterbalances the power of the employer. Not only do wages increase so does employment. The employer finds that if they must pay a higher wage to all workers the marginal cost of some workers actually falls. It pays to employ these extra workers.

The conclusion that introducing a minimum wage causes unemployment is not therefore clear-cut. Instead, as in goods markets, the economist must identify which labour market model applies in a particular situation. And if economists choose to apply different models, they can differ in their conclusions.

The market for capital

A firm's demand for capital also depends on price. Figure 5.7 shows that as interest rates (the price of capital) rise, the demand for capital falls. When buying capital, firms must take into account the return from investment in the future. As a result, firms demand less capital when interest rates are higher. The cost will exceed the future benefits firms expect from investing.

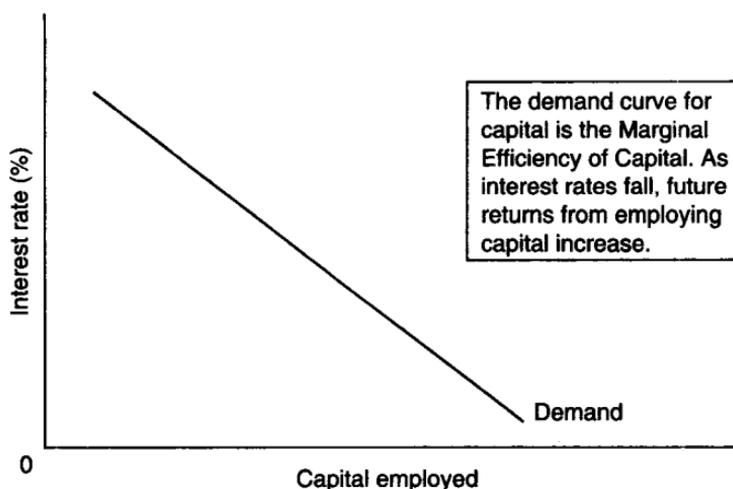


Figure 5.7 The demand for capital

Concern with the future means that a key consideration for firms when investing is the entrepreneur's beliefs about the future. If they are optimistic, firms are likely to think returns will be good and so invest more. But if pessimistic, firms will think returns will be poor, and so be less likely to invest. These 'animal spirits', as Keynes called them, are as significant as interest rates in determining investment among firms. When they change, they shift the demand curve for capital either to the right, as entrepreneurs become more optimistic, or to the left as they become less so. In Chapter 12 we consider how this affects economic policy.

Conclusion

We have shown how the market determines a factor of production's income. The interaction of the supply of factors of production from households and demand for them from firms solves the problem of how the goods produced in an economy are distributed.

There is just one difficulty with this. We saw that the demand for labour depends on its marginal revenue product. But that depends on the price at which the firm can sell the goods the

labour produces. The good's price is determined by market supply and demand. But demand in the market depends partly upon consumer incomes or wages. And that is the problem.

The demand for labour helps to determine wages. But labour demand depends upon the price of the good the labour produces. And that price depends upon wages, which partly determine the demand for the good. The circularity of the argument means the analysis has no logical starting point.

This questions why economists bother at all with the idea that factor incomes depend upon supply and demand when logically it makes no sense. But partial equilibrium analysis can be helpful in factor markets, as it can in goods markets, and predict reasonably accurately how specific markets behave. For this reason, economists persevere with the approach discussed in this chapter despite the logical flaw.



Fact-check

- Which of the following does NOT cause the supply curve for labour to shift to the left?
 - increased absenteeism among workers
 - increased worker productivity
 - increased training of workers required before entering employment
 - increased demand for leisure among workers
- In a perfectly competitive labour market, the wage rate for workers employed producing watches is £100 per day. The marginal worker produces 10 watches per day and the firm can sell these at £20 each. Which of the following statements is correct if the firm is a profit-maximizer?
 - the firm will increase employment of workers
 - the firm will decrease employment of workers
 - the firm is already maximizing profits
 - from the information available, it is impossible to say how the firm will behave.
- The demand for labour producing cars is most likely to rise if:
 - wages increase
 - the demand for cars falls
 - robot technology replaces workers on the assembly line
 - public transport prices rise.
- Justin Timberlake's salary is \$3 million per year. In his next best alternative employment, he can earn \$250,000 per year. His annual economic rent is:
 - \$250,000
 - \$2,750,000
 - \$3,000,000
 - \$3,250,000
- If the government sets a minimum wage below the market's equilibrium wage rate:
 - employment will rise
 - employment will fall
 - employment will remain the same
 - it is impossible to predict how employment will change

- 6** The market for economics teachers is perfectly competitive. How will wages and employment alter in this market if wages rise in other labour markets where an economics qualification is valuable and the demand for economics courses falls?
- A** wages will rise and employment will fall
 - B** wages will fall and employment will fall
 - C** we cannot say how wages will change but employment will fall
 - D** we cannot say how employment will change but wages will fall
- 7** In a monopsonistic labour market we would expect that compared with a competitive labour market:
- A** wages are higher and employment lower
 - B** wages are lower and employment higher
 - C** wages are lower and employment lower
 - D** wages are higher and employment higher
- 8** A backward-sloping supply curve means that:
- A** above a certain wage, workers work less
 - B** above a certain wage, workers work more
 - C** the substitution effect for leisure always exceeds the income effect
 - D** falling wages always cause the number of workers prepared to work to rise.
- 9** To maximize profits, a firm in a perfectly competitive market employs labour so that marginal revenue product equals:
- A** the wage the worker is paid
 - B** zero
 - C** economic profits
 - D** the price of the good the worker produces
- 10** If an MP3 player's price is £50 and a worker can produce 500 in a month, the worker's marginal revenue product for the month is:
- A** £50
 - B** £500
 - C** £25,000
 - D** none of the above



Dig deeper

- 1 How are wages and employment among UK car workers likely to be affected by the following?
- a higher demand for UK cars
 - a higher demand for German cars in the UK
 - increased productivity among UK car workers
 - increased investment in new machinery by UK car producers
 - increasing opportunities for car workers to enter higher education
 - the introduction of legislation that requires UK car firms to install electronic tagging devices in all new vehicles.
- 2 Use the following data to answer the questions below.

Workers employed	Output of tennis racket
0	0
1	10
2	26
3	45
4	60
5	70
6	72
7	70

- Calculate the average and marginal physical product of the workers at each level of employment.
 - At what employment level do diminishing returns set in?
 - Why does the law of diminishing returns only apply in the short run?
- 3 Lady Gaga earned \$90 million in 2010. Tiger Woods only earned \$75 million.
- Explain why these two workers' earnings differ.
 - What economic justification would the US government have to tax almost all of Lady Gaga's earnings?
 - Why is it unlikely they would do this?

- d)** In some sports, a salary cap is used to limit the earnings of players. Why is this unlikely to be applied in Tiger Woods' sport of golf?
- e)** Explain, in terms that could be understood by somebody who knows little about economics, why an entertainer like Lady Gaga earns far more than a doctor, who can save lives.

6

Markets for (almost) everything

Introduction

The last three chapters have examined how markets determine the output of goods and services and the incomes of factors of production. We saw that different market structures, such as monopoly and oligopoly, produce different results from competitive markets. And perfect competition produces the most efficient output or employment.

Markets are not, though, limited to the provision of goods and services for consumers or to determining factor incomes. Markets can exist in any setting where there is supply and demand. In this chapter we consider some of these.

We begin by examining the dimensions economists have identified for setting an upper limit to the number of markets in the economy. As we will see, thinking like this about markets helps to ensure they work more efficiently.

Dimensions of markets

Economists have identified four dimensions that define markets. These are:

- ▶ The good or service in question
- ▶ The geographical location of the market
- ▶ The time when the trade takes place
- ▶ The state of the world

The example of a tub of ice cream helps in understanding these dimensions.

The good itself has certain characteristics, such as flavour, size of tub, and quality of ingredients, that create separate markets. In any supermarket a wide variety of different types of ice cream are available each of which serves a different market with different consumers and producers. These include the market for luxury strawberry ice cream and that for average-quality plain vanilla ice cream.

Even with a multitude of markets based only on the good itself, geographical location provides more possibilities.

The market for ice cream in a seaside resort differs from that in an inland town.

We can also imagine a market based on time such as that for vanilla ice cream in London on 20 May 2037. This allows for even more potential markets. And the 'state of the world' defines further different markets. The market for ice cream almost certainly depends on the weather with that on hot days, for example, differing from that on cold.

Taken together, even a relatively simple good like ice cream could generate an infinite number of markets. And we have not even considered all the other goods and services in an economy. In practice, few of these potential markets exist but identifying the theoretical limit to the number of markets allows us to ask the question why certain markets do not exist and whether it might be possible to create them.



The dimensions of markets

Markets can take many forms but their nature is determined by the four key dimensions of product, location, time and state of the world. These are enough to ensure an infinite number of possible markets.

Creating new markets

Thinking of markets like this can be used to develop new markets and products for consumers, as in the oil market, where futures markets have been created. These make it possible to buy and sell oil on future dates on trading exchanges in New York and London. Oil is good for doing this as it is relatively standardized, unlike ice cream. That limits the number of potential markets for different types of the good. Even so, futures oil contracts only exist for certain quantities and qualities of the good and for certain dates in the future. Nor do these contracts allow for trades that depend on different states of the world. These limits on the number of markets keep transaction costs involved in organizing markets under control.

Similar future markets exist for many products, among them cotton, tobacco, soybeans and gold. But such markets are not

limited to goods of this type. In principle, futures markets for any goods are possible. The main limit on them is the imagination of market practitioners and transaction costs. Among the various possibilities for other markets are those for financial products such as foreign currencies.

The foreign exchange market

The foreign exchange market is that for foreign currencies.

In this market, exchange rates, such as that for sterling, are quoted in other currencies. For example, a bank or bureau de change might quote an exchange rate of £1 = \$1.50. For an economist, this is the pound's price in dollars. It costs \$1.50 to buy £1. Similarly, to buy \$1.50 costs £1. We ignore commission charges and different buying and selling rates.

The existence of a price implies a market with buyers and sellers. Among the buyers of pounds are non-UK residents who want to buy UK goods. As UK firms want to be paid in pounds, non-UK buyers of UK goods must obtain these. Taking the pound's exchange rate with the dollar as an example, demand for pounds comes from US residents who wish to buy UK goods. They are the 'consumers' in this market. So the more they wish to buy UK goods the greater the demand for pounds.

The sellers of pounds in this market are UK residents who wish to buy foreign goods. They must exchange pounds for foreign currencies to be able to do this. For the pound's exchange rate with the dollar, the supply of pounds depends on the extent to which UK residents want to buy US goods. UK residents are the 'producers' in this market. And the more they want to buy US goods the greater the supply of pounds.



The foreign exchange market

This is the market in which the currencies of different countries are traded. These markets are located in financial centres such as London, Frankfurt, New York and Tokyo.



The role of the market is to facilitate the making of exchanges between buyers and sellers. It is inherent in any exchange, whether of one good for another good or for money, that there be a rate of exchange between the quid and the quo: a quantity of something is exchanged for a quantity of something else. Therefore to say that a market facilitates the making of exchanges is equivalent to saying that markets are where prices are established. One may quote a price for a commodity on the moon if one is visiting that celestial body, but one can only establish a price by making a trade.

G. Stigler and R. Sherwen (1985)

DEMAND AND SUPPLY IN THE FOREIGN EXCHANGE MARKET

In the currency market, demand and supply curves take the usual shape.

To illustrate why, consider what happens if sterling's exchange rate falls from $\text{£}1 = \$1.50$ to $\text{£}1 = \$1.20$. A car produced in Sunderland costing $\text{£}10,000$, at an exchange rate of $\text{£}1 = \$1.50$, has a price in dollars of (10000×1.50) $\$15,000$. But at an exchange rate of $\text{£}1 = \$1.20$ the dollar price becomes (10000×1.25) $\$12,000$. Even though the car's price in pounds remains the same, the price in dollars has fallen for US consumers.

We can present this demand for pounds as in Figure 6.1 with the exchange rate or price of pounds in dollars on the vertical axis and the quantity of pounds on the horizontal axis. The demand curve takes the familiar shape. As the exchange rate falls, UK goods are cheaper for US consumers, and so the demand for pounds from US residents rises.

Turning to the UK consumer's perspective, if a car produced in the US cost $\$24,000$, at the exchange rate $\text{£}1 = \$1.50$ the price in pounds is $(24000/1.5)$ $\text{£}16,000$. But at the rate $\text{£}1 = \$1.20$ the price in pounds is $(24000/1.2)$ $\text{£}20,000$. As the exchange rate falls, US goods become dearer for UK residents and they demand fewer of them. Their reduced demand for US goods causes them to supply fewer pounds into the foreign exchange market. The expected relationship between supply and price, shown in Figure 6.1, results.

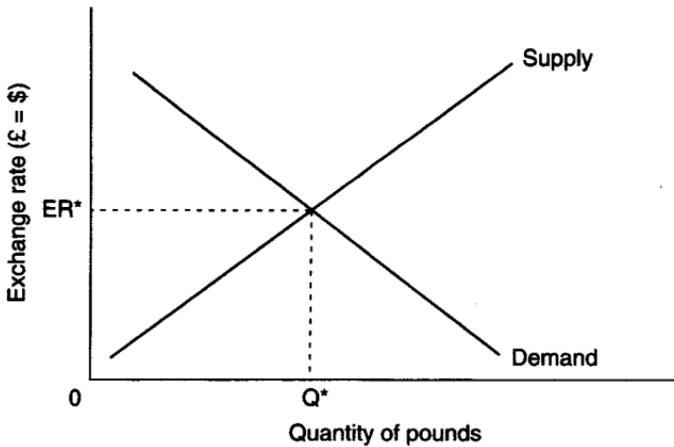


Figure 6.1 The market for pounds sterling

As in any market we can identify an equilibrium price or exchange rate for pounds shown in Figure 6.1 as ER^* . The principles of supply and demand apply just as they do in markets for oranges or IT engineers. The same forces are at work, only that being traded differs.

Future markets for foreign exchange have also developed. It is possible to trade in certain fixed types of contract for various currencies at certain fixed dates in the future. A standardized product keeps transaction costs down.

The market for bank loans

The market for bank loans can be analysed similarly. Here 'producers' are the banks prepared to lend money and 'consumers' those firms and households wishing to borrow money. The price of the loan is the interest rate that banks charge borrowers.

? Interest rates as prices

The interest paid on a loan, whether a personal loan to buy a car or a mortgage to buy a house, is the price of the loan to the borrower. As with any price, how it is determined can be explained using supply and demand analysis.

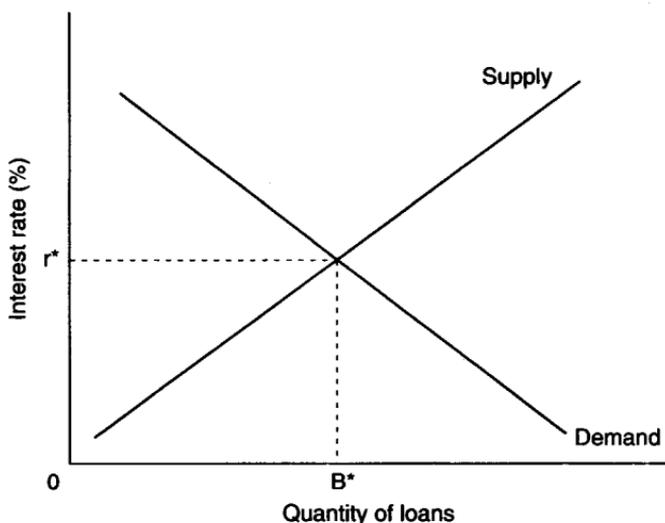


Figure 6.2 The market for bank loans

As interest rates fall, borrowers will want to borrow more. Loans are cheaper as the interest to be repaid is less. Demand rises as the interest rate falls. On the supply side, banks are likely to make fewer loans as the interest rate falls as they will make less profit. The supply of loans falls as interest rates fall. We again have a market with supply and demand curves of the expected shape that deliver an equilibrium price (the interest rate) and quantity of loans. This market is illustrated in Figure 6.2.

The market for drugs

Both the foreign exchange market and that for bank loans are in financial services and are perhaps the types of market in which economists might be expected to have an interest. But principles of supply and demand can be applied in other, less obvious settings.

Economic ideas about markets can, for example, be used to examine social problems, such as the use of heroin and other illegal drugs. Economists view the market for drugs, in which producers and consumers trade a product and an equilibrium price and output result like any other market. The idea of a market for drugs like that for ice cream can be controversial

when production and use of drugs is illegal in many countries. But it is consistent with how economists analyse the market for any good or, as may be said for drugs, 'bad'.

Adopting an approach consistent with positive economics allows economists to propose solutions for cutting drug use if that is what policymakers want. They analyse drug markets by examining supply and demand, and find information on the prices at which drugs are sold. A key aim is to identify how to increase prices and reduce demand. From our economics we know that this can be done by cutting supply. Policies that push up producer (drug barons and their dealers) costs in this market will have the required effect.



Cutting supply in the drugs market

- ▶ Raise 'producer' costs by more police surveillance
- ▶ Increase criminal penalties to deter producers from entering the market
- ▶ Impose taxes on drugs
- ▶ Work with foreign governments to cut supply

A difficulty in drugs markets, however, is inelastic demand. Cutting supply will raise prices but is unlikely to affect demand much, as addicts continue to require the drug. A suitable supply and demand diagram shows the outcome. In these circumstances, demand as well as supply must be cut if drug use is to fall.

Economic analysis suggests three reasons why the demand curve shifts: income, the prices of other goods (substitutes and complements) and tastes. For drugs, changing tastes could cut demand by using advertising and public health education programmes. The price of substitute goods can also be used as happens when methadone is prescribed to heroin addicts at zero price. In effect, consumers are encouraged to switch to a near substitute.

It becomes possible therefore to propose policies to cut drug use by thinking about the forces of supply and demand in drug markets. But the analysis assumes the market is illegal.

Economists have, however, questioned whether this should be so, not because they favour drug use but because they apply positive economics.



A free market might lead to a substantial increase in the number of persons who use drugs and possibly to a significant increase in the total amount of drugs consumed. But that policy would also significantly cut how drug use affects third parties through, for example, reduced violence and property crime. On balance, existing evidence suggests the social costs of drug prohibition are vastly greater than its benefits.

J. Miron and J. Zwiebel (1995)

The case for legalizing drugs rests on the high costs of enforcing the law and dealing with the consequences of prosecution of drug users. Considerable resources are devoted to funding police, courts, the probation service, and the role social services play in supporting drug addicts and their families.

As the opportunity cost of these activities is high, economists argue that it might be better to legalize drug use and use the resources currently tied up in enforcing drug laws elsewhere, such as providing treatment to drug addicts. They also argue that the government could, in a legal market, tax drugs in the same way they tax tobacco and alcohol.

The market for marriage

This market looks strange to anyone who thinks marriage is a romantic venture. But economists, inspired by Gary Becker (1930–), have analysed marriage using the tools of market analysis.

In this market, economists think of men and women providing labour to their partner. From a woman's perspective, we can construct supply and demand curves for their labour like those in Figure 6.3. The demand shown comes from women, but the analysis can be applied to men's demand to marry women and the supply women are prepared to offer. Here women marry

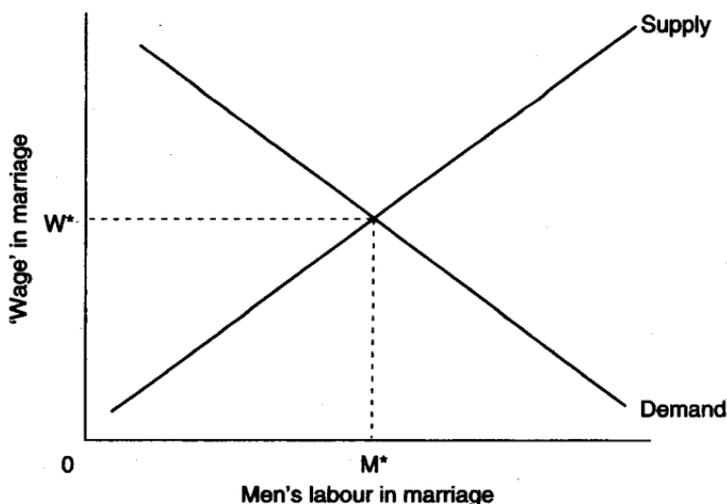


Figure 6.3 The market for marriage

(M)arriage ... can be successfully analysed within the framework provided by modern economics ... Two simple principles form the heart of the analysis. The first is that, since marriage is practically always voluntary, either by the persons marrying or their parents, the theory of preferences can be readily applied, and persons marrying (or their parents) can be assumed to expect to raise their utility level above what it would be were they to remain single. The second is that, since many men and women compete as they seek mates, a market in marriages can be presumed to exist. Each person tries to find the best mate, subject to the restrictions imposed by market conditions.

G. Becker (1973)

men for the welfare they obtain from a husband's labour. In return, the woman supplies labour to the partnership. On the cost-benefit principle, as long as the benefits of marrying exceed being single, women marry.

Female demand for men in this market, shown by the normal downward-sloping demand curve reflects a 'wage' men must

be paid in the marriage. It could take various forms such as providing a home for a husband or subsidizing the man's consumption if he does not work. It reflects the value of the time that men must devote to the marriage. The upward-sloping supply curve reflects how men's labour increases with a higher 'wage'. Equilibrium quantity (M^*) reflects the likely number of marriages.

The model can be used to analyse changes in the relative populations of the two genders over time. Suppose the number of women rises relative to the number of men. Female demand for men then rises. The demand curve would shift to the right and push up equilibrium wage and quantity. The return to men from marriage rises as does the number of marriages. One result is that men are likely to supply less labour to labour markets. They substitute marriage for work.



The marriage market

Becker's analysis assumes that marriage benefits both participants. As it is possible to identify supply and demand, an equilibrium for marriages can be identified and changes in these analysed using shifts in the supply and demand curves. To an economist, this makes obvious sense.

Something like this happened in the immediate aftermath of the First World War, when in many countries men of marriageable age were in short supply. The male demand curve for women shifted to the left and the return to women from marriage fell. As expected, women tended to remain in the labour market for longer and fewer women were married.

None of this means that men and women make their decisions to marry as the model suggests. But it predicts well, which is, as we noted before, a fine quality in any theory.

Conclusion

In this chapter we have seen how the range of possible markets is vast. In reality, most do not exist but, in principle, they could. And sometimes, as with futures markets, new markets have been created to reflect how economists think about them.

We have also seen how, even when the market seems at first sight inapplicable, it can still be used to analyse issues such as drug use and marriage. The conclusion would seem to be that the benefits markets can deliver in allocating resources suggest they should operate everywhere unhindered by restrictions.

But the example of the market for drugs actually suggests otherwise. It illustrates a situation where the law does not allow the market to work. And government intervention of this sort can take forms other than simply outlawing goods. Chapter 8 discusses these.

First, though, in Chapter 7 we examine instances of market failure when markets do not work properly and fail to generate the best, or Pareto-efficient, output for society. These failures provide the rationale for using the instruments of government intervention we will consider in Chapter 8.



Fact-check

- 1 Which of the following statements is incorrect?
 - A the market for hamburgers in New York differs from the market for hamburgers in Seattle
 - B the market for hamburgers in New York is perfect
 - C the market for hamburgers in New York on Christmas Day differs from the market for hamburgers in New York on 21 June
 - D the market for hamburgers in New York reflects the tastes of consumers in New York

- 2 A market can be defined by:
 - i) the time when market transactions occur
 - ii) the location where market transactions occur
 - iii) the state of the world when market transactions occur
 - A i) only
 - B i) and ii) only
 - C none of the above
 - D all of the above

- 3 The pound's exchange rate is $\text{£}1 = \text{€}1.20$. A German car costs $\text{€}36,000$. The sterling price of the car to a UK customer is:
 - A $\text{£}20,000$
 - B $\text{£}25,000$
 - C $\text{£}30,000$
 - D $\text{£}43,200$

- 4 The US dollar's exchange rate rises against the euro. This could be caused by:
 - A rising demand for American goods among European consumers
 - B falling demand for European goods among American consumers
 - C rising demand for European goods among American consumers
 - D none of the above

- 5 If UK interest rates rose but stayed the same in the US we expect, other things being equal, that the pound's exchange rate will:
 - A rise against the dollar
 - B fall against the dollar

- C** remain unchanged against the dollar
 - D** we cannot identify how the exchange rate is affected
- 6** The UK government places a cap on the interest rate banks can charge customers. The policy is likely to:
- A** increase bank lending
 - B** lead to a shortage of bank loans if the capped interest rate was below the equilibrium interest rate in the market for bank loans
 - C** lead in all circumstances to a shortage of bank loans and the introduction of non-price rationing of loans to bank customers
 - D** be considered morally justified by economists
- 7** The market for certain drugs in the United States is illegal because:
- A** market forces do not apply to harmful products
 - B** a majority of the population prefers that the consumption of drugs is controlled
 - C** if a legal market were allowed the supply of drugs would always exceed the demand
 - D** falling demand in the drugs market leads to rising prices
- 8** The economic case for legalizing the production and consumption of cocaine is based on:
- A** economists' normative views on drug use
 - B** the cost-benefit principle
 - C** the principle of the margin
 - D** none of the above
- 9** Analysing a market for marriage shows that:
- A** economists are not romantics
 - B** the principle of diminishing marginal utility causes men to marry more than one woman
 - C** the principles of supply and demand can be applied in many different settings
 - D** economists lack understanding of the role of marriage in traditional societies
- 10** A fall in the number of women in the population is likely to cause a:
- A** rise in men's participation in the labour force
 - B** fall in the number of marriages
 - C** a fall in wages paid to men in the labour market
 - D** all of the above



Dig deeper

- 1 a) Using the different dimensions of a market that economists have identified, show how a company producing standard computer keyboards could diversify their production into different markets.
 - b) What are the likely limits on this process of diversification?
- 2 In 2008 the value of the pound fell rapidly against those of other currencies.
 - a) What might have caused the pound's value to fall?
 - b) How would you expect this fall to have affected the UK economy in the following period?
- 3 It is argued by some that the demand curve for heroin is not downward-sloping. Addicts will demand more of the drug as they become addicted and rising price will not deter them. This makes it inappropriate to control drug use using the market as happens with tobacco and alcohol.
 - a) Despite the counter-arguments, why is it possible to analyse drugs markets using downward-sloping demand curves?
 - b) Show, using supply and demand analysis, that even with an upward-sloping demand curve a government could use the market to control drug use. What policies would the government adopt?
 - c) What is the opportunity cost of the resources used to control the drugs market because it is illegal? How do societies benefit from incurring these costs?

7

Why markets fail

Introduction

The discussion in previous chapters has highlighted how the market attends to the economic problem without any need for planners, bureaucrats or any government telling people how to behave. Instead, consumers and producers pursuing their own self-interests determine which goods are produced, how they will be produced and the incomes of the different factors of production that produce them. And these are all best for society.

But the virtues of the market system can cause its limitations to be overlooked. For sometimes markets fail to produce the best outcome for society and curtailing the free working of the market and intervening to improve social efficiency might be preferable. This chapter identifies the different forms market failure, as economists term it, can take.

Defining market failure

To define market failure we rely on our understanding of supply and demand.

The supply curve shows producers' willingness to produce depends on production costs as it is the marginal cost curve. These costs are the costs to society, or social cost, of producing the goods. This implies that the supply curve in a market is not only the marginal cost curve of producers but also the marginal social cost curve. It represents all the costs to society of producing the good.

Similarly, the demand curve represents the marginal utility or benefit consumers receive from a good. As consumers are part of society, the demand curve is the benefit to society from the good being consumed. It is the marginal social benefit curve.

Figure 7.1 shows a supply and a demand curve, now also identified as marginal social cost and benefit curves. Equilibrium output (Q^*) is where demand equals supply and where marginal social benefit (MSB) equals marginal social cost (MSC).

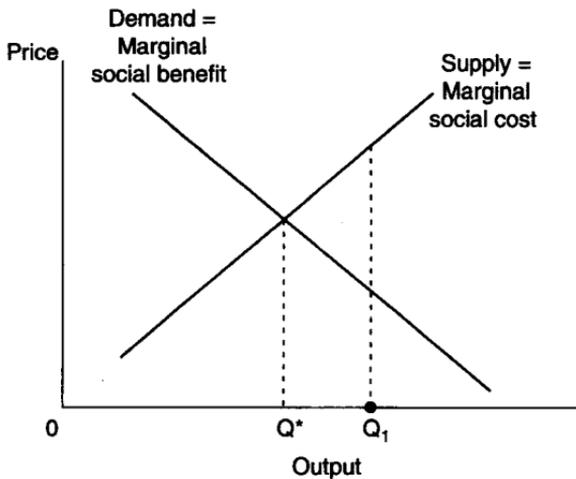


Figure 7.1 Pareto-efficient output

As the two marginal values are equal, society's welfare is maximized just as a firm's profit is maximized when marginal cost equals marginal revenue. At outputs below Q^* MSB exceeds MSC. On the cost-benefit principle, society would like these goods to be produced. Above Q^* , MSC exceeds MSB and society would not want these goods to be produced. Output Q^* is Pareto-efficient for society and, if all is working as it should, the market will deliver it.

This idea that the output where MSC equals MSB is Pareto-efficient, and so best for society, allows us to define market failure. It is any situation where the market does not deliver a Pareto-efficient output. Market failure does not mean that the market does not work at all nor that output is zero. Output can be positive, but still Pareto-inefficient. For example, were the market to produce output Q_1 in Figure 7.1, it fails.

We will adopt this definition of market failure as we consider the various reasons economists have suggested for why markets might fail.



Causes of market failure

Cause	Example
Externalities (positive and negative)	Health care (positive) and pollution (negative)
Public goods	Defence
Quasi-public goods	Roads
Merit goods	Opera
Asymmetric information	Insurance
Imperfect competition	Banks
Natural monopolies	Electricity, water and gas

Externalities

An externality arises when those who are not producers or consumers in the market gain benefits or incur costs. A positive externality, or external benefit, occurs when those outside the market experience benefits. A negative externality, or external cost, occurs when costs are imposed on those outside the market. Those affected outside the market are sometimes referred to as third parties.

We can use MSB and MSC curves to show how externalities affect a market. These curves assume that the costs to producers and the benefits to consumers represent social costs and benefits. The private benefits and costs of consumers and producers equal social benefits and costs. But if externalities exist this is no longer so. Instead, we must add the external benefits and costs from the market to the private benefits and costs so that:

MSB = marginal private benefit *plus* marginal external benefit;

and MSC = marginal private cost *plus* marginal external cost

We show the effect of external costs on the market diagram Figure 7.2.

An external cost exists when the following two conditions prevail:

1. An activity by one agent causes a loss of welfare to another agent.
2. The loss of welfare is uncompensated.

Note that both conditions are essential for an external cost to exist. For example, if the loss of welfare is accompanied by compensation by the agent causing the externality, the effect is said to be internalized.

D. Pearce and K. Turner (1990)

Once external costs are included in social costs, and MSC no longer equals marginal private costs, the Pareto-efficient output in Figure 7.2, where $MSB = MSC$, is Q^* . But the market output will be at Q_1 where supply equals demand, or marginal private cost equals MSB. In general, a market with external costs will have output above the Pareto-efficient output. In other words, the market fails. If the external cost is pollution, which imposes a cost on others, it means that, for some output, MSC exceeds MSB. This is the economic case for controlling pollution.

External benefits shift the MSB curve to the right relative to the demand curve as benefits are obtained by more than just

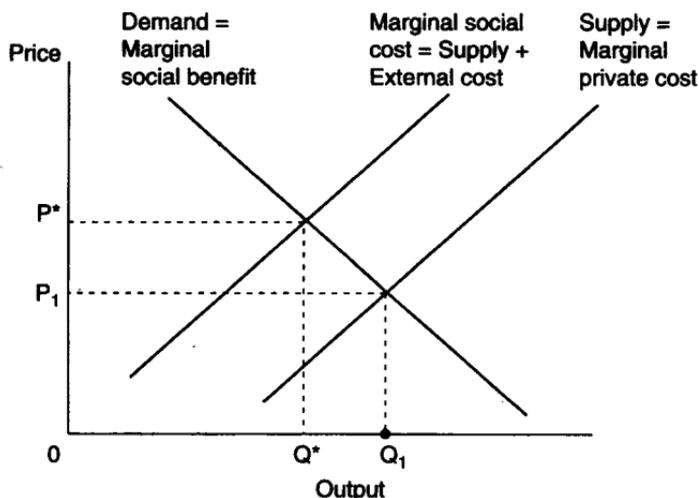


Figure 7.2 External costs in a market

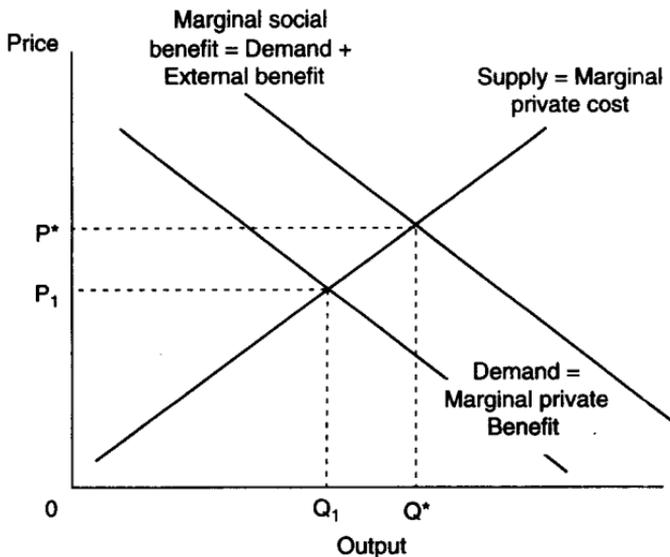


Figure 7.3 External benefits in a market

those who consume the good. An example could be a person obtaining health treatment for an infectious disease. The person being treated benefits, as they recover from the disease, but so do others who are now less likely to catch it. Figure 7.3 shows the effect. Again, the market equilibrium and Pareto-efficient outputs differ but this time the market does not produce enough of the good. This represents part of the economic case for government intervention in the health care market to make up such shortfalls.



Externalities

These are the effects on third parties that are not part of the market. That is, they are neither consumers nor producers of the good in the market. The effects on third parties can be positive, external benefits, or negative, external costs.

Public goods

For these goods, all benefits are external. If supplied, everybody benefits from the good even if they do not pay for its use. No private firm would produce such goods. Any firm doing so could

not charge consumers. They can obtain any benefits as external benefits and do not have to pay for them. If firms cannot sell the goods, they cannot make a profit so they will not produce and market failure results. Output is zero even though benefits could be had if the good were produced.

If public goods are to be produced, therefore, public organizations supported by the government must supply them. The government then requires consumers to pay for public goods through taxes.

Examples of public goods include national defence (the army, the navy and the air force), coastal defences and lighthouses. These are all, in practice, provided by some form of public organization. They share the quality that once supplied to one person they are supplied to all. These goods are said to be non-excludable as a producer cannot exclude anybody from consuming it once the good is available. A lighthouse supplied for one ship is supplied for all.

Public goods also have the quality that non-rivalry exists between consumers. The benefit one consumer obtains does not affect other consumers. If, for example, somebody moves into an area protected by flood defences, it does not reduce the protection that others in the area experience. Flood defences, which typically benefit a specific region or community, are an example of a local public good.



Local public goods

Local public goods have non-rivalry and non-excludability but the benefits are restricted to a particular geographical area. The fact that they benefit the local community alone provides a mechanism for different areas to have different local public good provision. Local government supplies an amount of the good that suits the local population. This distinguishes local public goods from the more general case of public goods provided by national governments where the population must accept whatever public good provision the government thinks is best.

Taken together, the qualities of non-excludability and non-rivalry define public goods. In contrast, goods normally traded in markets do not have these properties. They are excludable and rivalry occurs in their use. Being the alternative to public goods they are *private* goods. When we discussed markets previously we were not explicit about this, but here we see that for markets to work efficiently goods traded in them must be private.

It is important, though, to be careful. Although we have argued that governments must supply public goods this does not mean that all goods supplied by government or other public organizations are public goods. The term has a special meaning in economics and only refers to goods with the two qualities outlined above. Many goods supplied by governments are not public goods.

To take one example, governments often provide health care to their populations. But health care is not a public good. The existence of private health care companies in many countries confirms that health care is 'excludable' with benefits limited to the individual consuming the good. Governments might have good reasons for providing health care, but not because it is a public good.



Public and private goods

Goods can be defined in terms of whether they are excludable and whether there is rivalry in their consumption. Public goods exhibit non-excludability and non-rivalry. Private goods exhibit excludability and rivalry. These qualities mean that only private goods will be supplied through markets.

Quasi-public goods

Another class of goods associated with market failure has rivalry in consumption but is non-excludable. The prime example is roads.

Once a road is built it is difficult for the road's owner to limit access to those prepared to pay to use it. Exclusion is possible

as happens on toll roads where road users are charged to use a section of a road. Motorways in France, and the toll section of the M6 around Birmingham in the UK, are examples. But the problem is the cost of the facilities needed, such as toll booths and staff to collect payments, and the cost to drivers of time lost having to slow down to pay the toll. These are the transaction costs of the toll. In the examples given, the benefit derived from collecting the toll from road users presumably outweighs the transaction costs.

For most roads, though, toll collection costs and the impact on journey times far outweigh the efficiencies of having a market in road use with private firms charging consumers prepared to pay to use them. Instead, governments treat roads as non-excludable and supply them. If they did not, the market would fail and the number of roads would be Pareto-inefficient.



Electronic toll collection and excludability

A development of recent years is electronic collection of tolls done by fitting a device to cars that allows the government to track car drivers and charge them for their use of roads. A limited version operates in London where the congestion charge zone relies on electronic surveillance to ensure drivers pay the charge.

If electronic tolling were perfected roads would become completely excludable, private goods and the market would deliver a Pareto-efficient output. This shows that non-excludability is not a permanent quality in a good. It can change if new technology allows exclusion of non-payers that was previously not possible.

This happened with television broadcasts that were at one time all non-excludable. Now, though, some broadcasts are excludable, a fact upon which BSkyB have built a considerable business.

Rivalry in road use remains, as anybody who has sat in a motorway traffic jam will confirm. It is why roads are not fully public goods but quasi- or, apparently, public goods. In part, the congestion on roads that shows rivalry in use occurs because roads are non-excludable. The marginal cost to a driver of using a road is zero. If drivers had to consider the price of using the road every time they undertook a journey, and that

price reflected effects on other users, drivers might make fewer journeys. But they do not have to do this.



Roads

Although usually supplied by governments, roads are not public goods. They possess rivalry in use and possible excludability. The costs of excluding users are, though, normally too high so in practice they have one of the qualities of a public good. For this reason, they are known as quasi-public goods.

Merit goods

Merit goods are those for which consumer demand does not fully reflect consumer benefits. The market will undersupply merit goods either because those who would benefit from them will not realize this or, if they do, their demand would be ineffective.

Education is often cited as an example of a merit good. In all countries, governments do not allow the market alone to provide education. They fear that children would not receive enough education because they, and their parents, might underestimate its benefits. Market demand would not reflect MSB. Instead, governments step in and require children to consume education up to a certain age. And because parents might not recognize the benefits of education, or might prevent their children being educated, the government also requires parents to ensure children attend school.

Related to merit goods are demerit goods. People might consume more of these than is good for them. Again, the market fails. Drugs such as heroin and cocaine are classed as such and their use made illegal to control consumption.

Some economists have a problem with the idea of merit (and demerit) goods. It suggests that consumers do not know what is best for them. But economic market theory assumes that consumers do know this and are rational in wanting to maximize the utility they obtain from consuming goods. Suggesting that consumers do not know what is best for them undermines this principle.

It is also hard in practice to decide what merit goods are. The danger is that any good can be described as a merit good. The case for education looks clear-cut as agreement on its benefits is likely to be widespread. But a case could be made for the importance of attending football matches. And yet many would object to the idea that governments should provide this opportunity. These difficulties make it doubtful that merit goods cause market failure.

Asymmetric information

This market failure arises if either consumers or producers have unequal, or asymmetric, information about the market. The market will fail as information is no longer perfect and those with extra information can exploit their advantage.

Markets where consumers often know more than producers are those for insurance. When a consumer buys, say, travel insurance, he or she knows how careful they will be when travelling and so the risk they represent to the insurance company. The company does not have this information. To offset the potential costs involved from not knowing, the insurance company charge all consumers more than if they had perfect information. But those consumers who know they are low risk and so unlikely to claim on the insurance policy now leave the market. The company is left insuring travellers who are relatively high risk while low-risk consumers have no insurance even though they would buy it at a lower price. The market fails because of adverse selection: only high-risk consumers are insured.

The asymmetric information in insurance markets can also lead to moral hazard. This is the idea that people behave differently when insured. For example, a traveller does not have to be as careful with their belongings if they know that any loss will be covered by the insurance. If producers could observe consumers' behaviour, consumers would act differently. But, because they can hide their behaviour from producers, moral hazard leads to under-provision of insurance as companies charge consumers higher prices.

Not only consumers, though, have access to more information. The economist George Akerlof (1940–) studied the market for

second-hand cars (or 'lemons' as they are known in the US). His study is so well known, economists often just refer to 'Akerlof's lemon'. He explained that sellers of cars, who know the cars' true qualities, know more than buyers. Buyers, though, being aware of the asymmetry in information, assume that all cars for sale are lemons. After all, nobody sells a good car.

Asymmetric information, Akerlof argued, causes second-hand car prices to be lower than if everybody had perfect information. Sellers must instead use devices such as offering guarantees to convince buyers that the car being sold is not a lemon. A guarantee convinces a buyer that a car for sale is sound. If it were not, the guarantee would be expensive for the seller. But while the guarantee increases the likelihood of a sale, it is a cost to the seller that they would not have to bear if information were perfect and the market did not fail.

Similarly, in labour markets where employers cannot identify workers' abilities, the seller (the worker) knows more than the buyer (the employer). To overcome this, workers can signal their abilities to employers. The economist Michael Spence (1943-) suggested this happens when high-ability workers go to university. It pays them to do so as they can cope with the demands that lead to higher wages in the future. In contrast, low-ability workers find going to university difficult and do not do so.



Higher education and signalling

The idea that higher education wastes resources and serves only to signal the abilities of workers to potential employers seems to devalue what many think of as intrinsically worthwhile. Higher education gives students skills, provides personal development and makes for a better society of cultured individuals. But Spence is not arguing against this. He is actually suggesting employers act as though they treat higher education as a signal. And his theory is good at predicting. For example, it seems to reflect how degrees are treated in labour markets, when accounting firms employ history graduates.

Education signals who are the high-ability workers and who are the low-ability workers. Spence identifies the cost of the market failure as the resources used in education. With perfect information high-ability workers need not signal their abilities through a university education. Employers would know who they were. The market fails as society bears the costs of correcting for asymmetric information.

Producers are also likely to know more than consumers in the health care market. It is normal practice that doctors (the producers) tell patients (the consumers) what is wrong and identify the treatment they need. But this undermines consumer sovereignty. No longer do consumers make choices that reflect their own preferences. Instead, producers determine demand.

This presents no problem if doctors accurately reflect patients' demand, which many do. Evidence suggests, however, that some exploit their informational advantage and provide too much treatment for patients to increase their own income, a phenomenon called supplier-induced demand. Total treatments exceed the Pareto-efficient level. Consumers do not have the information to make choices that reflect their own utility while producers exploit the asymmetry of information.

Imperfect competition and natural monopoly

Chapter 5 showed that market structure can differ from the economist's ideal of perfect competition. Markets with monopolistic competition, oligopoly, or monopoly generate outputs below that in perfect competition. As output in a perfect market is Pareto-efficient, imperfect competition is likely to lead to market failure. It is possible firms will produce the perfectly competitive output, but only if they are not profit-maximizers.

A special case of monopoly is natural monopoly in which the marginal cost of production is always falling. This occurs in utility industries such as gas, electricity and water that require large investments in networks of pipes and cables to supply the

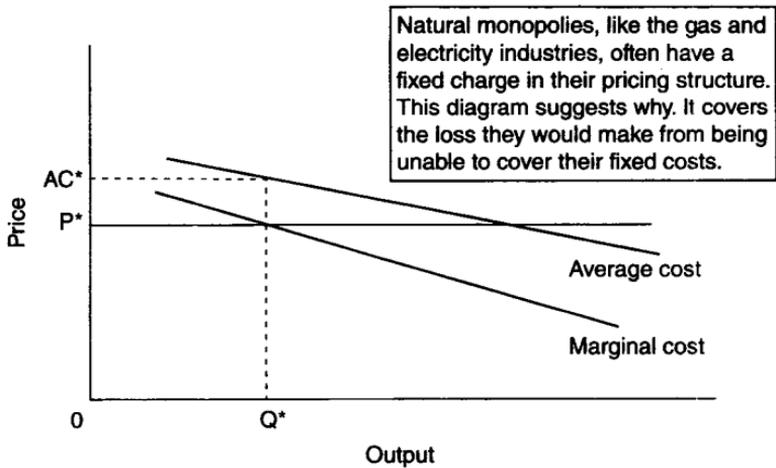


Figure 7.4 Equilibrium in natural monopoly

product to consumers, whether they are households or other firms. The fixed costs involved in setting up the industry are high but, once the network is in place, the marginal cost of supplying the product becomes progressively lower.

Figure 7.4 shows a firm's downward-sloping marginal cost curve with the associated average cost curve. It is the left-hand side of the normal diagram for any firm's cost curves, which is why the average cost curve is above the marginal cost curve. The price shown on the diagram (P^*) suggests that to produce where $MC = MR$, the firm produces Q^* output in a competitive market. But the firm then makes a loss, as average cost is above price. The firm only makes a profit if it is a monopoly and can charge customers an amount that covers its fixed costs.

The cost of establishing the network is also a barrier to entry for new firms. They face high costs that they would have to recoup and would find it difficult to compete on price with existing firms. The problems for new entrants mean the monopoly is likely to persist. And from a social point of view it does not make sense to have two or more expensive networks for gas, electricity, or water providing the same product to houses and factories. One producer is enough and so the monopoly is 'natural'.

In the UK a number of companies supply gas and electricity despite these industries being natural monopolies. But competition is

only in supplying customers. In each industry the network of pipes and plant is owned by one company. The network is the natural monopoly not supply to the consumer, where differences in administration costs, for example, can make competition valuable.

Implications of market failure

Market failure is significant. It suggests that the market system, left to operate unhindered, is not always best at solving the economic problem. The case for the market made in Chapter 2 is qualified when market failure occurs. Allowing markets to operate uncontrolled might not then deliver the best outcome for society. Market failure causes economies to retreat from the ideal of the pure market economy introduced in Chapters 1 and 2.



All economists – monetarists, Keynesians, or what-not – recognize that there is such a thing as market failure. I believe that what really distinguishes economists is not whether they recognize market failure, but how much importance they attach to government failure, especially when government seeks to remedy what are said to be market failures.

M. Friedman, quoted in Snowdon and Vane (1999)

In deciding how far to intervene in markets, a society must answer two questions. The first is how to identify the Pareto-efficient output. While this is easily done in theory, in practice it can be hard to identify it and assess how market failures affect output and price. And even harder if the effects work in opposite directions. In health care, for example, external benefits mean the market produces too little, while supplier-induced demand means it produces too much. The relative sizes of these two effects need to be known.

The second question concerns the government's role in ensuring Pareto-efficient output. As the discussion implies, they should identify the Pareto-efficient output in a market and then act to achieve it. But this attributes knowledge and competence to the government and assumes governments are focused on achieving the best for society.

Government officials do not, however, necessarily have the skills to identify the efficient output in a market. If they did, they could do a better job at allocating resources than the market. Evidence of waste in government projects worldwide suggests this is not so.



Government failure

Markets can fail to produce the Pareto-efficient output for a society but so can governments. Government failure is the idea that it is unrealistic to assume that governments with their own objectives will necessarily pursue, or even be able to identify, the social objectives of Pareto-efficiency when intervening in markets.

Economists also argue that government officials themselves might seek to maximize their own welfare just as producers seek to maximize profits and consumers to maximize utility. This might include increasing income, building large departments to run that increase prestige, and avoiding changes that make life stressful. Government officials do not focus on the market failure. Instead, 'government failure' occurs as officials try to maximize their own utility and ignore society's interests. This is a significant challenge to the idea that governments can correct for market failure.



When an industry in the private sector is not performing efficiently or effectively, there is said to be 'market failure'. The recommendation by economists and others typically is then for government actions to combat such failure, such as taxes to help reduce pollution. The diagnosis of market failure may be accurate, but the call for government involvement may be naive and inappropriate.

The reason is that actual governments do not necessarily do what economists and others want them to do because there is 'government failure' as well as market failure. Before recommending government actions to correct market failures, one should consider whether actual government policies would worsen rather than improve private sector outcomes.

G. Becker [2011]

Conclusion

If government failure is as likely as market failure, how then can market failure be tackled? An idea suggested by the economist R. H. Coase (1910–) is that the market itself can do this.

He argued that when external costs such as pollution occur, property rights could be established. These could give anyone affected a right to compensation for any damage inflicted on them. Producers and consumers in the market would then have to consider third parties. Any costs incurred would cease to be external and become private or internalized. The government's only role is to allocate the rights. Those in the market decide what happens and government failure is avoided.

The practicality of this approach is debatable but it exists in theory. And, as we have seen before, theory guides us to possible solutions. But, despite Coase's proposal, governments concerned about market failure tend to tackle it directly.

In the next chapter, we consider how governments do this, what their aims are and how successful they are likely to be when intervening. We also outline reasons other than market failure why governments intervene in markets. These are of interest to economists wanting to understand why markets are not allowed to operate unrestrained.



Fact-check

- 1 A market does not fail if:
 - A marginal social cost equals marginal private benefit
 - B marginal social cost equals marginal social benefit
 - C marginal private cost exceeds marginal private benefit
 - D marginal private cost equals marginal social benefit
- 2 If a good causes pollution, relative to the Pareto-efficient equilibrium the free market will produce:
 - A too much of the good at too high a price
 - B too much of the good at too low a price
 - C too little of the good at too high a price
 - D too little of the good at too low a price
- 3 Which of the following is consistent with market failure?
 - A perfect information among producers and consumers in the market
 - B no external effects from production or consumption in the market
 - C a monopolistically competitive industry
 - D freedom of entry for producers into the market
- 4 The idea that higher education is a signalling device for employees to potential employers suggests that:
 - A economists do not value education
 - B employers do not value education
 - C the government should close all universities and use the resources in their next best alternative
 - D information is not equally distributed among participants in the labour market
- 5 Which of the following is NOT a good example of a public good?
 - A the armed forces of a country
 - B a lighthouse
 - C a hospital
 - D street lighting

- 6** Roads are not public goods because:
- A** the government normally does not finance them
 - B** the government could not charge road users when they used the road
 - C** once a road is built anybody can use it
 - D** an individual road user affects other road users
- 7** Moral hazard occurs when:
- A** a person insured against the effects of risky behaviour takes greater risks than if not insured
 - B** a firm charges risk-taking consumers more than consumers who take fewer risks
 - C** the government charges people for using public goods
 - D** a person insured against the effects of risky behaviour must pay more to the insurance company than is morally justified
- 8** A natural monopoly is an industry in which:
- A** only natural resources are used in production
 - B** the firm's marginal cost of production is always falling
 - C** the firm's average cost of production is always above the firm's average revenue
 - D** other firms can enter the industry at any time
- 9** The possibility that demand in an industry can be induced by suppliers means that:
- A** consumers are sovereign
 - B** information is symmetrically distributed between producers and consumers
 - C** producers cannot affect consumer demand
 - D** producers can influence their own income
- 10** A consumer able to watch an opera without paying because it is held in a public park is an example of which of the following types of market failure?
- A** local public goods
 - B** moral hazard
 - C** external benefits
 - D** merit good



Dig deeper

1 Governments can combat market failure by:

- i)** supplying public goods
- ii)** supplying quasi-public goods
- iii)** reflecting external costs and benefits in the market price of a good
- iv)** regulating and controlling natural monopolies
- v)** encouraging the production of merit goods

Give two examples for each of a government doing this.

2 As in this chapter, lighthouses are often quoted as examples of public goods. But some economists, including Coase, have suggested that in practice private producers have supplied them. Similarly, in a case study of bee producers and orchard owners, the economist Steven Cheung found that orchard owners paid bee keepers to place their hives in the orchards. They would get the benefit of the bees pollinating the trees. And Baumol pointed to contestable markets as an example of an industry with one producer that did not act like a monopolist.

These examples suggest that sometimes economists might propose government intervention in markets even though it is not required. Why do economists do this?

3 Health markets are full of market failures. One of these is the external benefits individuals receive when others are treated for a health problem.

- a)** Why does charitable health care lead to less provision than the Pareto-efficient level? Hint: think about who benefits when somebody gives to charity.
- b)** Using supply and demand analysis, show how prices in market for health care change when the supply of doctors increases in i) a perfectly competitive market and ii) a market with asymmetric information where doctors can induce demand?
- c)** Give examples of other markets where you can find supplier-induced demand.
- d)** Why is output in a health care market based on private health insurance, such as that in the United States, likely to be the same, if not higher, than that in a government funded system like the UK's National Health Service?

8

Government intervention in markets

Introduction

A key reason a government intervenes in markets is to address market failure. But governments do not only intervene for this reason. We begin this chapter by looking at other reasons for government intervention in markets. The discussion then considers the policy instruments available to a government wishing to intervene in a market and whether they are likely to be beneficial or not. In a modern economy, these instruments comprise:

- ▶ taxing goods, services, and incomes
- ▶ subsidizing producers and consumers of a good
- ▶ the government itself providing goods and services
- ▶ using regulations and laws to control production, consumption, and price of a good
- ▶ creating a market by allocating property rights.

The chapter examines if their use is good for the economy.

Why governments intervene in markets

While markets work well when perfect, they will not do so if the assumptions of perfect competition are not met. The government can, therefore, play a positive role in market economy by ensuring that output is Pareto-efficient when markets fail.

A danger with this rationale for intervention, however, is that it could be used to justify intervening in virtually any market. Perfect competition's assumptions are so restrictive it is unlikely a real market exists where they are not violated. A government could, if it wishes, argue that it is acting to tackle market failure when it intervenes, even if it has other reasons for doing so.

This implies other reasons for intervening that are not economic but political. A government seeking electoral popularity in a particular part of their country, for example, might support industries or individual firms with economic problems that

are based there and might try to reduce, or increase, income inequalities to help their supporters.

Politicians might also worry that allowing the market to work without regulation suggests the government is not in control. And if market outcomes undermine a government's popularity politicians might want to be seen to be acting by intervening in markets. Politicians' desire to seem powerful sits badly with the economist's idea of markets which rely on a lack of central control to work properly.

Governments could also have social reasons for intervening in markets. If a firm is a large employer and in danger of going out of business, the economic case is that it should do so if it is inefficient. But the social consequences of the unemployment that could result from allowing a large firm to fail might be grave and give cause for intervention. Although unemployment is an economic problem as it is a waste of potentially productive resources in a world of scarcity, it can have adverse psychological effects on individuals, cause the break-up of families and marriages, and lead to increased crime. These social effects could excuse intervention.

Political and social reasons for intervening in markets might cause economic disruption. But that does not invalidate them. Instead, it is the job of economists to identify the economic consequences of any interventions made on political and social grounds. Society then decides whether these are worth bearing. And that will be a value judgement outside the concern of the economist in their professional capacity.



Political and social reasons for government intervention

Prices in markets often have political and social effects. High prices for certain goods, particularly food, housing, and fuel, can cause political and social unrest. Governments might respond by cutting these prices using the policy instruments at their disposal.

Partly in response to these pressures, economists have developed the technique of cost-benefit analysis (or benefit-cost analysis in the United States) to appraise government intervention.

The idea is to apply to government projects and policy interventions the cost-benefit principle that is meant to apply to firms and households. By discarding projects where costs exceed benefits, the government will act rationally, as economists define it.

Some doubt if cost-benefit analysis really determines government decisions to intervene in markets but it is used. To see how the UK government uses it, go to www.hm-treasury.gov.uk/d/green_book_complete.pdf. The Treasury's Green Book, available there and named after the colour of its cover, advises government departments on the cost-benefit analysis they should adopt when considering large-scale public projects.

Governments also intervene for macroeconomic reasons. This chapter, however, does not address that form of intervention. Rather it looks at how and why governments intervene in individual markets. We will discuss macroeconomic policies from Chapter 9 onwards. The focus here is microeconomic.



A government which maintained law and order, defined property rights, served as a means whereby we could modify property rights and other rules of the economic game, adjudicated disputes about the interpretation of the rules, enforced contracts, promoted competition, provided a monetary framework, engaged in activities to counter technical monopolies and to overcome neighbourhood effects widely regarded as sufficiently important to justify government intervention, and which supplemented private charity and the private family in protecting the irresponsible, whether madman or child – such a government would clearly have important functions to perform.

M. Friedman (1962)

How governments intervene

As described above, governments have a range of tools at their disposal for intervening in markets. We will briefly consider each of these before going on to see how governments apply them in markets.

TAXATION

Taxes take two forms, direct or indirect. A direct tax, as the name suggests, is paid directly to the government by the person required to pay it. Income tax and corporation tax (the tax on company profits in the UK) are direct taxes. In contrast, an indirect tax is paid to an intermediary. VAT is an indirect tax as the consumer pays it to a shop, for example, which must pass it on to the government. The consumer pays the tax indirectly to the government. Customs duties on tobacco, alcohol and petrol are also indirect taxes.

Income tax can be used to tackle problems of inequality caused by markets; corporation tax is a potential instrument for taxing the abnormal profits of firms; and VAT and customs duties could be used to tackle external costs associated with a good. As we saw in Chapter 4, indirect taxes shift the supply curve to the left. They could be used, therefore, to mimic the effect of external costs, which shift the curve in the same way. The economist A. C. Pigou (1877–1959) first suggested this approach so such a tax is often called a Pigouvian tax.

Governments also tax to fund their spending, and this can clash with the microeconomic reasons for imposing taxes as an appropriate tax rate for one might not suit the other.

SUBSIDIES

A subsidy is a government payment made to a firm or household, usually with the aim of increasing the output or consumption of a good. One industry often attracting subsidies is agriculture. The importance of food for sustaining life means governments prefer to ensure high output by encouraging farmers to produce and not risk the low output the market might yield.

Subsidies can also be used to encourage activities with external benefits. By shifting the supply curve to the right, they mimic the effects of these benefits and cause output to rise.

PUBLIC PROVISION

Governments themselves can act as producers by nationalizing an industry. They establish a public corporation that is 100 per cent-owned by the government and operates following broad

guidelines set by the government. Public corporations can address problems of natural monopoly, if it is thought a single privately-owned producer might exploit consumers and make economic profits.

Public provision can also be more direct. For example, governments often supply health and education to the consumer. In the UK, local authorities run schools and the NHS, a government agency, provides health care. The government can control the price at which these services are offered, whether it is zero, as happens with education and health care, or charged for, as with prescriptions for some users of the NHS.

Public provision of health and education can address market failures due to external benefits and can help to counter possible consequences of asymmetric information, as in health care. Governments also provide directly public goods such as defence, police and the coastguard, and quasi-public goods like roads.

Public provision does not mean, however, that it has to be produced by the public sector. The government can use tax revenue to pay private producers to produce the goods. The government sets the framework and ensures a good is free to users, even though the provider is a private sector firm. They do this because a private firm, with profits in mind, has an incentive to be efficient. In contrast, a public provider with no profit motive can suffer from X-inefficiency.



(We need to make an important distinction, between public production and public provision. The two are often confused, though both logically and in practice they are distinct. The government provides for the National Defence, yet much of the production of the goods purchased for national defence is within the private sector. The government has, in many countries, a monopoly of the mail service, yet it charges for the use of mail in a manner little different from that of private enterprise.

A. Atkinson and J. Stiglitz (1987)



X-inefficiency

The economist Harvey Leibenstein (1922–94) coined the term to refer to a business not producing the most output from the factor inputs it employs. It arises because of poor management due to inadequate incentives for managers, a lack of competition within an industry, and rigid rules that undermine innovation. These are thought to be features of public organizations with their bureaucratic structures and leads governments to prefer private sector firms for public provision. Large private sector firms can also, however, exhibit X-inefficiency, and act like public sector organizations.

REGULATIONS AND LAWS

Governments sometimes ban the production and consumption of certain goods, such as drugs, and services like prostitution.

Governments can use laws to set standards about the quality of goods with which producers must comply. These are often used when a market is marked by asymmetric information but can address external costs too, as with the pollution standards applied to car manufacturers.

Planning laws limit the ability of firms and households to do as they wish in property markets. The potential for negative externalities, such as reduced access to the countryside if building continued unabated, the effects on neighbours of inappropriate building designs, and the location of buildings with different uses near each other, such as factories next to residential estates, cause governments to intervene in this market through planning legislation.

Regulations can restrict times when goods or services are available, as with certain constraints on shop opening times. This might tackle possible external costs associated with a good's production. And the government can control which consumers can consume a good, as with age restrictions on who can use tobacco and alcohol.

Governments can also regulate the prices at which goods are sold. At one time, in the 1960s and 1970s, governments aimed

to limit price increases for all goods and factor incomes in the economy. These prices and incomes policies are no longer used as the problems associated with them became too harmful for the economy. But governments still try to control some prices especially those of monopolies that might be making excess profits. A recent example in Europe is price controls on roaming charges for overseas use of mobile phones.

When regulations are adopted, officials are needed to oversee and enforce them. These agency costs, as they are called, mean that the costs of regulation must be weighed against its benefits. Another problem is regulatory capture. Officials can become so familiar with the industry they are regulating that they start to identify with it and become advocates of the industry within government and not effective enforcers of the rules. In summary, regulations are not costless. As with any policy instrument, their use must be carefully considered.



Binge drinking in the UK

Binge drinking, especially among young people is seen as a social problem in the UK. The associated adverse effects include health difficulties, increased crime associated with drunkenness, psychological problems and anti-social behaviour. In economic terms, these are externalities and should be tackled using similar approaches to tackling pollution.

The government should shift the supply curve by increasing taxes on alcohol or regulating firms to increase their production costs. The demand curve could also be shifted to the left by changing tastes through public health advertising campaigns. Note that the rise in prices from taxes on alcohol represents a movement along the demand curve rather than a shift of the curve. And analysis using supply and demand curves would predict that an effective public health campaign would result in falling alcohol prices, other things being equal!

Fascinatingly, the dominant view among UK health professionals is that to tackle binge drinking alcohol prices should increase either using taxation or regulation. It is an economic solution to a public health problem.

ALLOCATING PROPERTY RIGHTS

As Coase showed, governments can potentially solve market failures caused by externalities by allocating a right to compensation for any external costs inflicted upon an individual. Or they can allocate a right to impose the external cost without penalty.

But the Coasian approach assumes no transaction costs are incurred when the polluters and the polluted agree compensation. In reality, such costs exist and could be potentially excessive. If the pollution from a large number of firms imposes costs on a large number of households, all parties must negotiate with each other. This could be time-consuming and expensive to arrange.



Methods for government intervention

Governments have four key ways of intervene in a market:

- ▶ taxes
- ▶ subsidies
- ▶ regulation
- ▶ provision.

While allocating property rights is theoretically possible, in practice it is very difficult to implement.

Reasons to intervene

Governments have various tools at their disposal that they can use to intervene in markets. In the rest of this chapter we consider two cases where governments might use them.

The first is the problem of income inequality. This has concerned societies over the centuries and is often a reason why a government intervenes in labour markets. The second is regulating the banking industry, which has been a recurrent concern for societies for many years but especially in recent years.

The two cases raise issues about how far the market can be used to allocate resources and the role that the government must play in a market economy in determining the 'rules of the game'. They also suggest the problems governments face when they

aim to intervene in markets and how they can employ the tools they have available when they seek to intervene.

INCOME INEQUALITY: A CASE FOR GOVERNMENT INTERVENTION

Markets often distribute income unequally. A small number do well but the majority does not. For example, in the US, the highest-earning one per cent of the population received 24 per cent of all income in 2010. Such statistics encourage calls for greater equality.

The normative case for equality is that it is morally wrong for some to have extremely high incomes while others in the same society have a poor quality of life. Redistributing income addresses this anomaly. The philosopher John Rawls argued that a society is only as well off as its worst member. A just society ensures that the worst-off have a good standard of living and implies a more equal income distribution.

We consider two policies suggested by economists for redistributing incomes to bring about greater equality: a minimum wage and progressive taxation.

► Minimum wage

A minimum wage entails the government setting a wage in law below which employers cannot pay their workers. It ensures a certain standard of living for those in low-paid jobs and aims to reduce income inequality. It is an example of how the price the market sets might be adjusted because a government considers it inappropriate.

We saw in Chapter 5 that while a minimum wage can increase wages, it can also, depending on the market structure, increase or decrease employment. If employment were to fall, society must decide if it is prepared to pay the cost of greater equality. And reduced employment might work against the original aim of the policy as those losing their jobs will be potentially worse off.

► Progressive taxation

Progressive taxes cause the proportion of income paid by taxpayers to rise with income. The main progressive tax found in virtually all economies is income tax. If income tax is progressive, a taxpayer

on £10,000 per year might pay £1,000 tax, or 10% of income, whereas a taxpayer on £50,000 per year pays £15,000 tax, or 30% of income. The tax reduces post-tax inequality of income by imposing a greater tax burden on those with higher pre-tax incomes. This result is achieved by imposing higher marginal tax rates as income increases. A taxpayer might pay 20% of their first £1 of income in tax but the rate might rise to 40% on any income earned above, say, £40,000.

With regressive taxes, the proportion of tax paid falls as income rises. Income taxes are not normally regressive, although occasionally they turn out that way. Indirect taxes, such as VAT, give better examples. If a television costs £500 to produce and the VAT rate is 20%, VAT is £100 and the television's price to consumers is £600. For a person earning £10,000, the VAT paid is 1% of income. But for the person earning £50,000 it is only 0.2%. VAT is regressive and does not reduce inequality. Before being too critical, though, an advantage of VAT is that everybody pays it when they buy goods, so it ensures all contribute to paying for government services.

The problem with progressive income taxes is the disincentives they create. If increases in workers' incomes are taxed at a higher percentage, they might not feel it is worthwhile working harder to achieve a higher income. In terms we discussed in Chapter 5, the substitution effect dominates the income effect as workers increase their income. Progressive tax rates make leisure more attractive and work less attractive as incomes increase.

While equality might be desirable it can therefore interfere with efficiency. Taxing higher incomes reduces incentives to work harder, to develop new ideas that could bring higher profits, or to invest in new capital that raises the economy's productive potential. Society must decide if it is prepared to accept the loss of efficiency that might come with greater equality.

The debate over the clash between achieving greater equality and more efficiency might not be this stark, however. The economist Simon Kuznets (1901–85) argued that in economies where income per head (average income) is low the emphasis should be on efficiency to raise output and living standards. But once income

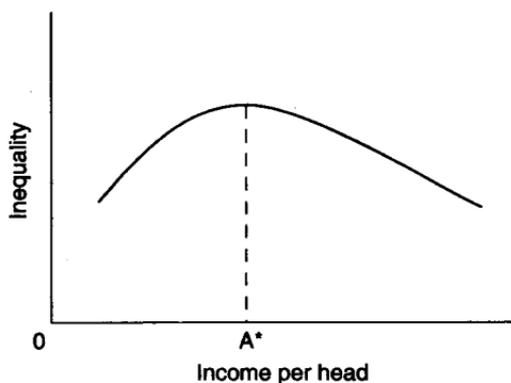


Figure 8.1 The Kuznets curve

per head reaches a certain point, the government can start to emphasize the benefits of greater equality. The Kuznets curve illustrated in Figure 8.1 captures this idea. Beyond income per head A^* the government can pursue policies that redistribute income such as minimum wages and progressive taxation. However, deciding what this income should be in practice is difficult.



Progressive and regressive taxation

A progressive tax: the taxpayer pays a higher proportion of income in taxes as income rises.

A regressive tax: the taxpayer pays a lower proportion of income in taxes as income rises.

Other policies available to governments include using welfare payments to increase the incomes of the chronically ill, the retired and those who lose their jobs. These, in effect, subsidize the incomes of workers unable to supply their labour. The adverse effect on income of being outside the labour market is limited.

REGULATING THE BANKS: A CASE FOR GOVERNMENT INTERVENTION

Governments, we have seen, can use regulations to intervene in markets. The global financial crisis that began in 2007, continued in 2008, and led to a global recession in 2009 focused attention on using regulations to control the banking industry.

Interest in regulation arose as many felt that irresponsible lending by banks and others in the financial services sector caused the crisis. Banks made very risky loans and when these were no longer being repaid, their survival was threatened. Governments were forced to bail out banks because if they did not entire economies could collapse. Proper regulation of bank lending, it is argued, could have averted the crisis.

In fact, for many years until the 1980s the financial services sector in general, and banks in particular, were highly regulated in most countries. The regulations reflected the importance of banks to the economy as a major source of loans to businesses and experience in the 1930s when irresponsible bank lending had caused a major economic depression. As the philosopher George Santayana said: 'The one who does not remember history is bound to live through it again.'

Regulations before the 1980s included controls on the type of loans banks could make, rules about the assets banks should hold, and limits on interest rates they could charge borrowers. The basic principle was that banks should not make risky loans or pursue business practices that threatened the economy's stability. The externalities associated with an unprofitable bank failing are too high. Not only would the bank itself fail but so could other banks that have lent to it and businesses that relied on the bank for loans.

Regulation also addressed a problem of asymmetric information in banking. Bank customers were not sovereign, and might not know if a bank was at risk until it was too late and their savings and other deposits were lost. Even banks themselves often do not know how risky their lending actually is so expecting customers to know this might be asking too much.

By the 1980s, however, the argument had been won in many countries that banks, like other businesses, should compete in deregulated markets. This would bring the benefits of new products, increased efficiency of operation in individual banks, and greater choice for consumers in financial services. Markets would ensure the discipline previously provided by regulations. Failure to compete would force a bank out of business.

Removing regulations did increase competition in banking and consumer choice. It also led to considerable innovation and new products. But these new products undermined the industry. They were so complex that few people, if any, knew the risks banks were facing. Only too late, in 2008, did it become clear that some banks had made risky loans that would never be repaid.



I made a mistake in presuming that the self-interests of organizations, specifically banks and others, were such that they were best capable of protecting their own shareholders and their equity in the firms ... I discovered a flaw in the model that I perceived is the critical functioning structure that defines how the world works.

A. Greenspan, Evidence to the United States House of Representatives
Committee on Oversight and Government Reform, 23 October 2008

If the market had operated as it is meant to, failing banks, faced with huge losses, would have closed, as happens in other industries. But these banks had borrowed from other banks to make their loans. This meant that if they went out of business so would the sounder banks from whom they had borrowed. The whole banking system could collapse.

And that nearly happened. In September 2008, Lehman Brothers, a US investment bank, was allowed to fail by the US authorities as it faced major losses. The authorities felt it should not be supported as it would create a moral hazard among banks. They could engage in risky behaviour and there would be no consequences. The consequence, however, was that other banks and other financial services firms, such as insurance companies, immediately came under suspicion and investors started to withdraw funds. Within weeks the US authorities had to intervene to support the banks, as did other governments around the world.

As a result of what happened, the idea of regulating the banks to address market failure is again being debated. Moral hazard and asymmetric information mean that allowing the market to operate without controls risks a repeat of events in 2008. Indeed,

the moral hazard in banking is arguably greater. The ends to which governments were prepared to go in 2008 to stop banks failing means banks face little prospect of being allowed to fail.

In reappraising banking regulations, governments are studying how they can limit bank lending, restrict the risky lending of recent years, and ensure banks have enough assets to cover losses incurred when loans are not repaid. But while more regulation looks likely, governments are not restricting themselves to this option. The idea of using taxes to control banks' activities is under review. One suggestion is for a Tobin tax, named after the economist James Tobin (1918–2002) who proposed the idea. It would be levied on the banks' foreign exchange transactions which, being risky, create problems for the banking system. Like a tax on pollution, it would bring the private and social costs of bankers' activities into line with each other.



Deregulation

Deregulation is the idea that regulated markets should have regulations removed to allow firms to operate freely. The idea was applied vigorously in financial and banking markets from the 1980s onwards.

Conclusion

Although markets can allocate resources effectively, the chance they might fail limits how far they can operate unhindered. Banking is an example of an industry where the theoretical advantages of the market system must be weighed against the problems market failure can cause.

Despite concerns for how markets operate in reality, market failure does not represent a blanket excuse for widespread government intervention. Economists must identify market failure but caution against excessive intervention. The potential for government failure that we discussed in Chapter 7 makes it possibly better for market failure to continue than to face the problems caused by the policies designed to tackle it. The decision to intervene in a particular market must be made on a case-by-case approach. No single answer applies to all markets. But so it often goes in economics.

The interventions in markets discussed in this chapter reflect microeconomic ideas. But they are not the only rationale for government intervention. Macroeconomic problems, such as unemployment or inflation, also explain why governments might intervene in a market economy.

Macroeconomic ideas have caused economists to emphasize the government's role in ensuring an economy's stability. This view matches the discussion in this chapter, which has pointed to how a government can involve itself in individual markets to improve how they operate. It makes this chapter an appropriate conclusion to the first half of this book and a good introduction to the idea that dominates the second half: governments are important even in market economies.



Fact-check

- 1 Which of the following could a government use to offset the effects of pollution caused by firms operating in a perfect market?
 - A a subsidy on each unit of output
 - B a tax on each unit of output
 - C a minimum price limit set above equilibrium price
 - D a maximum price limit set above equilibrium price

- 2 Cost-benefit analysis is used by governments to evaluate:
 - A the effect of all forms of government spending
 - B whether they should raise or lower taxes
 - C the economic benefit of large-scale public projects
 - D the benefits to consumers of providing government services

- 3 Which of the following are not direct taxes?
 - i) Value Added Tax
 - ii) Income tax
 - iii) Corporation tax
 - iv) Excise duties
 - A i) and ii)
 - B i) and iv)
 - C all of them
 - D i) and iii)

- 4 According to the economist Harvey Liebenstein public sector organizations can suffer from X-inefficiency because:
 - A nobody is in charge of them
 - B those employed by them are less able than those employed by private firms
 - C profits cannot be calculated in the public sector
 - D there is no profit motive to encourage them to become efficient

- 5 A market solution to the problem of pollution would involve:
 - A giving producers a subsidy
 - B giving consumers a subsidy
 - C giving producers a right to pollute
 - D taxing producers and consumers of the good

- 6** Regulating an industry to achieve the Pareto-efficient output might be preferred to a Pigovian tax because:
- A** firms in the industry might be proficient at evading taxes
 - B** the effect on output of a tax is easier to estimate than the effect of a regulation
 - C** regulations are harder to administer than taxes
 - D** firms in an industry can become highly proficient at getting round regulations
- 7** A taxpayer earning £20,000 per year pays £2,000 income tax. A taxpayer earning £50,000 per year pays £10,000 income tax. This is an example of a:
- A** proportional tax
 - B** regressive tax
 - C** progressive tax
 - D** proactive tax
- 8** A Kuznets curve applied to the problem of pollution would suggest that pollution:
- A** continues to rise as income per head rises
 - B** is unrelated to income per head
 - C** first rises as income per head rises but, after a certain threshold income per head is reached, begins to fall
 - D** first falls as income per head rises but, after a certain threshold income per head is reached, begins to rise
- 9** Income inequality is desirable in the economy because it:
- A** creates an incentive among high income earners to enjoy more leisure
 - B** discourages those at the lower end of the income scale from working and so makes the economy more efficient
 - C** provides a disincentive to work among those on middle incomes
 - D** creates an incentive to work harder among all income groups and so makes the economy more efficient
- 10** Which of the following types of market failure in the financial services industry is a possible cause of the global financial crisis?
- A** public goods
 - B** merit goods
 - C** moral hazard
 - D** monopoly



Dig deeper

- 1 a) Show how an indirect tax on a good calculated as a percentage of producer costs affects the industry's supply curve.
- b) What would happen to the market price and output of the good? What determines the size of these effects?
- c) Why does the market price not normally change by the same amount as the tax? When will price change by the same amount as the tax?

- 2 Income tax allowances and rates for the UK in 2011–12 were as follows:

Personal allowance: £7,475

Tax rates:

Taxable income (£0–37,400): 20%

Taxable income (£37,400–150,000): 40%

Taxable income (over £150,000): 50%

- a) Calculate a worker's net income if their gross income is:
i) £26,000 ii) £80,000 and iii) £180,000.
- b) Do these figures suggest that UK income tax is progressive?

Apart from income tax, UK workers pay a National Insurance contribution. In 2011–12 these contributions were:

12% of earned income between £139 and £817 per week

2% of earned income over £817 per week

- c) Calculate the net income of the workers in a) once they have paid National Insurance contributions.
 - d) Do these figures suggest that the UK system of income tax and National Insurance contributions is progressive?
- 3 The European Union's Emissions Trading System recognizes that the right to pollute can be traded between firms in a market. For more on the scheme go to: ec.europa.eu/clima/policies/ets/index_en.htm.

- a) How does the scheme control pollution in Europe?
- b) Why does the EU not have a law limiting the pollution firms can emit instead of using the emissions trading scheme?

- c)** If the EU introduced a Coasian scheme to control pollution, what would it look like and what problems might the EU face in operating it?
- d)** Why is pollution in Europe controlled by the EU and not by the national governments of countries that belong to the union?

Part Two

Macroeconomics

9

Measuring the economy's size

Introduction

In Chapter 1 we defined macroeconomics as the part of economics concerned with how the economy as a whole works. We saw there that we can divide an economy into three main sectors: households, firms and the government. Taken together, they form a country's domestic economy. The roles they play in the economy are a key concern of macroeconomics.



Macroeconomics deals with economic affairs 'in the large'. It concerns the overall dimensions of economic life. It looks at the total size and shape and functioning of the 'elephant' of economic experience, rather than the working or articulation or dimensions of the individual parts. To alter the metaphor, it studies the character of the forest, independently of the trees which compose it.

G. Ackley (1969)

But economists are not only interested in individual economies. They also want to understand the link between one country's economy and those in the rest of the world. Economies with these links, which all have in reality, are described as 'open'. Closed economies, with no overseas links, only exist in economic theory.

To begin our study of macroeconomics, we must understand how to measure an economy's size so that we can assess its performance. This requires that we appreciate how the economy works. We address both of these questions in this chapter. Once we know how well an economy is doing and why we can then propose how to improve its performance. That is a subject we will take up in Chapter 11.

The roles of households and firms

In discussing microeconomics, we saw how households buy goods and services from firms and in return sell their factor services (labour, enterprise, land and capital) to them. These represent real flows in the economy. Households buy their goods or services with money, and receive money when they

sell their factor services. These are the economy's money flows. Any transaction in the economy involves these two flows. If it does not, it is usually illegal. For example, anybody obtaining goods from a firm without paying for them is likely to be a criminal.

Firms are at the other end of household transactions. They sell the goods and services to households and buy factor services from them. Together with households they form a two-sector economy that is closed and has no government. Although simple, and entirely unrealistic, this model helps us understand something important about how the economy works: one sector's spending is another sector's income. Household spending on the goods and services of firms is income for firms and the spending of firms on factor services from households is income to households. Figure 9.1 illustrates this process.

Figure 9.1 shows the real and money flows between the two sectors, and how firms use the money they earn selling goods and services to households to buy factors of production that then produce the goods and services they sell to households. As they have received income, households then have money again to buy the goods and services firms have produced. Economists call these money flows the circular flow of income.

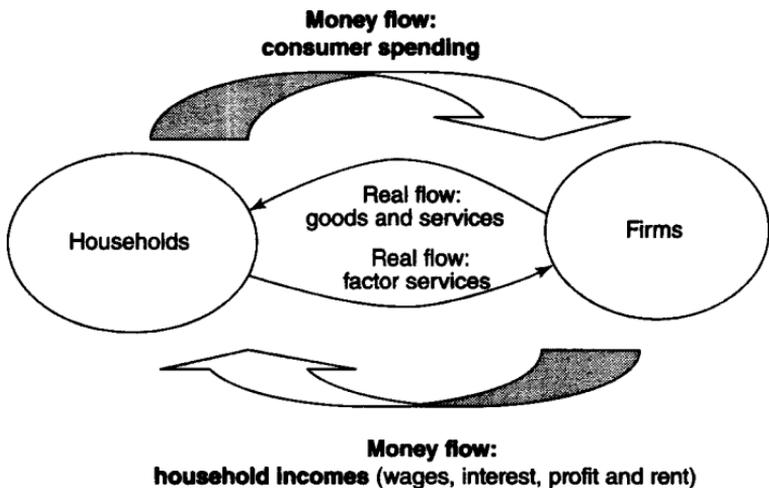


Figure 9.1 A two-sector closed economy

When this flow remains at a particular income it is in equilibrium just as an individual market is in equilibrium when supply equals demand. Economists talk of the economy's equilibrium national income.

The circular flow of income

The model of the circular flow of income shows how the two sectors in a market economy, households and firms, interact with one another buying and selling each other's goods and services.

Withdrawals and injections

An economy like that depicted in Figure 9.1 could remain in equilibrium (at a fixed income) forever if two conditions applied. First, households would spend all the income they received from firms and save none of it. And, secondly, firms would have no access to other sources of revenue except from selling goods to households. They could not, for example, borrow money from banks to buy machinery or other forms of capital.

If we relax the first of these conditions and allow that households could save, some income would not then return to firms in the circular flow. A withdrawal or leakage occurs. In general, a withdrawal is any income not passed on by households or firms in the circular flow of income.

When we allow for household savings, firms' incomes fall as their revenue has fallen. Firms cannot employ as many factor services from households and household incomes will fall. Increased savings cuts income. This is the paradox of thrift.

The adverse effects of savings can be offset if spending enters the circular flow elsewhere. In the simple economy, this happens when firms devote some of their spending to the goods of other firms and not the factor services of households. And this happens when they buy capital goods like machinery.

The additional spending is investment funded by borrowing from banks and is an injection into the circular flow of income.



Income and wealth

Income and wealth are not the same.

The simple circular flow of income model shows how income flows around the economy. It goes to the factors of production in return for services they provide over a period of time, typically a year when measuring national income.

Wealth is different. It is the value of assets in the economy. These include an individual household's personal belongings as much as the value of all government buildings and facilities. Wealth is a stock. It is a fixed amount at a given point in time. Income adds to wealth if spent on assets.

Unlike income, wealth is rarely measured. The practical difficulties of measuring the value of every asset in an economy at a given date are immense and would be attempted in the knowledge that the very next day the value would have changed.

In general, an injection is income in the circular flow that does not come from spending by households or firms on each other's goods or services.



The paradox of thrift

Increased household savings creates the following sequence:

Households save more → Firms' incomes fall → Firms cut spending on factor services → Households' incomes (and savings) fall → Firms' incomes fall again

Increased household savings means the incomes of both sectors fall. The process continues until households' incomes fall so that savings return to their original level. Even though households tried to be thrifty, they only achieve reduced incomes. Keynes identified the paradox that an activity usually seen as the right thing to do (saving more) is undesirable for the economy.

In this economy, where savings and investment occur, banks obtain the funds to lend to firms from the savings of households. This is a general lesson. The role of the financial sector in an economy is to recycle household savings to firms.

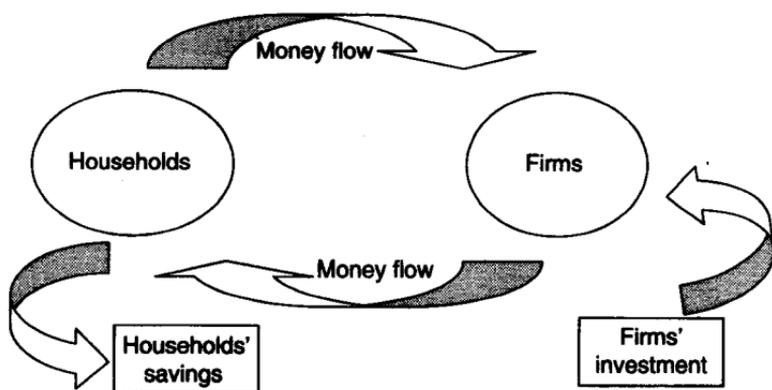


Figure 9.2 Equilibrium in a closed economy with investments and savings

It is worth noting that banks seemed to forget this in the years before the 2008 global financial crisis when they were drawn into activities unrelated to their core economic role. Our simple economy makes clear what this role is.

Figure 9.2 demonstrates the circular flow of income with savings and investment. On this occasion only money flows are shown to keep the diagram simple.

Figure 9.2 suggests that the economy maintains a constant income and is in equilibrium when savings (the withdrawal) equal investment (the injection). The downward effect savings can have on income is offset by the injection of extra income into the circular flow when firms invest. This economy can remain in equilibrium as long as savings and investment remain unchanged.

Keynes and macroeconomics

If any economist can be called the founder of macroeconomics it is John Maynard Keynes. His famous book, the *General Theory of Income, Employment, and Money*, published in 1936, is arguably the most influential economics book of the twentieth century. Many of the ideas in this and later chapters were either developed by Keynes or heavily influenced by his work.

The government

We can develop the model further by introducing the government, which does two things. It spends money providing goods and services to households or firms; as we saw in Chapter 8, these could include education, health and roads. This spending has macroeconomic effects separate from those on individual markets. The government also raises money by taxing households and firms.

Government spending is an injection into the circular flow of income; it does not arise from spending by either households or firms. Similarly, taxation is a withdrawal. We add these to the diagram in Figure 9.3.

Withdrawals from the economy are now the sum of household savings and government taxation and injections the sum of firms' investment and government spending.



Transfer payments

When discussing government spending in macroeconomics we exclude transfer payments. They are not to be confused with the transfer earnings discussed in Chapter 5. Instead, they are payments such as unemployment, sickness and other welfare benefits. They are excluded as they do not depend on somebody providing a good or service; there is no real flow going in the opposite direction to the money flow. The government simply transfers money (as the name suggests) from one sector of the population, taxpaying households and firms, to another: welfare recipients. Overall, total households' and firms' incomes are unaffected by them.

THE PUBLIC FINANCES

The government's role in the economy through its taxation and spending brings its finances into focus. If it spends more than it taxes, it must borrow, as would a person whose spending exceeded their earnings. When the government borrows a budget deficit occurs. If, as occasionally happens, it spends less than it receives, a budget surplus results.

A government can borrow more easily than individuals because it can tax its population to raise money. And as the interest

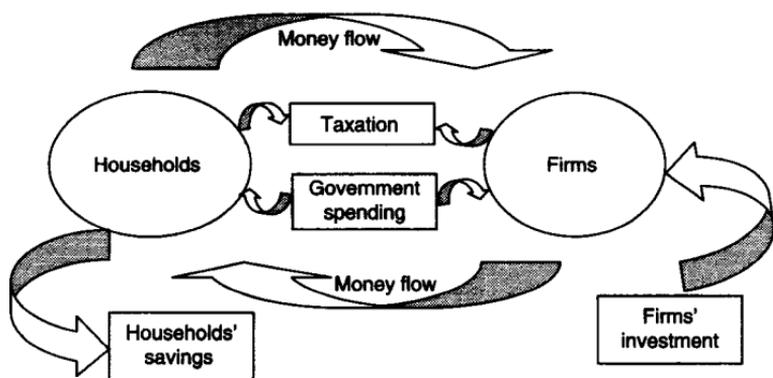


Figure 9.3 Equilibrium in a closed economy with a government

rate charged on loans is usually linked to the likelihood of repayment, governments can borrow at lower interest rates. The danger, however, is that borrowing increases so eventually large amounts are spent every year just repaying debt. Taxation is then used not to build hospitals or schools but to repay lenders.

In the circular flow model budget deficits increase income as they are a net injection. This, in turn, increases the government's ability to repay its debts as rising incomes normally mean rising taxes for the government. A large budget deficit might be justified on these grounds.

Others argue to the contrary, though, that ultimately government debt must be repaid. When that happens taxes rise and that reduces income in the circular flow. The original deficit might increase income in the short run but over a longer time-period government borrowing does not benefit the economy.

When a government borrows it adds to the National Debt. This is the sum of all borrowing by successive governments of a country that has built up in the past. Despite the name, it is not the debt of those living in the country. It is government debt. Most of it is actually owed to those living in the country. Anyone with a Post Office savings account in the UK holds part of the National Debt and is owed money by the government. Problems only arise when the debt is owed to foreigners. Interest paid on the debt goes abroad and is a leakage from the economy. But if the government borrows to invest in productive activities, that can increase income in the future and offset this

adverse effect by ensuring debt repayments to foreigners are manageable.



Government borrowing and debt

Government borrowing occurs over a period of time, usually a year. Debt is what the government owes at a given date. When the government borrows it adds to its debt. In terms we used for wealth and income, debt is a stock and borrowing a flow.

The overseas sector

The overseas sector in the model comprises the economies in the rest of the world with which firms and households in the domestic economy trade. When buying goods from these economies domestic households and firms are importing and when selling to them they are exporting. Once the overseas sector is introduced the economy is open and not closed.

Imports are a withdrawal in the circular flow as spending on them by households or firms is not passed on within the domestic circular flow of income but goes to other countries. Similarly, exports are an injection as the income earned from them does not arise from the spending of other firms or households in the economy.

Figure 9.4 includes the overseas sector. Withdrawals are now the sum of savings, government taxation, and spending on imports; injections are investment, government spending on goods and services, and overseas spending on the economy's exports. Again, equilibrium occurs when the sum of withdrawals equals the sum of injections.



Open and closed economies

Economies without an overseas sector are closed. Open economies have an overseas sector. In reality, all economies are open, although the extent to which they differ. Openness is measured by how much a country trades with other countries. When analysing sectors other than the overseas, we talk about the domestic economy: firms, households and the government.

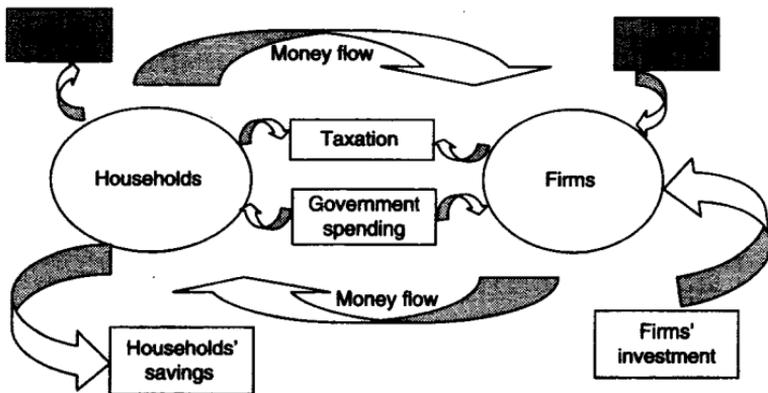


Figure 9.4 Equilibrium in an open economy with a government

National income

We can use the circular flow of income model in Figure 9.4 to show how we measure an economy's size or the national income. As income comprises payments to factor services, national income (Y) is the sum of the wages, firms' profits, interest received on capital and the rent of landowners.

We have seen, though, that in the circular flow of income, one sector's income is another sector's spending. National income is, therefore, also the sum of spending. This comprises spending by:

- ▶ Households on goods and services produced by firms (C)
- ▶ Firms' spending on investment goods (I)
- ▶ Government spending on goods and services (G)
- ▶ Overseas residents' spending on exports *less* domestic residents' spending on imports ($X - M$)

Using our notation: $Y = C + I + G + X - M$

As each of the different types of spending represents demand, the sum of the spending is aggregate demand. The equation is the national income equation and is important for thinking about national income in an economy. For income to rise, either C , I , G or X must rise or M fall. When discussing a national economy, economists will consider how well each of the

different sectors' spending is performing. It provides ideas about how to improve national income if we know which sectors are spending less.

As national income is equivalent to national spending (or, in symbols, $Y \equiv E$), it gives us two ways of measuring national income. And a third comes from considering the goods and services the economy produces. We know from microeconomics that their price reflects the total cost of producing them. That cost is, in turn, the sum of payments made to the factors of production used to produce them, namely the wages, interest, capital and rent paid out by firms. The result is that if we add up the value of the goods and services produced the figure matches the sum of the incomes earned. National income, in other words, equals the value of national output. This is the third way of measuring the economy's size.



Some symbols

Economists use a standard set of letters to identify the different concepts in the circular flow of income model. Those given below, which will be used in this book, are widely, although not universally, used.

Savings (S)

Investment (I)

Government spending (G)

Taxation (T)

Imports (M)

Exports (X)

National income and output (Y)

National spending (E)

Household (or consumers') spending (C)

Using these letters, the circular flow of income is in equilibrium when:

$$S + T + M = I + G + X$$

National income accounts

The discussion above shows we have three ways of measuring national income: the income method, the expenditure method, and the output method. Any will give an economy's national income. In principle (we will come to practice shortly), the same answer is obtained regardless of which method is used.

National income accounts are the practical side of measuring the economy's size. They report the results obtained by the three different methods. The approach adopted in preparing the accounts reflects the circular flow model. The accounts are a good example of how economic theory drives practical matters.



The national income accounting identity

Three methods are used to measure the size of an economy. These are reported in the National Income accounts and are based on the national income accounting identity, which states:

National Income \equiv National Expenditure \equiv National Output

UK NATIONAL INCOME STATISTICS

When reporting the UK's national income, the National Statistics Office uses a measure of national income called the Gross Domestic Product (GDP). It is the output (or product) of the domestic economy in a particular year and is most widely used to measure an economy's performance. Dividing GDP by the country's population gives GDP per capita that measures average living standards in the country.



The GDP is a measure of recorded market transactions. This leaves out many activities which are not carried out through legal channels or which do not reach the market place, like growing vegetables in the garden. Furthermore, since the value of goods and services are measured using their transaction prices, two identical goods may enter the GDP differently if one of them is sold at a discount. Finally, it is not a measure of happiness: painful expenses (having a tooth removed, for example) enter the GDP in the same way as pleasurable ones.

M. Burda and C. Wyplosz (2009)

Gross Domestic Product: Output		£million
Gross value added		1 340 627
Value added taxes on products		111 010
Other taxes on products		70 111
Less subsidies		5 595
GDP at market prices		1 516 153
Gross Domestic Product: Expenditure		
Household consumption expenditure		974 252
Government consumption expenditure		338 999
Gross capital formation		225 758
Exports		492 646
Less imports		516 609
Statistical discrepancy between expenditure components and GDP		1 106
GDP at market prices		1 516 153
Gross Domestic Product: Income		
Total operating surplus, gross		422 514
Mixed income		85 602
Compensation of employees		814 515
Taxes on production and imports		205 562
Less subsidies		11 403
Statistical discrepancy between income components and GDP		-607
GDP at market prices		1 516 153
GDP per capita was		£24 168

Table 9.1 UK national income statistics: 2011

Source: National income and Expenditure Accounts 2012, National Statistics

Table 9.1 shows the UK's national income statistics for 2011. They are a simplified version of the statistics reported in *National Income, Expenditure and Output*, more usually called the *Blue Book* (the cover is that colour).

As Table 9.1 shows, figures for GDP are the same regardless of the measure used. But this is only because a figure for 'statistical discrepancy' appears in the Expenditure and Income accounts. This happens because, although we know that in theory the figures should be the same, in practice they are not.



Why is GDP gross?

The gross in GDP is there because of capital used up in producing goods. For example, machinery experiences wear and tear that reduces its value. This is depreciation. The cost of depreciation should, in theory, be deducted from the value of output produced to reflect the lost value of capital. If this happened, Net, and not Gross, Domestic Product would be obtained. In practice, calculating depreciation is difficult and likely to be inaccurate. Economists prefer to rely on GDP as the measure of national income even though, strictly speaking, they should use Net Domestic Product.

Difficulties in collecting detailed information on the economy mean that the numbers do not add up as they should. To deal with this problem, the figure from the output method is taken as correct and the other two accounts adjusted to equal it.

In all other respects the statistics match the economic model, albeit using some different terms for some measures. Table 9.2 explains these. For more detail on the accounts go to www.statistics.gov.uk where online versions of the Blue Book are available.

Item in the accounts	What it means
Gross Value Added (GVA)	Total output it is not the sum of producer outputs in the economy. This is because the output of some producers forms part of other producers' output. If each output was added separately some would be counted twice. To avoid this double-counting, when adding together outputs statisticians use value added: the extra output produced by each firm. It is gross as depreciation is ignored. GVA also ignores taxes and subsidies in the prices of goods used to value output. But these are then added in the accounts to allow comparison with the expenditure and income methods.
Gross Capital Formation	Statisticians use this term for investment.
Total Operating Surplus, Gross	The profits and other forms of income that go to firms. It covers income not included in compensation for employees.
Mixed Income	Other forms of income that go to households. It includes the income owners of small businesses might pay themselves for work they do in the business.

Table 9.2 UK national statistics – a brief glossary

Gross national income

Although GDP measures a country's income, it ignores income a country's residents receive from abroad. This might be income from wages earned by UK residents abroad that they have returned to the UK, or from profits, interest or rent earned from businesses, shares, and property owned overseas. These add to UK residents' incomes.

Of course, foreign residents working in the UK, or with their own assets, might send income to their home countries. This is deducted from the UK's accounts as it does not benefit UK residents but those in the country to which it is sent. The figure for these payments is therefore a net value.

When the figure for these net payments is added to GDP at market prices it gives Gross National Income (GNI) at market prices. While GDP measures how productive those living and working in the UK were in a particular year, GNI measures how well off people were in the UK when all possible sources of income were considered. In 2011 the net figure for these payments in the UK was +£15,174 million. Added to GDP at market prices it meant GNI was £1,531,327 million. Although the net income from abroad was a fair sum of money, compared to GDP it was a small proportion (1%) of UK residents' earnings.



GDP and GNI

GDP measures an economy's total output in a year. Some of it, though, goes to those outside the economy. GNI picks up this effect and measures only the income earned by those living in the economy. GDP measures efficiency; GNI measures the standard of living.

In most countries the measures do not differ greatly. But in Ireland the difference is significant. The Irish economy has many foreign firms who send income to their home countries. GNI is therefore much lower than GDP. In 2010, GDP was €155,992 million while GNI was only €129,301 million. Net outgoings were 17.1 per cent of Irish GDP. Using GDP would overestimate economic welfare in Ireland.

Using GNI and GDP

Governments use GNI per capita particularly to assess their economy's performance. In a world of scarcity, governments and the country's residents will want to maximize GNI per capita.

Table 9.3 shows GNI per capita for selected countries. It gives an idea of the range of values this measure of economic welfare takes. The figure in Liberia, the lowest ranked country in the UN's 2011 report, is only 0.2% of that in the top-ranked country Qatar. Even allowing for Qatar as a special case, major inequalities exist between countries.

Economists measure economic growth as the percentage change in total GDP. They do not, though, use GDP at market prices. Instead, the measure of GDP reflects changes in output alone. This removes the possibility that GDP at market prices has increased simply because prices are higher. Increasing prices (inflation) do not improve economic welfare. Only real increases in output are beneficial. Estimated economic growth is, therefore, based on real GDP, as it is called, which ignores the effects of rising prices.

Estimates of economic growth vary between countries. For example, in 2009, growth in China was 9.1% using GDP as the

Country	World Ranking	GNI per capita (in US dollars)
Qatar	1	107 721
Liechtenstein	2	83 717
Kuwait	6	47 926
United States	10	43 017
United Kingdom	21	33 296
Portugal	42	20 573
Russia	53	14 561
Brazil	77	10 162
China	94	7 476
India	124	3 468
Kenya	158	1 492
Ethiopia	174	971
Liberia	187	265

Table 9.3 Gross National Income per capita in selected countries 2011

Source: UN Human Development Report, 2011

measure. This compared with 0.6% in Saudi Arabia. And in the UK the figure for 'growth' that year was -4.9% meaning output fell by that percentage during the year. Perhaps only economists could talk about negative growth.



Interpreting economic growth

<i>Growth rate</i>	<i>Interpretation</i>
Less than zero	A serious matter for concern in any economy
0-2 per cent	Poor as the economy is normally not growing fast enough to stop unemployment rising
2-5 per cent	Good for developed or rich economies and satisfactory for those that are developing or poorer
5 per cent plus	Excellent but more likely to be sustainable in a developing economy

Real GDP can also be used to measure the economy's productivity, or output per head of the working population. This measure allows governments and other observers to see if workers in a country are as productive as those elsewhere and if productivity is increasing over time.

Disposable income

Although GDP and GNI measure a country's economic welfare, they do not measure households' actual income. For these, taxes and benefits must be considered in the measure called personal disposable income or 'take-home pay', as it is sometimes called.

In items from the National Income accounts, personal disposable income is measured as:

GDP + transfer payments – government income – all personal and corporate taxes – the undistributed profits of businesses

The figure subtracts taxes from household incomes and adds transfer payments.

Occasionally, personal disposable income is measured after payments such as mortgages have been deducted. Households

have little discretion over such payments and cannot use the income allocated to them for buying consumption goods. Economists refer to personal discretionary income as that available for spending likely to influence economic activity.

Types of economy

We can also, using GDP per capita, divide the countries of the world into different types of economy. Table 9.4 illustrates these.

The criteria and definitions for the different types of economy are not clear-cut or even agreed but the terms are widely used by economists. Organizations such as the World Bank, International Monetary Fund (IMF) and United Nations all have their own, slightly different definitions. Background on their different classifications is available at their respective websites, www.worldbank.org, www.imf.org, and www.un.org. We will adopt the widely-used terms of developed, emerging, and developing economies to refer to the different types of economy in the world.

Problems of GDP in measuring economic welfare

Although GDP is thought of as a measure of economic welfare in a country it has a number of problems as such. First, GDP ignores potential 'bads'. These could include negative externalities such as pollution generated during production, which reduce welfare

Economy	Description	Examples
Advanced/ Developed	High GDP per capita, well-developed financial services sectors, lack of reliance on agriculture	Most European countries, United States, Japan
Emerging/Newly Industrialized	Middle-income countries with lower GDP per capita than in developed economies. Growing manufacturing sector	Brazil, India, China, Russia
Developing	Low GDP per capita; reliance on primary industries, especially agriculture	Most sub-Saharan African countries including Kenya and Nigeria; Haiti, Afghanistan

Table 9.4 Types of economy

for those affected; long working hours and short holidays needed to produce the economy's output, which restrict opportunities for leisure and affect worker health and family lives; and possible criminal activity associated with the economy, which might undermine people's welfare. Some economists suggest that these problems can be so great that using GDP to measure economic success, as governments tend to do, is wholly inappropriate.

Secondly, some economic activity that satisfies people's wants, and so increases welfare, goes unrecorded. Sometimes the activities are illegal, such as drug dealing. Understandably, for those involved in such activities, any income earned and output produced are not reported. Other unrecorded economic activities are legal in themselves but go unreported to evade tax. For example, the doctor to whom a patient pays cash for treatment. Both of these types of activity happen in the informal, hidden, black or underground economy. It goes by various names.

Other unrecorded but innocent activities include producers such as farmers consuming their own produce, individuals doing jobs for themselves, such as tidying the garden or decorating the house, or helping family members and friends. These activities satisfy wants but do not appear in the statistics. But whether informal or innocent, measuring how much these activities contribute to GDP is difficult if not impossible.

In richer economies the problem of people doing unreported work for themselves or others is relatively unimportant. Most economic activity in these economies takes place in the formal economy and is recorded, usually for tax purposes. In contrast, people in poorer economies do more for themselves including making their own clothes, growing their own food, or caring for elderly parents. In richer countries, these goods and services are usually obtained in market transactions. When comparing the GDP per capita of richer and poorer countries, we recognize that a poorer country's measured GDP probably excludes more economic activity than a richer country's. But, by its nature, we cannot know how much more.

GDP as a measure also ignores income distribution. If, for example, most of a rise in GDP went to a small group, welfare might increase less than if the increase were equally distributed

among the population. But discovering how an unequal income distribution affects the welfare of those in the economy is difficult.

An alternative measure of economic welfare

The limitations of GDP and, by extension, GNI as measures of economic welfare have led to searches for alternatives. One of these is the Human Development Index (HDI) developed by the United Nations. This measure takes as its starting point the idea that economic welfare does not only depend on an economy's output. Health status and educational achievement are important too.

Table 9.5 shows how countries can vary in their global rankings of GNI per capita and HDI. Countries like Ireland and New Zealand are ranked relatively low on the GNI per capita measure but using the HDI move towards the top. And countries that do well on GNI per capita, such as Kuwait and the UAE, do less well when HDI is used.

In response to concerns about the effects of income inequality on the overall welfare of a country, the UN also introduced equality and gender-based HDIs in 2010. The equality measure aims to reflect how unequally distributed income reduces overall economic welfare. And the gender measure is based on the notion that when women are excluded from the benefits of economic activity, economic welfare is reduced. Details of these

Country	GNI per capita ranking	HDI ranking
Equatorial Guinea	45	136
Ireland	26	7
Kuwait	6	63
New Zealand	5	35
UAE	3	30
Ukraine	100	76
United Kingdom	21	28
United States	10	4

Table 9.5 Relative rankings of GNI per capita and HDI, 2011 – selected countries

Source: UN Human Development Report, 2011

measures are at www.un.org. We also consider the inequality-based measure in more detail in Chapter 13.



Clearly, we need to measure the average happiness of the population (adjusted to give extra weight to the least happy). Instead of this, governments currently focus on the national income, or gross national product (GNP), in which everybody's dollar counts equally. The concept was developed in the 1930s for a very good purpose – to help think about fluctuations in unemployment, and it has been crucial in the effort to control boom and bust. But very quickly it got hijacked to become a measure of national welfare, and nations now jostle for position in the national income stakes.

R. Layard (2005)



The Human Development Index (HDI)

The HDI is a wider measure of living standards in a country. The index includes data on life expectancy at birth, as a measure of a country's health status, and on the mean years of schooling and expected years of schooling, as measures of educational achievement. These two measures are combined with GNI per capita to give an overall measure of economic welfare.

Conclusion

Economists' view of the economy as a circular flow of income between households and firms has allowed them to develop measures of an economy's performance produced by statistical departments in all countries of the world.

Measuring national income is not, though, an end in itself. It aims to give policymakers in government an idea about how to improve the economy's performance and raise economic welfare. As in microeconomics, we are still concerned in macroeconomics with getting the most out of our available resources to maximize welfare in a society.

How this might be done is a question that the circular flow of income model can help us to answer. It is not just an idea that

allows us to measure an economy's size. In Chapter 11, we will consider different policies derived from the model that allows a government to achieve its macroeconomic objectives.

But before we do this, we must first examine a feature of the economy familiar to us all: money. Like the circular flow of income, understanding money helps us to ensure an economy achieves its full potential. Once we grasp this idea, we will have at our disposal the economic tools needed to achieve the objectives of macroeconomic policy.



Fact-check

- 1 Equilibrium national income in an economy with a government sector but no overseas sector, will occur when:
 - A $S + I = G + T$
 - B $S + T = G + I$
 - C $S + M = I + X$
 - D $S = I + G$
- 2 For an economy to be in equilibrium, the circular flow of income suggests:
 - A incomes should equal injections
 - B injections should equal imports
 - C injections should exceed withdrawals
 - D injections should equal withdrawals
- 3 Which of the following is an injection into the circular flow of income?
 - A savings by households
 - B domestic firms buying capital goods, such as machinery, from other domestic firms
 - C domestic firms buying capital goods from overseas firms
 - D taxes on capital goods bought by domestic firms from other domestic firms
- 4 According to the circular flow of income, if the economy is at less than full employment, increased household savings will cause national income to:
 - A fall
 - B fall and then rise
 - C rise
 - D rise and then fall
- 5 A transfer payment is:
 - A the amount above that necessary to keep a factor of production in its current use
 - B only paid by football clubs
 - C made by the government but no good or service is supplied in return
 - D none of the above

- 6 The national income accounting identity states that:
- A injections equal withdrawals
 - B national income is equivalent to the sum of injections and withdrawals
 - C national income is equivalent to national output and national expenditure
 - D national income is equivalent to happiness in the economy
- 7 GDP at market prices in an economy is £500 billion. Taxes on spending are £50 billion. Property income from abroad is equal to £20 billion. The economy's GNI at market prices is:
- A £480 billion
 - B £520 billion
 - C £450 billion
 - D £570 billion
- 8 The 'statistical discrepancy' in the national income accounts occurs because:
- A government statisticians find it hard to add up
 - B it helps to make national income appear higher
 - C of difficulties of measuring the many items in the accounts
 - D macroeconomic theory suggests that national income, output and expenditure should all differ
- 9 The word 'gross' in the measure of Gross Domestic Product at factor cost means:
- A capital used up in producing national output has not been counted
 - B taxes on goods, such as VAT, have not been deducted
 - C taxes on goods, such as VAT, have been deducted
 - D imports from other countries have been excluded from the accounts
- 10 A simplified version of a country's national income accounts is given below at market prices.

	£ billion
Consumer spending	200
Investment spending	150
Government spending	100
Exports of goods and services	30
Imports of goods and services	25
Net income from property held abroad	10

The country's GNI at market prices is:

A \$450 billion

B \$455 billion

C \$465 billion

D \$480 billion



Dig deeper

- 1 Happyland's economy has a government, a financial sector, but no overseas sector. The following data are available:

Household spending	10,000
Investment by firms	750
Government spending	1,000
Household savings	1,200

- For the economy to be in equilibrium, what must government taxation be? What does this level of taxation imply for the public finances in the long run?
 - What is equilibrium income?
 - The government has calculated that full-employment national income is \$11,500 billion. What could the government do to achieve this level of income?
- 2 The figures in Table 9.3 for GNI per head are quoted in US dollars. Why might it be a problem that this has been done?
- 3 The UN website for the UN Human Development Report at <http://hdr.undp.org/en/statistics/> has a feature to 'build your own index' of human development. Go to the website and follow the link entitled DIY HDI: Build Your Own Index.

It is possible to create an index that differs from the UN's by adding the effects of inequality, gender, and environmental sustainability on human development. It is also possible to change the weights of the different elements in the index and the factors that go into the elements.

Identify three economies: a developed economy, an emerging economy, and a developing economy.

- Create your own HDI. Justify your choice of the elements you have included in your HDI.
- Once you have created your own HDI, compare the ranking of your countries in your version with that of the UN. You can also compare the ranking against that for GNI per head by selecting the option to have only income in the index.
- Explain any changes in the rankings of your countries.

10

Money's role in the economy

Introduction

Exploring what money does in the economy requires that we first consider the division of labour. This is the idea that people in a society specialize in one type of work and do not produce everything for themselves. Self-sufficiency is often advocated as desirable but in reality rarely, if ever, exists.

The principles underlying the division of labour were famously set out by Adam Smith (1723–90) in his book, *Wealth of Nations*, published in 1776 and thought to be the first modern economics text. Smith was not the first to describe the division of labour and its advantages. Xenophon had done so in the fourth century BC. But Smith's classic account is most often cited as the source for economists' understanding of the idea. He describes how even making a hat pin in a factory can be divided into numerous, separate tasks undertaken by different workers specializing in those tasks. So iconic is his description in the history of economics that it now appears on the reverse side of a £20 note. An economist could wish for no greater accolade.

But specialization has consequences. People must trade with each other to obtain the goods and services they want but do not produce for themselves. Specialization implies the exchange of goods and services and a system that allows exchange to happen. Two are available: barter (the direct exchange of one good or service for another) and money. In this chapter we examine why money is generally preferred to barter and why money is important.



Money is a social phenomenon, and many of its current features depend on what people think it is or ought to be.

R. Harrod (1969)

Benefits of specialization

As money arises from specialization caused by the division of labour it is worth reflecting first why specialization occurs. Its key benefit is that output is higher when workers specialize. Each worker becomes better at their job as they learn from doing it. In a world of scarcity, the additional production is important.

Its other main benefit is that every worker can contribute positively to production in society regardless of their abilities.

We can see how these benefits come about in a simple example. Suppose a society contains two people, Jack and Jill. Jack can produce 10 tables or 25 chairs in a week. Jill can produce 50 tables or 100 chairs. Jill is better at doing both. But Jack will still have a role to play and can specialize in producing chairs while Jill will produce tables.

This happens because Jill cannot do everything. She must choose how she divides her time between producing tables and chairs. Doing either has an opportunity cost. Jack will produce chairs even though he is worse at producing both because he is not quite as bad at producing chairs as he is at producing tables. His possible output of chairs is 25% of Jill's. But that for tables is only 20% of Jill's. Comparatively, he is better at producing chairs. Specialization increases the society's total output above that it would have been if Jack and Jill had each produced their own goods.

This result comes about because workers specialize in the division of labour according to the principle of comparative advantage. The principle suggests a person does not need to be the absolute best at the work they do to specialize in it. Since few of us are the absolute best at any activity, this is good to hear and completely out of line with the idea of economics as a dismal science. Instead, people can specialize in work in which they are proficient compared to others. So even if a person is the worst at every task imaginable, they can specialize in that task where, comparatively, they are not as bad. Nobody need ever be without work.

Apart from higher output and jobs for everyone, the division of labour also permits mechanization. By separating a job into its component parts, machinery can be designed to do the work. Typically, this will increase output further and free workers for complex tasks machines cannot master. The extra boost to output adds to the beneficial effects of specialization.

Problems with specialization

While specialization delivers benefits, it can create problems. A major one is that workers no longer understand the role others

play in the economy. These misunderstandings can cause social conflict over the distribution of income between the workers, managers, and owners of firms. These conflicts can then lead to lower output through strikes, go-slows in production, or poor communication within the workforce that undermines productivity.

Adam Smith was aware of these difficulties and the economist and political philosopher, Karl Marx (1818–83), built an entire social philosophy on the idea that the division of labour causes social conflict that would overthrow capitalism, his term for the market economy. The stakes with the division of labour are clearly high.

Another problem with specialization is the boredom that can result among workers doing a simple, repetitive task in a factory. Marx linked it to his concept of alienation among workers. The effect of this can be to undermine the productive potential of the division of labour as workers lose interest in their task and perhaps seek to sabotage the production process or engage in industrial disputes simply to make their working lives interesting.

Specialization can also mean over-reliance on a particular skill among individuals or groups of workers. In a market economy, a worker runs the risk that if demand falls for the good he or she produces so will demand for his or her skills. Highly specialized workers might be unable to find alternative work and retraining might be impossible for older workers.

As ever, costs and benefits must be weighed against each other but, whatever the outcome, specialization requires that individuals trade with each other. And this creates the need for the great social device called money.

Trade and money

The problem for a person who specializes as, say, a doctor is that she cannot produce her own food. To obtain it, she must trade her skills as a doctor with, say, a farmer. This direct exchange of goods and services is barter. Despite its superficial simplicity, it presents a number of problems.

First, the doctor must find a farmer. The farmer, though, must not only have the food the doctor wants but also want the medical care the doctor is prepared to exchange in return for the food. This problem is that of the 'double coincidence of wants'. The wants of the individuals wishing to trade must match each other exactly. If not, trade cannot occur. This is the main difficulty in organizing trade between individuals through barter.



Barter and money

Barter requires the direct exchange of goods and services between two parties in a transaction. It is a system of exchange that does not require money but suffers from the problem of the double coincidence of wants. Money solves that problem.

Even if she finds a farmer with wants that coincide with hers, the doctor faces a second difficulty. She must negotiate the rate at which the medical care and food are exchanged. This can be time-consuming. And not only must she do this to obtain her food, she must do it for other trades she makes to satisfy her other wants, such as plumbing services or clothes. The complexity of negotiations would be huge.

Thirdly, barter makes saving for the future difficult, especially if the goods a person produces are perishable. A farmer producing strawberries, say, would find it hard to store them to allow for future trading. Nobody would want to exchange goods or services for rotten strawberries when the time came.

In summary, these problems make barter unsatisfactory for exchanging goods in an economy. Instead, we have another of humanity's great innovations – money.



Money is not, properly speaking, one of the subjects of commerce; but only the instrument which men have agreed upon to facilitate the exchange of one commodity for another. It is none of the wheels of trade: it is the oil which renders the motion of the wheels more smooth and easy.

D. Hume (2006)

What money does

Money's great virtue is that it solves the problem of the double coincidence of wants associated with barter. It does so because whatever serves as money is acceptable to everybody when goods are traded. Money must have this quality of universal acceptability or it cannot be an alternative to barter.



Countertrade

Although barter is not used often in economies today it does exist. It is a form of countertrade used either when a high-value transaction makes the costs of organizing a barter trade worthwhile or when one or both of the parties to a trade are short of money or credit. In a famous example from the 1970s, the former Soviet Union exchanged vodka for Pepsi Cola with the Pepsi Corporation. To help those who wish to trade like this, the London Countertrade Roundtable was created in 1988. Their website is at www.londoncountertrade.org.

We can see how this works for the doctor and the farmer. If universally acceptable money is available, the doctor will accept it in return for providing her service to the farmer. She does this because she knows that once she has the money it will, in turn, be acceptable to others who produce the goods and services she wants. The farmer, too, will be happy to hold money before obtaining his medical care because he knows that the doctor will accept it.

Money therefore serves as a medium of exchange. Its invention was a major step forward for human civilization as it allowed the benefits of specialization to be realized without the difficulties of using barter to trade. Paradoxically, money adds an extra dimension to trade and yet it makes life simpler.

Other functions of money

Apart from being a medium of exchange, money serves three other functions.

The first is its function as a measure of value or unit of account. We use money to identify the value of goods and services. If we

are valuing a car, for example, we do not say it is worth twenty thousand tins of tuna (even if it might be) but we quote the value in money terms, say £10,000. Valuing goods like this makes it easier to compare the value of different goods. We have a standard unit of measurement used by all. Indeed, so ingrained is this idea in all of us that it unnecessary to say when we do it. In the discussions of consumer demand and how firms behave earlier in this book, for example, we did not need to define what was meant by a price.

Money also serves as a store of value. If a person has no immediate wants to be satisfied he or she can hold on to money and spend it in the future. Money therefore allows for saving, an option not open to our farmer with rotting strawberries.

Money's third function arises if agreement is needed about future payments, such as paying off a loan or paying for a holiday in six months' time. The value of the future payment is easily expressed using money. In these circumstances, money serves as a standard for deferred payment.

The qualities of money

Money's functions give it a crucial economic role and yet, in principle, anything can be used as money. For example, in some societies, sea shells have served as money and in prisoner of war camps during the Second World War cigarettes did. In modern economies paper and metal serve as money. But whatever is chosen must have certain qualities.

Its most desirable quality, as discussed above, is for it to be acceptable to all for settling debts. A commodity might have none of the other qualities of money but if it has this it can serve as money.

Other desirable qualities of money are that it should be:

- ▶ **Easy to carry around or portable.** Lead bars could be money but they are not easy to carry.
- ▶ **Durable.** Unlike strawberries it should not perish over time.
- ▶ **In scarce supply.** This will ensure its value remains stable over time.

- ▶ **Easily divisible into different values so that transactions of varying amounts can be settled using money.**
- ▶ **Homogeneous in appearance to ensure the acceptability that is crucial to its functions.**

Notes and coins, familiar to us from our daily lives, match up well against this list. The same applies to bank accounts, which are money because they can be used to buy goods and services.

If money loses any of these qualities it becomes undesirable and anybody holding it will want to dispose of it as quickly as possible. This is Gresham's Law that 'bad money drives out good', a law often observed when a person receives a foreign coin in their change.



Bank accounts are money

Mr Jones deposits £100 of notes and coins into his bank account. He buys an antique chair for £100 from Ms Smith. She accepts payment by a transfer of £100 from Mr Jones' bank account to her own. The bank accounts are money because they are used to settle the debt between the two.



Cheques are not money

To transfer the £100 Mr Jones writes a cheque to Ms Smith. A cheque is an instruction to the bank to transfer the £100. But it is not money. The bank account is the money. Anybody can write a cheque but unless funds are in their bank account, the cheque is worthless.

Money as an asset

Money serves as an asset when used as a store of value. A person owns it along with 'real' or physical assets like their car or house. Unlike real assets, money can be used immediately to finance transactions that include buying goods and services, some of which might serve as physical assets. Money is therefore said to be liquid.

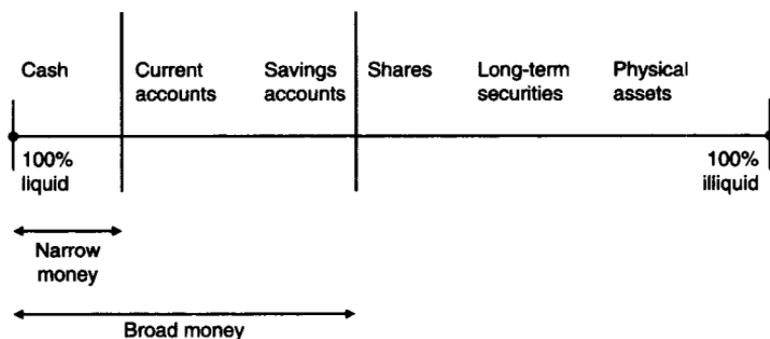


Figure 10.1 A spectrum of liquidity

Economists define liquidity of an asset by whether it can be turned into money with certainty, without delay, and at no cost. If all three apply, the asset is liquid. If not, the asset is illiquid.

Assets like cash (notes and coins) and bank accounts are, by definition, the most liquid of all assets. Others, like books or gardening furniture, are illiquid. It takes time and expense to sell them and there is no guarantee they will be sold without some cost. Some assets, however, fall between these two extremes. While illiquid on one criterion, they might be liquid on others. For this reason, we think of a spectrum of liquidity as in Figure 10.1.

What is money?

Liquidity means that defining money becomes difficult. If money is an asset that is liquid, an asset that is not directly acceptable for settling a debt but could be easily changed into money, becomes as good as money. For example, if the liquidity of, say, a current account in a bank, which is money, differs little from a savings account in a building society, we should perhaps define both as money.

Wherever we draw the line between money and 'non-money' on the liquidity spectrum is to some extent arbitrary. We can define what money does but defining what it is can be far harder. Indeed, the difficulty of measuring the money supply in an economy is reflected in the number of such measures that exist

in practice. A general distinction is made between 'broad' and 'narrow' measures of the money supply, although even within these classifications there are finer distinctions. These two categories of money are depicted in Figure 10.1.

In most economies, narrow money is defined as cash in circulation plus the accounts, or reserve balances, held by banks at the country's central bank. In the UK, the central bank is the Bank of England, in the US the Federal Reserve Board, and for some European countries, the European Central Bank. Broad money is narrow money plus accounts held in both banks and other financial institutions such as building societies. As the name suggests, it covers a broader range of the liquidity spectrum.

Exact definitions of the money supply differ between countries and also change over time. In the UK at present two measures are used. Narrow money is notes and coins in circulation plus reserve balances held by banks at the Bank of England. Broad money is called M4 and includes notes and coins and a range of deposits in both banks and other financial institutions. All of these deposits (the banker's name for accounts) are generally liquid. The Bank of England website (www.bankofengland.co.uk) details these and other measures of the money supply.



(M)oney is not only the medium of exchange, but also a store of value, and the standard in terms of which debts, and other legal obligations, habits, opinions, conventions, in short all kinds of relations between men, are more or less rigidly fixed.

P. Sraffa (1932)



Money in a modern economy

Cash (notes and coins) plus bank deposits serve as money because they are highly liquid. By far the more important of these in value terms are bank deposits.

Controlling the money supply

As it represents spending power for households and firms, the money supply matters. Economists differ in their views about how changing the money supply affects the economy but broad agreement does exist that changing it will, most of the time at least, have effects.

Controlling the money supply, or conducting monetary policy as it is called, can be used to control the economy. In many countries, the government gives responsibility for monetary policy to the country's central bank.



The Bank of England

A key role for a central bank is controlling the money supply but in all countries it has other functions. The Bank of England has the following extra responsibilities:

Lender of last resort

If banks get into financial difficulties, the Bank must help them out.

Financial regulator

The Bank oversees the operations of the banking and financial system to ensure financial institutions stick to rules set down in legislation and to retain financial stability.

Bankers' bank

The Bank provides banking services such as settling debts between other banks.

Manager of the UK's gold and foreign currency reserves

The Bank operates in foreign exchange markets to influence the value of sterling

Banker to private customers

For historical reasons the Bank retains some private customers to whom it provides normal banking services such as current and savings account. This, the Bank argues, helps it to keep in touch with the latest developments in retail banking.

Central banks most obviously control the money supply through the monopoly they have in the issuing of notes and coins. In any country we observe daily, if we use banknotes, the central bank's

name on them. But despite this obvious evidence that the central bank controls cash, this ability is unimportant in controlling the money supply. Instead, to understand how a central bank actually does this, we must first examine how individual banks can themselves create money through the process called credit creation.

How banks create money

We can illustrate this process with a simple example involving a commercial bank that provides banking services, such as taking deposits and making loans, to private customers, whether individuals or businesses. Commercial banks, such as Barclays or HSBC, are usually public limited companies that aim to make profits like any other company.

To see how they create money, we can return to Mr Jones with his £100 in cash, and consider what happens when he deposits it in his commercial bank, BRHL. The bank creates an account or deposit for him. The deposit is a record that the bank owes Mr Jones £100. BRHL, though, has an asset, the cash which Mr Jones deposited. We can draw up what accountants call a balance sheet or statement of what the bank owns (assets) and what it owes (liabilities). For BRHL, a highly simplified balance sheet looks as follows:

Assets	£
Cash	100
Total Assets	100
Liabilities	
Mr Jones' deposit	100
Total liabilities	100

Two points emerge. First, the balance sheet does as it says, it balances. Total assets equal total liabilities. Secondly, the money supply has not altered. It is still £100. But it is no longer cash, it is a bank deposit. By putting money in his bank Mr Jones changes the form of the money supply. An interesting result is that the cash the bank holds is not money! The deposit on the other side of the bank's balance sheet is the money. Cash and bank deposits are called fungible. They are the same so converting one into the other is easy.

This is where banks become creative. The BRHL bank recognizes that although Mr Jones has deposited his cash in the bank he will not want it all the time. He will prefer, as we saw earlier, to make some payments by cheque or he may want to save. Early on in the history of banking, bankers realized that customers would not need all their cash all the time. It struck them that some of the cash left with them could be lent to potential borrowers. The bank could charge interest and make a profit. This is called fractional reserve banking and has an interesting consequence: banks could never meet the demand if all their customers asked for the value of their deposits to be given to them in cash.

To see how this process works, we suppose BRHL lends £100 to Ms Smith. To do this, BRHL can simply open an account for Ms Smith upon which she can draw. The account is a liability for the bank. They must have cash for Ms Smith if she wants it or be able to transfer the deposit to another bank if Ms Smith writes a cheque telling them to do so. The matching asset for the bank (which must exist) is the loan to Ms Smith. She owes it to them and will – the bank hopes – repay it. The loan affects the bank's balance sheet as follows:

Assets	£
Cash	100
Loan to Ms Smith	100
Total assets	200
Liabilities	
Mr Jones' deposit	100
Ms Smith's deposit	100
Total liabilities	200

In making a loan the bank creates a bank deposit. But, as we have seen, bank deposits are money. So when a bank makes a loan, it creates money. This implies that when controlling the money supply the central bank must consider how to control bank deposits and that means controlling bank loans.



Banks and money

Although banks can create money by making loans, their ability to do so in any economy is limited by the central bank using interest rates or quantitative controls or a mixture of the two. They will also be restricted in their ability to do so by conditions in the economy which will affect the demand for bank loans among households and firms.

Controlling bank loans

As controlling the money supply relies on controlling bank loans, the central bank must rely on the standard relationship between a good's price and the quantity demanded. As a bank loan's price is the interest rate a borrower pays on it, if the central bank can control this price it controls the demand for loans.



The credit multiplier

Bank lending is limited by the proportion of deposits that customers want as cash on any day. If banks think customers only want 10%, for every £1 of cash deposited, the bank could make £9 of loans. The bank's total assets would be £10 (£1 cash + £9 loans) as would its liabilities (the deposits). The bank would have enough cash to meet their customers' requirements.

If, of course, banks incorrectly estimate the proportion of cash wanted by customers, they might be unable to meet their customers' demand for cash. And if they told some customers they did not have the cash, others would become worried and go and ask for theirs. A 'run on the bank' would occur in which customers demand cash from the bank that it does not have. This happened to the Northern Rock bank in the UK in 2007.

For this reason, confidence is crucial in banking. As long as customers believe they can withdraw cash from their bank whenever they want, the system works fine. Customers will restrict their demand to their daily needs. But as soon as customers lose confidence that the bank can meet their demand for cash, and they all want cash at the same time, the system breaks down.

Rising interest rates make borrowing money more expensive and the demand for loans falls; falling rates causes the demand for loans to rise as borrowing becomes cheaper. It is the standard demand relationship applied to loans that we saw in Chapter 6.

Two questions arise. How does the central bank change interest rate? And why does it not simply tell the banks to restrict their lending?

In the UK, the answer to the first of these is that the Bank of England controls interest rates by making loans to the banks and other financial institutions. When it does this it charges an interest rate, the base rate, which determines what the banks must pay. If the Bank wants interest rates to rise it increases its base rate. This causes interest rates charged by the banks to borrowers to rise. Demand for loans falls, and the money supply is cut.

The next question is why banks and other financial institutions need to borrow from the Bank of England. The need arises because every day the banks must transfer funds to the government. This might be because customers are paying tax bills or the Bank of England is selling financial instruments to the public and companies which they are paying for out of their bank accounts. The effect of these transfers is that the banks become short of liquid assets. They must go to the Bank of England to borrow money. For this loan the Bank charges the base rate.

This indirect control of the money supply looks cumbersome especially compared to the Bank of England simply instructing the banks to limit their lending to whatever the Bank thought appropriate. But when this was tried in the past banks proved adept at skirting round these quantitative controls as they are known. Using the price mechanism instead is, as so often, better for controlling loans. It stops banks engaging in unproductive activities to get round rules and, in practice, it works.

Controlling the money supply using the demand for bank loans relies on a stable relationship between interest rates and the demand for bank loans. If this breaks down it can cause problems. But even these are seen as less serious than those associated with quantitative controls.



Disintermediation ...

... is a long word. Banks also used it in the 1960s to avoid limits placed by the Bank of England on bank deposits. Instead of lending to a customer, a bank would find another customer with surplus funds. The bank would introduce the two and arrange for the customer with money to lend to the borrower. The bank took a fee for this matchmaking service. A loan was made but, crucially for the regulations, did not appear on the bank's balance sheet. So bank deposits looked as though they were unchanged while in reality lending was continuing by different means. Rules were not broken but the banks bent them. Their ability to do this is why the Bank of England prefers to control bank lending through interest rates rather than direct controls on lending.

When operating normally, banks are intermediaries between borrowers and lenders. They take money from lenders and pass it on to borrowers. As the process above cut out the bank's role as an intermediary it became known as disintermediation.

Changing interest rates is not, though, done to control the money supply. That is an intermediate target. The ultimate objective is to alter spending in the circular flow of income by changing the demand for bank loans. These are usually used by households to buy goods, so real effects will occur in the economy. Changing interest rates can also affect investment by firms who will borrow to finance it. And in Chapter 14 we will see how changing interest rates can alter the demand for exports from overseas as the country's exchange rate adjusts. In short, if the central bank wishes to influence spending it can do so through its ability to change interest rates.



Open market operations

Central banks use these to control the money supply. How they operate depends on the particular financial system but the idea is always the same: to control the ability of commercial banks to create money by buying and selling government financial assets in the financial markets.

Conclusion

Those who know little of economics often think it is all to do with money. And yet it has taken us until Chapter 10 to introduce money as a topic. It shows that while understanding money is important to economists, it is not their prime concern.

Money's significance in the economy is because it allows the division of labour that raises the economy's productive potential. Money solves the problem of how best to exchange goods once people specialize and are no longer self-sufficient. Money does not benefit people directly, unless they are misers. Goods and services provide the utility that is the ultimate aim of consumption. But money makes obtaining them easier.

Money also represents spending power. So controlling its supply – monetary policy – can be used, along with controlling government spending and taxation, to influence the economy and allow governments to achieve their macroeconomic objectives. In Chapter 11 we consider what these objectives are before examining, from Chapter 12 onwards, how controlling the money supply, taxes and government spending help a government to achieve them.



Fact-check

- Specialization occurs because:
 - it leads to higher output than if everybody is self-sufficient
 - individuals like to be self-sufficient
 - the division of labour is insignificant in all economies
 - assembly lines were introduced to manufacture cars in the 1920s
- The problem of the 'double coincidence of wants' is associated with:
 - money as a medium of exchange
 - barter as a medium of exchange
 - the use of bank deposits as money
 - how children in a family always want the same as their siblings
- Money has all the following functions EXCEPT a:
 - unit of account
 - store of value
 - type of taxation
 - medium of exchange
- Money's most important quality is that it should be:
 - printed on paper
 - acceptable to all as a means of settling debts
 - backed by gold
 - tied in value to a reserve currency such as the euro
- Which of the following is NOT a liability for a bank?
 - deposits held by households at the bank
 - savings accounts run by the bank
 - loans made to customers by the bank
 - current accounts held at the bank
- For precautionary reasons, a bank holds 10% of its assets as cash. If a customer deposits £500, the bank could safely make loans up to the value of:
 - £50
 - £500
 - £4500
 - £5000

- 7** A liquid asset can be converted into money:
- i)** at a high cost
 - ii)** without delay
 - iii)** with certainty
 - iv)** that is not based overseas

Which of the above apply?

- A** i) and ii) only
 - B** ii) and iii) only
 - C** all of the above
 - D** none of the above
- 8** Which of the following is NOT normally a central bank's function?
- A** lender of last resort
 - B** managing the country's gold reserves
 - C** controlling the money supply
 - D** controlling taxation in the economy
- 9** If a central bank increases interest rates it will normally expect:
- A** the demand for money to rise
 - B** employment to fall
 - C** less bank lending
 - D** more bank deposits
- 10** In developed countries, the majority of the money supply consists of:
- A** banknotes and coins
 - B** Treasury Bills
 - C** government securities
 - D** bank deposits



Dig deeper

- 1 For each of the following commodities suggest:
 - a) why they would be unlikely to serve as money; and
 - b) any possible circumstances (apart from POW camps) when they might serve as money?
 - i) Tea leaves
 - ii) Copper ingots
 - iii) Chocolate bars
 - iv) Glass beads
 - v) Gold bars
- 2 Research the assets below and rank them using the three criteria that define liquidity: cost, certainty and time to change into money:
 - i) US Treasury Bills
 - ii) Certificates of Deposit issued by a commercial bank
 - iii) corporate bonds
 - iv) residential property in London and New York
 - v) a second-hand television set manufactured in 2003
- 3 A UK commercial bank has the following assets:

	£million
Loans to Customers	500
Cash	100
Reserves at the Bank of England	100

The bank must hold at least 10% of its assets as reserves with the Bank of England. It also has calculated from past experience that it needs to hold 5% of its assets as cash to meet customer demands.

- a) Given these constraints, what is the value of the extra loans the bank could in principle make?
- b) Loans are highly profitable for banks, so why might this bank not maximize the total value of loans that it could make?

- c)** The bank's reserves at the Bank of England are linked to payments made by its customers to other banks. If these exceed the payments made to the bank by the customers of other banks its reserves fall.
- i)** Why might this happen to the bank?
 - ii)** How could the bank reverse a fall in its balances at the Bank of England?
 - iii)** How could the Bank of England ensure a fall in these reserves?
 - iv)** How would a fall in these balances affect bank lending and the money supply in the long run?

11

Macroeconomic objectives

Introduction

The last two chapters introduced two key concepts in macroeconomics: the circular flow of income and money. The chapters provided an overview of how an economy operates that can be used to examine how governments attempt to manage the economy.

In managing the economy, a government wishes to achieve its macroeconomic objectives, which economists define as:

- ▶ full employment of labour
- ▶ price stability
- ▶ sustainable economic growth
- ▶ balance of payments equilibrium
- ▶ the distribution of income.

In this chapter we examine the nature of these objectives which, like being kind to animals, everyone considers desirable. Differences of opinion can occur about their relative importance and about how quickly each should be achieved. But, following the principles of positive economics, economists stick to suggesting how they can be achieved and leave to politicians, as representatives of opinion in a country, the business of deciding which should be given priority.

That said, individual economists will comment on a government's macroeconomic policy as anybody following the news media will see. They might do this because they think achieving one objective is necessary for achieving the others or they might have other motives. Whatever the reasons, even when they disagree, economists have in mind the same objectives that we now examine in turn.



Economic policy, like any real activity, has to reckon with many aspects originating from very different realms of life, and hence certainly not only economic view-points: institutional, juridical, technical in the widest sense of the word, and psychological (apart from that restricted psychology taken as the basis for usual economics).

J. Tinbergen (1952)

Full employment

In a world of scarcity it makes sense to economists that all labour, capital, land and entrepreneurial talent should be fully employed. If they are not, productive opportunities that would satisfy wants go astray. This objective normally reduces in practice, however, to achieving the full employment of labour in the economy. This goal has particular importance because of the social, political and psychological reasons why people should be employed. These are not primary concerns for economists, who want to ensure the use of all resources, but they are important for politicians who make the policy decisions.

In theory, full employment is reached when the economy is on the production possibility frontier introduced in Chapter 2. But, in practice, a government trying to achieve full employment needs a concrete measure to know if it has succeeded in its objective. This is the unemployment rate among workers.

We might think that the target unemployment rate for the government should be zero per cent. But, in reality, that is unachievable. Some workers might be unable to work for a while because of physical or other disabilities; some will prefer to be unemployed because of the benefits it offers such as plenty of leisure time (the voluntarily unemployed); employment is also seasonal in industries like tourism and agriculture causing unemployment among workers in these industries to fluctuate throughout the year; and at any given time workers will be moving between jobs as changing consumer demand causes firms to lay off workers. While other firms will be taking on new workers, those leaving jobs will be unemployed for a while as they search for new jobs. This unemployment is called frictional.

Taken together, it means that full employment is usually thought to be achieved when a low, but positive, percentage of the workforce is unemployed. In the UK, a figure of 4 to 5 per cent is often quoted as a target for the unemployment rate that, if achieved, represents full employment.

The other practical difficulty with measuring full employment is it can be a moving target. If jobs become available, some are taken by new workers previously not counted as unemployed.

They come into the labour market attracted by the new jobs; they can include parents at home with children, the retired, or workers coming from other countries. Extra jobs attract into work people previously considered unavailable for work. As a result, measured unemployment does not fall as rapidly as employment increases.

Unemployment might also be spread unevenly throughout the economy. When concentrated in an industry because of a long-term decline in that industry the unemployment is structural. This unemployment is often concentrated in particular regions of a country. For example, the decline in the steel and coal industries in many developed countries in the last 40 to 50 years has seen unemployment become high in regions where these industries were concentrated. Structural unemployment is, therefore, sometimes regional unemployment, although the two are not necessarily the same, as when a declining industry is geographically spread throughout an economy.



Frictional and structural unemployment

Frictional unemployment refers to those between jobs who are seeking work. It is usually short-term as workers need time to find new employment.

Structural unemployment occurs when an industry goes into decline because of changing demand for the industry's products.

Workers left unemployed often have industry-specific skills, which makes it hard for them to obtain new employment. Structural unemployment can, therefore, be long-term.

Unemployment can also be cyclical or demand-deficient. It occurs when aggregate demand or AD ($C + I + G + X - M$) in an economy is too low. Conflict can occur between tackling this type of unemployment and structural unemployment. If demand overall is satisfactory but structural unemployment can be found in parts of the economy, a government decision to increase AD might lead to excess demand (and possible inflation) while not actually addressing the problem of structural unemployment. Governments must address these two types of unemployment differently.

Whatever the cause of unemployment, economists do not consider it inevitable. It can be, and in the past has been, successfully controlled. Nor does new technology or immigration explain it, as non-economists sometimes argue. These explanations are wrong because they commit the 'lump of labour' fallacy that only a fixed amount of work must be done in the economy and if, for example, new technology cuts the demand for workers, inevitably those workers must become permanently unemployed.

The fallacy, though, ignores the fundamental idea in economics we met at the start of this book: humans have insatiable wants. If that is so, and economists think it is, workers are always needed to satisfy wants. Insatiable wants kill the idea that unemployment is unavoidable. The economist's job is to ensure workers do not remain unemployed when so much work remains to be done.



The purpose of economics, at least as a prescriptive science, is to increase (economic) welfare. This is too vague a target for policy purposes, however, so economists set themselves various intermediate goals. In the long run, these include items such as raising economic growth and improving the distribution of income; over the shorter run, however, the most prominent has been internal balance. This broadly means the achievement of full employment and price stability.

L. A. Winters (1991)

Price stability

Price stability occurs when average prices in the economy remain constant. The average price level is measured using an index based on the prices of goods consumed. Each good's price is given a starting value for the index of 100 at a certain date. As prices change, the index number changes with them. For example, if prices rise by 10% the index rises from its starting point of 100 to 110. The index number for each good is combined in a weighted average that depends on how important each good is in total spending. The resulting average index is the measured average

price level for the economy. The percentage rate at which it changes is the inflation rate.

Two common price indices in the UK are the Consumer Price Index (CPI) and the Retail Price Index (RPI). Both measure inflation, although the CPI is quoted more nowadays because it is consistent with inflation measures used in other European countries. This makes it useful for comparing inflation rates between countries.

The GDP deflator also measures inflation. It is used when calculating real GDP and reflects the prices of all goods in the economy and not just those of consumer goods, as the CPI and RPI do. It is, however, quoted less often than the other two measures, and rarely features in policy discussions of how to achieve price stability.



The inflation rate

This is the percentage rise in average prices in the economy in a year. Economists originally coined the term inflation but it has entered wider usage and so is a valuable contribution by economics to the richness of the English language. Inflation, though, is not the rise in price of one good alone. That reflects changing market conditions for the good. Goods can rise in price if supply or demand conditions change. But inflation only occurs if average prices increase.

Inflation is seen as undesirable for various reasons. Most significantly, it undermines the market system for allocating resources. In the market, changing prices are meant to signal changes in a good's scarcity. But with inflation consumers and producers do not know if a good's higher price means it is scarcer or is simply due to inflation. The confusion upsets the market's ability to allocate resources.

Inflation also causes money to lose value. Those holding money (cash, bank accounts, or other financial assets including savings) will be worse off. Money's function as a store of value is undermined. Those with debts, though, gain. The real value of their debt falls. If somebody borrows £10,000 today and

repays it in five years' time the £10,000 is worth less when it is repaid if inflation has occurred. While the nominal value of debt repayments remains constant, borrowers, such as those with mortgages, repay less in real terms. Those on fixed money incomes, such as pensions, lose out, while those able to negotiate inflation-matching wage increases can maintain real incomes. The overall effect is that inflation causes income and wealth to be redistributed. But it occurs haphazardly not by design.

Inflation's effect on the value of financial assets does not necessarily mean, though, that savings fall when inflation rises. The uncertainty that inflation brings can cause households to save more if they fear for the future and wish to maintain the real value of their savings. And households might defer consumption if they think price rises by individual firms are not inflationary but profiteering. It takes them time to discover that all firms have increased their prices. In the meantime, savings rise. These effects were evident in the UK economy in 1975. Inflation was 25% and interest rates were 15% but savings still rose.

If inflation goes out of control, it can undermine money's fundamental role as a medium of exchange. When hyperinflation (extremely high rates of inflation) occurs people lose faith in money because it is losing its value so quickly. And once that happens money loses its vital quality of acceptability. In economies where hyperinflation has occurred, trade often reverts to barter, which, as we have seen, is far less efficient, but protects those wishing to exchange goods from losses caused by inflation.

Inflation can affect businesses. Long-term contracts become harder to negotiate if it is unclear how prices will change during the course of a contract. Investment can, therefore, be affected. Building contracts, that are often part of investment, become hard to control. Inflation might also make it difficult for businesses to compete internationally. And accounting rules can mean that businesses must pay higher taxes on profits when inflation is high.

The general uncertainty created by these effects means inflation often damages business. Planning for the future becomes harder. If inflation is expected this might not be a problem, as

businesses can allow for it in their future plans but when it occurs unexpectedly, their plans can be disrupted.

One beneficiary of inflation, however, is the government. They often borrow both as part of macroeconomic policy and for other reasons such as financing wars. In doing so, they add to the National Debt. With inflation, the government, like any other borrower, gains as the real value of this debt is reduced. Governments can also benefit from the effects of fiscal drag, the process by which a government's income tax revenues can increase because of inflation without the government changing tax rates.



Real and nominal values

Inflation means money loses its value. Real and money, or nominal, values are no longer the same. Using money to measure income or any other value quoted in money, is like measuring somebody's height with a measuring tape on which the length of a metre keeps changing. Comparing heights from one year to the next becomes difficult.

If prices increase more than income, the consumer is worse off; their real income has fallen.

We can express this link between real and nominal values in arithmetical terms:

the real percentage change in a variable *approximately equals*
the nominal percentage change *minus*
the rate of inflation.

If GDP rises by 6% in nominal or money terms but inflation is 4%, real GDP has risen by approximately 2%.

In short, governments do not have a strong incentive to control inflation. For this reason, as noted in Chapter 10, many countries give responsibility for controlling inflation to the central bank and not the government.

Inflation also causes 'menu' and 'shoe leather' costs. Menu costs are those of changing price lists in catalogues, on shop shelves, and in restaurant menus. Without inflation many of these changes are not needed. Shoe leather costs are incurred by consumers who must walk around (not always literally) to

discover if a seller's higher price is less competitive or simply due to inflation. Both of these costs could be avoided with price stability.

To achieve price stability, we need, as with full employment, a working definition. And, as with full employment, it is not as simple as we might think. In fact, for policy purposes, price stability is normally defined not as a zero inflation rate but as a low, positive inflation rate.



Fiscal drag

In most countries income tax is organized so that taxpayers have a tax-free allowance and pay a percentage of their remaining income as tax. The tax-free allowance is what a person can earn in a year before they must pay income tax.

If a government sets the tax-free allowance at £10,000 and taxes 20% of the remaining income, a worker earning £30,000 in a year pays 20% of £20,000 ($30,000 - 10,000$) or £4,000. Income tax is 13.3% ($4,000/30,000 \times 100$) of total income.

If inflation causes incomes to rise by 10% (wages are the price of labour so likely to rise with inflation), the worker's income becomes £33,000. If the government leaves the tax-free allowance unchanged, income tax is now 20% of £23,000 or £4,600. That is 13.9% of total income. Without doing anything, the government has increased taxes. This is fiscal drag. To avoid it, governments must increase tax-free allowances at the same rate as inflation. If they do not, taxes increase. In the example, inflation is 10% but government tax revenue increases by 15% ($600/4000 \times 100$), a real increase of 5%.

One reason this happens is that over time the quality of goods rises. This can be reflected in rising prices but consumers are not worse off. Cars, for example, have more features than in the past so even if they are dearer consumers will be better off if the increased quality compensates for the increased price. The measured inflation rate, though, is positive. Allowing for quality changes means having an inflation target above zero.

A second reason for a positive target rate is that consumers can switch their spending to reflect changes in the relative prices

of goods. If average prices are going up, consumers are not necessarily worse off. They can switch from goods whose prices are rising more quickly than the average, to those increasing at a rate below the average. This is the substitution effect of price changes. In this context it means a low, positive inflation target will keep consumers at the same level of utility whereas a zero target would make them better off.

These two reasons suggest a target of zero inflation could mean that consumers experience some falling prices. And falling prices might cause them to cut consumption as they delay spending until the next price fall and put downward pressure on incomes.

A final reason for a positive inflation rate target is that it allows for negative real interest rates. These cause increased household spending as saving becomes less attractive. They are useful for policymakers when the economy is performing badly but they would be unavailable if inflation was zero per cent. Policymakers would require negative nominal interest rates to achieve negative real rates and these are thought to be impossible.

In the UK the target for inflation is a 2% increase in the CPI, the measure of inflation used. The Bank of England's job is to achieve this target. The target for countries where the euro is used as the currency is also a 2% increase in the CPI.

Sustainable economic growth

Growth is defined by economists as an increase in the economy's productive capacity. The production possibility frontier introduced in Chapter 2 illustrates this. Two frontiers are shown in Figure 11.1.

Each curve shows combinations of the two goods, honey and spice, that can be produced for a given amount of resources (land, labour, capital and enterprise). Where each curve cuts the axis (points A, B, C and D) shows the maximum output of the good if all resources were devoted to that good alone. The shift of this curve from AB to CD is economic growth. Points E and F represent full employment.

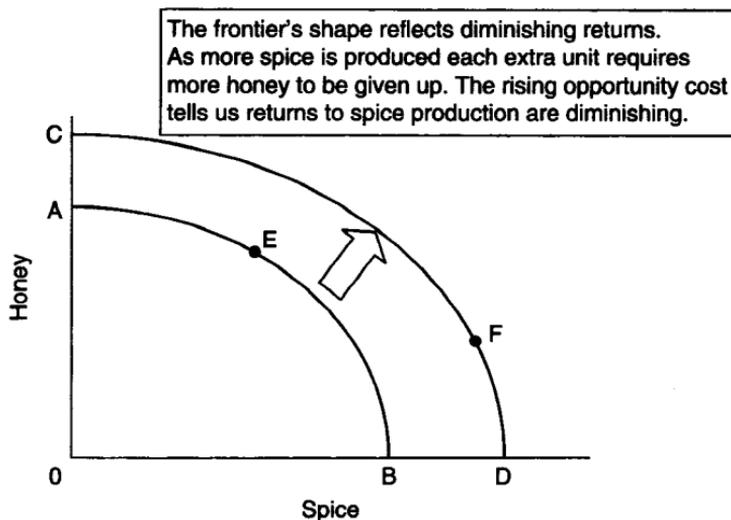


Figure 11.1 Growth and the production possibility frontier



The real interest rate

Applying the general link between real and nominal values:

The real interest rate *approximately equals*
the nominal interest rate
minus the inflation rate.

This is a simplified version of the Fisher equation named after the economist Irving Fisher (1867–1947).

Nominal interest is the stated rate paid on, say, savings accounts. If this were 5% and £100 was in the account, at the end of the year £5 interest is added to the account. But if inflation is 2%, the saver is not 5% better off. The real interest rate is only 3[5 – 2]%. Some of the nominal interest rate only compensates for inflation and is not a real return.

When inflation exceeds the nominal interest rate, the real interest rate is negative. Savers are worse off at the end of the year as the interest they receive does not compensate them for inflation. If inflation is zero the government or central bank cannot achieve negative real interest rates as nominal rates cannot be negative. A positive target rate for inflation keeps this policy option open.

As outlined in Chapter 9, the annual percentage increase in GDP measures actual growth in an economy. In addition, changes in productive capacity are estimated by the long-term trend growth rate. This reflects the quality of capital and labour in the economy, the technology available to the economy, and a stable economic framework that encourages confidence for the future among households and firms and leads them to continue to consume and invest.

The trend growth rate reminds us that growth needs to be sustainable. While high growth rates might be possible for a time, they might not be achievable indefinitely if the economy's capacity is limited. The long-term trend growth rate is a benchmark for a government against which it can compare the current growth rate. But the trend rate can itself change. Not only can a government have a target for this rate, it can also aim to change it.

In the UK, trend economic growth is thought to be around 2.25–2.75% annual growth in GDP. No official objective to achieve this target exists but discussion of growth tends to consider how the current rate is doing relative to this long-term trend.

However measured, growth provides various benefits. It allows more insatiable wants to be satisfied; allows for poverty to be reduced by redistributing income while making nobody worse off; and reduces conflict over resources between members of society, which helps to deliver political and social stability. But growth can have its costs. We saw in Chapter 9 that higher output can increase pollution, deplete limited natural resources, and put strains on personal and family life. High growth rates can, therefore, have mixed effects.

Balance of payments equilibrium

This objective requires that a country's exports and imports of goods and services equal each other and are, preferably, both high. The balance of payments account is part of a country's national accounts. It describes all overseas transactions for the country. The idea behind the objective is that a country should be able to cover what it spends on goods and services from other countries by in return selling its own goods and services to

other countries. As the well-worn expression has it, the country should 'pay its way in the world'.

Despite this, a country can allow imports to exceed exports and run what is called a deficit on the balance of payments account for some time, even many years. It is like a student whose spending, when he or she is studying, exceeds their earnings, but who makes up the shortfall by borrowing from different sources.

The same applies to countries. A balance of payments deficit causes no problems in the short run if the country can borrow. Deficits only become a problem if sources of loans dry up, a situation the government must stop arising. And as long as the plan is eventually to bring exports and imports into equality, lenders will be convinced they will be repaid and the deficit can continue.

The distribution of income

Income distribution in an economy can, we saw in Chapter 8, have two effects. Greater equality can benefit the economy by ensuring that the people have a reasonable standard of living. This reduces the risk of economically disruptive social conflict. But efficiency can be undermined if incentives to work hard and acquire higher income are disrupted.



Balance of payments terminology

If exports of goods and services exceed imports economists talk of a balance of payments surplus. If imports exceed exports, a balance of payments deficit exists.

The balance of payments account, though, always balances. If there is a surplus, the country has extra money but something must have happened to it. The account identifies where that money went. With a surplus it will have been lent and the account shows to whom. With a deficit, the account will show where the country obtained the money to spend on the extra imports.

In both cases, the amounts in the rest of the account will match the balance of payments surplus or deficit. The account balances.

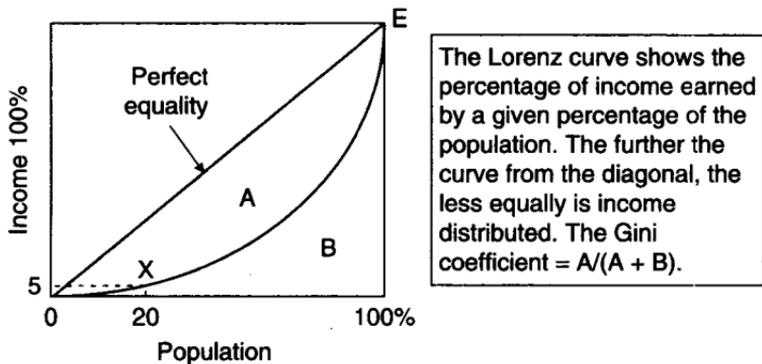


Figure 11.2 The Lorenz curve

Although this trade-off is significant in economics, it does not always lend itself to economic analysis. As a result, guidance on the appropriate income distribution for an economy is unclear. The Kuznets curve introduced in Chapter 8 suggests, however, that attitudes towards income equality are likely to change over time. Political and social forces, therefore, tend to drive concern about the distribution of income.

The Lorenz curve in Figure 11.2 provides a measure of inequality in the distribution of income. The curve plots the proportion of income earned against different proportions of the working population. On the diagram, for example, point X on the curve shows the lowest-paid 20% of the working population receive 5% of the economy's income.

The diagonal line OE represents perfect equality. On it, the proportion of the population matches the proportion of income. The further the plotted curve from this line, the less equally is income distributed. To measure inequality, we divide area A (that between the diagonal and the curve) by the total area below the diagonal, $A + B$. The value is the Gini coefficient.

If line OE shows the distribution of income, area A is zero and so is the Gini coefficient. As the distribution becomes more unequal, the value of the coefficient rises until it reaches the limit of perfect inequality when the Gini coefficient equals one. The coefficient takes values between

Country	Gini coefficient (-)	Year
Sweden	23.0	2006
Germany	27.0	2006
United Kingdom	32.0	2006
Tanzania	36.7	2001
India	36.8	2004
United States	46.4	2004
China	46.9	2004
Costa Rica	49.2	2006
Brazil	56.4	2005
South Africa	56.5	2000
Bolivia	63.3	2000

Table 11.1 The Gini coefficient

Source: World Income Inequality Database 2008, UNU – WIDER

zero and one and is quoted as a percentage by multiplying the coefficient by 100.

Table 11.1 has values of the Gini coefficient for a range of countries in increasing order of inequality.

The dates in Table 11.1 show how Gini coefficients are not reported regularly like other macroeconomic values.

A feature of the results is the relative equality of the income distribution in European countries compared with South American and African countries. In addition, although not shown in the table, incomes in nearly all countries have become less equally distributed over the last 40 years. In the United States, for example, the Gini coefficient rose from 39.7 in 1967 to 46.4 in 2004. Similar patterns are found in other countries.

Gini coefficients can be used as indicators of the degree of equity to be found in an economy. But a more equal income distribution does not necessarily imply a more equitable or fairer distribution. Many would think it unfair, for example, if income was distributed equally when some workers worked harder and produced more. The Gini coefficient can only be a rough guide to equity.



The Gini coefficient

The coefficient measures the equality of income distribution in an economy. The lower its value, the more equally is income distributed. The coefficient can also measure the equality of wealth distribution, although practical difficulties in measuring wealth mean this does not often happen.

Conflicting objectives

As we will see in Chapter 12, achieving price stability and full employment together can at times be difficult. And economic growth and price stability might also conflict as rising output and income put upward pressure on prices. Similarly, balance of payments equilibrium may be affected by economic growth. Higher incomes lead to higher demand for imports and if growth causes inflation to rise, exports might fall and a balance of payments deficit result. Something similar can happen for the same reasons as the economy approaches full employment. Only sustainable growth and full employment are likely to be compatible objectives as are balance of payment equilibrium and price stability.

Conflicting objectives mean governments must choose which will take priority. These choices are likely to be made on normative grounds. Some governments might think inflation is the prime enemy, whereas others might think it is unemployment. Whichever objective is given priority determines how the government conducts its macroeconomic policy and the advice economists will give policymakers.

Policy instruments

To achieve its objectives a government has policy instruments it can use to control the economy. These are:

- ▶ Fiscal policy – adjusting government spending and taxation
- ▶ Monetary policy – controlling the money supply and interest rates

- ▶ Direct controls – limiting households' and firms' behaviour using regulations
- ▶ Supply side policies – improving the operation of the market economy
- ▶ The exchange rate – changing the value of the economy's currency.

Each of these could, in principle, be used to achieve any of the macroeconomic objectives. How appropriate particular instruments are for particular objectives is what economists must determine. In Chapters 12 to 14 we examine what economists say about this.

Indirect taxation is the most unfair form of taxation because it is harder for the poor to pay indirect taxes than it is for the rich ... The richer the man, the smaller is the share of his income that he pays in indirect tax. That is why indirect taxation is the most unfair form of taxation. Indirect taxes are taxes on the poor.

V. I. Lenin (1974)

A general rule, however, proposed by the economist Jan Tinbergen (1903–94) is that for a given number of policy targets the number of instruments should be the same. If government has only one policy instrument but two objectives it must choose which is important to it and use the instrument to achieve that objective. Only by chance is the other objective then achieved.

A government's task is to assign instruments to objectives. By doing so, households and firms can understand government policy and plan future consumption and investment based on that understanding. Removing uncertainty creates the right conditions for growth and investment.

Fiscal and monetary policy

These are the two key policies governments use to achieve their macroeconomic objectives. Fiscal policy involves using government spending and taxation. Monetary policy involves changing interest rates or the money supply.

Difficulties of conducting macroeconomic policy

Although economists can identify how to achieve the macroeconomic objectives with the right policies, governments can face practical problems when conducting policy.

One important difficulty governments face is discovering what is actually happening in the economy at any given time. Ministers must rely on statistical data but these can be either unavailable or unreliable. It takes time for statisticians to collect data on output, investment or consumption. And by the time data are available the problem might have worsened. Sometimes as well data might be inaccurate. Initial data collected tells one story that might later be contradicted when the statistics are updated.



The UK balance of payments deficit of 1962

In a famous case in 1962 initial data suggested the UK government faced a serious balance of payments deficit. It introduced policies to tackle the deficit that involved raising taxes to cut spending on imports. Unfortunately, when all the data were available, it became clear that there had been no serious deficit. In fact, there had been a small surplus. It shows the problems governments can face conducting macroeconomic policy.

Unexpected shocks to the economy can also derail policy. The most recent example is the global financial crisis in 2007 and 2008 when many governments in Europe and North America were faced with problems few had predicted. The sudden change in the macroeconomic environment required an immediate shift in policy. Such difficulties are, though, not new. The oil price shocks in the 1970s, when oil-producing countries greatly increased oil prices with little warning, caused similar difficulties for policymakers at the time.

A further difficulty arises because policy changes take time to have an effect. By the time they do the economy's problems might well have changed. For this reason, when it sets interest rates, the Bank of England assumes that it will take

about 18 to 24 months for them to affect the economy. The Bank looks into the future therefore and when deciding interest rate policy does not consider the economy's circumstances at the time but looks at forecasts of how it might be in two years' time. It then agrees policy although in the knowledge that much can happen in the meantime to upset the forecasts upon which it bases its decisions.

Governments can also face difficulties brought on by the links between the different instruments. For example, if a government decides to use fiscal policy and spends more without raising taxes it must borrow. But if it borrows a great deal this can cause interest rates to rise, and so affect monetary policy.

Finally, the instruments themselves can sometimes become the target with distorting effects. This has happened particularly with the exchange rate. If it becomes a symbol of national pride, government policy will aim to maintain the exchange rate even at the expense of other macroeconomic objectives.

Conclusion

While economists can identify the objectives of macroeconomic policy, the priority given to each often depends on non-economic judgements. Some governments will favour keeping inflation under control, while others might be inclined to tackle unemployment or possibly balance of payments difficulties.

Economists themselves will have views about which objective is, at any given time, the most important. These views might reflect economic thinking. But even when using the same economic theories, economists can still offer different policy advice, a quality often the bane of policymakers' lives. Economists do, though, have a range of theories that they can apply to analysing and solving macroeconomic problems. In the next three chapters we consider these and the options they give to policymakers for achieving the different objectives.



Fact-check

- 1 Bad winter weather on building sites is likely to cause:
 - A frictional unemployment
 - B demand-deficient unemployment
 - C seasonal unemployment
 - D structural unemployment

- 2 The lump of labour fallacy refers to:
 - A the idea that workers must co-operate with employers or it will lead to rising unemployment
 - B how large sections of the workforce are permanently unemployable
 - C mistakes made by workers who leave their jobs without first finding another job
 - D the idea that only a fixed amount of work exists in the economy so that labour-saving technology must increase unemployment

- 3 Expected inflation in an economy is 5%. The nominal interest rate is 4%. The real interest rate is:
 - A negative
 - B positive
 - C zero
 - D impossible to determine

- 4 Inflation can be defined as the percentage increase in the:
 - A price of necessities
 - B money incomes of all workers
 - C price of all goods
 - D central bank's base rate

- 5 Fiscal drag occurs in an economy because:
 - i) governments find it a painless way of raising revenue from taxpayers
 - ii) governments do not adjust personal income tax allowances in line with inflation
 - iii) the inflation rate is always rising
 - A i) only
 - B ii) only
 - C i) and ii) only
 - D i), ii), and iii)

- 6** Economists define economic growth as the growth in:
- A** the economy's productive capacity
 - B** the economy's labour force
 - C** the number above the age of 18 in full-time education
 - D** the economy's Human Development Index
- 7** The Gini coefficients in two economies, A and B, are 0.287 and 0.312 respectively. This suggests:
- A** income is more equally distributed in country B than in country A
 - B** income is more equally distributed in country A than in country B
 - C** as income rises, equality increases faster in B than in A
 - D** as income falls, equality increases faster in B than in A
- 8** A more equal distribution of income is thought likely to:
- A** increase the economy's efficiency
 - B** increase overall consumption
 - C** be due to regressive tax policies
 - D** cause serious social unrest
- 9** The balance of payments account is said to be in surplus when:
- A** exports exceed imports
 - B** imports exceed exports
 - C** exports exceed investment
 - D** exports and imports are equal
- 10** Supply-side policies aim to:
- A** cut the growth rate of the money supply
 - B** increase government spending
 - C** increase the foreign exchange rate
 - D** make the market economy operate more efficiently and effectively



Dig deeper

- 1 For each of the following causes of rising unemployment identify the type of unemployment.
 - a) Reduced demand for ice cream sellers in Blackpool during the winter
 - b) The closure across the country of a large number of job centres that help the unemployed to find work
 - c) A decline in the demand for the country's exports caused by a world depression
 - d) The closure of car factories in Luton
 - e) The decision of the government to reduce its total spending
- 2 In January 2011 the UK's inflation rate measured by the CPI was 4%. Measured by the RPI it was 5.1%. The unemployment rate was 7.9%. Economic growth was 1.6% over the previous year and the balance of payments deficit was £36,726 million.
 - a) Assess the success of the UK government's macroeconomic policy in relation to its macroeconomic objectives at the time.
 - b) What other information would you need to assess the UK government's macroeconomic policy?
 - c) Go to <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>.

At this website you will find macroeconomic data for all the EU countries. Using this source, obtain data for other EU member states on the same macroeconomic targets as those for the UK. Use these to assess the success of macroeconomic policy in France, Belgium and Spain in January 2011. Of these countries and the UK, which do you think had the most successful macroeconomic policy? Explain your answer.
- 3 A worker's money income increases by 5% and the inflation rate measured by the RPI is 5%.
 - a) Why might the worker be i) as well off, ii) better off, and iii) worse off than he was before his money income increased?
 - b) Given the different effects on the worker's real income identified in your answer to a), how would you decide whether the worker's standards of living had risen or fallen?

12

Achieving full
employment and
stable prices

Introduction

In this chapter we examine the objectives of full employment and price stability together. Achieving one is often thought to come at the expense of the other. Some economists suggest a trade-off between the two, although not all economists share this view. Taken together, the two objectives address internal balance in the domestic economy that occurs when an economy has full employment and stable prices. External balance refers to balance of payments equilibrium.

We consider first how to achieve full employment. This gives an opportunity to apply the circular flow of income model, which Keynes developed to address the problem of mass unemployment in the 1930s. It was a good example of how theory develops because existing theories neither explain nor solve an economic problem.

Achieving stable prices is then discussed using ideas on money and monetary policy outlined in Chapter 10. We will consider theories that suggest inflation depends on the money supply and that it should be controlled through the money supply.

We will see, however, that both theoretical approaches are relevant to each objective. This adds to the complexity of trying to achieve the two simultaneously.

The circular flow of income and full employment

Chapter 9 showed how an economy reaches equilibrium when injections and withdrawals in the circular flow of income are equal. National income and output (they are the same) will then remain stable. Producing output requires workers, so increased national output implies more workers. It follows that in the circular flow there will be a national income that delivers full employment.

Full-employment income is an important idea. National income can change if withdrawals or injections change, and governments, we know, can affect either through taxation and spending. They can, therefore, as part of their macroeconomic policy aim for the national income that delivers

full employment. If national income and output are below full-employment income the government can either increase government spending to boost income in the circular flow or, if it prefers, cut taxes. Both will increase national income and so cut unemployment.

Cutting taxes to cut unemployment

If a government cuts income tax, households have more to spend on the goods of domestic firms, who then employ more workers. This is the first-round effect of the tax cut.

But as firms have employed more workers, household incomes increase, and household spending rises further. This is the second-round effect of the tax cut that causes firms to want to employ even more workers. And so it continues.

Each time, however, some of the increased household income is withdrawn from the circular flow either as savings or spending on imports. So withdrawals, originally reduced when taxes were cut, start to rise again. Eventually, the economy returns to equilibrium where withdrawals and injections are equal.

In this process, the rise in income is higher than the original cut in taxes. The multiplier effect, as it is called, might mean that for every £1 in tax cut income increases by £2. The multiplier is then two. Governments must allow for this when deciding the size of tax cuts or increased spending it needs.

They must also consider the accelerator principle. This is the idea that when income increases after the government cuts taxes firms increase investment. They need extra capital to produce the extra output. The increased investment is another injection into the circular flow that causes income to rise.



Full-employment income

A crucial idea in the circular flow of income is the national income that delivers full employment. The market economy does not guarantee that income. Instead, the economy could settle at an equilibrium income below full-employment. In that case, unemployment persists.

Aggregate demand

In using fiscal policy to achieve full employment the government controls aggregate demand (AD), which, as we have seen previously, is the sum of spending in the economy represented by the equation:

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

In principle, the government can change any item in this equation to move national income towards its full-employment level.

Of the different forms of spending in AD, changing G has the obvious advantage that the government controls it directly. When G changes, the government has a better idea of how much AD will change. This cannot be said of the other forms of spending, which a government has to control indirectly.

AD usually rises more slowly than income increases. Economists put this down to households' marginal propensity to consume (MPC). This is the proportion of a change in income consumed. If income rose by £100 and households spent £70, the MPC is 0.7 or 70 per cent. Economists assume MPC falls when income rises because as households become better off they do not need as many consumption goods. Government must be aware, therefore, that it is unlikely all of a tax cut will be spent.

Economists also identify the average propensity to consume (APC) among households as the proportion of total income that is consumed. If household income is £10,000 and households spend £9,000, APC is 0.9. This falls as income rises because MPC falls.

Achieving full-employment income

Keynes' great contribution to economics was to show that equilibrium income in the circular flow need not be full-employment income. Before him, economists assumed the economy would automatically achieve full employment through the market. In particular, unemployment would be solved by wages falling. Keynes' analysis suggested that this would not work if AD was too low. When AD is too low at full-employment income there is a deflationary gap and cyclical, or demand-deficiency, unemployment results.

To offset inadequate demand, the government can use fiscal policy and either spend more itself or cut taxes to encourage others to spend more. By raising injections or cutting withdrawals income increases to a new equilibrium, which the government hopes will deliver full-employment.

As we saw in Chapter 11, the difficulties involved in conducting policy can mean that government policy will go wrong. If they raise injections too much, demand could exceed the economy's full employment output. The result, familiar from microeconomics, would be that prices rise pushed up by excess demand. Inflation ensues.

When AD exceeds that needed for full employment an inflationary gap occurs. The government then needs to reverse fiscal policy by cutting spending and/or raising taxes. AD falls, the government hopes, to a level that ensures full-employment income and cures the inflation caused by excessive AD.



Deflationary and inflationary gaps

A deflationary gap occurs if AD is below that needed for full-employment national income. Unemployment will result. The shortfall of demand required for full employment is the deflationary gap.

An inflationary gap occurs if AD exceeds that needed for full-employment national income. Inflation occurs as demand exceeds output. The excess of demand over that required for full employment is the inflationary gap.

Fiscal policy and automatic stabilizers

A government conducting fiscal policy to tackle deflationary or inflationary gaps engages in discretionary fiscal policy by making a conscious decision to inject spending or withdraw taxes from the economy.

Fiscal policy can also, though, act automatically. This happens through the effects of welfare benefits, and in particular unemployment benefits. If unemployment rises, in developed

economies welfare benefits increase. This helps to maintain household spending. Similarly, when an inflationary gap develops spending on benefits falls as unemployment falls. The increase in household incomes is moderated. Fiscal drag helps as well by increasing taxes if the government does not adjust allowances in line with inflation.

Automatic stabilizers reduce the pressure on a government to conduct a discretionary fiscal policy that keeps the economy in internal balance.

Tackling structural unemployment

The discussion above has suggested policies for curing cyclical unemployment. But the problem of structural unemployment concentrated in a particular industry or region requires microeconomic and not macroeconomic policies.

These could include subsidies to firms to recruit workers from the affected industries, government-sponsored retraining programmes for redundant workers, incentives to firms to relocate to affected regions, such as reduced rents on government-owned industrial properties, and the creation of special zones within an affected region, in which taxes are kept low and business regulations eased to reduce costs to firms.

Tackling structural unemployment with an untargeted macroeconomic fiscal policy could not ensure success in reducing it.

Unemployment and real wages

Unemployment caused by high real wages also requires different policy approaches. These will address anything compromising the labour market's ability to reach equilibrium employment. They could include minimum wages, trade unions negotiating higher wages for their members, employment legislation that protects workers' rights and pushes up firms' costs, or unemployment benefits that mean workers require higher wages to take jobs. This unemployment can be solved by reducing or removing such obstacles.



Real-wage unemployment

This is sometimes called classical unemployment. Nineteenth-century classical economists, such as Adam Smith, David Ricardo and John Stuart Mill, argued that wages should adjust downwards when demand fell. If they did not, this type of unemployment resulted.

Problems can arise, however, with this approach. First, the analysis is based on labour markets being perfect when, in practice, they are not. As we saw in Chapter 5, imperfections in labour markets can mean that unemployment is actually worse if firms exploit their market power.

Wages can also be 'sticky'. They do not fall even if labour is in excess supply. Trade unions, welfare benefits and minimum wages are blamed for this. But even without them, wage contracts are difficult to renegotiate, as they tend to be either open-ended or agreed for a fixed period. Workers and employers also find it difficult to negotiate a new real wage. They negotiate money wages, which are not the same.

Cutting real wages also has macroeconomic effects. If they fall, household consumption falls with resulting effects on the circular flow of income. Lower AD may cause cyclical unemployment and a downward spiral in the economy as policymakers argue for more real wage cuts when unemployment continues to rise.

Monetary policymakers have certain objectives – such as low inflation, output stability, and perhaps external balance – and certain instruments to be deployed in meeting their responsibilities, such as bank reserves or short-term interest rates. Unless it has only a single goal, the central bank is forced to strike a balance among competing objectives, that is, face up to various trade-offs.

A. Blinder (1998)

Monetary policy and full employment

In Chapter 10, we saw that the government, possibly through the central bank, can influence an economy's money supply by controlling interest rates. Central banks will be concerned

with how a changing interest rate affects both employment and inflation. The impact operates through a mechanism similar to fiscal policy. If interest rates rise, for example, it cuts household consumption. Many goods are bought using loans, particularly consumer durables such as fridges and computers. By making borrowing dearer, households spend less and AD falls with the effects we saw when considering fiscal policy.



Consumer durables and non-durables

Consumer durables are goods such as dishwashers and TV sets. They can be used many times. Non-durables are goods like food, fuel, and services. They are only used once. Household spending on these reacts differently to changes in government policy. Spending on consumer durables usually alters when household incomes change, while that on non-durables remains fairly constant. It is always possible to continue using an old dishwasher even if a new one might be desirable but households still need their dinner.

Higher interest rates also influence the price of other assets. If interest rates rise, asset prices fall, households are worse off, and so spend less. This wealth effect, as it is known, combined with reduced consumption due to higher borrowing costs, cuts demand.

Investment and interest rates

Interest rates also affect investment by firms. Like households, firms will usually borrow, in their case, to buy capital goods such as machinery and buildings. The result is the same: higher interest rates cut investment (I), which adds to the reduced AD brought about by falling C.

The link between investment and the interest rate was introduced in Chapter 5. The Marginal Efficiency of Capital had the usual downward-sloping demand curve for a factor of production. This link is, though, by no means definite. Investment is also affected by Keynes' 'animal spirits'. Entrepreneurs, he argued, invest if they feel the economy is going to do well in the future because demand is growing. They expect returns on their investment to be greater. Their feelings

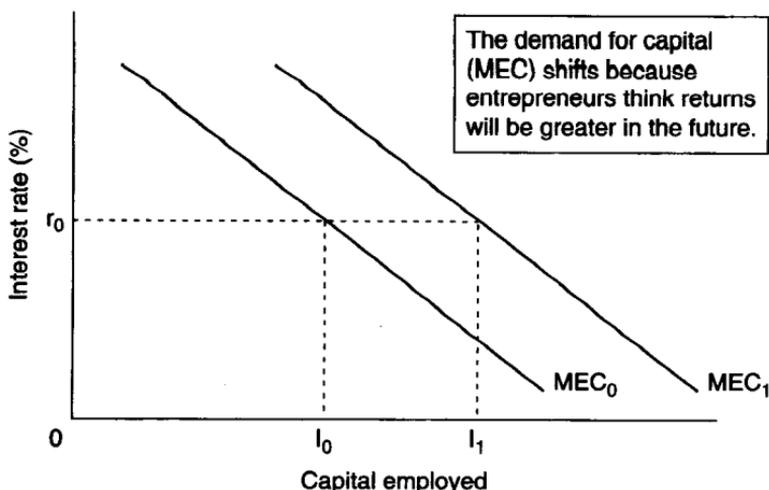


Figure 12.1 The effect of animal spirits

are their animal spirits. Investment can change, therefore, even if interest rates are unaltered. The effect is shown in Figure 12.1 by the movement of the Marginal Efficiency of Capital from MEC_0 to MEC_1 . At r_0 investment rises from I_0 to I_1 .

Trying to influence the animal spirits of entrepreneurs is harder than changing interest rates, as it involves human feelings that are difficult to control. But central banks do try to consider how changes in policy will affect both business and consumer confidence.

Interest rates and exchange rates

Rising interest rates can also cause exports (X) to fall and imports (M) to rise through the effect on the exchange rate. We look at the mechanism in Chapter 14, but here we assert that higher interest rates increase a country's exchange rate.

This affects X and M as follows. If the exchange rate rises from $\text{£}1 = \$1.50$ to $\text{£}1 = \$2$ because of higher interest rates, a British good priced in sterling at $\text{£}200$ that previously cost an American $\$300$ (200×1.50) now costs $\$400$ (200×2). Americans cut their demand for British goods (X falls). In contrast, a US import into the UK priced at $\$450$ previously cost a British

customer £300 ($450/1.5$) but now costs £225 ($450/2$). British customers increase their demand for US imports (M rises).

These effects and the others we have discussed mean higher interest rates cut AD as C , I , and X fall while M rises. As a result, unemployment rises and inflation falls. And when interest rates fall, the effects are reversed. Unemployment falls and inflation rises as lower interest rates increase AD.

Quantitative easing

A recent problem for central banks is what to do if interest rates become very low (less than one per cent), as happened in 2008 and 2009 and has been the case since. If, in this situation, a central bank still wants to boost the economy because AD and output are low, they cannot set negative nominal rates. Instead, they have used quantitative easing.

This involves the central bank buying financial assets, usually government bonds but also bonds issued by private companies. The bank buys these from the financial and non-financial sectors and so pushes up the price of bonds (supply and demand). A rising bond price cuts the return on bonds. Those holding bonds switch to other assets. But that cuts returns on those as well.

The central bank hopes that these cuts in returns across all assets are passed on as cheaper loans to households and firms who are borrowing for consumption or investment. The lending stimulates the economy by increasing AD as lending rises, by making people wealthier as the prices of financial assets rise (wealth effects), and by increasing confidence among firms and households that the economy is improving.

In addition, if those selling bonds deposit the money they receive in their bank accounts, banks can use the extra money to lend more and so increase AD. The only problem is that the financial crisis has meant many banks do not have enough liquid assets. Instead of lending they will simply increase their cash balances to reduce future risks. AD is then unaffected.

Quantitative easing causes the central bank to operate directly on the money supply rather than on the demand for money, as

it does when changing interest rates. The central bank controls quantity and not price. For this reason, quantitative easing is sometimes referred to as 'printing money', an expression that conjures up an image of somebody in the Bank of England turning out £10 notes on a printing press. Although quantitative easing differs from that image, the intended effect is the same.

The use of quantitative easing represents a shift in thinking about monetary policy caused by the lower limit (zero) below which interest rates cannot go in controlling the money supply. Keynes identified this problem as the liquidity trap. It was a problem once thought to have passed into economic history but it has returned.

Monetary policy and inflation

Although controlling the money supply affects employment, this approach has mainly been used to tackle inflation. The link between money and inflation is celebrated in economics in the Quantity Theory of Money.

In its simplest version, the theory states that the money supply determines average prices. If authorities (government or central bank) allow the money supply to increase, household and firms spend more as money is spending power. The resultant higher demand pushes up prices.

A modern version of the theory, associated with Milton Friedman, proposes a link between the percentage growth in the money supply and the percentage increase in prices or inflation. To control inflation governments must then control growth of the money supply, an idea known as monetarism.

The relationship is not, though, quite one-to-one. First, output can rise. If it does, the increased demand is not entirely inflationary as supply has increased. Indeed, Friedman argued that as output tends to rise in an economy over time the money supply should grow in line with expected higher output to ensure enough money is available to finance extra trade.

The other possible mitigating effect on prices comes from the velocity of circulation of money. As the name suggests, it is the speed at which money is used. A £10 note will, for example, be

used a number of times in a year (speed is measured over time) in different transactions. The number of times it is used is its velocity.

Economists have argued that velocity is broadly constant or that any changes are predictable. But if it changes, it affects spending power. When it rises, the existing money supply is used more and spending power increases. A government that cut the money supply might find inflation unaffected if velocity increased to offset the reduced money supply.

Monetarism was a popular idea in the 1980s and applied by governments to tackle inflation. But cutting the money supply proved harder than had been expected and, in practice, the relationship between the money supply and inflation did not work well, partly because the velocity of circulation was not constant. It was also difficult to decide which measure of the money supply should be used. As we saw in Chapter 10, there can be many so choosing the right one is important.



The Quantity Theory of Money

The modern Quantity Theory of Money equation states that $MV = PY$ where M is the money supply, V the velocity of circulation, P the price level and Y output.

It can be expressed in terms of changes in the values. In that case, the change in the money supply matches the inflation rate (the change in P) provided V and Y do not change.

The equation is the Fisher equation or the Fisher equation of exchange. Irving Fisher was first to identify a version of the equation that included velocity. Fisher, however, referred to transactions instead of output, so his equation states that $MV = PT$, where T represents the number of transactions in the economy over a given time period like a year. T and Y are, though, closely related so the difference with the modern version is not so great.

As we saw in Chapter 11, Fisher has another equation named after him, confusingly also called the Fisher equation, so it is important to specify which one is being discussed.

Ultimately, monetarism seemed a victim of Goodhart's Law: once policymakers target a variable, the relationship upon

which the policy is based breaks down. Whatever money supply measure the government adopted, people started using forms of money not included in it. And so, like many economic ideas, monetarism fell from favour.

The trade-off between inflation and unemployment

The discussion of inflationary and deflationary gaps suggests a trade-off between price stability and full employment. To obtain one you must give up the other. This idea is captured in one of the most famous diagrams in macroeconomics, the Phillips curve shown in Figure 12.2.

The curve suggests that governments can select a combination of inflation and unemployment for the economy. Using fiscal and monetary policy, they reach a point on the curve that suits their normative assessment of appropriate rates for inflation and unemployment.

During the 1950s and 1960s, the relationship between inflation and unemployment appeared stable and governments, advised by economists, worked on the principle that a balance could be struck between inflation and unemployment. But in the early 1970s the stable relationship between the two started to break down.

Fortunately for economists, two of their number, Edmund Phelps (1933–) and Milton Friedman, had already identified

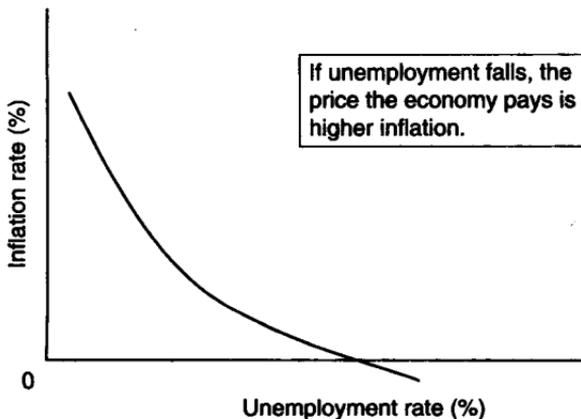


Figure 12.2 The Phillips curve

why the relationship might be unstable. They suggested that people would have an idea of what they thought inflation would be in the future. Economists call this the expected inflation rate or, more generally, inflationary expectations. It introduces the notion that inflation is a social-psychological phenomenon partly caused by what people expect it to be.



Discovering the Phillips curve

The economist A. W. H. Phillips (1914–75) identified the Phillips curve in the 1950s. He found that by plotting a scatter diagram to show a relationship between the rate of wage increases and unemployment over about 100 years, it would look like the curve in Figure 12.2. As wage and price increases in an economy tend to be linked to one another, inflation could replace wage increases on the vertical axis.

Expectations and the Phillips curve

Introducing expectations means inflation depends on two things: expectations about the inflation rate and excess AD such that:

$$\text{Actual inflation} = \text{Expected inflation} + \text{Demand inflation}$$

Demand inflation can be caused by government macroeconomic policy (either fiscal or monetary) pushing AD above full-employment income and producing an inflationary gap. Suppose a government has done this and it has led to 3% demand inflation in the current year. If people had expected inflation to be 0% that year, then in total actual inflation is 3%. But expected inflation is now affected. If we assume it is based on what people have experienced in the past, expected inflation will rise from 0% to 3% for the next year. Such expectations are called adaptive.



Expectations and inflation

If everybody in the economy thinks inflation is going to be 5%, they want their incomes to increase at that rate to maintain their real income. If they ask for this increase and get it, producer costs will rise by 5% and prices will do the same. The expectation people had about inflation has caused the inflation rate they expected. It is an example of a self-fulfilling prophecy.

Supposing as well the government adopted its policy to cut unemployment, which was, say, 5%, and the extra demand caused unemployment to fall to 2%. The government has moved along a Phillips curve by trading off 3% inflation for 2% unemployment. We assume the Phillips curve is a straight line along which the trade-off between the percentage rates for unemployment and inflation is one-for-one. The assumption does not affect the basic argument.

In the 1960s, economists thought that was the end of the story. But they overlooked inflationary expectations. The rise in expected inflation to 3% has certain effects. To explore these, note that the cut in unemployment means previously unemployed workers have taken jobs. Remembering the upward-sloping supply curve of labour, this can only have happened if those workers thought real wages had increased. If not, they would have been working before the government introduced its expansionary policy.

In the example, workers thought real wages had increased by 3% as nominal wages increased by 3% and they expected inflation to be zero. Real wages had not, however, increased. They remained unchanged as rising prices cancelled out the higher money or nominal wages. The only reason workers thought real wages had increased was because of their earlier inflationary expectations. They were, in effect, tricked into thinking real wages had increased.

But people learn from their experiences (mostly) as happens here. In the next period, the workers who thought real wages were higher leave their jobs once they realize real wages have not risen. Their expectations about inflation have changed to 3% and they go back to being unemployed.

Unemployment returns to 5% but inflation is now 3% reflecting higher expected inflation. The government's expansionary policy only reduced unemployment temporarily. If the government still wants unemployment at 2% it must now tolerate inflation of 6%. The trade-off has changed. But if it did expand the economy again, expected inflation in time rises to 6% and unemployment would again return to 5%.



Rational expectations

Rational expectations about inflation mean that workers take into account all available information when estimating what they expect inflation to be. This information will include the nature of government macroeconomic policy. If the government tries to expand the economy, therefore, workers realize future inflation will rise and immediately adjust their expectations about inflation to the new situation. When money wages rise they are not tricked into thinking real wages have risen and the unemployed will not come into the workforce. The implication is that there will be no trade-off between inflation and unemployment even in the short run. Evidence suggests, however, that short-run trade-offs do occur and that assuming adaptive expectations gives better predictions.

The lesson for policymakers is that no long-run trade-off exists between unemployment and inflation. The long-run Phillips curve (LRPC) is a vertical line as Figure 12.3 shows. Any possible trade-offs are temporary and unemployment only stays below the rate associated with the long-run Phillips curve if inflation constantly rises. But that undermines the economy by disrupting money's functions as a store of value and medium of exchange.

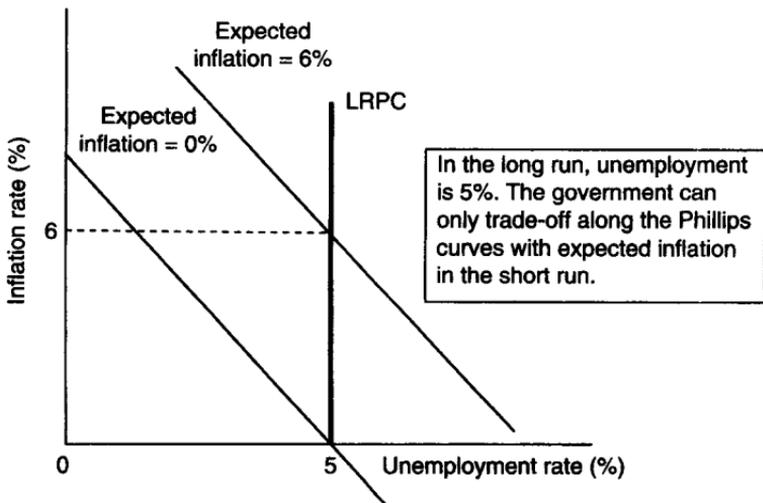


Figure 12.3 The long-run Phillips curve

The argument also suggests a government wishing to cut inflation must, for a while, allow higher unemployment. Only then are inflationary expectations reduced and, with them, actual inflation.

What Phillips discovered in the 1950s was one among a family of short-run Phillips curves that only applied as long as inflationary expectations were stable. Expected inflation had been low for many years (prices in the early 1950s roughly equalled those in the early 1920s) and for a while governments could exploit this. But once they did, it destroyed the relationship Phillips had observed as workers' inflationary expectations altered.



Expectations-augmented Phillips curves

Introducing expectations into the Phillips curve means that there is more than one short-run Phillips curve. Each implies a different expected rate of inflation against which a short-run trade-off between inflation and unemployment takes place. Figure 12.3 shows two. It also means the long-run Phillips curve is vertical and that no long-run trade-off between inflation and unemployment exists.



By a continuing process of inflation, governments can confiscate secretly and unobserved, an important part of the wealth of their citizens. By this method they not only confiscate, but they confiscate arbitrarily; and, while the process impoverishes many, it actually enriches some.

J. M. Keynes (1919)

Implications of the long-run Phillips curve

As we have seen, the LRPC suggests that a long-run trade-off between inflation and unemployment does not exist. It also suggests the economy is stuck with the unemployment shown in Figure 12.3 as the point where the curve cuts the horizontal axis. At that unemployment the economy could have any inflation rate determined by expectations about inflation. And inflation

remains unchanged as long as the government does not intervene. The unemployment rate associated with the LRPC is, therefore, the non-accelerating inflation rate of unemployment, or NAIRU for short.



The natural rate of unemployment

When Friedman first introduced the vertical Phillips curve he referred to the natural rate of unemployment rather than NAIRU. Although it is sometimes still adopted, usage of the term has declined over the years and been replaced with NAIRU. Many economists felt that the term 'natural' suggested that there was something proper or desirable about this unemployment rate. It seemed normative. The term NAIRU might not be as snappy but is a positive description of this unemployment rate.

The LRPC suggests two lessons for macroeconomic policy. First, the government should concentrate on keeping inflation as low as possible. Given the problems that inflation can cause, if the economy must accept a particular unemployment rate, the government might as well choose a low inflation rate rather than a high one.

Once a low inflation target is decided, and the government appears stuck with an unemployment rate it cannot influence, the government might as well give the country's central bank the independence to be responsible for controlling inflation. This has happened in many countries in recent years, including the UK in 1997.

There are benefits in doing this. Members of an independent central bank are unelected and, therefore, unaffected by undue pressure government ministers might feel to cut interest rates as an election approached. They will be unconcerned too about the benefits to government of inflation, such as fiscal drag. Evidence that this is so is that when the Bank of England became independent inflationary expectations fell. People assumed members of the Monetary Policy Committee set up to run monetary policy, would meet the inflation target set for them. And so it proved, at least until 2009.



(I) Inflation is greatly exaggerated as a social evil. Even while prices are rising year after year, the economy is producing more and more of the goods, services, and jobs that meet people's needs. That, after all, is its real purpose.

J. Tobin (1974)

The supply-side

Governments need not, though, be stuck with a particular NAIRU. They can adopt policies to cut it based not on using fiscal or monetary policy but on microeconomic ideas. This is because NAIRU does not depend on AD. It depends on how well the labour market is working. We have seen that frictional and structural unemployment can arise when labour markets do not work perfectly. It is these two types of unemployment that comprise NAIRU. To reduce it, governments can pursue a range of supply-side policies that make it easier for workers to take jobs.

As we saw in Chapter 11, policies to target frictional and structural unemployment could include government training programmes to improve workers' skills and make them employable; giving grants to the unemployed to attend job interviews and to help them move to other areas to take jobs; cuts in welfare benefits and changes to income taxes that make unemployment less attractive and employment more attractive; reducing trade union powers so workers find it harder to keep real wages up using industrial action; and changing employment laws so employers can dismiss workers more easily. Properly conducted, such policies can reduce NAIRU and shift the long-run Phillips curve to the left.

Supply-side policies are not, though, just found in labour markets. Other examples of policies to make markets more efficient include reducing regulations and bureaucratic requirements for businesses to cut their costs and make them competitive internationally; encouraging competition through control of monopolies and outlawing anti-competitive practices among businesses, such as the creation of cartels; privatizing government owned business organizations; encouraging business investment through lower tax rates on profits; and

making exporting easier for businesses by negotiating with other countries to cut restrictions on trade.

While these policies are targeted at markets for goods and services, they still affect labour markets by making employment likelier and will shift NAIRU to the left.

With supply-side policies, the tools of fiscal policy are used to make individual labour and product markets more efficient and so reduce NAIRU. Fiscal policy is no longer used to control AD. Meanwhile, monetary policy keeps inflation low by controlling interest rates. It was this allocation of policy instruments that applied in the period from the early 1990s until the 2008 global financial crisis.



The supply side and the demand side

As in microeconomics, it is possible in macroeconomics to talk of supply and demand. The supply side is concerned with how better to organize production to increase the economy's output. The demand side is concerned with how to manage demand to influence the economy's output. Tackling one side of the economy when it is the other where the problems exist is likely to make a government's macroeconomic policy ineffective.

Macroeconomic policy in the global financial crisis

As an application of Tinbergen's ideas about how to allocate policies, the allocation of monetary and fiscal policy to the two targets of price stability and full employment respectively, worked reasonably well until the global financial crisis of 2008. But during the financial crisis the idea that fiscal policy could offset an adverse shock to the economy came back into vogue. Keynesian policies to maintain demand had for many years been seen as old-fashioned. No wonder Skidelsky (2009), Keynes' biographer, talked of the return of the master.

The sudden crash in AD in 2008 and 2009 caused by banks failing and the unwillingness of other banks to lend meant that

governments sustained AD by spending more. Falling demand among households (C) and firms (I) was offset by increased government spending (G). At the same time, interest rates were cut to record lows, which also helped to maintain aggregate demand, a policy supported in some countries by quantitative easing.

The crisis also highlighted the existence of short-run Phillips curves. Unemployment rose rapidly when AD fell while inflation dropped and in some countries became negative. Policymakers were keen, though, not to allow the lower (sometimes negative) inflation rate to become the new expected inflation rate. They wanted to maintain positive inflation targets. Expansionary macroeconomic policy did this.

The AD equation was the basis for understanding many governments' approach to policy during this period. The understanding achieved by Keynes was credited with ensuring that the 2008 financial crisis did not become a Great Depression as happened in the 1930s following the financial crisis of 1929.

The policy, however, meant governments had to borrow because they were spending more without raising taxes. This created a large public sector deficit that worried many. In 2010 and 2011, governments in Europe and North America introduced deficit-reduction policies to cut their borrowing. These policies involved reducing G and increasing T. In 2011, unemployment rose and national income growth slowed in many countries as the circular flow of income model would predict.

Conclusion

Inflation and unemployment can each be tackled using fiscal, monetary and supply-side policies. How these policies are allocated between the two objectives has changed over time but a consensus emerged around the idea that monetary policy should primarily target inflation, and fiscal policy, if it plays a role at all, addresses full employment through microeconomic, supply-side policies in individual markets.

Controlling AD and expectations about inflation are important for achieving stable prices. They make a case for an independent central bank that targets price stability with monetary policy. Governments then use taxation and spending to maintain employment by helping markets, especially those for labour, work better.

Recent experience in many economies has, however, questioned this approach. Using fiscal policy to maintain AD, output and employment, has increased since the global financial crisis. Whether previous thinking among policymakers will limit the attraction of using fiscal policy once the crisis has passed is uncertain. But their dilemma shows how approaches to macroeconomic policy are not fixed. If any branch of economics confirms that theory continues to develop and affects how policy is conducted it is macroeconomics.



Fact-check

- 1 An economy is at full-employment national income. Which of the following would most likely cause inflation?
 - A lower taxes combined with higher government expenditure
 - B increased interest rates combined with reduced investment spending by firms
 - C falling exports
 - D increased savings among households

- 2 If an economy faces a deflationary gap:
 - A prices will probably be rising
 - B national income is likely to be below the full-employment level
 - C government expenditure can be cut without any effect on unemployment
 - D the government should increase taxes to avoid inflation developing

- 3 Classical or real-wage unemployment suggests that:
 - A a government should use fiscal policy to achieve its objective of full employment
 - B a government should use monetary policy to achieve its objective of full employment
 - C a government should at all times encourage real wages to rise to ensure that unemployment stays low
 - D real wages are above the market equilibrium rate and must fall if the government is to achieve its target of full employment

- 4 An appropriate policy for a central bank faced with high and persistent unemployment is to:
 - A buy government bonds from the private sector
 - B sell government bonds to the private sector
 - C raise interest rates by selling Treasury Bills to commercial banks at a lower price
 - D reduce the notes and coins it issues

- 5 Keynes thought that changes in 'animal spirits' could:
 - A cause unemployment
 - B reduce inflation

- C** increase investment
 - D** alter inflationary expectations
- 6** A central bank cuts the money supply but inflation is unaffected. This can only be because:
- A** the central bank has an error in its balance sheet
 - B** the economy's velocity of circulation of money has increased
 - C** the economy's velocity of circulation of money has fallen
 - D** output in the economy has decreased
- 7** The short-run Phillips curve suggests that when unemployment rises inflation:
- A** rises
 - B** stays the same
 - C** falls
 - D** first rises and then falls
- 8** Demand inflation in an economy, where expected inflation depends on past inflation, increases from zero to 4 per cent due to the government's expansionary fiscal policy. Expected inflation was previously 2 per cent. If the government takes no more action to expand the economy, the new long-run inflation rate will be:
- A** 2 per cent
 - B** 4 per cent
 - C** 6 per cent
 - D** 8 per cent
- 9** NAIRU, the non-accelerating inflation rate of unemployment, suggests:
- A** there is no long-run trade-off between inflation and unemployment
 - B** governments can use the trade-off between inflation and unemployment to achieve its desired combination of the two objectives
 - C** fiscal and/or monetary policies are effective in permanently reducing unemployment
 - D** inflation always returns to zero regardless of government policies

- 10** An economy is currently at NAIRU and inflation is 5%. Which of the following combination of policies is most likely to bring inflation permanently down to zero?
- A** the government cuts its spending and the central bank cuts interest rates
 - B** the government introduces policies to control trade union activity and the central bank cuts interest rates
 - C** the government cuts taxes and the central bank raises interest rates
 - D** the government raises taxes and the central bank raises interest rates.



Dig deeper

- 1** In a two-sector closed economy APC is 0.75 and investment is \$30 billion. What is the economy's equilibrium income? If investment rises to £35 billion and APC remains constant what is the new equilibrium income and value of the multiplier?
- 2** In the 1970s, the economist Arthur Okun (1928–80) created the misery index by adding together unemployment and inflation rates to measure how well an economy was doing in achieving price stability and full employment. The name comes from the fact that the worse the economy is doing, the higher the value of the index.

The table below shows inflation and unemployment rates for the UK economy from 1987 to 2010:

Year	Inflation rate	Unemployment rate
1987	4.2	10.8
1988	4.9	8.8
1989	7.8	7.2
1990	9.5	6.8
1991	5.9	8.4
1992	3.7	9.7
1993	1.6	10.3
1994	2.4	9.6
1995	3.5	8.6
1996	2.4	8.2
1997	3.1	7.1
1998	3.4	6.1

1999	1.5	6.0
2000	3.0	5.4
2001	1.8	4.9
2002	1.7	5.0
2003	2.9	4.8
2004	3.0	4.7
2005	2.8	4.6
2006	3.2	5.4
2007	4.3	5.3
2008	4.0	5.7
2009	-0.6	7.6
2010	4.6	8.5

Notes: Inflation is measured by the percentage change in the RPI. The unemployment rate is taken from the Labour Force Survey collected by National Statistics.

- a) Calculate the misery index for each of the years. In which years was the UK i) least and ii) most miserable on Okun's measure?
 - b) What other macroeconomic indicators could be used in a misery index apart from those discussed here?
 - c) Why might a negative inflation rate, which reduces the value of the index, be bad for the economy?
- 3** Using the data for the UK economy in question 2, plot a scatter diagram with inflation on the vertical axis and unemployment on the horizontal axis. *Note:* You should mark each point with the year to which it corresponds.

Does your diagram support the idea of short-run and long-run trade-offs between inflation and unemployment?

13

Achieving sustainable economic growth

Introduction

Previous chapters have shown how economic growth can be defined in theory and in practice. In theory, economists consider it to be the growth in the productive potential of an economy shown by movements in a production possibility frontier. In practice, it is growth in real Gross Domestic Product (GDP).

The economic growth rate measured by the growth in GDP claims to measure a country's economic success, by showing living standards have improved. Countries with high growth rates are considered successful; low growth rates signify relative economic failure and decline.

This sanguine view of growth is not, however, shared by all. Growth brings problems as well as benefits and GDP growth might not always reflect changes in the wider quality of life in a country's population. In this chapter we examine these issues and consider how sustainable growth might be achieved.

The business cycle

Economic growth tends to be unstable. Economists think of it as cyclical, an idea expressed in the business cycle. This shows growth tends not to be constant but follows a defined pattern like that in Figure 13.1.

In the growth phase of the cycle the economy grows at a sustainable rate. The economy's resources are enough to allow

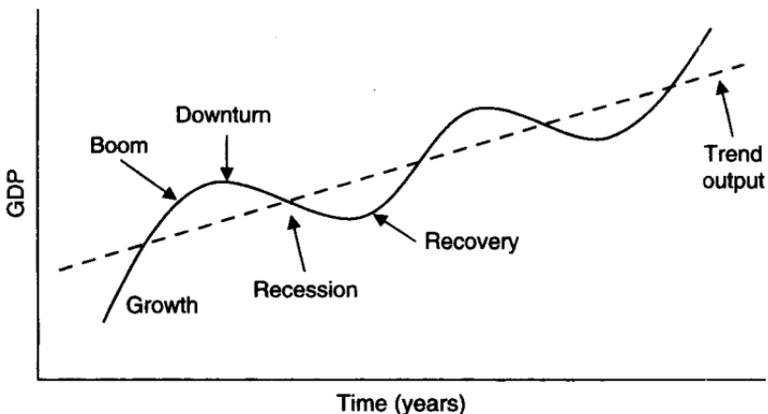


Figure 13.1 The business cycle

growth to continue. During the boom, resources come under pressure of demand and inflation starts to increase. This leads to a downturn in which growth rates start to fall and unemployment to rise. As the process continues the downturn can become a recession in which growth turns negative. Following a recession or downturn, the economy moves into the recovery phase. Growth becomes positive and moves towards the economy's trend growth. Employment picks up again as do living standards.

The business cycle suggests that while the output of an economy will grow over time it will not do so steadily. Growth fluctuates around a trend rate for the economy. This can make economic decision-making difficult for households and firms as they try to identify where the economy is in the business cycle. For many, it would be better if the economy grew at a steady rate.

The desire to dampen the business cycle has led to suggestions of countercyclical policies that reduce demand during a boom and raise it in a recession. That way, the cycle still occurs but is flatter. By increasing confidence among firms and households that bust does not follow boom, economic decision-making for the future becomes easier.

The problem with this is that it presupposes governments can identify where the economy is in the business cycle and conduct the correct countercyclical policy. Conducting policy is not, however, easy, as we have seen, and governments do get it wrong. If they do, they could worsen a boom by adding demand to the economy at the wrong time or worsen a recession by cutting demand at the wrong time. Judging the time-lag between introducing a policy and when it takes effect is difficult so such mistakes are easy for governments to make.



Recessions

The working definition economists use for a recession is negative growth in the economy's GDP for two successive quarters of a year. Recessions typically lead to rising unemployment and falling inflation. An exception is stagflation when an economy experiences both high inflation and unemployment. Inflation might continue at a high rate because of inflationary expectations.

Policymakers must also know where the economy stands relative to its potential output. Figure 13.1 shows the long run path of potential output as the economy's trend output.

The output or Okun gap measures the difference between actual and potential output. The bigger the gap, the greater the potential for future growth; the smaller it is the likelier the economy will soon face constraints that cause inflation and a downturn. Interestingly, a problem suggested by high recorded growth rates is that the economy is achieving these because previously unemployment of labour and capital was high. High growth can reflect past failure as much as present success.

That said, output gaps highlight another problem with recessions. Not only do output and income fall at the time, the economy's future potential output falls as firms close, capital is scrapped, and workers lose skills through being unemployed. The recovery might be weaker if the economy no longer has the potential to exploit increasing demand.



Potential output

It measures the output the economy could produce if all resources were fully employed. It tries to identify in practice the production possibility frontier. If actual output falls short of potential output, an output or Okun gap results.

Growth and living standards

Benefits from economic growth are especially obvious when comparing developing and developed economies. In 2010, the Democratic Republic of the Congo (DRC) had the lowest GDP per capita in the world at a little over \$300 per head in 2010 prices. The country had an infant mortality rate of 78 per 1000 live births (the second highest in the world), a life expectancy at birth of 53.7 years, a literacy rate among adults of 66%, and an education system in which only around half of all children attended primary school.

In contrast, the UK, a high-income, developed country, had an infant mortality rate of 4.85 per 1000 live births, a life expectancy

at birth of 79.8 years, a literacy rate of 99% and ensured education for virtually all children up to the age of 16. And when it came to goods, the DRC had 19 cars and 100 mobile phones for every 1000 people, the UK 458 cars and 1185 mobile phones.

The benefits of growth are that people in richer countries live longer, healthier lives, are better educated, and consume more goods and services that allow them to satisfy more wants. For poor countries, economic growth can solve the problems of extreme poverty from which they suffer.



An affluent society, that is also both compassionate and rational, would, no doubt, secure to all who needed it the minimum income essential for decency and comfort. The corrupting effect on the human spirit of a small amount of unearned revenue has unquestionably been exaggerated as, indeed, have the character-building values of hunger and privation. To secure to each family a minimum income, as a normal function of the society, would help ensure that the misfortunes of parents, deserved or otherwise, were not visited on their children.

J. K. Galbraith (1999)



Growth and unemployment

A growing economy would seem to imply falling unemployment. But every year workers become more efficient as they and their organizations learn how to work better. The quality of machinery also improves as the latest models include small changes that add to efficiency. This extra efficiency means that growth is needed to keep unemployment constant. Even if positive, if growth was too low to offset the economy's improving efficiency unemployment would rise. The economy would be in a 'growth recession'.

Apart from poor health and limited educational opportunities, these problems can include social and political conflicts that in extreme cases lead to deadly civil wars. In a civil war that has continued in the DRC since 1998 over 5 million people have died. Political scientists have suggested that below a threshold income (around \$7,000 a head) democracy becomes more

unstable and the DRC has suffered from political instability. Against this background, the case for achieving economic development through economic growth becomes compelling.



The Rule of 70

The 'Rule of 70' shows the time it takes for an economy's output to double. It is given in the expression $70/g$, where g is the average growth rate in the economy.

If economy A grows at 10% a year, output will double in $70/10$ or 7 years. A growth rate in economy B of 2.5% means output doubles in 28 years. If the two economies started at the same output, after 28 years Economy A's output, and so living standards, would be eight times higher than that of Economy B. Different growth rates can have major effects on living standards within a generation.

Achieving growth

Given growth's importance in maintaining employment in developed countries and encouraging economic development in developing countries, it is perhaps surprising that economic theory about what determines growth and how to achieve it is unclear. It is, though, possible to identify policies that economists generally recognize as important for encouraging growth.

An obvious route to greater growth is to increase labour and capital. More of both or either moves the production possibility function to the right. Governments can encourage this process by providing incentives especially for investment in capital. These can take the form of reduced taxes or targeted subsidies for firms that invest. For labour, they might be payments to those having more children.

It is not only the quantity of factors of production that counts, though. Quality is important too. And, economists believe, education can improve labour's quality. As all governments take some responsibility for providing education, this is an area where they can influence an important potential determinant of growth. Possible measures include spending more at all stages of education and adopting laws that require parents to send children to school until a defined minimum age.

A stable financial system in a country is also seen as important for economic growth. If firms and households, particularly in developing countries, are to develop economically they need access to funds for investment, which is an important engine of growth. They need loans from banks that are well-regulated and not liable to default because of excessive lending to other risky borrowers. This applies just as much in the developed world. Countries in Europe and North America found during the global financial crisis in 2008 that if confidence in the financial system falters then growth is seriously undermined. In 2009, many countries experienced negative growth rates in GDP because of damage caused to their financial systems by the crisis.

A system of legally enforceable property rights is also essential for the market system to deliver growth. Firms and households need to feel confident that their property will be protected. As noted in Chapter 2, market incentives only work if producers and consumers feel that they will reap the rewards of their efforts.

The importance of the market's role is apparent too in how foreign trade encourages growth. Countries open to trade have had higher growth rates than countries with relatively closed economies. Exposure to foreign competition among firms in an economy acts as an incentive to drive out X-inefficiency and allows firms to exploit their comparative advantage in world markets.



There is no doubt whatever that much of the work involved in manufacturing industry is unpleasant and dangerous, and that industrialization despoils natural beauty. But those who argue for a halt to economic growth on these grounds have failed both to notice that economic growth is directly linked to improvements in general standards of living – to cuts in infant mortality, for example – and to distinguish between the form which growth takes today and the form it might take if it were more rationally organized.

J. Eatwell (1982)

Pursuing export-led growth has generated high growth in various countries, especially those in south and south-east Asia. This contrasts with the experience in those countries that have pursued policies based on keeping out foreign competition with import-substitution policies. By protecting domestic firms, governments have found that firms become less efficient and unable to compete in world markets.



Export-led versus import-substitution: the case of India

From 1950 to 1991, the Indian government adopted policies of import-substitution and regulated markets. In 1991, reforms were introduced that encouraged the market to operate more freely. The effect on economic growth has been striking. The average rate in India between 1950 and 1991 was 2.1%. Since 1991, it has averaged 4.8%. There are no complete proofs in economics, but these are interesting statistics to reflect on when debating what determines economic growth.

The World Bank

A key institution for encouraging growth among developing countries is the World Bank. Set up in 1944, it had the task of tackling the problem of poverty in Europe following the end of the Second World War. It later extended this role to all developing countries.

The bank is owned by its 187 member countries. It takes funds deposited by member countries and passes them on to countries where they could encourage growth. The funds are usually made available as loans with low interest rates. Occasionally, funds are given as grants but these are relatively scarce.

Countries use the funds to invest in local infrastructure such as roads, dams, education and health, to assist with developing the financial system, to give loans to farmers and, more recently, to tackle environmental problems that might be hindering economic growth. In principle, the World Bank encourages investment activities that economists suggest support economic growth.

The bank has been criticized for not ensuring loans are used as intended and for over-emphasizing the market's role in developing countries. This idea, known as the Washington Consensus, has meant loans are often made on condition that that country's government sector is reduced. But if government spending was targeted at the poor through health and social programmes, these loans can adversely affect the poorest in the population.



The Washington Consensus

The consensus on how to encourage economic growth in developing countries was created by the World Bank and the International Monetary Fund (IMF), another international organization that provides support to countries around the world. Both organizations are based in Washington DC in the United States.

The consensus holds that to encourage economic growth a country needs to adopt policies that promote markets, privatize government-owned organizations, cut the size of the public sector in the economy, reduce the public sector's deficit, open the economy to free trade, and remove regulations in markets, especially those in financial services. Doing this, it is argued, will improve efficiency in the economy and create a platform for future growth.

The bank's use of GDP to measure economic progress has been criticized as well. As we saw in Chapter 9, GDP is not the only way to measure standards of living and quality of life.

The Human Development Index

The shortcomings of GDP and GNI as measures of well-being and development in an economy have led to alternative measures that use more criteria to assess quality of life. In Chapter 9 we saw how the UN's Human Development Index (HDI) is an important example of such a measure. It includes health, education, inequality and gender, as well as GDP, in measuring the economy's development and average standard of living.



Reducing inequality

Governments can reduce inequality using: progressive taxes with higher marginal tax rates for those on higher incomes; spending on welfare benefits to help the sick, unemployed and those with children; spending on health care, education and social services to assist those on lower incomes; regulation to help the poor through minimum wage legislation or setting limits on the ability of banks to pay very high bonuses to some employees.

The UN's particular concern is about how inequality affects development. The inequality-adjusted HDI (IHDI) introduced by the UN in 2010 includes the effects of inequality experienced by the average person in the economy. Inequality is assessed for the three parts of the HDI (the economy, health and education) to give an index that measures how inequality affects the country. Human development is adversely affected if the total benefits of development and growth are unequally distributed among the population.

Table 13.1 shows the HDI and IHDI for a selection of countries. As it suggests, more inequality reduces the recorded development of an economy. Governments need to consider using various instruments available to tackle inequality that we considered in Chapter 8 as a way of increasing the impact of growth on people's quality of life.

Country	HDI value	IHDI value
Costa Rica	0.744	0.442
Greece	0.861	0.649
Guinea	0.537	0.213
Ireland	0.908	0.701
Tunisia	0.698	0.480
Ukraine	0.729	0.526
United Kingdom	0.863	0.688
United States	0.910	0.587

Table 13.1 The HDI and IHDI for selected countries, 2011

Source: UN Human Development Report, 2011?

Happiness

In confronting the wider question of when people in an economy are better off, economists have begun to concentrate on happiness. They do so because economic activity aims not to increase GDP for its own sake, but to improve people's lives by making them happier. While economists have highlighted utility as a measure of well-being they have, until recently, paid less attention to people's happiness.

Happiness is defined as a feeling that a person has when he or she is enjoying life and wants the feeling to continue. Being highly subjective it is hard to measure, but some economists have argued that properly-designed questionnaire surveys can reveal people's state of happiness.

This contradicts the principle that economists prefer to observe what people do rather than listen to what they say. But in practice economists have found these surveys produce results that make sense. If, for example, people's answers are linked to their state of health, in general people tend to be happier if they are healthier. Similarly with incomes: higher incomes usually make individuals happier.

An interesting feature of such surveys is that they show increasing income per head in a country beyond a certain level affects happiness very little. In addition, people in many richer countries are no happier than those in poorer countries. Figure 13.2 demonstrates the nature of the link found in a number of studies. It is another example of diminishing returns.



Happiness and utility

Happiness is a state of mind which a person would wish to continue and unhappiness a state of mind a person would wish to bring to an end. Happiness is not utility, which is the benefit people receive from consuming goods and services. Utility might contribute to happiness but it does not define it.

Figure 13.2 is surprising set against the idea that individuals generally become happier as their incomes rise. If this is so,

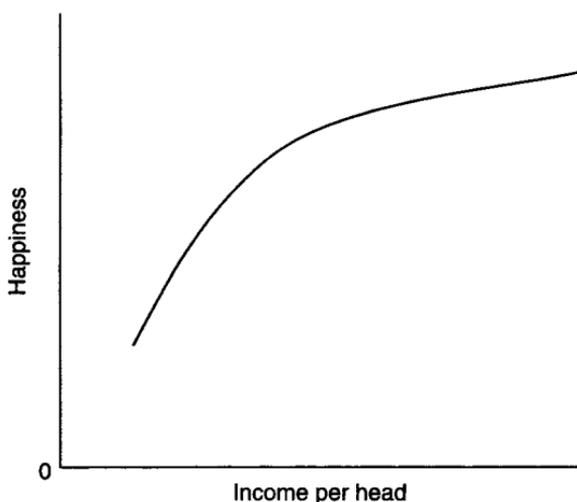


Figure 13.2 Income and happiness by country – a typical picture

we might expect that countries as a whole should continue to experience rising happiness as GDP increases. But that does not happen. It is called the Easterlin paradox.



(T)he chief sources of social welfare are not to be found in economic growth per se, but in a far more selective form of development which must include a radical reshaping of our physical environment with the needs of pleasant living, and not the needs of traffic or industry, foremost in mind.

E. J. Mishan (1967)

The paradox can be explained by how other people's incomes are as important in determining an individual's happiness as their own. If my income rises it makes me happier but only if nobody else's rises. If everybody else's income rises at the same rate as mine I will be no happier.

One interesting conclusion from what economists have discovered about the link between happiness and income is that once income per head in a country reaches a certain point (where the curve in Figure 13.2 bends), further increases in

income per head are futile in a society interested in happiness. It is better to have more leisure time to enjoy life.

The idea of the hedonic treadmill supports this view. If everybody tries to become better off than everybody else, ultimately only a few get ahead. We all work hard on the treadmill and produce more but only to stop our happiness falling when others get ahead of us. It would be better for everybody if we all worked less and had more leisure. In the end, each of us would be as happy, if not happier.

This result applies at the macro level too. Reducing inequality with, for example, more progressive taxation will make society happier. Those on higher incomes might be less happy, but the relatively poorer are happier because their relative position has changed.

The conclusion of the economics of happiness is that government's economic policy should not aim to increase GDP, which measures a society's welfare too narrowly. Instead, governments should measure happiness and pursue policies that increase it.



Following Bhutan

The country of Bhutan is well-known for being the first to embrace the idea that a country should focus government policy on increasing a measure of happiness rather than worrying about the growth of GDP or GNI. The government publishes an annual measure of 'Gross National Happiness', the growth of which they seek to maximize.

Not only Bhutan now does this, however. The former French president, Nicolas Sarkozy, asked a group of economists, which included two Nobel Prize-winners in economics, to devise a measure of well-being that reflected happiness. This is now used as part of assessing social development in France, although it supplements rather than replaces GDP as the measure of social welfare. The UK government is also examining the possibility of introducing a measure of happiness that could be used to assess policy.

Conclusion

Economic growth is a macroeconomic objective which, as the discussion in this chapter has shown, is not without its problems. Although it can be measured in the form of growth of GDP, the measure comes with problems. Economists have long realized that pursuing increases in GDP alone is not necessarily how to improve welfare. The development of the HDI and a growing interest among economists in measuring happiness reveal the concerns many economists have had about over-reliance on GDP as the measure of a country's economic welfare.

These discussions are a good example of how economists are not solely concerned with achieving increases in income. The work done on developing alternative welfare measures underlines the importance economists place on the wider satisfaction that people should achieve from economic activity. It also challenges the stereotype of economics as a subject that reduces human behaviour to a concern with money and material well-being and confirms the notion that it really is a noble calling.

At present, the debate about what might serve as a good alternative for both measuring economic development and providing a better focus for government policy continues. It is a debate that helps to make economics a fascinating subject. Until it is resolved, however, GDP and GNI, despite their limitations, remain the most-quoted ways of assessing economic growth and progress both in and between countries.



Fact-check

- Which of the following policies is most suitable for a government faced with a possible recession?
 - run a surplus on its own budget
 - raise income taxes
 - raise interest rates
 - redistribute income from the rich to the poor
- The standard definition of a recession used by economists is that the economy has experienced two successive:
 - years of falling output
 - quarters of falling output
 - quarters of a balance of payments deficit
 - years of a government budget deficit
- The following are all examples of the benefits economic growth can deliver EXCEPT:
 - the population's health improves over time
 - literacy among the population rises over time
 - the output of cars rises
 - social conflict increases as more goods are produced
- An economy growing at 4% per will see its GDP per capita double in approximately:
 - 12 years
 - 18 years
 - 27 years
 - 70 years
- Which of the following is NOT a feature of the boom phase of the business cycle?
 - increasing wages
 - low unemployment
 - high profits
 - falling interest rates
- To achieve long-term economic growth a developing country's government should pursue policies that:
 - increase the quality of education among the population
 - introduce controls on imports and exports

- C** subsidize consumer goods bought from abroad
 - D** reduce government spending on health services
- 7** When implementing policies suggested by the 'Washington Consensus', governments are required to:
- i)** Cut government spending
 - ii)** Remove regulations in the financial services sector
 - iii)** Impose taxes on imported goods
 - iv)** Privatize publicly owned organizations
- A** all of the above
 - B** none of the above
 - C** i), ii) and iii) only
 - D** i), ii), and iv) only
- 8** When measuring welfare in a country, the United Nation's Human Development Index does NOT reflect the effect on human welfare of:
- A** the status of people's health
 - B** economic well-being
 - C** damage caused by pollution
 - D** education levels attained
- 9** The relationship between happiness and income per head is an example of:
- A** the law of diminishing returns
 - B** the principle of comparative advantage
 - C** the law of demand
 - D** the multiplier
- 10** Making the tax system more progressive is likely to:
- A** reduce economic incentives among the rich and cause greater use of tax avoidance schemes
 - B** reduce happiness among the poor in society and increase it among the rich
 - C** increase the Gini coefficient
 - D** increase demand for luxury goods such as high-performance cars and gourmet restaurants



Dig deeper

- 1 What combination of policies would you recommend to a government wishing to control inflation but encourage economic growth?
- 2 The following table shows the growth rate of real GDP in six countries during 2010:

Country	Growth rate
China	10.3
Chile	5.2
Denmark	1.7
Norway	0.3
Spain	-0.1
Iceland	-4.0

Source: OECD

- a) Calculate the 'doubling' time for the countries with positive growth rates.
 - b) For each country, identify the phase of the business cycle in which it found itself in 2010.
 - c) What explains the growth rate each country achieved in 2010?
 - d) To what extent are the growth rates sustainable?
- 3 The countries in question 2 were ranked in a survey of happiness in 2006 as follows:

Country	World ranking	Growth rate 2006
Denmark	1	3.4
Iceland	4	4.7
Norway	19	2.3
Spain	46	4.0
Chile	71	4.6
China	82	12.7

Source: White, A., 'A Global Projection of Subjective Well-Being: A Challenge to Positive Psychology', *Psychtalk* 56 (2007), pp 17-20; OECD

- a)** How do you explain China's low ranking in the happiness table?
- b)** Denmark was the happiest country in the world in 2006 even though growth was lower than in most other countries. Why might this be?
- c)** If the measurement of these countries' happiness were repeated today what would you expect to happen to their ranking?

14

The economy
and the rest
of the world

Introduction

No economy is an island, as the poet John Donne might have said. Instead, all economies will have a relationship with the rest of the world through international trade. Despite its importance, however, economic analysis often ignores the economy's international dimension or, as in this book, leaves it until the penultimate chapter. The main reason for this is that many of the ideas that apply in a domestic economy apply equally when analysing relations between different economies.

As a result, this chapter contains few new economic principles. Rather, we apply principles we have established elsewhere to problems that occur when the world consists of different national economies.



Why are economists free-traders? ... Support for free trade is a badge of professional integrity in a way that support for other, equally worthy causes is not. By emphasizing the virtues of free trade, we also emphasize our intellectual superiority over the unenlightened who do not understand comparative advantage.

In other words, the idea of free trade takes on special meaning precisely because it is someplace where the ideas of economists clash particularly strongly with popular perceptions.

P. Krugman (1993)

Reasons for trade

Trade occurs between countries for the reasons it occurs between individuals. As we showed in Chapter 10, if individual workers specialize in the division of labour, the economy benefits. So it is with countries. The global economy benefits from an international division of labour in which countries specialize in those industries in which they have comparative advantage or lower opportunity cost.

We can show this in an example that follows the economist David Ricardo who was the first to apply the principle of comparative advantage to countries. His world has two countries, England and Portugal, and they can produce cotton or wine.

	Cotton (million tonnes)	or	Wine (million litres)
England	80	or	20
Portugal	30	or	15

Table 14.1 Production possibilities

England can produce 80 million tonnes of cotton or 20 million litres of wine using its available resources, while Portugal, with the same resources, can produce either 30 million tonnes of cotton or 15 million litres of wine. The figures are displayed in Table 14.1.

England has an absolute advantage in producing both goods. It can produce more of both than Portugal with the same resources. But absolute advantage does not determine the good in which a country specializes. This depends on comparative advantage, or the relative opportunity cost of the two countries, which is as well for Portugal. Otherwise they could specialize in neither good.

From the production possibilities in Table 14.1, opportunity cost of each good in each country can be calculated by assuming a constant relationship between the outputs of the two goods. In England, giving up one million litres of wine allows 4 million tonnes of cotton production. The opportunity cost of one litre of wine is 4 tonnes of cotton (or $80/20$). In Portugal the opportunity cost of wine is two tonnes of cotton ($30/15$). As Portugal's opportunity cost of wine is lower, they have the comparative advantage in wine.

Similarly for cotton, the opportunity cost of one tonne of cotton in England is $\frac{1}{4}$ litre of wine ($20/80$) and in Portugal $\frac{1}{2}$ litre of wine ($15/30$). This time England has the comparative advantage in cotton. Each country then specializes according to where its comparative advantage lies.

We can now consider how specialization affects 'world' output. If the two countries do not trade, a state of autarchy (or autarky) exists, and output for each good is as in Table 14.2 We assume each country divides its resources equally between the two goods.

	England	Portugal	World Total
Cotton	40	15	55
Wine	10	7.5	17.5

Table 14.2 Output under autarchy

	England	Portugal	World Total
Cotton	80	0	80
Wine	0	15	15

Table 14.3 Output with trade and complete specialization

Now suppose they trade and each specializes completely according to comparative advantage. Table 14.3 shows the new outputs.

Table 14.3 suggests a problem. While world output of cotton is higher under free trade than autarchy (80 against 55) wine's output is lower (15 against 17.5). We cannot be certain the world is better off as the extra 25 million tonnes of cotton might not compensate the world for the reduced wine production.

We can deal with this by assuming England gives up 10 million tonnes of cotton and produces 2.5 million litres of wine instead (remember the opportunity cost of one unit of wine in England is 4 units of cotton). The new output figures are shown in Table 14.4. They confirm the world is better off by 15 million tonnes of cotton compared to autarchy.

Two conclusions follow from this example: trade benefits the world through higher output; and every country can be part of the international division of labour even if they have no absolute advantage in producing any good.



Comparative advantage

A country has a comparative advantage in producing a good when its opportunity cost is lower compared to other countries. A country does not require an absolute advantage to have a comparative advantage.

	England	Portugal	World total
Cotton	70	0	70
Wine	2.5	15	17.5

Table 14.4 Output with trade and incomplete specialization

Other explanations of trade

The principle of comparative advantage justifies countries trading with one another but does not show why countries have comparative advantage. The Heckscher–Ohlin theorem aims to do this as Ricardo did not.

The theorem suggests a country's comparative advantage comes in goods where they have large amounts of the factor of production needed to produce them. Countries abundant in labour, for example, have a comparative advantage in producing goods that are labour-intensive in production and require much labour to produce them. Countries rich in capital produce goods that are capital-intensive in production.

Supply and demand analysis explains why. In countries where labour is plentiful, its price is relatively low so the cost of producing goods requiring labour will be low. This gives the country its comparative advantage.



The Leontief Paradox

A celebrated problem with the Heckscher–Ohlin theorem was discovered by the economist Wassily Leontief (1905–99). He found the evidence did not support the theory. Instead, the United States, the country with most capital in the world, actually exported goods that were labour-intensive in production. The paradox has never been fully explained.

A form of trade comparative advantage cannot explain is that in similar goods between developed countries. For example, France sells Germany cars but Germany sells cars to France too. According to comparative advantage, only one country should specialize in cars.

One explanation is that monopolistic competition means firms in different countries produce slightly different goods. Consumers benefit from more variety of goods than if trade did not exist. UK consumers, for example, can buy different types of car from Germany, France and Spain, while UK producers export cars to those countries. Secondly, economies of scale create such trade. Large firms that dominate individual markets

through economies of scale compete with those from other countries in goods that are broadly similar. Again, the car industry is a good example. But whatever the reason for trade it is always considered to be beneficial.



Countries trade with each other because this enables them to participate in and to profit from the international division of labour. Not unlike businesses and individuals, each area specializes in those lines of economic activity to which it happens to be best suited and then trades some of its own outputs for commodities and services in the production of which other countries have a comparative advantage.

W. W. Leontief [1966]

Interfering with free trade

The principle of comparative advantage, like other explanations of trade, suggests trade benefits all. It is not a zero-sum game in which one country's gain is another's loss. But, despite this, governments sometimes intervene to stop or reduce trade.

We consider first how they can do this and then why they want to do it if free trade is beneficial.

Governments have three main ways of intervening in trade: tariffs, quotas and subsidies. These protect domestic firms from foreign competition and so are called protectionist measures. Protectionism is the term used when these policies are employed.

Tariffs are a tax on goods imported into a country. They can either be a percentage of a good's value (*ad valorem*) or a fixed money amount added to the cost of the good (specific). By increasing import prices, goods produced by domestic firms become relatively cheaper, the demand for imports falls and that for local goods rises. Domestic firms produce more, employ more workers and make more profits. The government also gains from the revenue it raises from the tariffs. Consumers, though, lose out. They could have bought the good more cheaply if it were imported. And less competition reduces the pressure on firms to innovate or become more efficient.



Protectionism

This occurs when governments use tariffs, subsidies and quotas to protect domestic industries from foreign competition.

In assessing a tariff's effects, economists believe society will be worse off. The increased import price due to the tariff cuts consumers' utility. Some goes to domestic firms and some to the government. But the rest is lost. The good's higher price with the tariff reduces equilibrium demand. The utility that consumers could have gained from consuming more disappears. This is the tariff's deadweight loss.

A similar analysis applies to quotas. With these, the government imposes a physical limit on the number of imports allowed into the country (for example, only so many tractors). The ultimate quota is a trade sanction where no imports at all are allowed from a foreign country.

Quotas cut the supply of imported goods in the market and so increase import prices and the prices of domestic goods. Domestic firms benefit by being able to produce more and make more profit at the higher price. The government, though, receives no revenue as they do with tariffs. Instead, the benefit of the higher price goes to foreign firms as higher profits on the imports they still sell. Quotas are not, for perhaps obvious reasons, as popular with governments. As before, consumers lose through higher prices that cause a deadweight loss.



Voluntary export restraints

A government seeking to introduce quotas can sometimes try to do this by agreement with the government of the foreign producers. They negotiate how many imports will be allowed. These are called voluntary export restraints (or VERs). The restraint might not be so voluntary but, regardless of that, a VER's effect is like a quota.

A famous example of a VER was that between the European Union and Japan. It controlled Japanese car exports to the EU from the 1970s until it was abandoned in 1999.

Subsidies to domestic firms leave the prices to consumers the same but domestic firms become cheaper relative to importers, who can still sell to the country but find it harder to compete. The subsidy, however, uses up resources in protecting domestic firms that have an opportunity cost. The resources could have delivered more benefits elsewhere in the economy with the goods being produced more cheaply by foreign firms. Again, subsidies damage the economy.

The case for protectionism

One attraction of protectionism for governments is that they can court popularity with domestic producers (workers and managers), who will benefit. While consumers lose and greatly outnumber producers, the smaller number of producers is actually an advantage. They can more easily organize as a group and lobby a government to introduce a tariff, quota or subsidy. Organizing large numbers of consumers is, in contrast, difficult. And losses from free trade for individual producers are likely to be greater and more visible than the gains from trade for individual consumers, which are generally small per head. In the political argument, producers have the advantage and, despite the economic case, are likelier to persuade governments.

For economists, the producer lobbying of governments is itself a waste of resources. Producers would do better if they tried to improve efficiency and competitiveness rather than urge governments to introduce or retain protectionist measures. This 'directly unproductive profit-seeking' (DUP) does not benefit society. It only safeguards producers' profits and ensures the deadweight loss from protectionism continues.

The 'infant industry' argument for protectionism suggests new industries in a country need protection. They cannot achieve the same economies of scale as established competitors in other countries. Only when these infants 'grow up' can they compete successfully. This argument is often applied in developing countries. The difficulty with it, though, is that these industries come to rely on being protected and seek to maintain their advantage using DUP. The infant grows up but only to become a sickly adult that still needs cossetting.



Trade or aid?

The question of whether to give developing countries foreign aid to encourage economic development, or to remove trade barriers and allow them access to markets in developed economies is a vexed one.

Foreign aid can encourage development by providing capital goods. It substitutes for local domestic investment that is unavailable because incomes are low. And new capital brings with it new ideas about production techniques that benefit the wider economy. But aid can be inappropriate for a country's needs, be tied to buying goods from a donor that may be poor value for the country, and may lead to a dependency culture that works against long-term growth. Opportunities for corruption can also result and aid can be diverted into the wrong uses.

In contrast, access to foreign markets allows a country to develop through export-led growth. Living standards increase as exports are an injection into the circular flow of income. Imports of capital goods paid for by higher incomes encourage development. The developing country's producers become more efficient by competing overseas, or they switch production to where they have a comparative advantage, usually in labour-intensive manufactured products. Producers do not waste effort on DUP and instead concentrate on production.

Protectionism is also justified for industries like steel, engineering or aircraft production, which are strategically important because the country needs them in war. If a country relied on foreign producers, goods might be unobtainable in war even though vital to the war effort. The counter-argument is that if these goods are strategically important, it would be more efficient to stockpile them during peace-time for use in war.

Protectionism might also be used against 'dumping' or 'predatory pricing', which is the selling of goods below the cost of producing them. This is seen as unfair competition for domestic firms. Foreign firms use the strategy to enter a market by charging a low price until they drive domestic competitors out of business. At that point, they increase prices to exploit their monopoly power.

Dumping is, however, hard to determine in practice. Establishing the cost of producing a good is difficult and firms might have

good economic reasons for charging at marginal cost that is below average total cost. Price discrimination – charging different prices to different consumers – is a recognized way for firms to maximize profits. And, of course, the foreign firm's prices might be lower because it has a comparative advantage.

Sometimes, foreign producers' prices might be lower because of subsidies from their governments. Again, this seems unfair to domestic producers, who find it hard to compete. But the subsidies mean domestic consumers can buy goods more cheaply. They are subsidized by the taxpayers of a foreign country who fund the subsidy. There is, though, the argument that a foreign producer could gain and exploit a monopoly.

Protectionist policies might be used to retaliate against trade barriers imposed by another country. This leads to 'beggar-my-neighbour' policies where governments successively raise trade barriers to keep out foreign competition and everybody ends up worse off. It happened in the world economy in the 1930s.

Protectionism is also justified by strategic trade policy, which suggests trade occurs between oligopolies that make excess profits and achieve economies of scale. A government can introduce a strategic trade policy using subsidies or tariffs to protect their oligopolies. That increases profits for the firms and, crucially, lowers prices for domestic consumers because of economies of scale.



Unfair competition

Economists have problems with this idea. If 'fair' competition means that foreign producers should only ever match the prices of domestic producers, it undermines the free trade principle. And it is hard to know who judges what is fair. If it is governments and domestic producers, they are hardly disinterested parties.

Notions of fairness can also be turned against a country. For example, UK producers might complain of unfair competition from Chinese producers who pay lower wages and charge lower prices. But UK producers might face similar complaints from US producers suggesting UK producers are competing unfairly in the US because of lower UK wages.

The problem, though, is retaliation. If governments of countries with their own oligopolists react by introducing protectionist measures, the strategic trade policy delivers no benefits. Instead, prices go higher as individual producers can no longer achieve economies of scale.

A final case for protectionism is the optimal tariff argument that applies to large countries like the United States. If such countries impose a tariff it can reduce prices in world markets. The tariff reduces demand for the good in the large country, which affects the world market significantly and causes the world price to fall. The large country benefits because it does not need to export as much to buy the same number of imports. This argument is advocated as the only one where a country's welfare improves with a tariff. But it only works if other countries do not retaliate, and they might.

GATT and the World Trade Organization

The General Agreement on Tariffs and Trade (GATT) was one of three multilateral organizations created by the Bretton Woods Agreement in 1944. The other two were the International Monetary Fund (IMF) and the World Bank. In the GATT, countries agreed to reduce tariffs between each other to encourage free trade and avoid the beggar-my-neighbour policies of the 1930s. It applied the idea that free trade is best for the world economy. It is another good example of economic theory driving institutional developments.

Since 1944, countries around the world have agreed cuts in tariffs in a series of negotiating 'rounds', usually named after the country or location where they began. With more countries in the world, they have become more complex and have taken far longer. The Uruguay round lasted from 1986 to 1994. The current Doha round began in 2001 and continues to the present-day (2012).

At the Uruguay round, the World Trade Organization (WTO) was finally created. It was written into the original GATT but

it took 50 years before it opened for business in 1995. The WTO took over GATT's role of ensuring countries stick to the agreement. It is the WTO's job to adjudicate when a country feels its producers are discriminated against by protectionist measures that contravene GATT.

GATT and the WTO have had success in reducing trade barriers. But that has led to countries being creative in finding ways round the rules by citing environmental or health standards as reasons for blocking imports. If foreign producers do not meet the standards of the importing country, governments have argued, they should not be allowed to export their goods.

Neither GATT nor the WTO has accepted this argument. If a country wishes to have lower standards, it is for them to decide. As long as consumers are aware of the situation, consumer sovereignty requires they decide if they wish to buy goods produced at lower standards and lower price or pay a higher price for goods produced at higher standards.



Under a system of perfectly free commerce, each country naturally devotes its capital and labour to such employments as are most beneficial to each. This pursuit of individual advantage is admirably connected with the universal good of the whole. ... By increasing the general mass of productions, it diffuses general benefit, and binds together by one common tie of interest and intercourse, the universal society of nations throughout the civilized world.

D. Ricardo [1971]

The balance of payments account

The balance of payments account records a country's annual trading and financial transactions with the rest of the world. In the UK they are reported in the United Kingdom Balance of Payments, or Pink Book. Like the Blue Book, we tell the book by its cover.

Table 14.5 summarizes the balance of payments account's main components. It follows international guidelines laid down by

-
- 1) Trade in goods + Trade in services = Trade in goods and services
 - 2) Trade in goods and services + Income from employment + Investment Income + Transfers = Current balance
 - 3) Current balance = Capital account + Financial account + Net error and omissions (the balancing item)
-

Table 14.5 Components of the balance of payments account

Source: UK Balance of Payments – The Pink Book, National Statistics

the International Monetary Fund (IMF). Comparing different countries' balance of payments accounts would be hard if they were not prepared using similar methods. A positive sign (+) in the accounts shows money coming into the UK; a negative sign (-) money going out.

The current balance (or balance on the current account), sometimes lazily referred to as the balance of payments surplus or deficit, shows whether the country has obtained enough money from exports, income from employment and sales of assets like shares, and transfers of money (e.g. from the European Union), to pay for its imports and other money going out of the country. A positive figure for the current balance is a surplus, a negative a deficit.

The remainder of the account identifies where money from a current account surplus went or how a deficit on that account was financed. The capital account represents transactions in non-financial assets, such as property, land or business assets abroad, which led to money entering or leaving the country. The financial account covers trading in financial assets like shares or other financial instruments. By trading in these, UK residents offset a deficit or dispose of a surplus like the person managing his or her personal income can offset imbalances between their income and their spending.

In principle, the sum of the capital and financial accounts should exactly match the current balance. But in practice it does not because of difficulties in measuring the many transactions that comprise the accounts. As in the national income accounts, therefore, a figure is included to ensure the account balances: 'net errors and omissions'.



Balance of payments surpluses

Surpluses on the current account are often seen as good. But they are only money. While it might benefit the country in the long-term, in the short-term the surplus has an opportunity cost of forgone real uses, e.g. building schools or hospitals.

The exchange rate

Countries trading with one another use money rather than barter to exchange goods. But as different countries use different currencies, firms or households buying a good from another country must exchange their own currency for that of the foreign producers, who will want to be paid in their own currency. The agreed rate at which one currency is exchanged for another is the exchange rate.



Direct and indirect quotes

In the UK, the exchange rate is usually quoted as the amount of foreign currency obtained for one unit of the domestic currency, the pound. For example: £1 = \$1.60. This is an indirect quote. In most other countries a direct quote is used. This gives the amount of the domestic currency needed to buy a unit of the foreign currency, e.g. \$0.75 = €1.

In the UK, exchange rates are quoted in the form £1 = €1.20. A UK resident must pay £1 to obtain €1.20. In Chapter 6, we saw that this makes the exchange rate the currency's price and that like any other price, supply and demand determine it. (This might be a good time to revisit that discussion.) One point not covered in Chapter 6, however, was why curves shift and alter equilibrium in this market.

An important reason is when a country's prices change. The idea, captured in the purchasing power parity (PPP) theorem, is that the exchange rate must ensure the purchasing power of two currencies is the same in two different countries.

The theorem supposes there is a basket of goods, the cost of which can be valued in the two currencies. For example, a basket of goods might cost \$300 in the US and £150 in the UK. According to the PPP theorem, these costs imply an exchange rate of £1 = \$2. Purchasing power of the currencies – the amount of goods they can buy – is the same in each country.

The result follows from arbitrage: buying in one market to sell at a profit in another. If, in our example, the exchange rate was not the PPP rate but £1 = \$1.50, US residents could buy the basket of goods in the UK for the equivalent of \$225 ($150 \times \1.50). The goods could then be taken to the US and sold for \$300.



Arbitrage

Arbitrage is not limited to foreign exchange markets. It can occur in any market where buying in one location and selling in another at a higher price is possible. In financial markets, traders spend their time looking for arbitrage opportunities. These do not last long, though, when other traders are trying to do the same and, as happens in financial markets, information is widely available. Arbitrageurs, as they are called, must be quick-witted to make a living from this activity.

This would not, however, last. In our example, US residents would have to obtain pounds to buy the UK goods. As the demand for pounds and the supply of dollars in the foreign exchange market increase, the pound's value increases, or appreciates. In contrast, the dollar's value decreases, or depreciates. The process continues until the PPP rate of £1 = \$2 results when arbitrage is no longer profitable.

The PPP theorem shows why rising prices in a country, relative to those in other countries, causes the exchange rate to depreciate. If the cost of the UK's basket of goods rose to £187.50, the implied PPP exchange rate is now £1 = \$1.60 ($300/187.50$). The PPP theorem would predict that the pound's

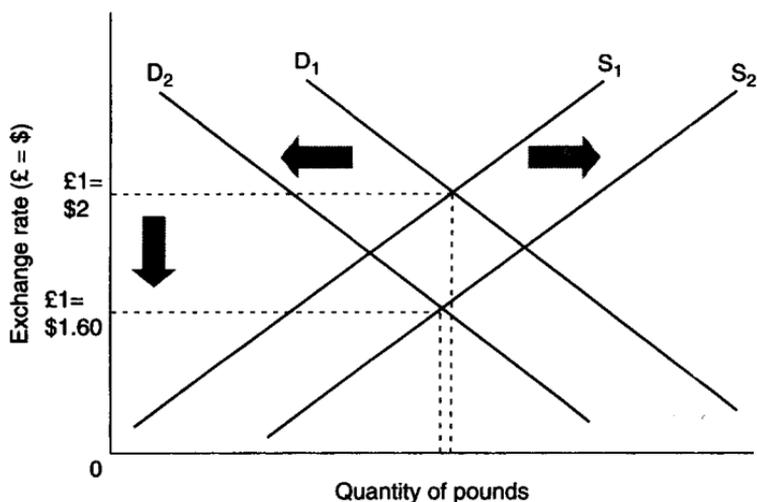


Figure 14.1 Changing prices

exchange rate will fall. Figure 14.1 shows this. As UK prices rise, US demand for UK goods falls and with it the demand for pounds. The demand curve shifts to the left from D_1 to D_2 . UK demand for US goods also rises as they are now relatively cheaper, causing an increased supply of pounds. The supply curve shifts to the right from S_1 to S_2 . The shifting curves move the market equilibrium from the original PPP rate of £1 = \$2 to £1 = \$1.60.

The PPP theorem can also be expressed using the rate at which prices are changing or the inflation rate. Other things being equal, higher inflation in a country relative to others causes the exchange rate to depreciate for the same reasons as the example above shows for price levels.

The other key influence on a country's exchange rate is the interest rate. If this increases as part of monetary policy, it attracts investors from other countries. Demand for the currency rises in the foreign exchange market and pushes up the exchange rate as Figure 14.2 illustrates with the shift from D_1 to D_2 .

Supply of the currency also falls as domestic investors cut investment abroad and invest at home instead. This effect on

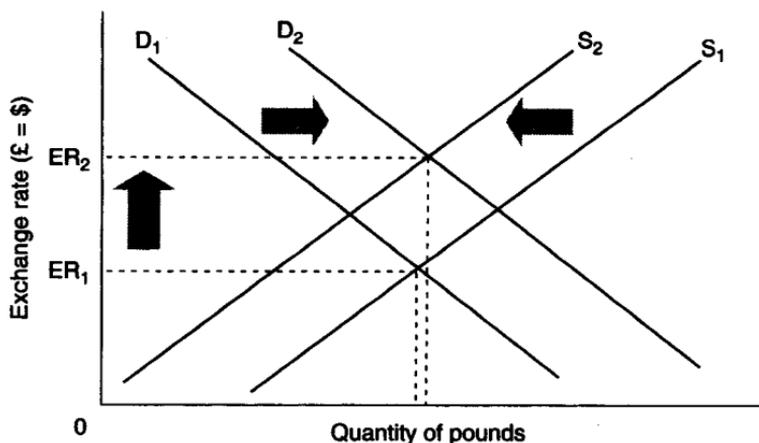


Figure 14.2 Increasing interest rate and the exchange rate

the exchange rate will, as discussed in Chapter 12, augment monetary policy's effect on AD.

The purchasing power parity theorem

Gustav Cassel (1866–1945) proposed the theorem, which states that an exchange rate between two countries should ensure the price of a basket of goods in the two countries is the same in each currency. If this is not so, arbitrage ensures the exchange rate adjusts until it is.

The exchange rate and the balance of payments

The exchange rate affects a country's export and import prices, and so its balance of payments current account. A high exchange rate can cause a balance of payments deficit by making exports expensive for foreigners and imports cheap for domestic residents. Similarly, a low exchange rate makes exports cheap, imports dear, and a balance of payments surplus results.

In principle, balance of payments deficits and surpluses should self-correct through market forces. A deficit implies the supply of pounds in the foreign exchange market for buying imports

exceeds the demand for pounds used to buy exports. And if supply exceeds demand price (the exchange rate) should fall. Exports then become cheaper, imports dearer, and the resulting changes in demand bring the balance of payments current account into equilibrium. When the foreign exchange market is in equilibrium so is the current account.

A possible complication, though, is the J-curve. Figure 14.3 illustrates the curve and why it gets its name. It shows the current account's path over time after the exchange rate falls. To begin with, the balance of payments deficit worsens because the lower exchange rate makes imports more expensive immediately. For a while, the country's producers and consumers continue buying them and the total cost of imports rises. Exports are cheaper for foreigners but it takes time for demand to rise. Eventually, the expected responses occur and the deficit is cured but only with a lag that could, in practice, be two or three years.

J-curves apart, it might seem governments do not have to worry about how to achieve their balance of payments objective. The market resolves everything. But, inevitably, it is not that easy. At any given time exchange rates are unlikely to be at their PPP equilibrium rate. They tend to 'overshoot' it. Governments cannot, therefore, rely on the exchange rate to solve balance of payments problems.

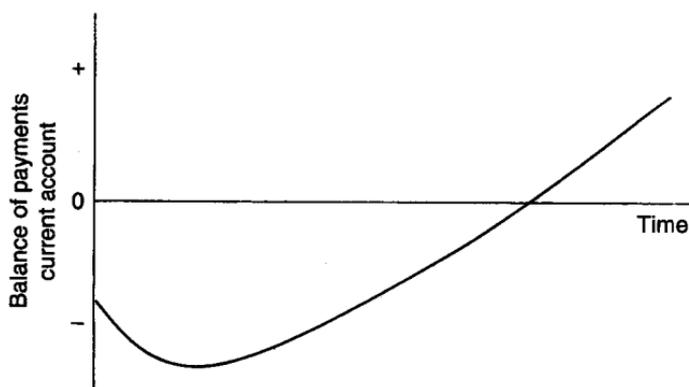


Figure 14.3 The J-curve

Instead, they might have to use fiscal or monetary policy. For example, a government could cut AD to tackle a deficit. This works by reducing the demand for imports. They are usually normal goods with a relatively high income elasticity of demand. Exports are unaffected, so the balance of payments account improves. This expenditure-reducing policy contrasts with using exchange rates to correct a balance of payments deficit, which is an expenditure-switching policy; spending switches from imports to domestic goods when the exchange rate falls.

A tighter fiscal policy could, though, cause the exchange rate to rise. The domestic currency's supply in the foreign exchange market falls as demand for imports falls. The resulting higher exchange rate could make exporting harder and offset the benefit of the reduced imports.

A government could, of course, tackle a balance of payments deficit using trade barriers to cut imports or boost exports. But, as we have seen, they reduce social welfare, might promote retaliation from other countries and their use breaches GATT. For these reasons, they tend not to be used to tackle balance of payments problems.



Expenditure-switching and expenditure-reducing policies

These are two types of policies available for curing a balance of payment deficit. Expenditure-switching policies change the relative prices of a country's exports and imports through the exchange rate changing. Expenditure-reducing policies use fiscal and monetary instruments to cut income and so reduce the demand for imports.

Fixed and floating exchange rates

If markets determine exchange rates, the assumption is that two key criteria determine the rate: prices and interest rates. The government plays no role. Exchange rates are said to be floating.

Floating exchange rates, however, can mean that if a government uses interest rates for domestic reasons and the exchange rate changes other economies are affected. A falling

pound against the dollar, for example, puts US producers at a disadvantage. Changing the exchange rate through interest rates can, like trade barriers, be a 'beggar my neighbour' policy.

This problem has motivated attempts to introduce fixed exchange rate systems in the world economy in which governments agree to maintain a certain value for their currency by intervening in the foreign exchange market. The famous case of this was the Bretton Woods system set up in 1944, in which countries agreed that the IMF should oversee a fixed exchange rate system. Exchange rates were fixed in value against the dollar and could only be changed in special circumstances that had to be agreed with the IMF.

In fixed exchange rate systems, governments maintain the exchange rate using either fiscal policy or by intervening in the foreign exchange market using foreign exchange reserves, the stocks of other currencies usually held in the country's central bank. A central bank can buy their currency in the foreign exchange markets with the reserves if its value is falling. The increased demand offsets the forces causing the fall in value.



Devaluation and depreciation; revaluation and appreciation

These terms are used when discussing exchange rate changes. Devaluation occurs when a currency's value falls in a fixed exchange rate system from one fixed rate to another; revaluation occurs when it rises. Depreciation and appreciation refer respectively to a fall and a rise in the exchange rate when it is floating.

In reality, such market intervention can only work for a time, as reserves would run out. Before that happened the government would either use fiscal policy to cut demand or decide it should fix its currency at a lower exchange rate.

Even though no international fixed exchange rate system now exists, groups of countries have combined to create fixed systems between themselves. One of these was the European Monetary System (EMS) introduced in the European Union

(EU) in 1979. The EMS fixed the exchange rates of some EU member states in what was called the Exchange Rate Mechanism (ERM).

FIXED EXCHANGE RATES: PROS AND CONS

The benefits of fixed exchange rates are that they:

- ▶ Offer certainty to those trading as they know the future exchange rate and can estimate the benefits of trade with confidence.
- ▶ Limit competitive devaluations of currencies as everybody must stick to the rules.
- ▶ Force a discipline on firms to control costs as countries cannot tackle lost competitiveness caused by inflation by reducing the exchange rate.

But these systems:

- ▶ Often require deflationary policies that cause unemployment to rise.
- ▶ Impose unequal demands on countries with balance of payments deficits compared to those with surpluses.
- ▶ Require governments to hold reserves of foreign currencies that have an opportunity cost.
- ▶ Find it difficult to determine each country's equilibrium exchange rate.

FLOATING EXCHANGE RATES: PROS AND CONS

The advantages of floating exchange rates are that they:

- ▶ Deliver, in principle, balance of payments equilibria automatically without government intervention.
- ▶ Do not require governments to hold reserves of foreign currencies.
- ▶ Allow governments to use interest rates to achieve full employment and control inflation without having to worry about how the exchange rate reacts.

But they also:

- ▶ Create uncertainty for those engaged in foreign trade.
- ▶ Are prone to the problem of overshooting exchange rates.
- ▶ Can cause inflation to take hold if governments use depreciation to offset inflation's effects on international competitiveness.



Fixed and floating exchange rates

A fixed exchange rate system requires the government to maintain the exchange rate either against another currency or a basket of currencies by intervening in the foreign exchange market. A floating exchange rate is determined solely by the market; it applies the principle that markets produce the best outcome for society.

The euro

The EU created the euro in 1999 as a single currency to be used by member states. Eleven countries joined when it began. By 2012 the number had increased to 17 of the EU's 27 members and 6 other states outside the EU such as Monaco and the Vatican City.

From an economic perspective the euro is a permanently fixed exchange rate between the member countries. They can no longer devalue or revalue their currencies as was possible in both the Bretton Woods system and the EMS. Given this, the euro brings with it the pros and cons of fixed exchange rates outlined above.

But it brings other benefits and costs too. On the plus side, firms or travellers no longer have to exchange currencies or pay commission charges; it is easier to observe price differences between countries; it encourages competition and trade, as consumers respond to price differences; it encourages closer economic ties between EU countries; and, many still hope, reduces Germany's economic power.

The euro also commits countries to a system designed to keep inflation low. The currency has its own central bank, the European Central Bank (ECB), whose task is to use interest rates to control inflation in what has become known collectively as

the eurozone (those countries using the euro). The requirement for low inflation was important to ensure that Germany, in particular, joined the euro.

Among problems with the euro were some one-off costs in switching currencies such as converting tills, revaluing deposits held by financial institutions, the menu costs of changing prices, and other administrative changes. But these were minor compared to longer-term problems.

Chief among these is loss of economic sovereignty. Governments no longer control interest rates, which are important in macroeconomic policy. It means that all countries have the same interest rate. But the ECB has been unable to achieve a 'one size fits all' interest rate for all eurozone countries. This has had damaging consequences. In the 2000s, interest rates in Greece, Ireland, Portugal and Spain were arguably too low for economic conditions. This led to excess demand for loans that stoked property booms and excess government borrowing. Serious long-term economic problems now plague these countries as they try to cut government debt and tackle the aftermath of their property booms.

Conclusion

Trade's importance in increasing production and consumer welfare in national economies brings with it a need for an exchange rate system, either fixed or floating, that allows countries to exchange goods and services. At present the system is broadly floating although governments do at times try to manage the exchange rate by intervening in the foreign exchange market.

The boost to international trade given by GATT, and later the WTO, combined with the role of the IMF and World Bank, has also encouraged increasing economic ties between different national economies. These links have grown in two significant ways. First, through the process called globalization and, secondly, through the development of regional trading blocs which encourage trade between member countries. In the next and final chapter, we consider these developments and the benefits they might offer to the world economy.



Fact-check

The table shows production possibilities for two goods in two countries with the same resources and technology.

	Country X	Country Y
Cars	40	50
Oats	20	30

- Country X has:
 - an absolute advantage in producing cars
 - an absolute advantage in producing oats
 - a comparative advantage in producing cars
 - a comparative advantage in producing oats
- The Heckscher-Ohlin theory of trade states that a country:
 - only produces goods in which it has an absolute advantage
 - specializes in producing goods in which they have a comparative advantage determined by the factor of production it has in abundance
 - limits production to goods on which the government can impose import controls
 - specializes in producing goods in which it has an absolute advantage determined by the factor of production it has in abundance.
- The deadweight loss of a tariff on imports is defined as:
 - the utility consumers lose because import prices are higher exceeds the gains to domestic producers and the government
 - the utility consumers lose because import prices are higher exceeds the revenue government gains from the tariff
 - the utility consumers lose because import prices are higher exceeds the higher profits gained by domestic firms
 - the administrative costs the government incurs from imposing the tariff.
- Which of the following is not an economic argument for protectionism?
 - the existence of an 'infant' industry
 - the optimal tariff

- C** anti-dumping
 - D** the principle of comparative advantage
- 5** If a country's exchange rate falls relative to its competitors, the country's balance of payments will eventually:
- A** improve
 - B** deteriorate
 - C** remain the same
 - D** none of the above

Questions 6 and 7 are based on the table below, which shows a simplified version of a balance of payments accounts:

	\$ billion
Trade in goods	+200
Trade in services	-150
Income from employment	+10
Investment income	-35
Current transfers	-10
Capital account	-20
Financial account	?

- 6** What is the country's current balance?
- A** +200
 - B** +50
 - C** +15
 - D** -5
- 7** What is the balance on the Financial Account assuming no statistical discrepancy in the account?
- A** +5
 - B** -20
 - C** -10
 - D** +10
- 8** The purchasing power parity theorem of exchange rates suggests the exchange rate between two countries is determined by:
- A** prices ruling in the world's largest economy
 - B** relative prices for all goods in the two economies
 - C** relative prices for all traded goods in the two economies
 - D** the power of the governments in the two countries to fix the exchange rate.

- 9** An economic argument in favour of the euro is that it:
- A** helps to maintain full employment by allowing countries using it to change the currency's value
 - B** gives governments full control of domestic monetary policy
 - C** ensures competitive devaluations are impossible between countries
 - D** allows poorer countries like Greece to borrow what they like in international money markets
- 10** Which of the following supra-national institutions is most concerned with encouraging free trade in the world economy?
- A** The International Monetary Fund
 - B** The World Trade Organization
 - C** The United Nations
 - D** The World Bank



Dig deeper

- 1 The following shows production possibilities for cars and beef in two countries, France and Spain, with the same resources and technology.

	Cars (units)	Beef (kilograms)
France	10	800
Spain	7	700

- a) Which country has the absolute advantage in producing cars and which producing beef? Explain your answer.
- b) Which country has the comparative advantage in producing cars and which producing beef? Explain your answer.
- c) If the two countries trade using barter and the exchange rate between cars and beef is 1 Car = 120 kilograms of Beef, explain why the countries will not trade with each other.
- 2 *The Economist* magazine has for many years calculated a Big Mac Currencies Index. It tests the purchasing power parity theorem. The Big Mac is the common basket of goods. If a Big Mac's price is known in two countries, a PPP exchange rate between the two countries can be estimated using the local currency prices. This can then be compared with the actual rate in foreign exchange markets to see if the PPP rate applies. In July 2011, a Big Mac in Britain cost £2.39 and in the United States \$4.07. The exchange rate between the two currencies in the foreign exchange markets was £1 = \$1.5468. (*The Economist*, 28 July 2011)
- a) Why does *The Economist* choose the Big Mac to test the PPP theory?
- b) What was the PPP rate between the pound and the dollar in July 2011 according to the Big Mac Index?
- c) Based on your calculation, what should happen to the exchange rate of the pound in future? Explain the processes that will cause the exchange rate to change.

3 In February 2011, China complained to the WTO because the United States was imposing anti-dumping duties on Chinese shrimps. They complained again in July 2011 about similar anti-dumping duties on diamond-saw blades. In September 2011, the United States complained to the WTO because China was imposing anti-dumping duties on broiler products, a type of chicken. For more examples of such disputes, go to: http://www.wto.org/english/tratop_e/dispu_e/find_dispu_cases_e.htm#results

- a)** Why do countries use anti-dumping to justify imposing tariffs on another country's good?
- b)** Why might the United States have imposed these duties on Chinese imports of shrimps and diamond-saw blades?
- c)** Why might China have imposed duties on imports of broiler products from the United States?
- d)** How were the disputes settled between the two countries by the WTO?

15

Globalization and regional trading blocs

Introduction

Early in this book, we introduced the market economy as the efficient way to address the economic problem of scarcity and choice. The market requires no government involvement except creating and upholding laws that ensure everybody plays by the rules.

When discussing the market system's microeconomic benefits, we considered individual markets for goods and services situated within national economies. Likewise, when examining macroeconomic policy, the emphasis was on a national government's role and how it achieved its objectives for the economy. But in the last 40 years the world economy has seen the declining relative importance of national economies. Globalization and regional trading agreements or blocs have undermined them.

Economic ideas about the benefits of free trade and the market lie behind both these processes so, in discussing them, we can use principles we have applied previously. We have come full circle and returned to examining the market's role in the economy, which was where we started in Chapter 2. It makes this final chapter a fitting conclusion.

What is globalization?

Globalization can be defined in various ways but for most economists it means growth in trade of goods and services and increasing financial and capital movements between national economies. These capital movements include foreign direct investment (FDI): investment by foreign firms in productive capacity, such as factories, to produce in another economy.

As globalization has progressed, factors of production have become more mobile and national economies increasingly integrated. Table 15.1 uses two measures of globalization to show how it has progressed in the second half of the twentieth century.

World Merchandise Exports as Percentage of GDP

Year	Percent
1820	1.0
1870	4.6
1913	7.9
1929	9.0
1950	5.5
1973	10.5
1998	17.2

Foreign Assets as Percentage of GDP

Year	Percent
1870	6.9
1913	17.5
1930	8.4
1960	6.4
1980	17.7
1995	56.8

Table 15.1 Globalization of the world economy

Source: Crafts (2004)

Politics and globalization

Although globalization is an economic phenomenon it is also political. Political activists have protested at WTO ministerial meetings, most famously in Seattle in 1999, against globalization's adverse effects and its anti-democratic nature. Activists have come from environmental groups, trade unionists, anarchists and non-governmental organizations concerned about the poor in developing countries. Their actions have brought the idea of globalization to a much wider audience. But while their ideas contribute to the debate about globalization the argument here is restricted to economists' views.

The trend towards freer trade promoted by GATT and the WTO since their formation has encouraged globalization. But other forces have been important. These include improved communications technology, reduced transport costs, and national government policies that have removed controls on capital movements and emphasized the market's importance for allocating resources both domestically and internationally.

Globalization is not, however, a new phenomenon. Its 'first wave' occurred before the First World War and reached its crest in 1913. That wave was reversed by the First World War and then by events in the 1920s and 1930s when beggar-my-neighbour policies undermined the international trading system. Both measures in Table 15.1 only returned to their 1913 levels in the 1970s. This teaches us that globalization is not inevitable; it can, as happened before, be reversed.



Globalization

Globalization is the growth in trade of goods and services between national economies and increasing financial and capital movements between countries, including FDI. Removing trade barriers stimulates trade and deregulation encourages capital movements in financial markets. In principle, globalization should be associated with free movement of labour but that has been a less significant part of globalization to date.



When economists oversell globalization by presenting an incomplete case for it, they not only lose an opportunity to educate the public, they also lose credibility. They become viewed as advocates or as hired guns for the 'stateless elites' whose only interest is to remove impediments to their international operations. This wouldn't be all that bad if economics didn't have a lot to offer. Applied with a good dose of common sense, economics would have prepared us for the flaws we have experienced in globalization.

D. Rodrik (2011)

Benefits of globalization

Globalization is the working out of specialization as a principle on the world stage. Its main benefit, therefore is the higher output that increased specialization brings. Countries produce according to the principle of comparative advantage and trade with others for mutual gain.

Globalization also brings increased consumer choice and lower prices. Firms face extra competition that pushes down prices. Consumers can benefit from producers gaining economies of scale and cutting costs. This happens even if competition is reduced as markets become dominated by oligopolies. Multinational corporations (MNCs) have often driven these changes as they cannot only produce on a large scale but are able to take advantage of low-cost locations around the world. Consumers then benefit from the resultant lower prices.



Multinational and transnational corporations

These are companies based in more than one country that are vehicles for FDI. Although not necessarily large, they often are. The problems of co-ordinating activities in different countries with different laws, business regulations and cultures mean that only large companies have the resources to cope with the complex problems.

MNCs are normally based in one country, usually where they were founded, and their senior management tends to be dominated by managers from that country. In contrast, transnational corporations (TNCs) have no national base, prefer to locate their head office activities in different countries, and will be run by senior managers from many countries.

Despite these differences, the economic effects of MNCs and TNCs tend to be similar.

The costs of globalization

MNCs can be seen as a problem of globalization. Their size makes them a threat to national governments; many MNCs have total annual sales that exceed the GDP of many national economies. They can use their economic power to control governments either legitimately or through bribery and other forms of corruption, and can influence national laws and regulations to suit their own economic interests. These problems are thought to apply especially in developing countries where governments are less able to cope with the power of these large

organizations. But even in developed countries, MNCs can be dominant forces.

Globalization can also reduce national diversity. The world becomes a standardized place where it is possible to buy the same soft drink or fast food anywhere in the world while local produce that made countries different is no longer available. The standardization of goods and lack of cultural diversity make the world a less interesting place. That said, of course, if people want diversity, the market could provide it.

Regulatory arbitrage can be a problem too. In a globalized economy, businesses particularly, but also individuals, can move their economic activities to countries with easy regulations and where taxes and other costs are lowest. Faced with this, governments might ease regulations below what they might have preferred to keep businesses in their country.



The global financial crisis and regulatory arbitrage

Regulatory arbitrage, it has been suggested, contributed to the global financial crisis in 2008. Weakly-regulated banks made risky loans that a strong regulator might have stopped. But the banks had ensured they were not tightly regulated by suggesting that they would leave any country that regulated them too tightly. Since the crisis, and in response to the problem of regulatory arbitrage, governments have attempted to agree tighter regulations that would apply in all countries. It remains to be seen if these will be enough to end regulatory arbitrage and so help avoid another crisis.

The logical conclusion of regulatory arbitrage is a world government to oversee the globalized economy, as national governments oversee national economies. But the idea is almost certainly utopian for the foreseeable future. Rather, what we have is a world where national governments seek to control businesses and individuals by creating agreements with each other. An important way they have attempted to do this is by combining in regional groups, or trading blocs of countries, where the same regulations apply to all.

Regional trading blocs

Trading blocs are groups of countries, usually in the same region of the world, that seek to make trade easier between themselves. The general name for such agreements is Regional Trading Agreements or RTAs. They can take a number of different forms, from loose organizations through to integrated unions that require considerable loss of a country's national sovereignty. They bring economic integration between countries. Figure 15.1 illustrates the main forms this integration can take.

In preferential trade agreements (PTAs) countries agree to reduce or remove tariffs between each other for certain products. They only encourage trade in products covered by the agreement. Countries from outside the preferential trading area must still pay the higher tariff. Each country continues to set its own tariffs for countries outside the PTA. An example of a PTA is the Asia-Pacific agreement formed in 1975.

In free trade areas member countries agree to remove all tariffs between each other. Countries retain their own tariffs with non-members, as in PTAs, and continue to run their own domestic economic policy. An example of a free trade area is NAFTA, the North American Free Trade Agreement, which comprises the US, Canada and Mexico.

Customs unions are free trade areas but with the additional feature of a common external tariff. Members of the union agree to have the same tariffs with non-member countries. Mercosur (Mercano Commun del Sur), formed by Argentina, Brazil, Paraguay and Uruguay, is an example of a customs union.

Common markets are customs unions in which member countries also agree to free movement of labour and capital between their economies. Both customs unions and common

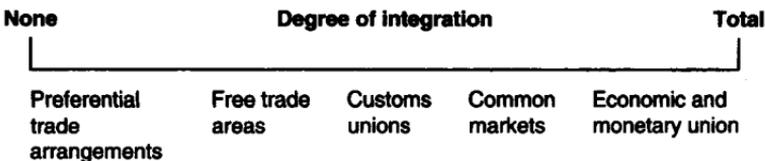


Figure 15.1 Forms of economic integration

markets usually create supra-national institutions, which supervise the agreement, to ensure member countries follow the rules laid down in it. They often agree as well to common policies on, for example, competition policy, environmental standards, and sometimes business law, to ensure that the common market laws are the same for everyone. Both Mercosur and the European Union have these characteristics.

The final stages of economic integration are economic and monetary union. Monetary union occurs when a single currency is adopted by a group of countries. In deciding to do this, countries must establish whether together they form an optimum currency area for which a single currency is appropriate. This requires high labour mobility between member countries, similar industrial structures, open economies, a similar response to global economic shocks such as the global financial crisis, and similar preferences in the countries about macroeconomic objectives.

These conditions must be met because, as we saw with the euro in Chapter 14, creating a single currency is to create a permanently fixed exchange rate between member countries. If a country is uncompetitive, it can no longer devalue its currency to restore competitiveness. Competitiveness can only return if prices and wages adjust downwards. That is more likely to happen if an optimum currency area exists.

Economic union occurs when a single economic policy for all member states is controlled by a central body. It will usually involve a common fiscal policy as well as the common monetary policy implied by monetary union. At this stage of economic integration, member countries cease to exist as sovereign economies and the union becomes the new economic entity. Economic union is likely to be associated with a political union to legitimize the institutions controlling economic policy.

The EU has achieved a degree of monetary union, but, as we have seen, not all member states use the euro. The absence of some partly reflects concern among some governments, like the UK's, that their economies do not meet the criteria for an optimum currency area.

The EU still has some way to go to reach economic union, which will require new institutions to manage macroeconomic and other forms of policy. One of the obstacles to this economic union is concern among some Europeans about the closer political union it implies.



Economic integration

When countries agree to free trade between each other they integrate their economies. Integration can take a number of different forms: preferential trading agreements; free trade areas; customs unions; common markets; and economic and monetary union.



The appraisal of the pros and cons of joining a monetary union can be thought of as a cost-benefit analysis. Since the key feature of belonging to a monetary union is that it is no longer possible to allow the rate of exchange to vary between your own country's currency and those of the other members of the union, this cost-benefit analysis can be re-expressed as follows. The benefits of monetary union are the benefits of having a single currency to use over a wider area; the costs are the costs of not being able to let the exchange rate (against other member countries) vary.

M. Artis (1994)

The economics of customs unions

The theory of regional trading blocs in economics is the theory of customs unions, which are thought to have two effects: trade creation and trade diversion. An illustrative example of a union being created between two countries, the UK and France, shows how these arise. We assume one good, butter, and one other country in the world, Australia. As always, it is good to keep the analysis simple.

The cost per kilogram of producing butter in the three countries is £7 in the UK, £5 in France and £3 in Australia. Before the customs union is created, the UK has a 100% tariff on all imports. French butter in the UK costs £10 per kg and Australian butter £6 per kg. UK consumers buy Australian butter.

When the UK and France form the customs union, the UK tariff on French butter ends and they agree a common external tariff of 100%. For UK consumers, the price of French butter falls to £5 per kg while the price of Australian butter remains at £6 per kg. UK consumers switch to French butter.

The trade creation effect of the customs union occurs because the cheaper French butter causes UK consumers to buy more butter. New trade and consumption is created that did not exist before.

But trade has switched from Australia to France. This is the trade diversion effect of the customs union. The problem with it is that Australia is the most efficient producer. In a world of free trade Australia would produce all butter. But the union means production diverts to less efficient French producers. They can export to the UK because the customs union's common external tariff gives them an advantage over Australian producers. But an economic loss occurs because French producers use more resources to produce their butter.

Assessing whether a customs union is beneficial involves weighing the benefit of trade creation against the cost of trade diversion. The result is that customs unions do not necessarily improve economic welfare. Each must be examined to see if members benefit.

Governments also lose tariff revenue in a customs union. In the example, the UK government forgoes £3 per kg of revenue that must either be found from other sources or lead to lower government spending. But UK consumers benefit from a lower price and French producers receive revenue from selling at £5 per kg that they did not receive before. The government might lose but the revenue is distributed among these two groups.



Customs unions have always induced something close to schizophrenia in economists because they combine elements of free trade, traditionally the beau ideal of most economists, and discriminatory tariffs, an equally long-lived bête noire.

D. Gowland [1983]

Customs unions and free trade

As we have shown, customs unions do not necessarily improve economic welfare in a country. This has led economists to suggest that governments should always first consider removing all tariffs. By creating completely free trade with the rest of the world, a government unambiguously improves economic welfare by reducing prices to consumers and ensuring imports are obtained from the most efficient producer. Free trade is the 'first-best' policy. Even if a customs union improves economic welfare it will be 'second-best'.

The analysis above, though, only captures a customs union's static effects, as trade creation and diversion are called. It ignores possible dynamic benefits, such as increased competition, which over time encourages innovation among firms, and potential economies of scale that result from a larger market. These benefits will contribute to making firms within the customs union not only more efficient inside the union but better able to compete in the world economy.

For these reasons the WTO has permitted RTAs even though, strictly speaking, they breach WTO rules because they adopt common external tariffs. The WTO does this because, although not 'first-best' solutions, they do move the world closer to free trade and generate other economic benefits.



The theory of second-best

The idea of a second-best solution is not limited to customs unions. It can apply when governments tackle market failure. Suppose a government wants to tax a good. An economist might advise them not to do this as it moves the market from its competitive, Pareto-efficient output. But this advice assumes other markets in the economy are competitive. If one of them is a monopoly, charging higher prices, the tax might improve welfare by bringing relative prices of goods into line so they better reflect relative scarcity. The tax is then a second-best solution. The first-best solution, of course, would be to end the monopoly.

Conditions for successful customs unions

As customs unions are ambiguous in their outcomes, it is worth knowing when they work best. They do so if certain conditions apply.

First, the higher the tariffs were before a union was created, the greater is trade creation. Consumers experience a bigger price cut. Similarly, setting lower common external tariffs minimizes trade diversion effects. The chances that the union will deliver net welfare benefits are then maximized.

Countries should also be geographically near one another. When they are, the transaction costs of trade, such as the costs of transporting goods and insuring them during transport, will be lower. Removing tariffs that are small relative to transaction costs does not encourage much new trade. For this reason, customs unions tend to be regional arrangements as high transaction costs do not then outweigh the benefits of removing tariffs.



Trade and transaction costs

A great driver of increased international trade in the last 200 years has been technological advances that have cut the real transaction costs of trade, especially those of transporting goods between countries. These costs have declined steadily since the mid-nineteenth century and have permitted trading relationships that would at one time have seemed inconceivable. For example, the export of fresh flowers from Kenya to Europe has relied on cheap airfreight. Without it, Kenyan producers would have been limited to trading with other East African countries.

It helps too if industries in different countries of the union overlap. Having more firms in each industry in the enlarged market stimulates competition that can be an important benefit. Specialization ensues, even within industries, that delivers higher output. And having more consumers in member countries increases the scope for firms to achieve economies of scale.

Customs unions also work best if the globally most efficient producers are within the union. The more that are, the lower the trade diversion effects. This is an argument, too, for trying to include as many countries as possible in the union.

Trade diversion and trade creation effects

Trade diversion occurs because a customs union switches trade from the most efficient producer in the world economy. Trade creation results as the customs union removes trade barriers between member countries and so encourages trade between them that previously did not occur.

The European Union

The EU is an example of an RTA. Founded as a customs union in 1957, it has gradually become a closer form of economic integration and now lies somewhere between a common market and an economic and monetary union. As always in economics, reality does not quite match theory.

A feature of the EU is its supra-national institutions, the three most important of which are the European Council, the European Commission and the European Court of Justice. These oversee the EU to ensure it operates effectively as a customs union and a common market.

The Single European Market

The Single European Market created one market for producers in all the European Union's member countries. It went beyond removing trade barriers by requiring that markets in all countries operated according to the same rules. Before its introduction, this had not been the case. Conducting business was difficult for firms seeking to operate outside their domestic economy.

The single market also includes countries from the European Free Trade Association (EFTA), which is a free trade area comprised of Norway, Switzerland, Iceland, and Liechtenstein. Together the EU and EFTA make up the European Economic Area (EEA). EFTA countries are not part of the EU institutions nor do they fix the common external tariff. But they do have access to the EU's markets.

The EU created the Single European Market in 1992 after passing the Single European Act of 1987. The legislation requires that market regulations in the different member states are standardized and not used to restrict trade. It reminds us that markets require rules, set and enforced by a governing body, within which participants must operate. Creating the Single European Market also applied the principle that markets are best at allocating scarce resources.

A key concern for the EU is its gradual enlargement as it moves towards a possible final stage of economic integration. The rules under which it operates affects how it runs as an organization, but these are increasingly cumbersome as the number of member states rises. It creates a debate between those preferring enlargement and those who would prefer a deeper union with closer economic ties.

This debate can be framed in economic terms. Increased economic integration reduces transaction costs, makes prices more transparent, ensures a co-ordinated fiscal policy between member states, and cuts the effect of aggregate demand shocks in an individual country. But individual countries might feel these benefits are outweighed by the costs to them of giving up sovereignty over economic policy-making. They prefer a looser form of economic integration with the advantages of a customs union but without the extra ties of economic and monetary union. Whatever the outcome, these subjects will continue to dominate discussions in the EU.

The EU's Common Agricultural Policy (CAP)

The CAP has over the years attracted much interest among economists. Like a minimum wage it is an example of a price floor in a market. It keeps food prices within the EU high to encourage farmers to produce and to avoid food shortages. It is a response to the problems of agricultural producers, who can find it difficult to guarantee output as this depends on uncontrollable

forces like the weather. And it must be remembered that the CAP was devised in the 1950s, a time when only ten years earlier famines had devastated parts of Europe.

Under the CAP, if food prices are set to fall because supply has increased, the EU, through the Commission, buys any surplus food. This boosts demand and stops prices falling. Figure 15.2 illustrates this process.

The price PEU is the EU's price floor. The diagram shows quantity supplied exceeds quantity demanded at this price. In a free market, price would fall to the equilibrium price P^* but in the CAP the EU steps in and buys the surplus AB. In effect, the EU shifts the demand curve to the right.

In principle, in a bad year for food production (caused by poor weather, for example) with reduced supply, the EU would sell its food stocks to stop prices rising. On average, price and quantity remain constant.

In practice, however, production within the CAP has remained high relative to demand at the price floor. The bad years have not balanced the good, so surpluses of agricultural products such as beef, milk, wine and butter have grown. These stocks of unsold goods are expensive to maintain and have led to criticisms of

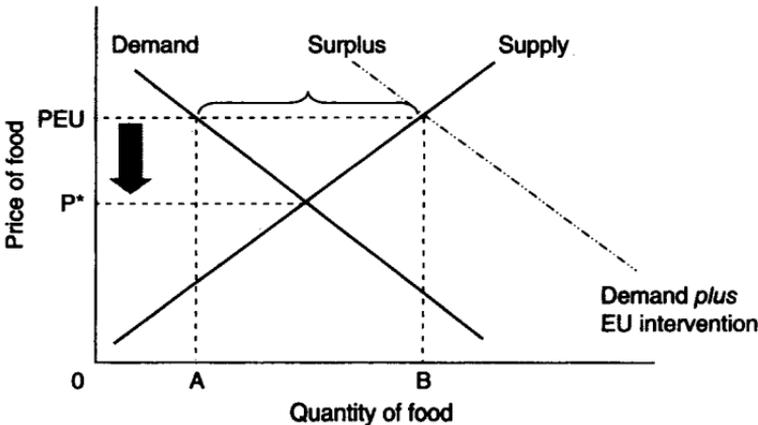


Figure 15.2 The market for food in the EU

the CAP's inefficiency. Some reforms have taken place to reduce guaranteed prices, but the political and social importance of farmers in some EU countries has hindered progress.

The CAP is also criticized for diverting trade from developing countries. For example, the CAP has encouraged European farmers to produce sugar beet. But this has undermined developing countries' exports of cane sugar to the EU, especially those in the Caribbean, and their ability to develop their economies.

Conclusion

The growing interdependence of the world economy and the increased number of regional trading blocs emphasizes again the importance of the market in economics. Both developments are rooted in the idea that markets are best for allocating resources. And that argument applies regardless of whether an economy is national or global.

But markets sometimes fail. Economists must temper their advice to governments and international organizations like the IMF and World Bank. Markets allocate resources efficiently only if various assumptions apply and it is easy to see in the world economy where some of them might not. For example, to suggest that large, oligopolistic MNCs are price-takers with no influence on market prices would seem questionable. Nor do consumers always have perfect information as economists assume they do, and factors of production may not be mobile in the way theory requires.

Therefore, in tackling the global economy's problems and, indeed, those of national economies, economists must reflect on the market's limitations as well as its wonders. Economists can improve the world just as much by identifying when markets are inappropriate as they can by asserting markets should be adopted regardless of circumstances. And sometimes it can be enough to identify markets that are far from perfect, and then recommend changes that bring the theoretical ideal a little closer.

As Keynes observed, economics is a way of thinking about the world rather than a set of fixed lessons to be learned. Equipped with ideas from economics, a person can better understand the world, see how its problems might be addressed, and begin to draw their own conclusions about how the world could be changed for the better by applying economic ideas. But they have to be applied with care.

This book introduces these ideas from economics but it is only a necessarily brief introduction. The best hope is that it sparks an interest in economics and signposts a path to a deeper knowledge of the subject that can be obtained from further reading, study and discussion. And, it hardly needs to be said, anyone taking that path is guaranteed a journey which will stimulate, sometimes frustrate, but always fascinate the mind.



Fact-check

- 1 The case for globalization rests on applying at the international level the:
 - A cost-benefit principle
 - B free market system
 - C law of diminishing returns
 - D margin

- 2 Globalization since the Second World War has been encouraged by:
 - i) the growing role of GATT and the WTO in the world economy
 - ii) the 'new protectionism' that has led to greater use of non-tariff barriers
 - iii) significantly lower transport costs.
 - A i) only
 - B i) and ii) only
 - C i) and iii) only
 - D iii) only

- 3 Regulatory arbitrage ensures that:
 - A regulations are the same in all countries
 - B the tightest regulations are applied in all countries
 - C regulations can be bought and sold on international markets
 - D governments can introduce regulations without considering those found in other countries

- 4 Which of the following is not found in a free trade area?
 - A no trade barriers between the member countries
 - B supra-national institutions
 - C a common external tariff
 - D agreed standards and regulations between member countries

- 5 Which of the following is unlikely to result when a group of countries creates a customs union?
 - A trade creation effects
 - B trade diversion effects
 - C economies of scale
 - D reduced specialization

- 6 If a group of countries is to adopt a single currency, the theory of optimum currency areas requires:
- A perfect labour mobility between the countries
 - B a common external tariff for the countries with the rest of the world
 - C restricted trade between the countries
 - D no trade diversion effect due to a customs union between the countries
- 7 Which of the following is NOT an ultimate objective of the WTO?
- A the abolition of regional trading agreements
 - B a reduction in import quotas
 - C the creation of a global fixed exchange rate system
 - D the reduction of tariffs on all imports
- 8 Before the UK and France form a customs union, a car's price in the UK is £15,000. At the current exchange rate, it is £20,000 in France and £18,000 in Sweden. The UK has a 10 per cent tariff on all car imports and France a 20 per cent tariff. When the UK joins the Anglo-French customs union, the UK car market experiences:
- A trade diversion and trade creation effects
 - B trade diversion but no trade creation effects
 - C trade creation but no trade diversion effects
 - D neither trade creation nor trade diversion effects
- 9 In the European Union's Common Agricultural Policy, the build up of unsold stocks of certain agricultural products is due to:
- A the guaranteed price being set below the market equilibrium
 - B the guaranteed price being set above the market equilibrium
 - C the EU being unwilling to buy unsold agricultural products
 - D none of the above
- 10 Which of the following is NOT an advantage of the euro as a single currency in the European Union?
- A it reduces transaction costs in trade between member states
 - B it makes prices more transparent between member states
 - C it creates a single co-ordinated fiscal policy in member states
 - D it promotes the development of the single European market



Dig deeper

- 1**
 - a)** Why is globalization more developed in financial markets than in labour markets?
 - b)** What are the possible economic benefits of greater freedom of movement of labour between developing and developed countries?
 - c)** How would a global free market in labour help transnational corporations?
- 2** Norway has twice, in 1972 and 1994, had referendums asking the population if they wished to join the European Union. On both occasions the population voted against joining.
 - a)** What do you think are the economic reasons why Norwegians did not wish to join the European Union?
 - b)** What would be the economic benefits to Norway of joining the European Union?
 - c)** How would member states of the European Union i) gain and ii) lose from Norway joining the union?
 - d)** Why is Norway a member of EFTA?
- 3**
 - a)** Using supply and demand analysis, show how the Common Agricultural Policy (CAP) of the European Union could be reformed without affecting European farmers' incomes.
 - b)** Do the benefits of the CAP outweigh the costs?
 - c)** What is the opportunity cost of the CAP for the European Union's member states?
 - d)** Why is there no global free market in agricultural products?

Taking it further

Chapter 1

Backhouse, R., *The Ordinary Business of Life: A History of Economics from the Ancient World to the Twenty-First Century* (Woodstock: Princeton University Press, 2004)

Friedman, M., 'The Methodology of Positive Economics', in *Essays in Positive Economics* (Chicago: University of Chicago Press, 1953)

Harford, T., *The Undercover Economist* (London: Abacus, 2007)

Hausman, D., *The Philosophy of Economics: An Anthology* (3rd edn, Cambridge: Cambridge University Press, 2008)

Keynes, J. M., 'Introduction to Cambridge Economic Handbook Series', in Robertson, D., *Money* (Cambridge: Cambridge University Press, 1922)

Lipsey, R. G., *An Introduction to Positive Economics* (6th edn, London: Weidenfeld and Nicolson, 1983)

McCloskey, D., *Knowledge and Persuasion in Economics* (Cambridge: Cambridge University Press, 1994)

Samuelson, P., and Nordhaus, D., *Economics* (19th edn, London: McGraw-Hill, 2009)

Chapter 2

Alchian, A., *Pricing and Society* (Occasional Paper no.17, London: Institute of Economic Affairs, 1967)

Butler, E., *Adam Smith – A Primer* (London: Institute for Economic Affairs, 2007)

Friedman, M., *Capitalism and Freedom* (Chicago: University of Chicago Press, 2002)

Friedman, M., and Friedman, R., *Free to Choose* (London: Secker and Warburg, 1980)

Hayek, F., *The Road to Serfdom* (London: Routledge, 1944)

Humphrey, T., 'Marshallian Cross Diagrams and Their Uses Before Alfred Marshall: The Origins of Supply and Demand Geometry', *Federal Reserve Bank of Richmond Economic Review*, March/April 1992, pp 3–23

Smith, A., *Wealth of Nations* (first published 1776, London: Penguin, 1999)

Szuchman, P., and Anderson, J., *Spousonomics* (New York: Random House, 2011, Chapter 3: Supply and Demand or How to Have More Sex)

Chapter 3

Blaug, M., 'Was there a Marginal Revolution?', *History of Political Economy*, Fall 4 (2) (1972), pp 269–280

Marshall, M., *Principles of Economics* (8th edn, London: Macmillan, 1922)

Regmi, A., and Seale, J., *Cross-Price Elasticities of Demand across 114 Countries* (Washington: Economic Research Services, United States Department of Agriculture, 2010)

Stigler, G., 'The Adoption of the Marginal Utility Theory', *History of Political Economy*, Fall 4 (2) (1972), pp 571–586

Towse, R., *A Textbook of Cultural Economics* (Cambridge: Cambridge University Press, 2010, Chapter 6)

United States Department of Agriculture: Elasticities www.ers.usda.gov/data-products/commodity-and-food-elasticities.aspx: Commodity and Food Elasticities (accessed 15 September 2012)

Waldfoegel, J., *Scroogenomics* (Woodstock: Princeton University Press, 2009, Chapter 2: Spending and Satisfaction)

Chapter 4

Coase, R., 'The Nature of the Firm', *Economica* 4(16) (1937), pp 386–405

Friedman, D., 'Rational Criminals and Profit-maximizing Police: The Economic Analysis of Law and Law Enforcement', in Tommasi, M., and Ierulli, K., (eds), *The Economics of Human Behaviour* (Cambridge: Cambridge University Press, 1995)

Galbraith, J.K., *The Affluent Society* (40th anniversary edn, New York: Houghton-Mifflin, 1998)

Hodgson, G., *Economics and Utopia: Why the Learning Economy is not the End of History* (London: Routledge, 1999)

Landsburg, S., *The Armchair Economist* (London: Pocket Books, 2009, Chapter 16: Why Popcorn Costs More at the Movies)

McGuigan, J. R., Moyer, C., and Harris, F. H. deB., *Managerial Economics: Applications, Strategy and Tactics* (12th edn, Mason, OH: South Western Educational Publishing, 2011)

Putterman, L., *The Economic Nature of the Firm: A Reader* (Cambridge: Cambridge University Press, 1996)

Samuelson, P., *Economics: An Introductory Analysis* (2nd edn, London: McGraw-Hill, 1951)

Chapter 5

Becker, G., *The Economics of Discrimination* (2nd edn, Chicago: University of Chicago Press, 1971)

Borjas, G., *Labor Economics* (New York; London: McGraw-Hill Higher Education, 2009)

Card, D., and Krueger, A., 'Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania', *American Economic Review*, 84: 4 (September, 1994), pp 772-793

Frank, R., *The Economic Naturalist: Why Economics Explains Almost Everything* (London: Virgin Books, 2008)

Galbraith, J. K., *Economics and the Public Purpose* (London: Pelican, 1973)

Kahn, L., 'The Sports Business as a Labor Market Laboratory', *Journal of Economic Perspectives*, 14:3 (Summer 2000), pp 75-94

Krugman, P., *The Accidental Theorist: And Other Dispatches from the Dismal Science (Part 1)* (London: Penguin, 1999)

Layard, R., Nickell, S., and Jackman, R., *Unemployment: Macroeconomic Performance and the Labour Market* (2nd edn, Oxford: Oxford University Press, 2005, Chapter 2: Wage-Bargaining and Unions)

Chapter 6

Becker, G., 'A Theory of Marriage: Part I', *Journal of Political Economy*, 81 (4) (1973), pp 813–846

Becker, G., and Posner, R., *Economic Insights: From Marriage to Terrorism* (Chicago: University of Chicago Press, 2010)

Coase, R. H., 'The Problem of Social Cost', *Journal of Law and Economics*, 3 (1960), pp 1–44

Levitt, S., and Dubner, S., *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything* (London: Penguin, 2006)

Miron, J., and Zwiebel, J., 'The Economic Case Against Drug Prohibition', *Journal of Economic Perspectives*, 9 (4) (1995), pp 175–192

Stigler, G., and Sherwen, R., 'The Extent of the Market', *Journal of Law and Economics*, 28 (3) (October, 1985), pp 555–585

Tomassi, M., Ierulli, K., *The New Economics of Human Behaviour* (Cambridge, Cambridge University Press, 1995)

Chapter 7

Akerlof, G., 'The Market for "Lemons": Quality Uncertainty and the Market Mechanism', *Quarterly Journal of Economics*, 84 (3) (1970), pp 488–500.

Atkinson, A., and Stiglitz, J., *Lectures on Public Economics* (International edn, Singapore: McGraw-Hill, 1987)

Becker, G., The Posner–Becker blog, <http://www.becker-posner-blog.com/> (accessed 18 September, 2011)

Cassidy, J., *How Markets Fail: the Logic of Economic Calamities* (London: Penguin, 2009)

Friedman, M., quoted in Snowdon, B., and Vane, H., *Conversations with Leading Economists* (Cheltenham: Edward Elgar, 1999)

Nordhaus, W., Review of the 'The Economics of Climate Change: The Stern Review', *Journal of Economic Literature*, 45 (September, 2007), pp 686–702

Pearce, D., and Turner, K., *Economics of Natural Resources and the Environment* (London: Pearson Education, 1990)

Spulber, D., (ed), *Famous Fables of Economics: Myths of Market Failure* (Oxford: Blackwell, 2002)

Stern, N., *The Economics of Climate Change: The Stern Review* (Cambridge: Cambridge University Press, 2007). Also available at: http://www.hm-treasury.gov.uk/sternreview_index.htm

Chapter 8

Anthoff, D., and Hahn, R., 'Government failure and market failure: on the inefficiency of environmental and energy policy', *Oxford Review of Economic Policy* 26(2) (2010), pp 197–224

Friedman, M., *Capitalism and Freedom* (Chicago: University of Chicago Press, 1962)

Hancock, M., and Zahawi, N., *Masters of Nothing: How the Crash will Happen Again Unless We Understand Human Nature* (London: Biteback Publishing, 2011)

Hutton, W., *Them and Us: Changing Britain – Why We Need a Fair Society* (London: Abacus, 2011)

Roberts, R., *The Invisible Heart: An Economic Romance* (Cambridge, MA; London: MIT Press, 2002)

Stiglitz, J., Government Failure vs. Market Failure: Principles of Regulation, in Balleisen, E., and Moss, D., (eds), *Government and Markets: Toward a New Theory of Regulation* (Cambridge: Cambridge University Press, 2010)

Chapter 9

Ackley, G., *Macroeconomic Theory* (New York: Macmillan, 1969)

Anand, S., and Seagal, P., 'What Do We Know about Global Inequality?', *Journal of Economic Literature*, 46 (1) (March, 2008), pp 57–94

Baumohl, B., *The Secrets of Economic Indicators: Hidden Clues to Future Economic Trends and Investment Opportunities* (2nd edn, London: Pearson Education, 2007)

Burda, M., and Wyplosz, C., *Macroeconomics: A European Text* (Oxford: Oxford University Press, 2009)

Economist, The, *Guide to Economic Indicators: Making Sense of Economics* (7th edn, London: Profile Books, 2010)

Landefeld, J., Seskin, E., and Fraumeni, B., 'Taking the Pulse of the Economy: Measuring GDP', *Journal of Economic Perspectives*, 22 (2) (Spring 2008), pp 193–216

Layard, R., *Happiness: Lessons from a New Science* (London: Penguin, 2005)

Office for National Statistics, *National Accounts: Concepts Sources and Methods* (London, 2012)

Stiglitz, J., Sen, A., and Fitoussi, J-P, *Mismeasuring Our Lives* (New York: The New Press, 2010)

Chapter 10

Fergusson, A., *When Money Dies: The Nightmare of the Weimar Hyperinflation* (revised edn, London: Old Street Publishing, 2010)

Friedman, M., and Schwartz, A., *A Monetary History of the United States* (Princeton NJ: Princeton University Press, 1963)

Galbraith, J. K., *Money: Whence it Came, Where it Went* (London: Penguin, 1975)

Harrod, R., *Money* (Macmillan: London, 1969)

Hume, D., *Essays Moral, Political and Literary Vol I* (New York: Cosimo, 2006)

Radford, R., 'The Economic Organization of a POW Camp', *Economica*, 12 (48) (1945), pp 189–201

Sraffa, P., 'Dr Hayek on Money and Capital', *Economic Journal*, 42 (March, 1932), pp 42–53

Sun, G-Z, *The Division of Labour in Economics: A History* (London: Routledge, 2012)

Chapter 11

Lenin, V. I., 'To the Rural Poor: an explanation for the peasants of what the Social Democrats want', *Lenin – Collected Works Vol 6* (London: Lawrence and Wishart, 1974)

Middleton, R., 'British monetary and fiscal policy in the 1930s', *Oxford Review of Economic Policy* 26(3) (2010), pp 414–441

Moss, D., *A Concise Guide to Macroeconomics: What Managers, Executives, And Students Need To Know* (Harvard: Harvard University Press, 2007)

Snowdon, B., and Vane, H., *Conversations with Leading Economists: Interpreting Modern Macroeconomics* (Cheltenham: Edward Elgar, 1999)

Stiglitz, J., The Role of Government in the Contemporary World, in Tanzi, V., and Chu, K.-Y., (eds), *Income Distribution and High-quality Growth* (Cambridge MA: MIT Press, 1998)

Tinbergen, J., *Economic Policy: Principles and Design* (Amsterdam: North-Holland Publishing, 1978)

Tinbergen, J., *On the Theory of Economic Policy* (Amsterdam: North-Holland Publishing, 1952)

Winters, L. A., *International Economics* (4th edn, London: Routledge, 1991)

Chapter 12

Akerlof, G., and Schiller, R., *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism* (Woodstock: Princeton University Press, 2010)

Blinder, A., *Central Banking in Theory and Practice* (Cambridge MA: MIT Press, 1998)

Friedman, M., 'The Role of Monetary Policy', *American Economic Review*, 58 (1) (March, 1968), pp 1–17

Keynes, J. M., *The Economic Consequences of the Peace* (London: Macmillan, 1919)

Lanchester, J., *Whoops: Why Everyone Owes Everyone and Nobody Pays* (London: Penguin, 2010)

Reinhart, C., and Rogoff, K., *This Time Is Different: Eight Centuries of Financial Folly* (Woodstock: Princeton University Press, 2009)

Skidelsky, R., *Keynes: The Return of the Master* (London: Penguin, 2009)

Tobin, J., *The New Economics One Decade Older* (Princeton: Princeton University Press, 1974)

Chapter 13

Acemoglu, D., 'A Historical Approach to Assessing the Role of Institutions in Economic Development', *Finance and Development*, 40 (2) (June, 2003), pp 27–30

Clark, A., Frijters, P., and Shields, M., 'Relative Income, Happiness and Utility: An Explanation for the Easterlin Paradox and Other Puzzles', *Journal of Economic Literature*, 46 (1) (March, 2008), pp 95–144

Eatwell, J., *Whatever Happened to Britain?* (London: BBC Books, 1982)

Galbraith, J. K., *The Affluent Society* (5th revised edn, London: Penguin, 1999)

Helpman, E., *The Mystery of Economic Growth* (Harvard: Harvard University Press, 2004)

Layard, R., *Happiness: Lessons from a New Science* (London: Penguin, 2005)

Organization for Economic Cooperation and Development, *How's Life* (Paris: OECD, 2011)

Mishan, E. J., *The Costs of Economic Growth* (London: Pelican, 1967)

Chapter 14

Collier, P., *The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It* (Oxford: Oxford University Press, 2008)

Irwin, D., *Free Trade Under Fire* (3rd edn, Woodstock: Princeton University Press, 2009)

Krugman, P., 'The Narrow and Broad Arguments for Free Trade', *American Economic Review*, Papers and Proceedings of the 105th Annual Meeting of the American Economic Association, 83 (2) (May, 1993), pp 362–6

Krugman, P., Obstfeld, M., and Melitz, M., *International Economics* (Harlow: Pearson Education, 2011)

Leontief, W. W., 'Domestic Production and Foreign Trade: The American Capital Position Re-examined', in Baghwati, J., *International Trade: Selected Readings* (London: Penguin, 1969)

Ricardo, D., *On the Principles of Political Economy and Taxation* (ed R. Harwell, London: Pelican, 1971)

Sachs, J., 'Twentieth-Century Political Economy: A Brief History of Global Capitalism', *Oxford Review of Economic Policy* (1999)

Yarbrough, B., and Yarbrough, R., *World Economy: Open-Economy Macroeconomics and Finance* (7th edn, Mason OH: South Western Publishing, 2006)

Chapter 15

el-Agraa, A. M., *The European Union: Economics and Policies* (Cambridge: Cambridge University Press, 2011)

Artis, M., 'European Monetary Union' in Artis, M., and Lee, N., *The Economics of the European Union* (Oxford: Oxford University Press, 1994)

Baldwin, R., and Wyplosz, C., *The Economics of European Integration* (3rd edn, Maidenhead: McGraw-Hill Higher Education, 2009)

Baghwati, J., *In Defence of Globalization* (Oxford: Oxford University Press, 2007)

Crafts, N., 'Globalisation and Economic Growth: A Historical Perspective', *The World Economy*, 27 (1) (January 2004), pp 45–58

Gowland, D., *International Economics* (Beckenham: Croom-Helm, 1983)

Greenwald, B., and Kahn, J., *Globalization: n. the irrational fear that someone in China will take your job* (Hoboken NJ: Wiley, 2010)

Rodrik, D., *Why Global Markets, States, and Democracy Can't Coexist* (Oxford: Oxford University Press, 2011)

Stiglitz, J., *Globalization and its Discontents* (London: Penguin, 2002)

Answers

CHAPTER 1

- 1 B
- 2 A
- 3 C
- 4 B
- 5 B
- 6 C
- 7 B
- 8 D
- 9 D
- 10 C

CHAPTER 2

- 1 C
- 2 D
- 3 C
- 4 B
- 5 C
- 6 B
- 7 C
- 8 B
- 9 B
- 10 B

CHAPTER 3

- 1 C
- 2 B
- 3 A
- 4 B
- 5 B

- 6 B
- 7 C
- 8 D
- 9 C
- 10 C

CHAPTER 4

- 1 C
- 2 C
- 3 B
- 4 B
- 5 D
- 6 C
- 7 D
- 8 C
- 9 C
- 10 A

CHAPTER 5

- 1 B
- 2 A
- 3 D
- 4 B
- 5 C
- 6 C
- 7 C
- 8 A
- 9 A
- 10 C

CHAPTER 6

- 1 B
- 2 D
- 3 C
- 4 A
- 5 A
- 6 B
- 7 B
- 8 B
- 9 C
- 10 D

CHAPTER 7

- 1 B
- 2 B
- 3 C
- 4 D
- 5 C
- 6 D
- 7 A
- 8 B
- 9 D
- 10 C

CHAPTER 8

- 1 B
- 2 C
- 3 B
- 4 D
- 5 C

- 6 A
- 7 C
- 8 C
- 9 D
- 10 C

CHAPTER 9

- 1 B
- 2 D
- 3 B
- 4 A
- 5 C
- 6 C
- 7 A
- 8 C
- 9 A
- 10 C

CHAPTER 10

- 1 A
- 2 B
- 3 C
- 4 B
- 5 C
- 6 C
- 7 B
- 8 D
- 9 C
- 10 D

CHAPTER 11

- 1 C
- 2 D
- 3 A
- 4 C
- 5 C
- 6 A
- 7 B
- 8 B
- 9 A
- 10 D

CHAPTER 12

- 1 A
- 2 B
- 3 D
- 4 A
- 5 C
- 6 C
- 7 C
- 8 C
- 9 A
- 10 D

CHAPTER 13

- 1 D
- 2 B
- 3 D
- 4 B
- 5 D

- 6 A
- 7 D
- 8 C
- 9 A
- 10 A

CHAPTER 14

- 1 C
- 2 B
- 3 A
- 4 D
- 5 A
- 6 C
- 7 A
- 8 C
- 9 C
- 10 B

CHAPTER 15

- 1 B
- 2 C
- 3 A
- 4 A
- 5 D
- 6 A
- 7 C
- 8 D
- 9 B
- 10 C

Index

- AD [aggregate demand] 175, 216,
238-9, 244, 254-5
- aid, or trade? 287
- Akerlof, George 135-6
- 'animal spirits' 104, 242-3
- appreciation 298
- arbitrage 293, 312
- assets 199-200
- asymmetric information
in banking 157, 158
and market failure 135-7
- autarchy (autarky) 281
- average cost 70, 73, 74, 79
- average revenue 75
- balance of payments account
224-5, 290-2, 295-7
- Bank of England 202, 206, 207, 230-1
- bank loans 104, 115-16, 158, 205-7
- banks
central 202-3, 205-7, 244-5
and money 203-5
regulating 153, 156-9
- barter 196
- Bentham, Jeremy 48
- borrowing, government 172-4
- Bretton Woods Agreement 1944,
289, 298
- broad money 201
- budget deficits and surpluses,
government 172-3
- the business cycle 262-4
- CAP (Common Agricultural Policy),
EU 320-2
- capital 3, 103-4
- central banks 201
controlling bank loans 205-7
controlling money supply 202-3
- quantitative easing 244-5
- classical unemployment 240
- closed economies 174
- common markets 313-14
- comparative advantage 194, 281,
282, 283
- competition
imperfect 137
monopolistic 83-5, 283
monopoly 80-3, 86, 137-9
oligopoly 85-6
perfect 40, 78-80
unfair in trade 288
- consumer durables and non-
durables 242
- consumers 6, 24
diminishing marginal utility and
50-4
how they decide 48-50
and price-elasticity of demand
57-62
substitution and income affecting
demand 55-6
- contestable markets 83
- cost-benefit principle 16-17,
49, 76
- costs
average and marginal 70-1
external 128-30
fixed and variable 68-70
and law of diminishing returns
71-2
menu and shoe leather 220-1
and short and long runs 73-5
transaction of trade 318
- countertrade 197
- CPI (Consumer Price Index) 218
- cross-elasticity of demand 61
- customs unions 313, 315-19

- debt, government 173-4
- deflationary gaps 239
- demand 25
 - assumptions of the demand diagram 40-1
 - diminishing marginal utility and 50-4
 - in the drugs market 117
 - in factor markets 95-6
 - in foreign exchange market 114-15
 - in market for bank loans 116
 - and market equilibrium 34
 - and market failure 126-7
 - in the marriage market 119-20
 - and price 25-30, 35-6
 - price elasticity of (PED) 57-61
 - substitution and income effects and 55-6
- demand inflation 248
- demerit goods 134
- depreciation 298
- deregulation 159
- devaluation 298
- diagrams, use of 36
- diminishing marginal utility law, 50-4
- diminishing returns, law of 71-3, 94-5
- direct taxes 149
- disintermediation 207
- disposable income 182-3
- division of labour 194, 195
- 'double coincidence of wants' 196, 197
- drugs, market for 116-18
- 'dumping', practice of 287-8
- DUP (directly unproductive profit-seeking) 286

- Easterlin paradox 272
- ECB (European Central Bank) 300-1

- economic goods 3
- economic growth
 - achieving 266-8
 - business cycle and 262-4
 - happiness and 271-3
 - and living standards 264-6
 - measuring 181-2, 269-70
 - sustainable 222-4
 - World Bank and 268-9
- economic rent 98-101
- economic systems 7-8
- economic theory 11-15
- economic union 314
- economics 3-4, 5
 - key concepts 15-17
 - micro and macro 10-11
 - positive and normative 8-10
- economies of scale 75, 283-4, 311
- the economy 5-6
 - circular flow of income 167-74
 - disposable income 182-3
 - macroeconomic objectives 214-31, 236-55, 262-73
 - measuring economic welfare 183-6
 - money's role in 193-208
 - national income 175-82
 - and the rest of the world 280-301
 - sectors of 6-7
 - types of economy 183
- employment see full employment
- EMS (European Monetary System) 298-9
- enterprise, factor of production 3
- entrepreneurs 69-70, 71
- equilibrium 17
- equilibrium output 39, 126-7
- equilibrium price 32-4, 35-6
- EU (European Union) 314-15, 319-20
 - Common Agricultural Policy 320-2
- euro 300-1
- exchange rates 292-5
 - and balance of payments 295-7

- fixed and floating 297–300
- foreign exchange market 113–15
- interest rates and 243–4, 294
- policy instrument 229
- expenditure switching and reducing policies 297
- experiments, economic 9
- exports 174
- externalities 128–30

- factor markets 92
 - demand and supply curves 95–7
 - factor rewards 98–101
 - labour market 92–5, 101–3
 - market for capital 103–4
- factors of production 3
- firms (producers) 6, 24, 78
 - alternative theories of 86–7
 - and market structures 77–86
 - maximizing profits 75–7, 86
 - production costs 68–75
 - revenue 75
 - role in the economy 168–71
- fiscal drag 220, 221
- fiscal policy 228, 229, 239–40
- Fisher equation 223, 246
- fixed costs 68–9, 70, 73, 74
- fixed exchange rates 298, 299
- floating exchange rates 297–8, 299–300
- foreign exchange market 113–15
- free goods 3
- frictional unemployment 215, 216, 253
- Friedman, Milton 12
- full employment 215–17
 - policies to achieve 236–45
 - price stability and 247–52
- future markets 112–13, 115

- game theory 85
- GATT (General Agreement on Tariffs and Trade) 289–90

- GDP (Gross Domestic Product)
 - 177–9, 180, 181–2
 - deflator 218
 - as measure of economic welfare 183, 183–5
- Giffen goods 53–4, 55
- Gini coefficients 226–8
- global financial crisis 2008 14, 254–5, 312
- globalization
 - benefits of 310–11
 - costs of 311–12
 - defining 308–10
- GNI (Gross National Income) 180, 181, 185
- goods 3
 - consumers buying 48–50
 - dimension of markets 111
 - economic and free 3
 - and market failure 130–5
 - normal and not normal 30
 - rationing 36–7
 - see also demand; prices
- governments
 - and the economy 6, 172–4
 - inflation and 220
 - intervening in markets 37–8, 101–2, 146–60
 - macroeconomic objectives 214–28, 236–55, 262–73
 - and market failure 139–41
 - policy difficulties 230–1
 - policy during global financial crisis 254–5
 - policy instruments 228–9
- GVA (Gross Value Added) 179

- happiness 271–3
- HDI (Human Development Index) 185–6, 269–70
- Heckscher-Ohlin theorem 283
- Hicks, J. R. 86

- households 6
 - disposable income 182-3
 - role in the economy 167-71
- hyperinflation 219
- IMF (International Monetary Fund)
 - 289, 291, 298
- imperfect competition 137
- imports 174
- income
 - circular flow of 168-74, 236-7, 238
 - disposable 182-3
 - distribution of 153, 154-6, 225-8
 - full-employment 236-7, 238-9
 - and happiness 271-3
 - national 175-82
 - not the same as wealth 170
 - real and money 55
- income effect
 - and demand 29-30, 55-6
 - and wage rises 97
- income elasticity of demand 60-1
- income tax 149, 154-5, 221
- indirect taxes 149, 155
- industries 78
- infant industries 286
- inflation
 - monetary policy and 245-7
 - price stability and 217-22
 - and unemployment 247-52
- inflationary gaps 239
- insatiable wants 2, 3-4, 15
- interest rates
 - and bank loans 115-16, 205, 206, 207
 - and employment and inflation 241-2
 - and exchange rates 243-4, 294
 - and investment 103-4, 242-3
 - real and nominal 222, 223
- investment 170, 171
 - and growth 266, 267
 - and interest rates 103-4, 242-3
- J-curve 296
- Kaldor-Hicks criterion 39
- Keynes, John Maynard 4, 171, 238
- Kuznets curve 155-6, 226
- labour, division of 194, 195
- labour, factor of production 3
- labour market 92-4
 - asymmetric information and 136
 - demand and supply curves 95-6
 - factor rewards 98-101
 - intervening in 101-2
 - law of diminishing returns and 71-3, 94-5
 - monopsony in 102-3
- land, factor of production 3
- laws 151
- Leontief paradox 283
- liquidity 200
- living standards 186, 264-6
- loans, bank 115-16, 205-7
- local public goods 131
- locations, market 24, 111-12
- long run in production 74
- Lorenz curve 226
- LRPC (long-run Phillips curve)
 - 250, 251-2
- lump of labour fallacy 217
- macroeconomics 10-11, 167
- marginal cost 70, 73, 76, 79, 80
- marginal revenue 75, 76
- the margin 16
- market economies 7-8, 23
 - see also markets
- market equilibrium 32-4, 35-6, 39
- market failure
 - asymmetric information and 135-7
 - defining 126-8
 - externalities and 128-30
 - imperfect competition and 137
 - implications of 139-40

- merit goods and 134-5
- natural monopoly and 137-9
- public goods and 130-2
- quasi-public goods and 132-4
- tackling 141
- markets 23
 - creating new 112-13
 - dimensions of 111-12
 - factor 92-104
 - foreign exchange market 113-15
 - government intervention in 37-8, 146-60
 - market for bank loans 115-16
 - market for drugs 116-18
 - market for marriage 118-20
 - and Pareto-efficiency 38-40
 - a 'perfect' market 40-1
 - prices in 24-37
 - properties of the market 24
 - structures 40, 77-86
- marriage, market for 118-20
- mathematics, and economics 27
- menu costs 220
- merit goods 134-5
- microeconomics 10-11
- minimum wage 101-2, 103, 154
- mixed economies 7-8
- mixed income 179
- MNCs (multinational corporations)
 - 311, 311-12
- monetarism 245-7
- monetary policy 228, 229
 - and full employment 241-2
 - and inflation 245-7
- monetary union 314
- money
 - as an asset 199-200
 - controlling bank loans 205
 - controlling supply 202-3
 - defining 200-1
 - functions of 197-8
 - how banks create 203-4
 - inflation and 218-19, 220
 - qualities of 198-9
 - Quantity Theory of Money 245-6
 - trade and 195-6
- money income 55
- monopolistic competition 83-5, 283
- monopoly 80-3, 86, 137-9
- monopsonies 102-3
- moral hazard 135, 158-9
- MSB (marginal social benefit)
 - 126-7, 128-30
- MSC (marginal social cost) 126-7, 128-30
- NAIRU 252, 253-4
- narrow money 201
- Nash equilibrium 85-6
- National Debt 173
- national income 175-6
 - accounts 177-80
 - gross national income (GNI) 180
 - using GNI and GDP 181-2
- natural monopoly 137-9
- neo-classical economics 14, 15
- nominal interest rates 222, 223
- nominal and real values 220
- normal profit 69-70
- normative economics 10
- Okun gap 264
- oligopoly 85-6
- open economies 174
- open market operations 207
- opportunity cost 15-16
- overseas sector 174
- Pareto-efficiency 38-40, 82, 127, 139
- PED (price elasticity of demand)
 - 57-61
- perfect competition 40, 78-80
- Phillips curve 247, 248-52
- Pigovian tax 149
- planned economies 7-8

- policy instruments 228-9, 231
- political economy 11
- positive economics 8-9
- PPP (purchasing power parity)
 - theorem 292-4
- 'predatory pricing' 287-8
- prices 24
 - demand and 25-30
 - equilibrium price 32-6
 - price elasticity of demand (PED) 57-61
 - price elasticity of supply 81
 - price stability 217-22
 - rationing device 36-7
 - substitution and income effects 55-6
 - supply and 30-2
- private goods 132
- producers see firms
- production 4
 - costs 68-75
 - factors of 3, 92
 - sectors of 68
- production possibility frontier 39, 222
- profits 32, 58, 70, 86
 - maximizing 75-7
 - normal 69-70
 - and perfect competition 78-9
- progressive taxation 154-5
- property rights 37-8, 141, 153, 267
- protectionism 284-9
- PTAs (preferential trade agreements) 313
- public finances 172-4
- public goods 130-2
- public provision 149-50
- quantitative easing 244-5
- Quantity Theory of Money 245-6
- quasi-public goods 132-4
- quotas 285
- real income 55
- real interest rates 222, 223
- real and nominal values 220
- real wages 240-1, 249
- recessions 263, 264
- regional trading blocs 313-15
- regressive taxation 155
- regulations 151-2, 156-9
- resources 3, 3-4, 15
- reevaluation 298
- revenue 32, 58-9, 75, 75-7
- Ricardo, David 280
- roads 132-4
- RPI (Retail Price Index) 218
- Rule of 70 266
- savings, household 169, 171
- scarcity 3-4
- second-best, theory of 317
- shoe leather costs 220-1
- short run in production 73
- Simon, H. A. 86
- Single European Market 319-20
- Smith, Adam 193
- specialization 193-5, 280-2, 310
- 'state of the world', dimension of markets 112
- structural unemployment 216, 240-1, 253
- subsidies
 - government 149
 - trade 286, 288
- substitution effect
 - of price changes 55-6, 221
 - of wage increases 97
- supply
 - in the drugs market 117
 - in factor markets 95-7
 - in foreign exchange market 114-15
 - in market for bank loans 116
 - and market failure 126-7
 - in the marriage market 119-20

- price elasticity of 81
- the supply curve 30-2, 35-6, 80
- supply-side policies 229, 253-4
- symbols, used in economics 176

- tariffs 284-5, 289, 315-16, 317, 318
- tastes, and demand 30
- taxation 149
 - and banks 159
 - cutting to cut unemployment 237
 - progressive and regressive 154-6
- thrift, paradox of 170
- time, dimension of markets 112
- TNCs (transnational corporations) 311
- Tobin tax 159
- total costs 32, 69, 70
- Total Operating Surplus, Gross 179
- total revenue 32, 58-9, 75
- trade
 - or aid? 287
 - customs unions 313, 315-19
 - GATT and WTO 289-90
 - globalization 308-12
 - and growth 267
 - interfering with 284-9
 - and money 195-6
 - reasons for 280-4
 - regional trading blocs 313-15
- transfer earnings 98, 99, 100-1
- transfer payments 172

- unemployment 215-17
 - cutting taxes to cut 237
 - economic growth and 265
 - inflation and 247-52
 - and real wages 240-1
 - supply-side policies and 253
 - tackling structural 240
- utility
 - concept of 48-50, 271
 - law of diminishing marginal utility 50-4

- variable costs 69, 70, 73
- VAT 149, 155
- Veblen goods 53, 54, 55
- VERs (voluntary export restraints) 285

- wages
 - in the labour market 92-3, 94-5, 96-7
 - minimum 101-2, 103, 154
 - unemployment and real wages 240-1
- wants, insatiable 2, 3-4, 15, 217
- Washington Consensus 269
- wealth 170
- World Bank 268-9
- WTO (World Trade Organisation) 289-90, 317

- X-inefficiency 150-1
- Xenophon (Greek philosopher) 5

