Zig Zag Education

Economics AS and A Level | OCR | H060/H460

Course Companion

For A Level OCR Economics: Microeconomics

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Contents

Teacher's Introduction

This course companion is designed to support students as they progress through the microeconomics component of their A Level course. By closely following the new OCR specification (first examined in June 2021), the student is provided with a breadth of knowledge, carefully tailored to the level of response required to be demonstrated in the final examination. It is designed to enhance classroom teaching, and students are able to use this resource to read ahead and prepare for a forthcoming topic as part of their independent study time or to use it as a way to check that they have understood a topic covered in class or as part of their revision.

The changes to the OCR Economics specifications for 2015 include an increased emphasis on calculations and use of data, as well as the introduction of multiple-choice questions. This course companion allows students to practice exam-style questions on these new areas as well as providing a wealth of material to help tackle data response and essay-style questions.

I hope this course companion proves to be useful for your students.

*A web page containing all the links listed in this resource is conveniently provided on ZigZag Education's website at **zzed.uk/9802***

You may find this helpful for accessing the websites rather than typing in each URL.

Chapter 1: Introduction to Micr

Section 1.1: The economic problem

This section will help you to:

- understand the economic problem
- think through the consequences of the basic economic problem
- identify normative and positive statements
- explain the term 'scarcity'
- evaluate the problem of scarcity
- explain the role of sustainability, scarcity and choice
- explain the role of the [illegible] economic agents
- explain the [illegible] rewards to the factors of production

Introduction

What is economics?

Economics is the science of choice. It is about analysing and interpreting how ind
a whole interact with each other and how they use the resources available to satis

Science, by definition, is systematic and logical. It seeks to prove relationships an
experimentation. But economics deals with choice and human behaviour, which a
logical. Do you behave differently if you're being watched and judged? Do you p
have to make a choice – or do you sometimes just trust your instincts?

As an economist you should seek to uncover facts and be as *objective* as possible.
aim to verify findings. You will find theories and predictions in economics – just a
order to make these theories and predictions, observations are undertaken, findin
are developed. Often this is done by identifying a question and reducing it to its s
assumptions and ignoring factors that aren't directly relevant we can often unders
more clearly.

Positive and normative statements

At this point it's useful to draw a distinction between *positive* and *normative* statements. A positive statement is objective and based on facts. By contrast, normative statements are subjective and contain an element of opinion. Positive statements do not have to be right, but they have to be able to be tested and verified.

Remember

***For example**, if you work in a 'pay-by-the-hour' job, working more hours will mean you earn more money.* This is a fact and can be confirmed.

Normative statements are opinion based. They cannot be classified as 'right' or 'wrong' and they are not factually verifiable.

Remember
Subjective,

***For example:** 'Earning more money will make you happier.'* This is an opinion and

These ideas are relevant when judging the government's economic policies. Posit
policy will use analysis to work out (or estimate) the costs and benefits of that poli
figures available. On the other hand, a normative approach would use value judg
should be based on opinions and ideas.

In general, economists try to be as objective and positive as possible. Sometimes, For example, some economists suggest that if tax rates are *lower* then the governm overall because people would work harder and earn more if they get to keep more

This raises all sorts of moral and political questions about inequality and the distrib however, would try to be as objective as possible and work out at what tax rates th money. This would then be used as a platform for more normative debates.

The 'economic problem'

The basic economic problem is that resources are finite but the wants of people are infinite. This means the resources that are used to manufacture goods and provide services are limited; there can only be so much. However, there is no limit to our wants, whether that be our want of food, want of a new pair of shoes or want of emergency services; our wants are infinite. There are not enough resources available to 'satisfy' our wants, not enough resources to make all the things we want. This is the problem of scarcity. A choice exists as to what we should use the limited resources for and how best to use them.

This basic problem has important implications for economics as a whole. It means that our economic and political system, as well as our individual choices, determine who gets what in society.

However, there are some things that are generally abundant, such as air or seawater. In economics, these are classed as *free goods* – they are not subject to the same problem of scarcity as other goods. Other goods, which are costly to obtain, are called *economic goods*.

Economic agents

Different groups perform different roles in an economy. The three key groups, or a

- **The government**
  The government has all sorts of roles to play in the economy. They collect taxes spend taxes in ways to (hopefully) improve the economy. Most governments al the UK, the NHS, the civil service and most schools are public institutions that e
- **Firms**
  Firms provide goods and services in the economy. They make use of workers labour and capital in the 'factors of production' section).
- **Households**
  Households are simply the general population of an economy. Households co produced by firms in exchange for supplying labour, and may interact with the

The objectives of economic agents

In economics, certain assumptions are made in order to simplify the complex proc economy. One common assumption is the belief that economic agents are 'ration

- In terms of consumers, economists assume that people **maximise utility**. In decisions that make them feel happiest without influence or bias.
- In terms of firms, economists assume that they aim to **maximise profit**. In o that maximise the most profit without influence of bias.
- In terms of the government, economists usually assume that they aim to **max** decisions that they believe best serve the interests of people in society.

What is maximisation?
Maximisation is a term often used in mathematics. In an economic context, it simply m amount of something possible. For example, a consumer maximising utility will spend t that maximises satisfaction. A person who prefers oranges to apples would always buy o price as apples, for example. This seems fairly obvious, but there are cases where it falls not have perfect information about the quality of each good, or if the consumer cannot a different goods.

These assumptions often form the basis for the economic models since they are s course, there are problems with these assumptions. An offshoot of economics kn has found strong evidence refuting the idea that consumers are always rational de many would argue that governments don't always represent the best interests of t corruption or bias, and those elected may simply have errors of judgement.

Rational decision-making

So, *do* people behave rationally? Economic models tend to assume that we do; we in our best interests. But the chocolate example seems to disprove this – many peo too many chocolates (or a similar good) and felt guilty later.

Assuming that people always behave rationally is useful for creating economic mo simple. However, a relatively new strand of economics known as 'behavioural econ assumption can lead to misleading results. Some examples of the ways in which p from the norm include:

- Altruism / sense of fairness. Contrary to the predictions of rational decision-m self-interested; they care about outcomes for other people. A very simple exp theory is the 'dictator game'. This game has two players: Player A is given a s choose how much of this sum to keep for themselves and how much to give no action in the game). If people were purely self-interested, then we would money for themselves, but in reality, Player A usually gives some of the mone be some flaws in the method of this experiment (e.g. if the two players were have more of an incentive to be generous), it does seem to indicate that altru economic decision-making.
- Limited capacity for calculations. If we were all 100% rational, we would be ab possible situations accurately and instantly. In reality, humans are not calcula capacity to interpret and evaluate information in a given time frame. This me sometimes just estimates of the best possible option, not fully thought throu
- Biases in decision-making. One example of this is adhering to social norms, e because it is fashionable to do so, rather than because of the intrinsic utility g

Rationality:
This is a fairly small topic on the OCR specification, so you need to know a lot about it for the exam. If you're interested in out more about behavioural economics, try reading one of t
Thinking Fast and Slow – Daniel Kahneman
Predictably Irrational – Dan Ariely

The factors of production

Economists group the resources needed to create goods and services into four br
capital and enterprise. These are known as the **factors of production**. The amou
us, as humans, is limited, which is why all of our wants cannot be satisfied. Let's lo

- **Land**: The amount of land in the world is limited. The idea of land as a factor
  materials and the sea.
- **Labour**: The labour force is limited in both numbers (those able and willing t
  increase their skills through education and training.
- **Capital**: The idea of capital refers to all man-made goods that can be used to
  factories, machines, computers, tools, etc. Capital can be increased through i
  production or simply to replace old, worn-out capital). Capital goods are use
- **Enterprise**: The concept of 'enterprise' refers to the human ability to bring the
  production together to create goods and services. It is the idea of 'entrepren
  risks their own wealth to set up companies and sell goods and services to co
  willingness to take on risk nothing would be produced!

Each of these factors of production comes with an associated **reward**. Land is reward
capital with interest, and enterprise with profits. The rewards to each factor are what

It's worth pointing out at this stage that resources can be renewable or non-renew
to those that will be replenished at a sustainable rate, such as wind energy or wate
water is not replenished quickly enough to keep up with its uses; is it, therefore, a

Non-renewable resources are resources that diminish once used, or are not replen
fuels are a non-renewable resource. They are replenished, but over thousands of y
enough to replenish our oil stocks, so the amount of fossil fuels available diminish

The environment as a scarce resource

It should be noted that the environment can also be classed as a scarce resource.
environment. We want it to be clean and attractive and to enjoy it as part of leisu
to dispose of our waste, absorb our emissions and provide our food, minerals and
infinite amount of these ambitions from the environment. The environment is, the

This means that we must make trade-offs. Is it worth extracting stone for constru
and contributing to pollution? Is it worth cutting down trees for paper manufactu
the number of attractive forests?

There is an intergenerational dimension to the question of how to use the environment. Is it fair to future generations if we misuse the environment for our economic goals *today*? Think about the distinction between renewable and non-renewable resources. If the environment is non-renewable – once depredated it cannot return to its former state – then it becomes much more important to prevent any environmental destruction. This is, though, a *normative* idea and the source of much debate and argument.

ACTI

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Exam-style questions – The basic economi

For multiple-choice questions try to test your knowledge by first reading the stater
thinking of the correct answer. Only then should you look through the suggested
less likely to be distracted by possible answers, as you are now looking for a partic
first, but will help to build your confidence with multiple-choice questions.

Multiple-choice questions

1. Which of the following is a normative statement?
   A. The average house price in England and Wales is £[illegible]0,000.
   B. 1.7 million people are unemployed in the UK.
   C. The unemployment rate should be below 5%.
   D. 86% of households in the UK have internet access.

2. The reward for [illegible]
   A. Ta[illegible]
   B. Re[illegible]
   C. Dividends
   D. Profit

3. The problem of scarcity applies to which of the following?
   A. Tickets for football matches or music festivals sell out quickly.
   B. Some people are homeless.
   C. Elephant populations have fallen due to poachers hunting them for ivory
   D. All of the above.

4. Which of the following assumptions do economists make about consumers in
   A. They aim to maximise the number of goods consumed.
   B. They aim to maximise utility.
   C. They aim to maximise wages.
   D. They aim to minimise losses.

Section 1.2: The Allocation of Resources

This section will help you to:

- explain how resource allocation differs between market, mixed and planned
- evaluate some of the pros and cons of each economic system
- evaluate how incentives in an economy govern resource allocation
- understand the different possible objectives of economic agents
- understand the concept s of productive and allocative efficiency

Resource allocation is about who gets what in society. There are three main types of resources differently:

Market economy	Mixed economy	
No state intervention; markets; resources allocated purely by the market	Markets operate freely but with some state intervention	No allo
Associated with 'laissez-faire' idea (let people do as they choose). There are no real-world economies that operate entirely like this, although some economies have very minimal state intervention.	Almost all economies (including the UK) fit into this category, but economies vary as to the degree of state intervention in markets, e.g. the UK has become more free market since the 1980s, when many state industries were privatised.	Ass the mic is t but wo

Most countries in the world today have a **mixed economy**, market-based but with This means that consumers and producers decide how resources should be alloca cases the government will choose to step in, e.g. to correct a *market failure* (see S referred to as capitalism.

The market economy is in contrast with the 'planned economy', where the govern and fixes the prices of goods. The Soviet Union and China under Chairman Mao a economies (both Russia and China are market economies now, but with heavy go sometimes known as 'state capitalism').

Strengths and weaknesses of the market economy

One of the key advantages of the market economy is that market forces are free t and how much to produce. Firms decide what to make based on consumer 'dema Virtually all economists agree that this leads to a more eff allocation of resou to plan production. Consumers also have a far gre ce of goods on offer, a for firms to produce efficiently, since thei depend on it.

These incentives are lac planned economy: most workers receive the sam they work, r goods on offer is far more limited.

However, critics of free market economies argue that they create inequality, with some people becoming rich and some people living in poverty. In theory, this is less of a problem in planned economies since everyone receives pretty much the same income (but in practice, corruption led to small elites gaining power in planned economies).

ACTIVITY

Watch this sho Friedman, a N economist, exp free market. *https://www.yo*

Inequality can be corrected by government interventions to some degree, e.g. via progressive taxes (meaning that the rich

pay a larger share of tax than the poor), but it can still be a problem. Nevertheles
capitalism 'lifts all boats', i.e. on average people are better off compared to a plan
agree on this, most disagree on the extent to which the government should interv

The importance of incentives

The type of economic system has implications for people's incentives. So, in a market economy, people are motivated by self-interest (essentially making money). Markets spring up where people can sense they can make profit, and resources are allocated by these markets. Consumer demand for goods and services determines what is produced, and resources are allocated according to who has the means to buy these goods and services.

This incentive (self-interest) has proven to be quite effective: if goods are overpriced, people will buy less of them, so prices naturally fall. Economists argue that free markets are efficient: goods and services are priced at precisely the right levels, and produced in the quantities we desire.

This is in stark contrast with the planned system, where the incentives are less obvious. In a planned economy, most workers receive the same income regardless of how much effort they put in. This means that there is a tendency for people to shirk, and production tends to be low. In China under Chairman Mao, for example, the state set production targets in manufacturing and agriculture, which were routinely missed, but workers felt pressured to report that they had hit the targets to satisfy the government. Eventually this led to the greatest famine in world history, where tens of millions (!) of people died from food shortages from 1958–1962.

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So even though everyone gets roughly the same income (which is equitable), tota
consumer choice is very limited. There is a possible altruistic (selflessness) incenti
economy, everyone will gain a little. But this incentive seems to prove less powerf

Of course, the market system is not without its flaws: in a pure market system, son
living in poverty, while some accumulate vast wealth. This is why most economies
correct inequality and provide a 'social safety net' for the poorest in society. The r
will be discussed further in Section 2.11.

Efficiency

Making the best use of resources available is important in any economy. But in ec
types of efficiency, the main ones being **productive** and **allocative** efficiency.

Productive efficiency occurs when an optimal level of output is produced using a
the economy. Any additional product cannot be produced without reducing the a
is measured using costs, as the more efficient production is, the fewer inputs are n
cheaper it is.

Allocative efficiency is about distributing and assigning the resources a firm has
effective way to satisfy the demand of the consumers. There's no point being pro
in an economy are being used to grow cabbages – this doesn't satisfy all the dem

Achieving either type (or both types) of efficiency is considered beneficial for an e
wasted in production and resources could not be distributed in a better way. Whe
and productively efficient it is said to be **economically efficient**.

Section 1.3: Opportunity cost

This section will help you to:

- understand the terms 'opportunity cost' and 'trade-off'
- be able to draw and comprehend the production possibility curve (PPC)
- explain why a PPC might shift
- understand how the PPC is related to opportunity cost, scarcity and choice

Opportunity cost

When a choice is made, one thing is picked over anoth... unchosen option has been 'given up'; a sacrific... h... made in order to have the other option. The ... option is the cost of your choice.

Oppor... it is the ... sacrifice...

For examp'... *w... packet of crisps (worth 80p) and a chocolate bar (also wo... and so you'... th. However, your resources are finite; you only have 80p to spe... choose? If you choose the chocolate bar, you have given up having the crisps; you h... eat crisps in order to have the chocolate bar. The crisps are your 'opportunity cost'.*

*In this case there is a **trade-off** between the crisps and the chocolate: you can only ...*

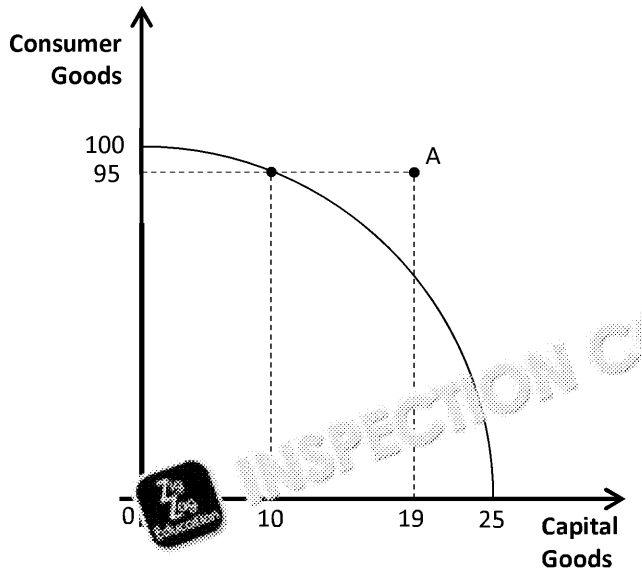
Opportunity cost is a fundamental concept in economics, and it can be applied to ...

PPCs

So, resources are finite and wants are infinite. In an economy, the resources can be dedicated to producing *consumer* goods or *capital* goods, or a combination of the two. A production possibility curve (also known as a production possibly *frontier*) is a line that depicts all points which show the maximum output that is possible for an economy to produce when it fully and efficiently employs all its resources.

Capital G... production...

Consumer... customers.



Consider an example: if ... consumer goods you ca... goods, or if you dedicat... goods you can produce ... can be shown *graphicall...* **curve (PPC)** diagram, s...

QUANTITATIVE SK...

Interpreting Graphs
The ability to interpret ... Frequently diagrams ar... changes to specific qua... of this. It's used to show ... two goods – the actual ... only illustrative.

As you move along the curve it shows all the maximum combinations of capital ... produced, if all the resources available are used and are used efficiently. The curv... potential' of an economy; this is also known as the economy's 'productive cap... economy to produce. If the economy is producing at any point *inside* the curve, the... number of goods it is able to. This could be because some of the resources are ... because the resources used aren't being used efficiently (*under*employed). This me... is an **inefficient** allocation of resources, and anything on the curve is an **efficient** ...

Similarly, a point outside the curve is an unobtainable combination of capital and c
enough resources available, currently, in the economy to produce this number of c

For example: *Point A shows a combination of 19 capital goods and 95 consumer g
using the resources available at the current time. The maximum combination of go
would be only 10 units of capital goods.*

In order to produce at point A, the economy needs more resources or more productive resources. More (or more productive) resources would push the PPC outwards, as shown on the diagram, because it would now be possible to produce more goods. If there were a technological advancement that meant each machine was twice as productive (could produce twice as many units as before) then the PPC would shift outwards by tw ch. This would indicate that there was economic growth. An inw shift of the economy would mean fewer goods co uced – economic decline.

Good B

Reasons for Outw s of the PPC

- The po n creases which means there is more labour available.
- Techno improvement means the machines could produce more goods

Reasons for Inward Shifts of the PPC

- A natural disaster would destroy or damage resources.
- War can mean the PPC will shift inwards because labour may be taken out of t
  are likely to be damaged or destroyed. It is also likely that the economy shifts
  move to another point on the curve.

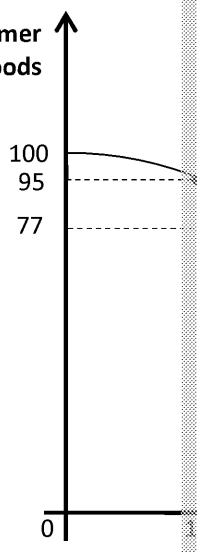
Productive Efficiency

Productive efficiency occurs when an optimal level of output is produced using all
economy. Any additional product cannot be produced without reducing the amo
measured using costs, as the more efficient production is, the fewer inputs are nee
it is. Any point on the boundary of the PPC is productively efficient.

Marginal analysis

Shifts in the curve are different to movements along. Shifts mean the curve itself moves to a different position; a movement along means the curve stays static and instead the economy produces at another point on the curve. Movements along occur through decisions to produce at different points; perhaps producing capital goods is more profitable than producing consumer goods, for example.

Let's consider moving from Point A to Point B:



At **Point A** the economy produces 95 units of consumer goods and 10 units of capital goods.

At **Point B** the economy pro 77 units of consumer goods and 16 units of capital goods.

The differen veen A and B is 18 units of consumer goods and 6 units of capital goods.

If the economy decides to produce more capital goods, then the combination of goods it produces will change. Staying within the means of their current resources, they will move along the curve to a point that produces more capital goods, but unfortunately the basic problem of economics – that of scarcity and choice – means they will have to give up some production of consumer goods.

This movement has an opportunity cost associated with it. The opportunity cost o
goods would be 18 units of consumer goods. Or, in other words, in order to gain
economy must forgo 18 units of consumer goods. It is possible to work out the o
extra unit of capital goods from point A using the formula below. Because we are
the relationship is non-linear and so the answer would be different if we took two

$$\text{Opportunity Cost} = \frac{\text{What is Sacrificed}}{\text{What is Gained}} = \frac{18 \text{ units of consumer goods}}{6 \text{ units of capital goods}} =$$

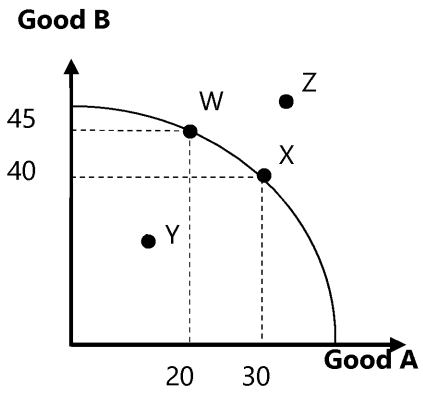
The opportunity cost of gaining 1 extra unit of capital goods is 3 units of consume

Exam-style questions - Allocation of resources

Multiple-choice questions

1. Which of the following is true of a planned economy but not of a market eco
   A. Consumers have a wide choice of goods and services.
   B. Output is determined by the choices of firms.
   C. Prices are fixed by the government.
   D. Firms compete with each other for customers.

The following diagram shows a production possibility curve for an economy that p
Good B.



2. Which of the points are efficient and attainable?
   A. W and X
   B. X and Y
   C. Y and Z
   D. Z and W

3. Using the same diagram, the economy moves from point W to point X. Which
   true?
   A. The opportunity cost of gaining one unit of Good A is two units of Good
   B. The economy is more efficient.
   C. Fewer total units of Good A and Good B are being produced.
   D. The opportunity cost of gaining two units of Good A is one unit of Good

4. A shift to the right in the PPC could be caused by:
   A. The development of better production methods
   B. A fall in immigration
   C. A change in the opportunity cost of producing Good A, in terms of Good
   D. All of the above

Chapter 2: The Role of M

Section 2.1: Specialisation and trade

This section will help you to:

- understand what is meant by the division of labour
- understand what is meant by specialisation
- evaluate how these concepts can help address the problem of scarcity

Specialisation and the division of labour

The concept of the division of labour dates back to Adam Smith in the eighteenth century – Smith is known as the 'father of modern economics'. This is the idea that if individual workers in a firm (particularly a manufacturing firm) concentrate on a narrow range of tasks, overall productivity will be much higher than if everyone took on a multitude of tasks. Smith's classic example is that of a pin factory, but here is another:

Example: *A firm produces dolls. The stages are: moulding the body parts, attaching the body parts, painting the face, making/attaching the clothes and making/attaching the hair. A person could make a whole doll and do every stage, or they could concentrate on only one stage, such as painting the faces on all the dolls. If the worker's only job was to attach body parts, say, then they would get quicker and better at doing it. This way, by allocating each stage of the process to different workers, the production of dolls becomes faster and more efficient.*

The idea that individual workers should 'specialise' in a particular task can be extended to individual countries. Smith noted this, and his work was improved up another heavyweight economist of that time period.

For example: *France should specialise in producing wine and Belgium should speci order to obtain both goods, France and Belgium should trade their excess wines and both countries end up getting far more wine and beer than if they both produced th*

Therefore, specialisation and the division of labour can go some way in addressin

Advantages of Specialisation	Disadvanta
If a country specialises in a product it is good at producing, it usually is more efficient at producing that good. Therefore, efficiency increases with specialisation.	The sector that produc chooses not to speciali likely to collapse.
This means inflation would be lower and consumers would benefit from lower prices.	It is advised not to 'pu more diverse economy shocks which only affe
Specialisation would mean production would increase; countries naturally produce more if they specialise in what they are good at.	The country will becom who produce the good
Advantages of Division of Labour	**Disadvantage**
Division of labour is more efficient as the time spent switching between tasks is eliminated.	Sticking to the same ta can occur from monoto
Practice makes perfect – as people focus on one task, they will become experts in that task as they 'learn by doing'.	People may become ex they are unable to do a the job; as a whole, an e structural unemployme

Exchange and the role of money

Subsistence production is about only producing goods in the quantities one needs
In other words, a subsistence farmer will only produce enough food that he and his
family require. Thus, there is no scope for extra production which may be sold for
income. This may be due to a lack of specialisation which reduces workers'
productivity (i.e. how much a worker can produce in, say, one hour).

Specialisation improves workers' productivity, as each worker only focuses on doing
production process. This means workers can produce more goods than they need
trade those goods with someone else; extra goods could be traded for money or o

Traditional economic theory suggests that in ancient times people in local commu
other goods. This is formally known as the barter system. Bartering was when one
return for another; this could be any good such as a horse for five chickens. From
price or value of different goods: are five chickens worth the same as one horse? I
to buy a horse and the seller wanted a cow, but you only had chickens, or had rece
hay you sold. This would be very inconvenient and difficult to manage. The seller
the value in hay and chickens, or you would have to trade hay and chickens to re
horse. This highlights the problems resulting from a lack of value and a lack of a t

Essentially, the problem in the barter economy arises from a 'double coincidence o
want what the other has, and this 'double coincidence' doesn't always arise.

Thus, given the inherent issues in the barter system, in particular the need for a do
forms of exchange started emerging. Some countries began developing gold and s
exchange, while others relied on precious metals. However, these too came with pr
paper money emerged, where the paper or coin in itself had no physical significan
widely agreed form of exchange and no one disputes the value of any paper mone
completely eliminated the need to have a double coincidence of wants and, to a la
uncertainty (of course, uncertainty with regards to the exchange rates remains!).

Paper money (combined with bank deposits) is the most convenient system of mo
facilitating trade and exchange far more effectively than a barter system. But, who
our current system will be replaced with an even more convenient digital one!

For the exam you won't need to know any details about the history of money – o
more effective at facilitating trade and exchange than a barter economy.

Section 2.2: Demand

This section will help you to:

- distinguish between individual and market demand
- explain the concepts of joint, composite and competitive demand
- understand the difference between a movement along the demand curve an
- consider factors that might shift a demand curve

Introduction

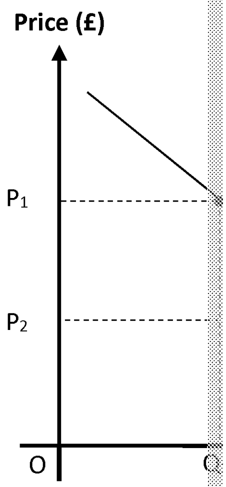
Supply and demand analysis is one of the most fundamental tools used in econom range of markets. This section introduces the basics of demand and supply.

Markets and sub-markets

We usually look at demand and supply in the context of markets, e.g. the market f What factors cause producers to supply different amounts of fruit and vegetables? to buy different amounts of fruit and vegetables?

Demand

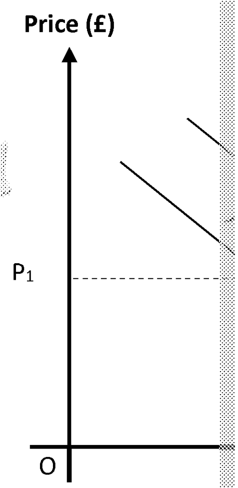
Demand is what consumers are willing and able to buy – so even if someone wants a yacht, unless they can actually pay for it then we do not count their wish in the 'demand' for yachts.



Demand can be split into individual and market demand. An individual's demand for apples may be, say, five per week. But the market demand per week will be much larger: the sum of every individual's demand.

The demand curve

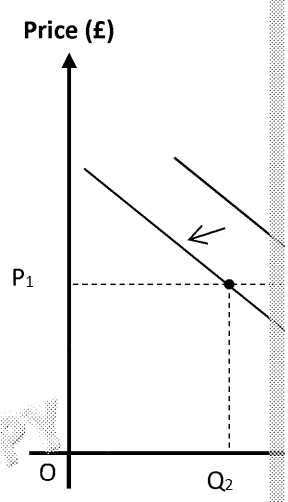
We show demand (and supply) curves with price on the y-axis and quantity on the x-axis. The demand curve is downward sloping: this is because at high prices, quantity demanded is low and at low prices, quantity demanded is high.



The diagram above shows an **extension** of demand. Price has fallen from P_1 to P_2, which has increased quantity demanded from Q_1 to Q_2. This movement down the curve is known as an extension. In the opposite case, a price rise would show a **contraction** of demand.

It is very important to distinguish between extensions/contractions and shifts in the demand curve, shown on the right.

In this diagram, demand has shifted to the right, from D_1 to D_2. This means that more is demanded than before at the same price. There are many reasons why a demand curve could shift: they are all non-price factors. For example, suppose this is the market for broccoli. Suppose a new study came out that found that broccoli had amazing health benefits. Then demand would shift to the right – more people would be willing to buy broccoli at price P_1 than before.



Similarly, demand can shift to the left. This can be seen in the diagram on the bottom right. Suppose the price of cauliflower, a substitute for broccoli, went down sharply. Then more people might buy cauliflower instead of broccoli, shifting the demand curve for broccoli to the left.

Factors causing a shift in the demand curve

Shifts can be caused by:

- **Changes in preferences** (e.g. advertising or publicity)
  The horsemeat scandal in 2013 caused a shift in the demand curve in the ma containing beef. As it was found out that a lot of the meals had contained ho consumer shifted their preference away from these products. The demand fo curve shifted inwards. Similarly, if it was found that a certain product was go shift the demand curve out. Over the last 100 years or so, the preference for demand curve for lamb has shifted out and out. This is why lamb prices have
- **Seasonal factors**
  This is similar to the changes in preference. Some demand curves shift with t become more demanded during Easter and Christmas time, much the same a increase during the Christmas season. The demand for airline tickets will incr which explains why ticket prices increase.
- **Change in income**
  If people's incomes rise, they are able to buy more goods and it is assumed t will increase. It is unknown exactly which goods will be demanded more, but some kind of change in their demand.
- **Changes in prices for other goods**
  If the price of cola were to increase, some people would be likely to swap to l equal. The demand curve for lemonade would shift out as people are willing t lemonade, before the price increases above the new cola price and they inste This means the demand for goods is dependent on consumers' ability to con Equally, if the price for lamb falls, it is likely peopl buy more lamb and sh will be more on these relationships in the next section.

Different types of de

Some different types of demand you should be aware of include:

- **Joint d**
  This is w demand for one good is linked to that of another good. For exa toothbrushes are jointly demanded, since it's not much use having one witho would be printers and ink).
- **Composite demand**
  This is when a product is demanded for several different purposes. For exam making furniture, as firewood, or as a building material. Another example wo used for fuel or in manufacturing.
- **Competitive demand**
  This is when two goods compete with each other, as they both fulfil the same

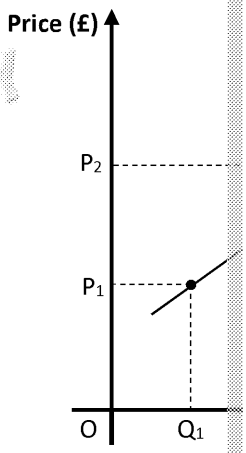
Section 2.3: Supply

This section will help you to:

- distinguish between individual and market supply
- explain the concepts of joint and competitive supply
- understand the difference between a movement along the supply curve ar
- consider factors that might shift a supply curve

Supply

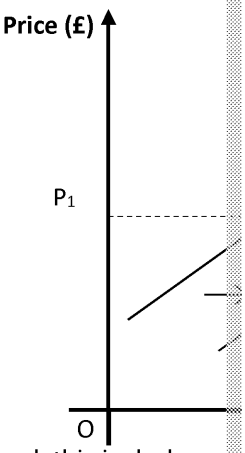
Supply is the goods that producers/firms bring to the market. As with demand, we can distinguish betwe individual and market supply. One firm may supply certain amount of fresh fruit and vegetables to market supply is the sum of each individual firm's supply.



The supply

We show th y curves with price on the y-axis and quantity on the x-axis – just like the demand curve. The demand curve is upward sloping: this is because at high prices, more producers will want to supply the good, and at low prices, fewer producers will want to supply the good.

The top diagram on the right shows an **extension** of supply. Price has risen from P_1 to P_2, which has increased quantity supplied from Q_1 to Q_2. A **contraction** of supply occurs when falling prices lead to a lower quantity supplied.



As with the demand curve, It is very important to distinguish between extensions/contractions and shifts in the supply curve. The diagram on the bottom right shows a shift to the right in supply.

Factors causing a shift in the supply curve

Shifts can be caused by:

- **Changes in input prices**
  The supply of a good depends on the cost of making a good, this includes m used (known as capital), electricity bills, etc. If these input costs increase then supplied at every price level, and similarly if input costs fall then more can be ***For example:*** *The most influential input cost is oil price; oil is used to create en effects of changes in oil prices are felt by most businesses and tend to be a larg increase in oil price will shift the supply curve to the left.*
- **Technology**
  New technology can increase the efficienc o pr ction by improving eithe to make the goods. By becomin ore efficient a firm are able to produce m curve out because more g s can be produced at each price level.
- **Changes in go t policy**
  Gover ca influence the supply of goods in various ways, perhaps by im or regu ne market (this is discussed further in Chapter 3). For example, t in 2016 should shift the supply of these drinks to the left, as it is more costly fo

Different types of supply

The two different types of supply you should be aware of are:

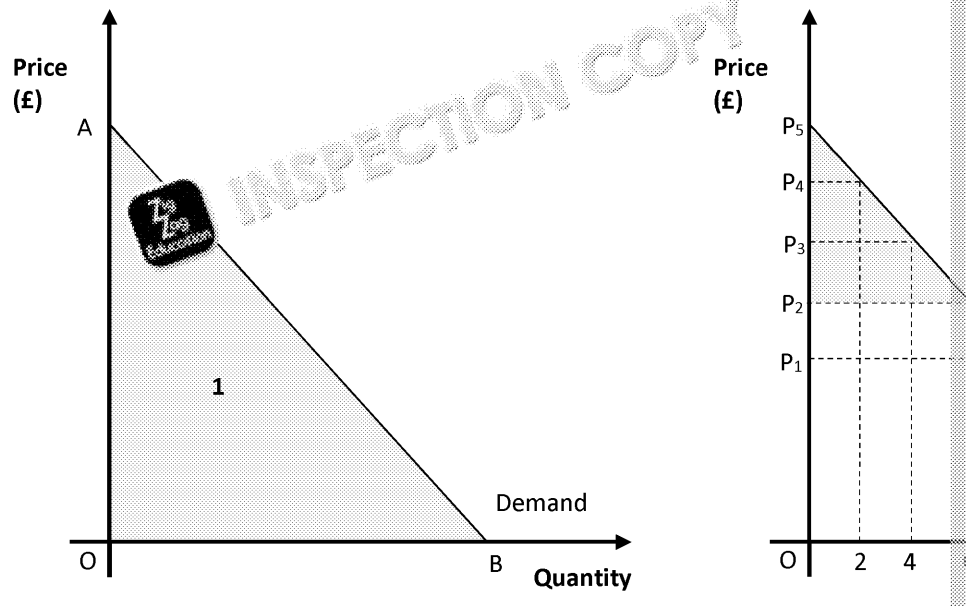
- **Joint supply**
  This is when two goods are produced simultaneously. For example, beef and
- **Competitive supply**
  This is when a firm has a choice about which good to produce, as they could goods with the same inputs, e.g. a farmer could use land to produce several p

Section 2.4 Consumer and Producer Sur

This section will help you to:

- understand the term 'consumer surplus', and label this on a diagram
- understand how changes in price affect consumer surplus
- understand the term 'producer surplus', and label this on a diagram
- understand how changes in price affect producer surplus

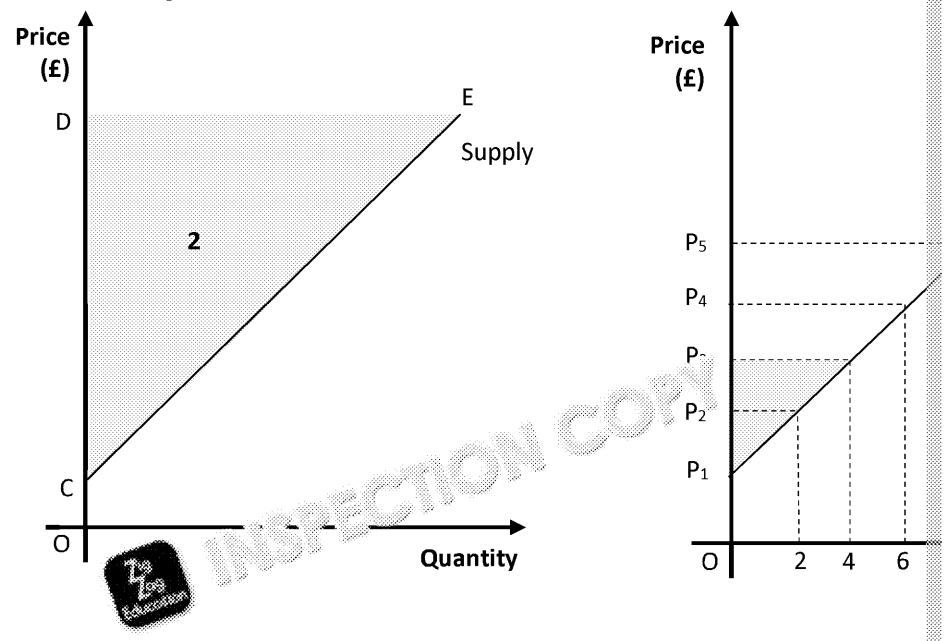
Consumer surplus



Consumer surplus is the 'surplus utility' of consumers as shown by area [1] in the d
what the demand curve shows.

The demand curve shows the price consumers are willing to pay for the good. Eve
are fewer consumers who would be willing to pay this price and the quantity dem
eight consumers who would be willing to will buy the good; at P_2 only six consum
higher price; this pattern continues until there are no consumers who would be wil
the price was set at P_2 there would be consumers who would still be willing to pay
these consumers, they will have spare utility from purchasing this good at a lower
all the consumers willing to pay above the set price is the 'consumer surplus' and is
demand curve but above the price.

Producer Surplus



Producer surplus is similar to consumer surplus. It is the area above the supply cu
showing the additional benefit to producers.

The supply curve shows the minimum price producers would be willing to accept f
supplied. If the price of the good was P_3, there would be some suppliers who wou
at a lower price. This is the producer surplus, the additional benefit producers rec
higher price than they would be willing to accept. It can be seen as area [2] on th

QUANTITATIVE SKILLS

Interpreting areas on a graph

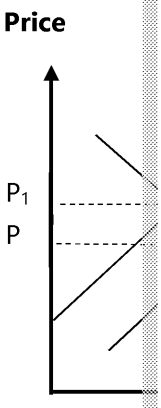
In diagrams such as those shown above it is useful to think about areas on graphs as well
represent the total value of the goods sold. If the lines are straight then the areas can be
of a triangle is $\frac{1}{2} \times$base $\times$ height.

The base can be taken as the equilibrium quantity on the *x*-axis, while the height is the di
equilibrium and the intersection of the demand curve (in the case of consumer surplus), or
(in the case of producer surplus).

Exam-style questions – Supply and Demand

Multiple-choice questions

Look at the diagram showing the market for wheat. A spell of bad weather causes supply to change to S_1. Quantity cannot exceed Q_1 due to the poor harvest.



1. Which of the following statements about this market is false?
   A. Consumer surplus is lower after the change in supply.
   B. If demand shifts to the right, quantity will increase.
   C. The new equilibrium is P_1Q_1.
   D. If demand shifts to the left, wheat producers would lower their prices. **[1 mark]**

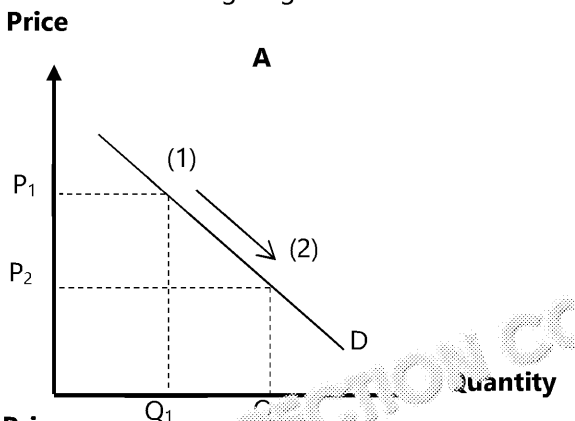
2. Look at the following table. Which of the columns is correct?

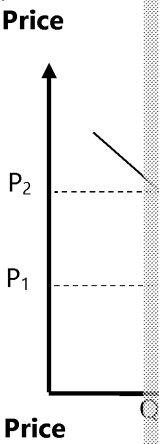
Type of demand	A	B	C
Composite demand	Paper and pens	Labour	Oi
Joint demand	Oil	Paper and pens	Lab

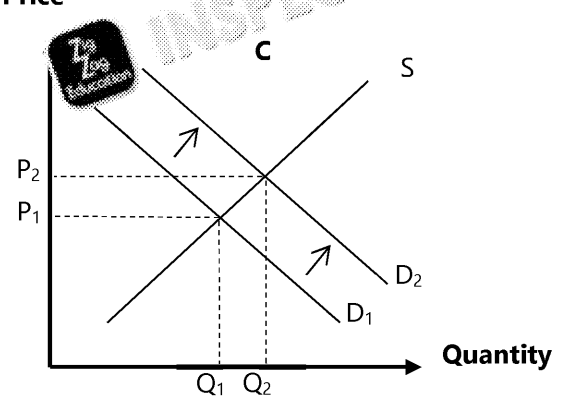
2. Look at the following table. Which of the columns is correct?

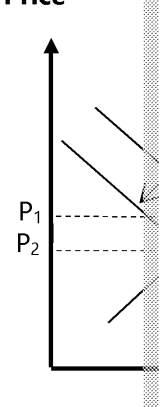
Type of supply	A	B	C
Competitive supply	Wool and mutton	Plant oils and biofuels	Plant oils biofue
Joint supply	Plant oils and biofuels	Wool and mutton	Electri

6. Which of the following diagrams shows an extension of demand?









Section 2.5: The Interaction of Markets

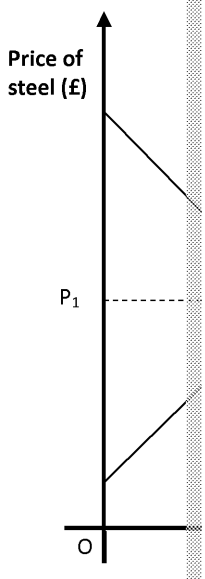
This section will help you to:

- understand how demand and supply form equilibrium in various markets
- understand market disequilibrium and why it might occur
- explain how markets move from one equilibrium to another

The interaction of demand and supply

We can draw demand and supply curves for a particular market on the same diagram. Consider the market for ste

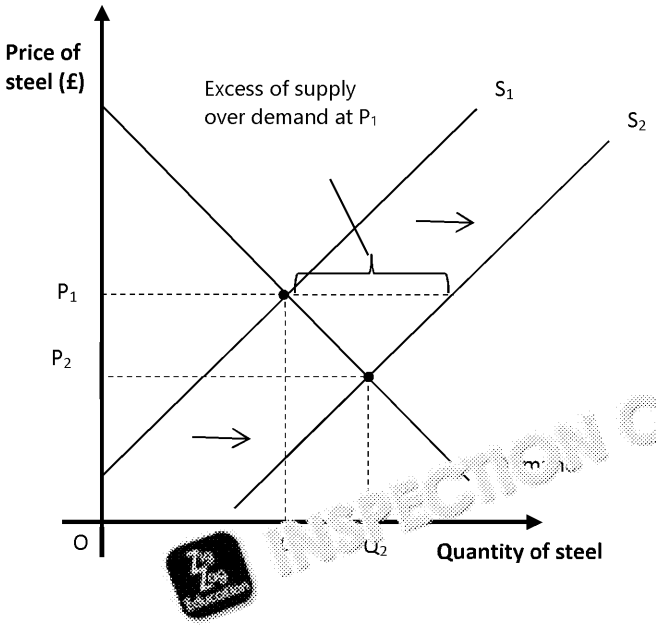
The point where supply and demand meet is known as the **market equilibrium**. At this point supply is equal to demand, and the market is operating efficiently (price is P_1 and quantity is Q_1).



What would happen if the price were higher than P_1? In this case, more suppliers would be producing steel, but demand would be lower. Suppliers would realise this and cut their prices to attract more customers, returning the market to equilibrium. A similar process would happen if prices started below equilibrium: demand would exceed supply, so producers will increase their prices.

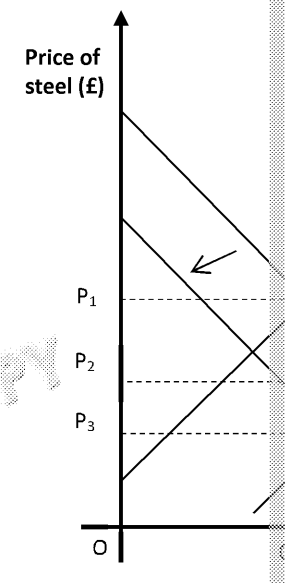
Changes in demand/supply

Suppose that overseas steel companies increase market supply – supply would shift to the right:



After the shift in supply, at the original price of P_1 there is an excess of supply over demand. As such, producers lower their prices to P_2, returning the market to equilibrium.

What if demand were t
substitute was develop
certain situations. Ther

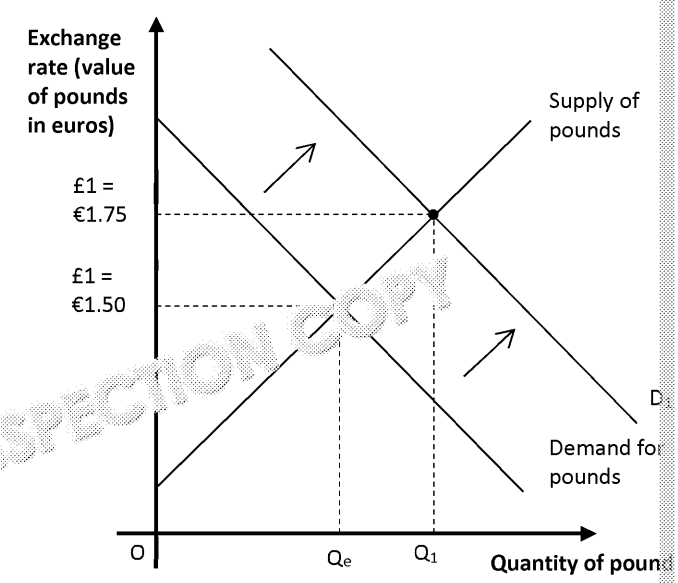


After demand shifts to
demand causes prices
original equilibrium pri

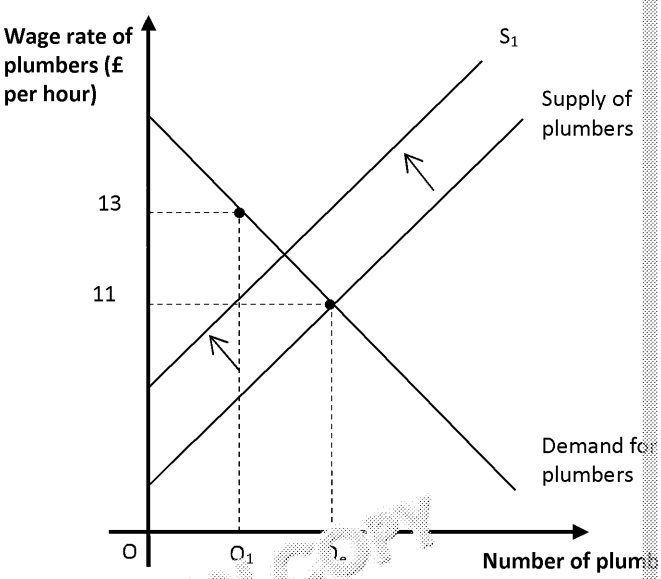
In this case, the quantit
greater than the origin
the shift in demand ha
supply, the quantity wo

Equilibrium in other markets

The steel example above shows equilibrium in a product market, but we can also s
markets and the markets for factors of production. Here's an example of one of e



This example shows a currency market: the demand and supply for pound sterling
rate is £1 = €1.50. Suppose the demand for pounds increased to D_1 (perhaps if th
very strongly). Then the exchange rate (or the price of pounds in terms of euros)
more euros.



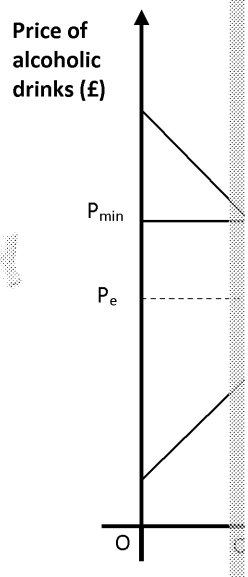
This example shows a labo at the demand and supply for plumbers. In eq
hour. Suppos e s, perhaps because fewer new plumbers are being t
plumbers w as , in this example to £13 an hour.

For the AS exam you won't need to know about financial markets or the labour m
understand that the concepts of demand and supply can be applied to many d

Disequilibrium in the market

The examples above all assume that the market reaches equilibrium smoothly. In s
may be in disequilibrium. Sometimes this could be by design, e.g. suppose the go
price on alcohol:

The government sets the price P_{min}, above the market price of P_e. This leads to disequilibrium, with demand lower than supply. The government aims to reduce the consumption of alcohol to reduce **negative externalities** (see Section 2.11). Note that the effectiveness of this policy would depend on the **elasticity of demand** for alcoholic drinks (see next section). The government could also intervene t
set maximum prices to make certain goods more affordable, e.g. in housing for first-time b



However, sometimes the m
due to other f

- Certain i in the market prevent prices adjusting, e.g. in the our market sometimes wages are 'sticky' – employers don't like reducing wages even if market forces pressure them to do so. (The labour market is covered in Year 2 Economics.)
- The firm supplying goods is a **monopoly**, allowing it to raise prices above the market rate (this is covered in Year 2 Economics).

Further your economic knowledge...

Assumptions and limitations of the demand and supply mode

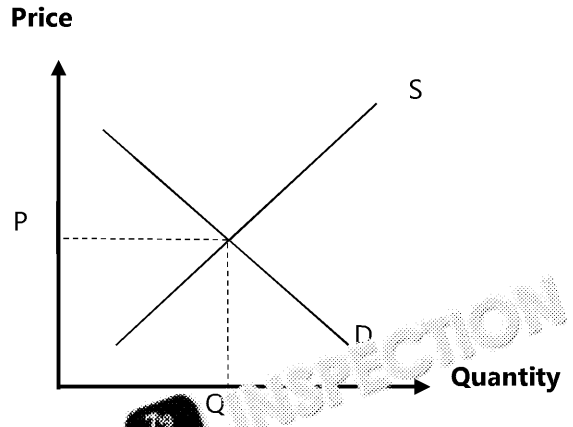
The demand and supply model of markets is a simplified version of reality, so i
limited use in analysing real markets. Here are some reasons why:

- It would be useful for a firm to know the shape of a consumer's demand c
the best prices to charge. However, in reality it is almost impossible to ac
the demand curve. In order to do so, a firm would have to charge each p
demand, and then plot the curve. But this would take a long time – and i
have shifted! So, from a practical perspective, a lot of guesswork would h
- Furthermore, it's very difficult to work out exactly what the causes are beh
supply. Suppose a firm wants to assess the success of a new advertising c
increased by 10% after the campaign, but what if that was because of cha
in the price of a substitute good, and not because of the advertising camp
between the two.
- Following on from the first point again, tim gs atter. The model seem
instantly adjust to changes in dem nd pply, but in reality it takes ti
consumers and producers t th rough. This is particularly the case fo
houses. If the sup es suddenly went up, it might take a fair whi
need ti t oving house. They also might reason that prices will
der g new houses until later.
- As m oned in the 'disequilibrium' section, this model doesn't really wo
competitive. It assumes that producers don't have the power to raise pric
equilibrium. (The issue of competitiveness is explored much more in Year

As a general rule, the demand and supply model is useful for predicting the *ro*
market (e.g. if demand falls, we expect prices to fall), but not very helpful in pre
change (we can't predict how much prices will fall by).

Exam-style questions – The interaction o

Look at the following demand and supply diagram:



1. If dema ts to the right and supply shifts to the left, which of the followi
   A. Price will fall.
   B. Price will rise.
   C. Quantity will fall.
   D. Quantity will rise.

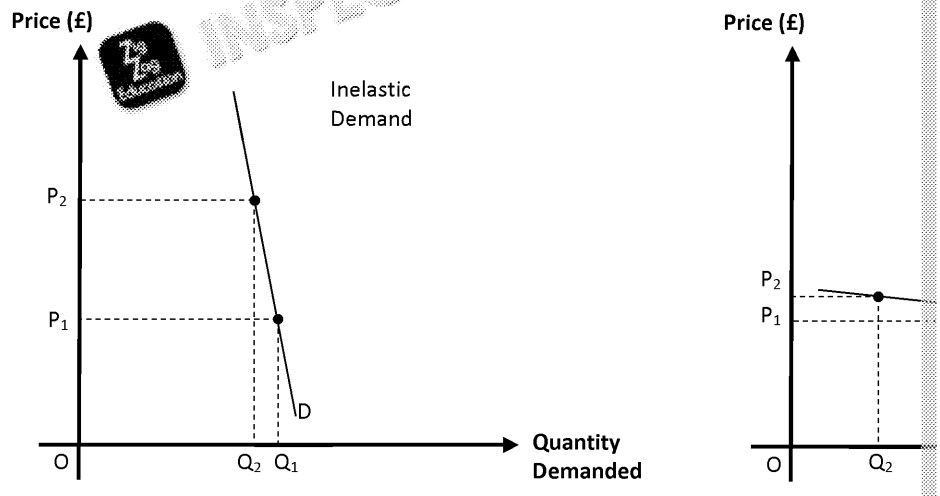
2. Disequilibrium in the markets occurs when:
   A. price falls suddenly
   B. the price of a good is above the minimum hourly wage
   C. price is such that there is a mismatch between demand and supply
   D. producer surplus exceeds consumer surplus

Section 2.6: Elasticity

This section will help you to:

- understand the concept of 'elasticity'
- explain the meaning of and calculate price elasticity of demand (PED)
- explain the meaning of and calculate income elasticity of demand (YED)
- explain the meaning of and calculate cross elasticity of demand (XED)
- explain the meaning of and calculate price elasticity of supply (PES)
- evaluate the factors that might influence the value of PES
- understand the relationship between PED and the total revenue of a firm
- evaluate the factors that might influence the values of PED, YED, XED and PES

Price elasticity of demand



Elasticity of demand measures the amount that the quantity demanded of a good c in prices or income. Elasticity of demand can be thought of as the sensitivity of de demand. There are different types of elasticity that measure the responsiveness o factors. The three you will need to know for your exam are explained below. Elas begin with, but the topic will make more sense as you read.

QUANTITATIVE SKILLS

Interpreting Graphs

When looking at supply and demand diagrams, and other charts, it's useful to think abou steeper vertical line means that a small change in the quantity on the *x*-axis will trigger a the price on the *y*-axis. The opposite is true with a flatter line, in the case of elast large change in price will provoke a proportionally small change in the quantity dema

Price elasticity of demand measures how much a change in price will change the a demand. If prices rise, we are likely to buy less of the good. But what elasticity of you will read is our spending by.

Think of your favourite flavour of crisps: how many packets of these crisps would y How many would you buy if the price increased to £1, and how many would you b price would you think is unacceptable and makes you instead swap to another fla

QUANTITATIVE SKILLS

Calculations of elasticity

Calculations of elasticity are among the trickiest that you will have to do in A Level Econo
daunted: the calculations are relatively simple. Here are some tips to help you:

- Ensure that you know how to calculate percentage changes: $\left[\frac{(\text{New value} - \text{Old value})}{\text{Old value}}\right]$ >
- Price is always in the denominator (bottom half of the fraction) – whatever the type
  calculating.
- Demand is always in the numerator (top half of the fraction).

If something is price inelastic, it means you are unlikely to change the quantity you
as a response to the change in price. As you can see on the gram of inelastic d
This is because, although there is a large change in e to P_2), there is a relati
demanded (Q_1 to Q_2).

If something is price elasti you are likely to change your quantity dema
to a change in ice. an see on the on the diagram of elastic demand, the
because, al there is a small change in price (P_1 to P_2), there is a relatively la
(Q_1 to Q_2).

So why are some goods price elastic and some price inelastic? Here are some fac
elasticity of demand:

- **The availability of substitutes**. If close substitutes for the good are available
  elastic (e.g. if the price of a particular brand of paper increases, demand for th
  easily be replaced by other types of paper).
- **Whether the good is a necessity or a luxury**. An essential good such as oil
  Most people need to drive their cars, so if oil prices go up consumers end up
  switching to other means of transport. A non-essential good is likely to be m

The formula for elasticity is derived by calculating the gradient of the line:

$$\text{gradient} = \frac{\Delta Y}{\Delta X}$$

However, because the demand curve is negative, for ease we use the 'negative rec
produce a positive number. For those who don't do maths, this means we 'flip' the
is concerned with percentage change, we get...

$$\text{PED} = \frac{\Delta \text{ Quantity demanded \%}}{\Delta \text{ Price \%}}$$ percentage change is calculated like this =

If PED is greater than 1, then it is elastic. If the PED is less than 1, then it is inelasti

If the PED = exactly 1, then this has unitary elasticity, which means a change in the
in quantity.

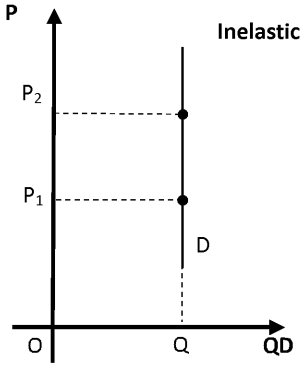
For example: *If price for a magazine r to £3.50 in a corner shop, and the
bought the magazine fell from to 1 hat would the price elasticity of demand b*

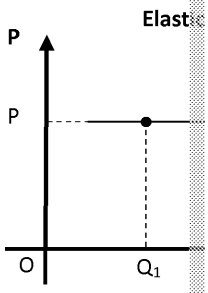
Q: old = ev *(percentage change in quantity)* $\Delta Q\% = \left[$

P: old = , new = £3.50 *(percentage change in price)* $\Delta P\% = \left[\frac{(3.5-}{3}\right.$

$$PED = \frac{-0.25}{0.17} = -1.5$$

*We tend to ignore the 'minus sign' while interpreting the figure, so the PED is 1.5. Be
magazine is price elastic. However, the significance of the minus sign is that tells us
always inversely related.*



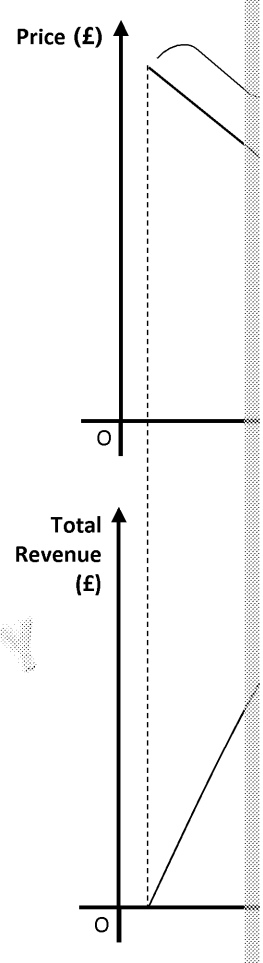


The graphs above only show 'relative elasticity' and 'relative inelasticity'. Perfectly inelastic and perfectly elastic demands are shown in the diagrams below. Perfectly inelastic has a PED of (exactly) 0 and means quantity demanded will not change with a change in price. Perfectly elastic demand has an infinite value; this means that if a firm increases the price of its product then demand for it ceases to exist.

The elasticity of a good has a relationship with the revenue a firm receives. For example, the areas OQP_2 and OQ_2P show a firm's revenue.

Price Elasticity of Demand and Total Revenue

Firstly, let's look at price elasticity over the demand curve. The price elasticity of demand varies as you move along the demand curve. This is because the ratio of quantity to price changes and the significance of a change in price varies. At the top end of the demand curve, prices are high, so a change in price is likely to have little significance; e.g. if the price of a good was £1,500 and rose to £1,520 you would be unlikely to change the amount you buy. However, at the bottom of the demand curve, prices are low and a change in price is more noticeable; e.g. if the price of a good was £20 but increased to £40 you would be more likely to change your consumption.



Additionally, at the top end of the demand curve, prices are high and quantity is low so $\frac{P}{Q}$ is high. As this is the equation for elasticity, at the top end of the demand curve elasticity is high. At the bottom end of the demand curve, prices are low and quantity is high so $\frac{P}{Q}$ is low and elasticity is low. In the middle, quantity and prices are the same. This is where unitary elasticity is found, where the change in price will equal the change in quantity.

Total revenue is the total amount of money a firm has received for all its goods, and good multiplied by the total amount sold. Elasticity affects the total number of goods effect on total revenue.

$$TR = P \times Q$$

At the top end of the curve where the demand is price elastic, a change in price wi
quantity. Although price has decreased (which would decrease elasticity), the qua
overall total revenue would increase. This can be seen on the diagram.

At the middle, a decrease in prices will cause an equal decrease in quantity, the ra
decreasing quantity is the same, and the overall effect is that total revenue will no

On the bottom half of the demand curve, where it is price inelastic, a decrease in p
in quantity. At this point, the increase in quantity is not enough to offset the decr
begins to fall.

The effect of price elasticity of demand on tax[illegible] and subsidies

Taxes and subsidies are tools that the government [illegible] to intervene in a mark
(with diagrams) in Chapter 3. For now, it's [illegible] noting that the effect of these po
price elasticity of demand. If the PED [illegible] good is highly inelastic, then a tax may
rather than firms. For example, if the government taxes cigarettes, most people w
price, since cigarettes are addictive. Therefore, cigarette producers increase their p
consumers [illegible] paying the bill. If demand were more elastic, producers may in
their own costs, since hiking up prices might lose them too many customers.

Subsidies are funds given to firms to produce certain goods, e.g. in the EU, farmer
effect of a subsidy is to shift supply to the right. If the PED for a product is highly i
in supply means that price will fall significantly, but quantity produced only increa
for governments trying to reduce the price of staple foods (e.g. rice) by subsidisin
elastic, the subsidy would lead to a large increase in quantity produced, but with a

In summary, it is crucial that governments have a good idea of the PED of a produ
providing a subsidy in the market, since the PED will have an important effect on t

Income Elasticity of Demand

Income elasticity measures how much a change in people's incomes will change t
will demand. If incomes rise you are likely to buy more of a good. But what incor
much you will change your spending by.

Think about how often you might go to the cinema with friends if you were paid £2
many times you would go to the cinema if you were paid £50 or £100 a week.

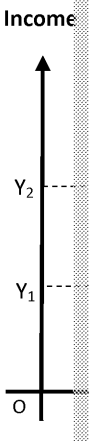
The formula for income elasticity of demand is $\text{YED} = \frac{\Delta \text{ Quantity demanded } \%}{\Delta \text{ Income } \%}$.

Percentage change is calculated like this: $= \left[\frac{(\text{New value} - \text{Old value})}{\text{Old value}}\right] \times 100.$

Exam tips:

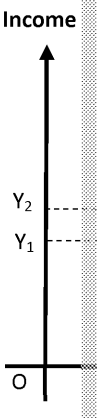
- Note: unlike traditional supply-and-demand diagrams these graphs h
  This is why the demand curves can slope upwards. Be careful when l
  graphs [illegible]ov[illegible].
- Note [illegible] economics the symbol for income is traditionally Y (I is us
  YED is used to denote income elasticity of demand. (See graphs belo

We can use income elasticity to distinguish between a *normal good* – which can be either a luxury good or a necessity good – and an *inferior good*.



The demand for **normal goods** increases with income. Normal goods, therefore, have positive YED values. An example of a normal good would be a car. As income rises the demand for cars rises too. Suppose the YED for cars is 0.8. This means that if incomes rise by 10% then the demand for cars rises by 8%. As this YED is positive but *less than 1* this good is termed a **necessity** good.

A **luxury good** is a normal good with a positive YED that is *greater than 1*. This means that as incomes increase the consumer will spend a *proportionally higher amount* on that good. An example might be a chauffeur-driven car. Imagine the YED for cars is 1.5. This means that an increase in income of 10% would cause a 150% increase in the demand for chauffeur-driven cars.



What if YED is negative? This indicates an **inferior good** which means that as consumers' incomes rise there is a proportionally smaller increase in demand. An example might be public transport – if a person becomes wealthier they will tend to travel by bus less frequently. The YED for bus travel might be –0.4. This indicates that a 10% increase in income will cause consumers' demand for bus travel to fall by 4%.

For example:

a) Quantity demanded for good X decreased from 200 to 150 when incomes rose b

$$\Delta Q\% = \left[\frac{(150 - 200)}{200}\right] \times 100 = -0.25$$

$$\text{YED} = \frac{-0.25}{0.2} = -1.25;$$ *YED is a negative and therefore Good X is an inferior goo*

b) Good Y's quantity demand increased from 180 to 240 when incomes rose by 20

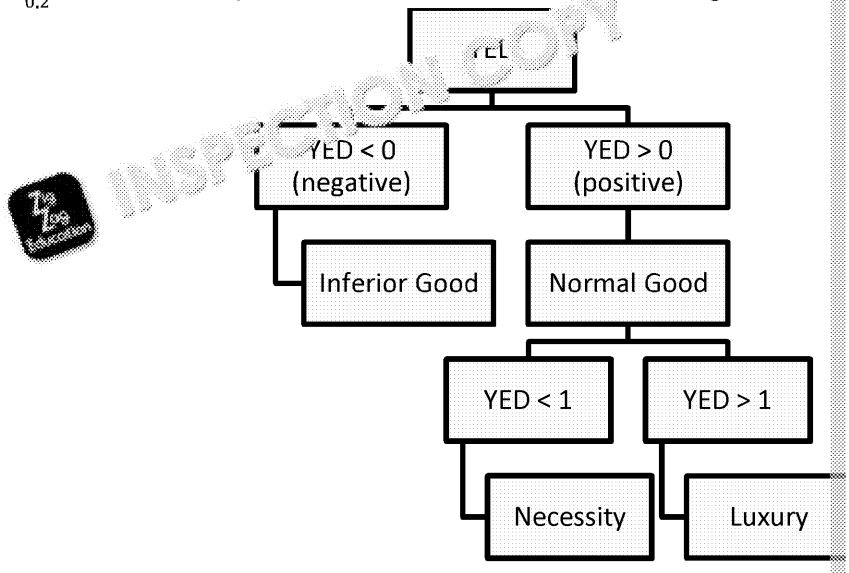
$$\Delta Q\% = \left[\frac{(240 - 180)}{180}\right] \times 100 = 0.33$$

$$\text{YED} = \frac{0.33}{0.2} = 1.7;$$ *YED is positive and therefore Good Y is a normal good; 1.7 >*

c) Good Z's quantity demand rose from 200 to 210 when incomes rose by 20%.

$$\Delta Q\% = \left[\frac{(210 - 200)}{200}\right] \times 100 = 0.05$$

$$\text{YED} = \frac{0.05}{0.2} = -0.25;$$ *YED is positive and therefore Good Z is a normal good; 0.05 <*



Cross Elasticity of Demand

Cross elasticity of demand measures the change in demand for a good when the p
This change in price could be for a variety of reasons, such as if the government w
the other good. If the prices of other goods change, you are likely to increase or d
cross elasticity measures is by how much your spending will change, and whether t
complements.

Think about being in a cafe; how many cups of coffee would you buy in a month i
and milk for the coffee was an extra 50p? How much coffee would you buy if tea d
price doubled?

The formula for cross elasticity of demand is $\text{XED} = \frac{\Delta \text{ Quantity } \ldots \text{nanded\%}}{\Delta \text{ P} \ldots \text{ot} \ldots \text{r good\%}}$.

Percentage change is calculated like t... $= \left[\frac{\ldots \text{value} - \text{Old value})}{\text{Old value}}\right] \times 100$.

If the XED > 0 (i... it ... ...e), then the two goods are substitutes. This means o
as tea and c... you could drink tea OR coffee. The two goods 'substitute' each
rises, the de... for the other falls.

If XED < 0 (i.e. it is negative), then the two goods are complements. This means a
conjunction with the other, such as milk AND coffee, or mint sauce AND lamb. Th
other; as the demand for one rises, the demand for the other also rises.

If XED = 0 then there is no relationship between the goods. A pair of goods is un
closer the XED is to 0 the weaker the relationship is. If XED = –∞, then the goods
would never buy one without the other. A good example would be shoes; you wo
buying the right shoe. If XED = +∞, then the goods are perfect substitutes.

For example:

a) The quantity demand for Good X has risen from 50 to 80 the same time as the pric

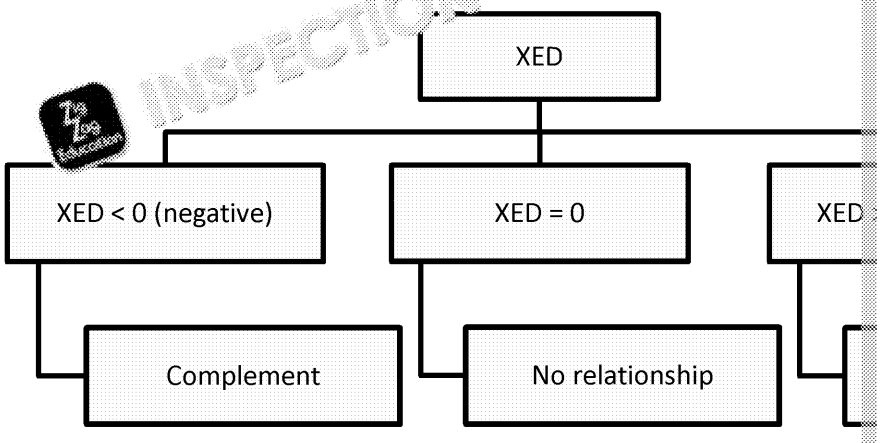
$\Delta Q_x\% = \left[\frac{(80-50)}{50}\right] \times 100 = 0.6$ $\quad \text{XED} = \frac{0.6}{-0.15} = -4$; *-4 >0 therefore Good X complements.*

b) The price of Good B fell by 10% (–0.1) and the quantity demanded for Good A f

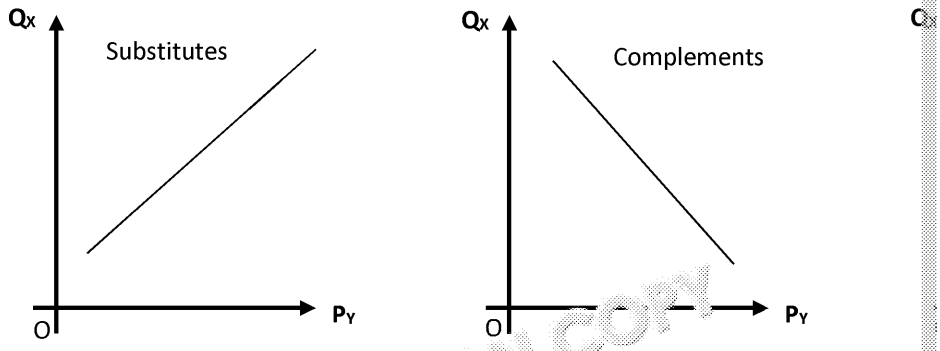
$\Delta Q_A\% = \left[\frac{(240-250)}{250}\right] \times 100 = -0.04$ $\text{XED} = \frac{-0.04}{-0.1} = 0.4$; *0.4 >0, therefore Good substitutes.*

c) The price for Good N fell from £1 to 90p; meanwhile the quantity demanded of

$\Delta P_N\% = \left[\frac{(0.9-1)}{1}\right] \times 100 = -0.1$ $\quad \text{XED} \ldots = \ldots$ *therefore Good N*



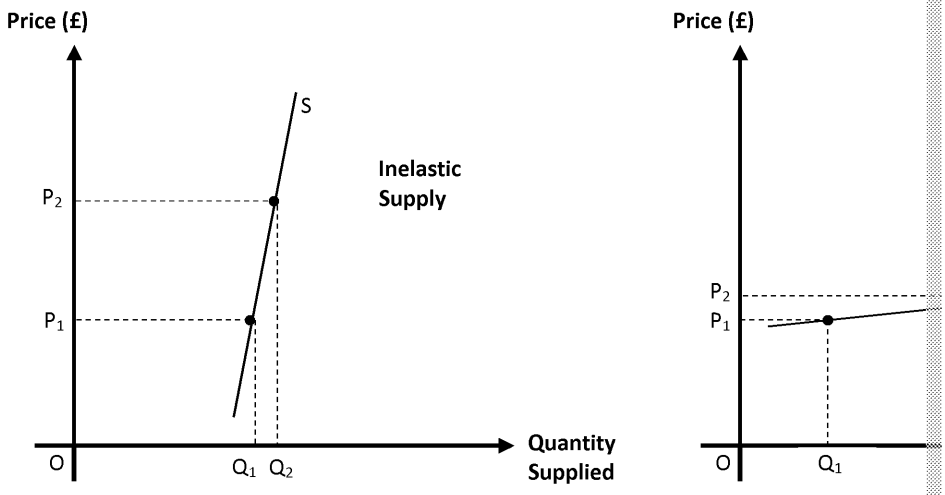
We can show these ideas graphically. The following diagrams have the price of o
quantity demanded of another on the *x*-axis:



Price elasticity of supply

Price elasticity of supply measures the amount that quantity supplied will change a
price. Elasticity of supply can be thought of as the sensitivity of supply or the resp
of demand is to what the behaviour of consumers, whereas elasticity of supply loo

Price elasticity measures how much a change in price will change the amount of a
prices of a good rise, businesses are likely to supply more of the good. But elastic
supply will change by.
If something is inelastic, it means businesses are unlikely to change the quantity su



the price for it changes. As you can see on the diagram of inelastic supply, the slo
although there is a large change in price (P_1 to P_2), there is a relatively small chang

If something is elastic, it means businesses are likely to change the quantity suppli
a change in price. As you can see on the diagram of elastic supply, the slope is very
there is a small change in price (P_1 to P_2), there is a relatively large change in quantity

The formula for calculating price elasticity of supply is the same as the formula for ca

$$\text{gradient} = \frac{\Delta Y}{\Delta X}, \text{ therefore } \text{PES} = \frac{\Delta \text{Price}\%}{\Delta \text{Quantity Supplied}\%}.$$

Percentage change is calculated like this:

$$= \left[\frac{(\text{New value} - \text{Old value})}{\text{Old value}}\right] \times 100.$$

If PES is greater than 1, then it is elastic. If the PES is less than 1, then it is inelastic

If the PES = exactly 1, then this is unitary elasticity, which means a change in the p
in quantity.

These above graphs only show 'relative elasticity' and 'relative inelasticity'. Perfect
and means quantity supplied will not change with a change in price. Perfectly ela
means quantity can change with no change in price.

Factors Affecting Elasticity of Supply

- **Spare capacity**
  Firms will have a higher price elasticity of supply if th ve spare capacity; t
  production that are currently unused.

  For example: *If only three of the five machines are being used in the facto
  production in reac to a change in price by simply using the spare resource a
  Howev e is using all five machines and is at full capacity, then it is u
  will be elastic.*

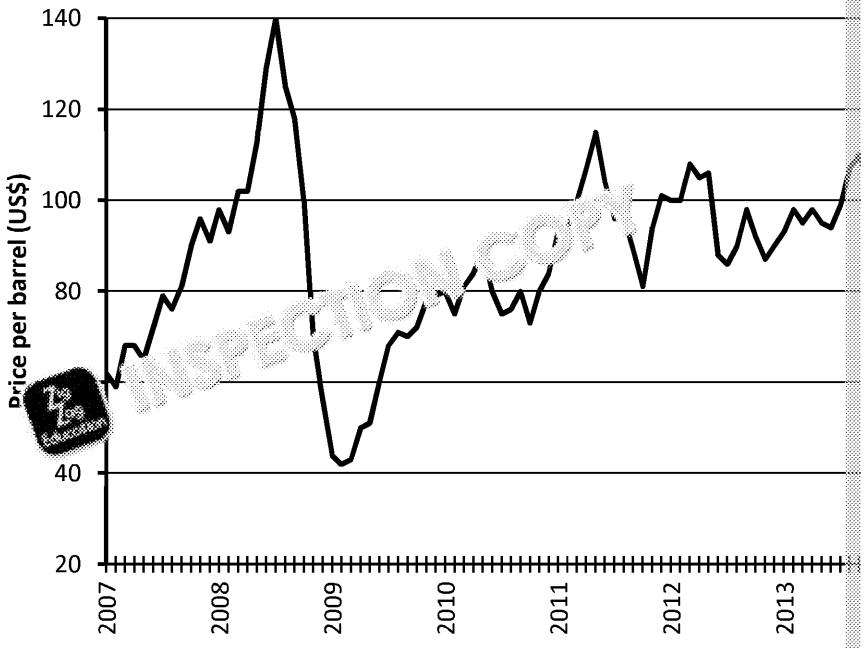
- **Permanent or temporary price change**
  For this point you need to understand the difference between short run and long run. Price elasticity of supply will probably be elastic in the long run but inelastic in the short run. If firms expect prices to change permanently they can change their factors of production; however, if price change is temporary, firms won't change their supply because they are unable to adjust in the short run. This further explains the previous point: in the long run more machines can be bought, thereby changing the amount they supply.

Remember!
*New firms cannot enter the market in the short run. In the short run at least one
New firms cannot join as they are unable to gather all the factors of production ne
New firms will join the market in the long run!*

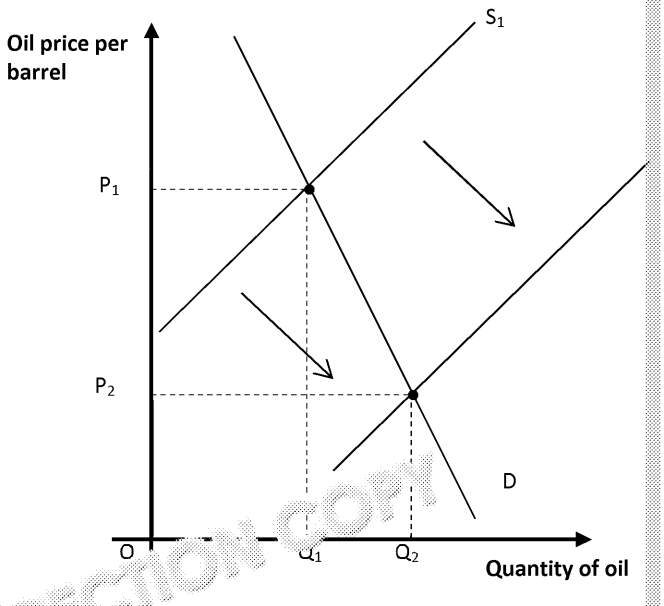
Further your economic knowledge...

Volatile prices

The price of some goods swings wildly and unpredictably – oil is a good e
showing oil price each month from 2007 to early 2016:



Large shifts in demand/supply can cause these price swings. The fall in oi
a glut of global supply. This can be shown in a demand and supply diagra



The increase in supply causes a dramatic fall in price from P_1 to P_2. N
amplified because demand is relatively **price inelastic**, which means that t
change very much in response to a price change.

Exam-style questions – Elasticity

Multiple-choice questions

1. Look at the demand and supply diagram to the right. Which of the following is correct?
   A. Demand is perfectly inelastic and supply is relatively inelastic.
   B. Demand is perfectly elastic and supply is relatively elastic.
   C. Demand is perfectly inelastic and supply is relatively elastic.
   D. Demand is perfectly elastic and supply is unit elastic. **[1 mark]**

2. A chocolate bar costs £0.60, and at this price 500 units are demanded. The price goes up to £0.80, causing demand to fall to 400 units. What is the price elasticity of demand?
   A. +0.6
   B. –0.6
   C. +1.67
   D. –1.67 **[1 mark]**

3. A firm starts by selling 1,000 goods per period. Consumer income increases by 1,250 goods per period. What type of good is the firm selling?
   A. An inferior good
   B. A necessity good
   C. A luxury good
   D. A free good

4. Suppose that the cross elasticity of demand between cricket balls and cricket bats is -1.3. If the price of cricket balls increases by 20%, what would be the change in demand for cricket bats?
   A. Demand increases by 30%
   B. Demand falls by 13%
   C. Demand increases by 13%
   D. Demand falls by 30%

5. In the UK, it can be difficult to obtain planning permission for building new houses because many areas are protected by a 'Green Belt'. This means that the price elasticity of supply of land is likely to be:
   A. Relatively inelastic
   B. Perfectly elastic
   C. Relatively elastic
   D. Unit elastic

6. A firm sells 4,000 goods at a price of £5 each. The firm increases the price to £6 and sells 3,500 goods. Therefore:
   A. Total revenue increases, and demand is price inelastic.
   B. Total revenue falls, and demand is price elastic.
   C. Total revenue increases, and demand is price inelastic.
   D. Total revenue falls, and demand is price elastic.

7. Suppose a good has a price elasticity demand of -0.6. A firm decides to increase the price by 10%. Therefore:
   A. Total revenue falls.
   B. Total revenue increases.
   C. Total revenue is unchanged.
   D. Demand must fall.

Section 2.7: The concept of the margin

This section will help you to:

- understand the meaning of 'the margin' in economics
- calculate marginal values
- understand marginal utility theory

The concept of the margin

The idea of 'the margin' is often used in economics. When thinking about the marg of any additional change in the situation. For example, if a firm had five workers, a generated by the addition of a sixth worker, then we would be calculating the marg if someone had already eaten one ice cream, and we wanted to find out the extra u second, then we would be working out the marginal utility (as opposed to the tota satisfaction gained from eating both ice creams).

Here are some numerical examples of the margin:

Example 1 – bicycle manufacturer

Number of bicycles produced	1	2	3
Total cost	£50	£90	£120
Marginal cost	£50	£40	£30

In this case, marginal cost is falling. This could be because as more bicycles are bui discount on raw materials. You should be familiar with the concept of marginal cos

Example 2 – factory workers

Number of workers	1	2	3	4	5
Total revenue (per hour)	£20	£50	£80	£105	£125
Marginal revenue product (per hour)	£20	£30	£30	£25	£20

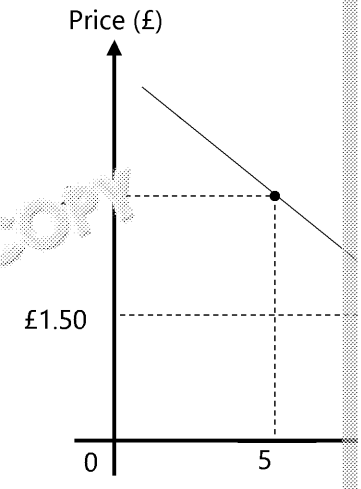
In this case, suppose a factory is deciding how many workers to hire. It would be use marginal revenue product that each new worker brings (i.e. how much extra revenue new worker). Suppose the factory is quite small, so bringing in seven or eight worker the same time: then hiring these workers might result in only a small increase in reve the seventh or eighth worker if the wage rate is, say, £12 an hour, since then the firm

There are other situations in which marginal analysis can be useful for economic ag interested in calculating the 'marginal propensity to consume' of people in the eco increase in income that is spent. This could help them predict the consequences o incomes. At a micro level, a business might want to estimate the effects of increasi terms of the marginal change in demand and the marginal change in revenue. A co many chocolates to buy, might also subconsciously calculate the marginal utility of chocolates, and weigh that up against the marginal cost of the chocolates.

Marginal utility theory

Our explanation of why the demand curve is downwards-sloping (see section 2.2) demand more of a good because it costs less. We can now go a bit further though curve is derived from an individual's marginal utility.

Suppose a good costs £3, and a consumer demands five of this good at this price. In this case we can say that the marginal utility the person got from the fifth good must be at least £3 – otherwise they wouldn't have bought it. If the price were to fall to £1.50, the person might choose to consume more (10 units) since now the marginal cost of buying more of the good is lower than the marginal utility gained from consuming it – so the person buys [illegible] way we can trace out the dem[illegible]



It is also lik[illegible] the marginal utility gained from consum[illegible] more goods is diminishing (e.g. consuming a fifth apple is likely to give much less utility than consuming the first apple). This also explains why the demand curve slopes downwards: a consumer would be willing to pay a high price for the first good (since marginal utility is high), but much less for, say, the sixth or seventh good.

Exam-style questions – The concept of th

For multiple-choice questions try to test your knowledge by first reading the stat
then thinking of the correct answer. Only then should you look through the sugg
you are less likely to be distracted by possible answers, as you are now looking f
difficult at first, but will help to build your confidence with multiple-choice quest

Multiple-choice questions

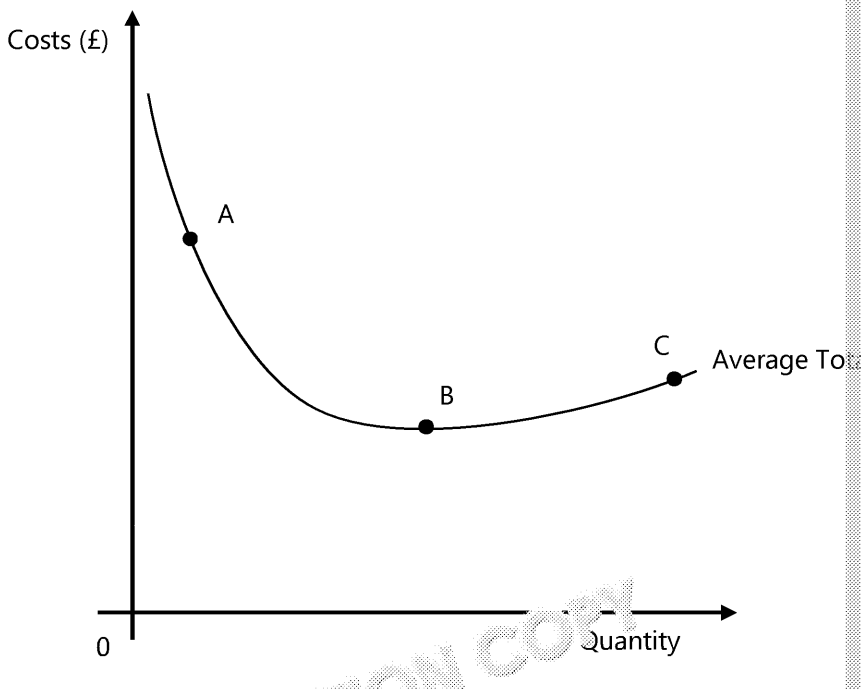
1. Look at the following table:

Total	30	62	[illegible]	103	101
Marginal	30	[illegible]	16		

The m[illegible] n[illegible] are:

A. [illegible] 12
B. 12 and 2
C. 17 and -9
D. 25 and -2

2. Look at the diagram below:



Which of the followi[illegible]ts is correct?

A. Bet[illegible]en [illegible] and C, marginal costs must be falling.
B. [illegible]n points A and B, marginal costs must be rising.
C. B[illegible]en points B and C, marginal costs must be rising.
D. Between points A and B, marginal costs must be falling.

Section 2.8: Market Failure and Externa

This section will help you to:

- understand the term 'market failure'
- Use a diagram to explain positive and negative externalities from productio
- Understand the terms 'marginal social cost', 'marginal external cost', 'margi social benefit', 'marginal external benefit' and 'marginal private benefit'

In Section 2.5 we looked at the price mechanism and how market forces determin price mechanism does not always function perfectly. Th[illegible] occasions where th resources efficiently and is unable to find the opti[illegible]ket equilibrium. Market f misallocation of resources leading to [illegible] are under- or over-supplied by th aren't provided at all.

Types of [illegible]et [illegible]ailure

Market failu[illegible]be separated out into two types:

- **Complete market failure**
  This occurs when the market for a good or service *simply does not exist*.
- **Partial market failure**
  This occurs when the market for a good or service does exist, but it causes resources to be misallocated.

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In the following pages we'll discuss the causes and effects of market failure.

Externalities

Costs occur during the production of a good and during the consumption of a go both the manufacturing of a good (the revenue producers receive) and the consu

Producers weigh up the costs they incur against the benefits they'll receive before and will do so if benefits are greater than or equal to costs. Equally, consumers w against the benefits they receive before deciding to purchase a good and will do s to costs. If there are additional costs or benefits not experienced by the producer be accounted for, and economists call these externalities.

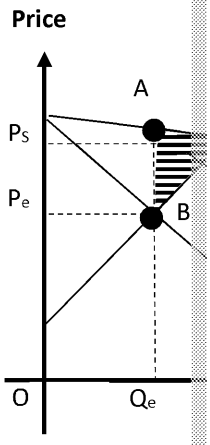
Externality – *A a good/service t transaction and when the free m*

– Private costs are costs that impact the economic agents directly involved in the market transaction of the good.
– External costs are costs that impact a third party who is not involved in the market transaction a[illegible]tive externality).
– Social costs are the total c[illegible]s inv[illegible]ed in the market transaction, including b
+ Private benefits ar[illegible]t impact the economic agents directly involve the go
+ Externa[illegible]its are benefits that impact a third party who is not involved in positive externality).
+ Social benefits are the total benefits involved in the market transaction includ external benefits.

The externality diagrams build on from the supply and demand diagram to 'interna it attempts to include the external effects with the internal workings of the market

Positive Externality

A positive externality results from the consumption or production of a good or se
a positive way. Consumers are assumed to purchase goods that maximise their ut
any external benefits. That is, there is an additional benefit to society from the co
good on top of that enjoyed by the consumer.

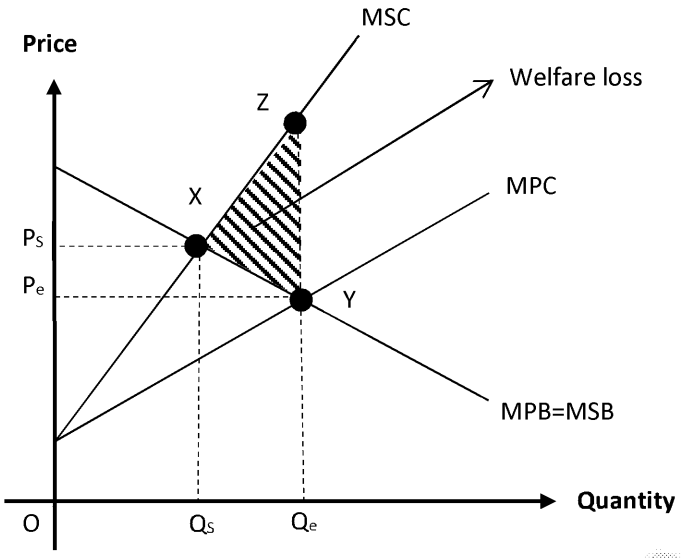


Positive externalities are likely to result in under-production because firms do not receive compensation for the goods equal to the benefits for society.

For example: *Vaccinations have an external benefit. The more people that have injections, the lower the chance that those who don't fall ill. The government may subsidise vaccinations for certain groups of people, such as the flu jab to high-risk groups, or fully subsidise the, such as the measles, mumps and rubella vaccinat*

Negative Externality

A negative externality results from the production or consumption of a good or service and impacts a third party in a negative way. Producers are assumed to produce goods that maximise their profits (see Topic 3.4.1.2); this doesn't include accounting for any externality. That is, there is an additional cost to society from the production or consumption of this good.



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Negative externalities are likely to result in over-production of a good. The cost benefit gained by firms. And since the social cost is greater than the private cost t being produced at a quantity that is more than what consumers demand.

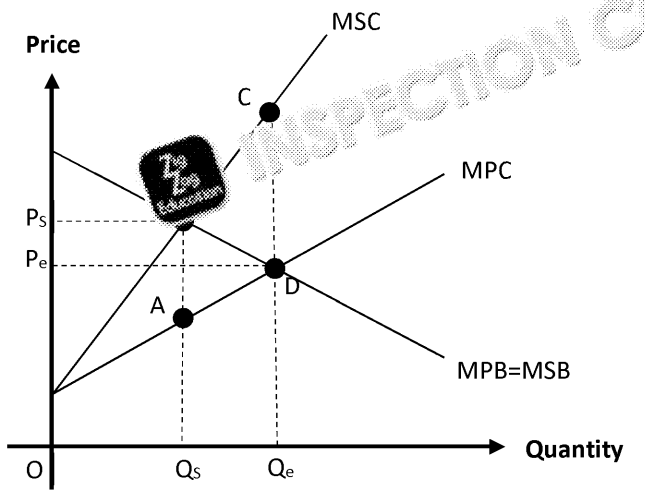
For exampl *delivery of goods to supermarkets and shops has an external cost delivering goods to the shops in your area. These pollute the air and congest the ro society by increasing traffic and reducing the air quality, with potential health effects society would be lower than the level that occurs under a free market.*

Exam-style questions – Externaliti

Multiple-choice questions

1. An example of a market failure is:
   A. when some people cannot afford to buy a particular good, even if they w
   B. when supplier costs increase unexpectedly
   C. when a good is overproduced, creating inefficiency
   D. when demand shifts significantly to the left

The following diagram shows a negative externality arisin[illegible] the consumption



2. Which area represents the welfare loss to society?
   A. BCD
   B. ABC
   C. P_eBCP_s
   D. Q_eBCQ_s

3. Which of the following policies could be used to help reduce the externality?
   A. Providing information about the harmful effects of cigarettes
   B. Providing non-harmful substitutes for cigarettes
   C. Taxing cigarettes
   D. All of the above

Section 2.9: Information asymmetries

This section will help you to:

- understand the term 'information failure'
- understand the term 'asymmetric information'
- understand the meaning of moral hazard
- use a diagram to illustrate how market failures can arise from information fail
- understand the meaning of merit and demerit goods

Information Failure

An assumption in economics is that there is perfect knowledge and there is symme economic agents. In order to make rational decisions, consumers need infor valuations of goods and services. Consumers may make decisions that don't maxi of knowledge or may have incorrect information. This leads to a market failu misread ma[illegible]nals if they have the incorrect information and make inaccurate market failur[illegible]

For example: *In the early 1900s consumers were unaware of the health effects of sm meant consumers would make uninformed decisions and the consumption of cigaret perhaps would have been had there been perfect information.*

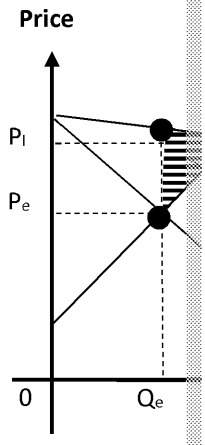
- **Asymmetric information** – participants have differing levels of knowledge
- **Symmetric information** – all parties have the same level of knowledge
- **Perfect knowledge** – there is symmetric information among economic agent flow easily
- **Imperfect knowledge** – leads to asymmetric information because there are b information flow

Lemon Laws

The problem of asymmetric information in which one party knows more than the market. So-called 'lemon laws' exist in various states of the USA to protect purcha 'Lemons' are a name given to bad cars with hidden mechanical problems.

Car sellers know the good and bad qualities of the vehicles they sell – and whethe buyers will not discover any problems until after purchase. As a result, buyers we prices but end up with a lemon – and so sellers found that they could not sell goo buyers led to the collapse of the second-hand car market. This is an example of m

Diagrammatically, information fail[illegible]be shown by a quantity demanded [illegible]market equilibrium (see diagram right).



With perfect information, less of the good would be consumed (Q_e), but with imperfect information, an undesirably large amount of the good is consumed (Q_1) leading to a welfare loss.

Moral hazard

Moral hazard refers to a situation when someone acts in a risky/careless way beca
incur any cost from an accident. For example, once someone has bought home in
proper precautions, knowing that any burglary/fire will be refunded.

This idea has also been applied to the financial markets after the Financial Crisis o
will be bailed out by taxpayers, they may be tempted to undertake particularly risk

Another example could relate to the NHS: if people know they can always receive
tempted to live an unhealthy lifestyle.

Of course all these situations have limits: home insurance is usually invalidated if d
Banks may not be tempted to undertake too much risk in the future since the fina
losses. People may not be too careless with their health since NHS waiting times
there is still the possibility that moral hazard will apply in some cases.

Merit and demerit goods

Demerit Good *– A good that is* ***overconsumed*** *if the market is left alone and not regulated. Examples include alcohol and tobacco – governments may tax or regulate this type of good to reduce consumption.*

Merit Good *– A good tha
perhaps due to lack of info
Often governments will p
to increase consumption.
type of good is education.*

Certain goods can be classified as either merit or demerit goods. Merit goods are
mechanism and thus under-consumed. Demerit goods are over-provided by the
consumed.

Recall the first section of the course companion – the classification of goods as me
value judgments. Consider the example of education, often cited as an example
be under-consumed if not provided for the state. This is likely to be true. School e
capital and productivity later in life. However, the idea of 'underconsumption' is a
value judgments. Without advocating truancy (!) it could be possible that seconda
experience benefits (perhaps from increased leisure time) that are not discussed by
judgments and biases.

Often there are **negative externalities** due to the consumption of demerit goods
the consumption of merit goods. An example is the negative externalities caused
demerit good) such as increased crime, higher health-care spending and stress on

The most common explanation for merit and demerit is **a lack of information**. Pe
the benefits of education and thus not be willing to pay for it. Similarly, the full ex
effects of alcohol may not be truly apprec

The government has three broad tools to deal with merit and demerit goods:

- **Awareness and information**
  Governments can try to address the issue of the lack of information by fundin
  the benefits of merit goods or the costs of demerit goods.
- **Taxation and subsidies**
  Increasing the costs of demerit goods can reduce their consumption – alcoho
  high taxes, for example. Merit goods might be subsidised, by contrast.
- **Regulation**
  Governments may ban the consumption of demerit goods such as drugs, or f
  goods such as primary-school education.

Section 2.10: Public Goods

This section will help you to:

- distinguish between public and private goods
- learn the characteristics of public goods

Goods and services can be classed as either ***public*** goods or ***private*** goods. The d
depends on the degree of **excludability** and **rivalry**, which in turn determines the
free market.

> ***Public goods:*** *Goods (or services) that can b*
> *consumed by anybody without cost*
> *reducing the availability of*
> *Hence they are*

> ***Private goods****: Goo*
> *consumed by someo*
> *another person. Her*
> *rivalrous.*

A good that is **non-excludable** means people can be excluded (prevented) from consu
whether people can prevent themselves from consuming a good; for example, if w
as a good, it is not one that individuals in the UK can choose to reject the benefits

A good that is **rivalrous** means supply diminishes with use (it cannot be consume
consumed). Private goods have these characteristics, whereas public goods are no
To reinforce this understanding, it is good to think of some examples.

> **Example 1:** Street lights – public good
> Street lights are non-excludable because you cannot easily prevent other people
> been provided. Equally they are non-rivalrous, because somebody using the stre
> down the pavement does not mean another person cannot use the light.

> **Example 2:** A chocolate bar – private good
> A chocolate bar is excludable; it will only be provided to those who pay for it and
> consuming it if they haven't paid. It is also rivalrous because once you have take
> same bite. There is only a finite amount of chocolate in the bar and every time y
> supply diminishes.

Non-rivalrous goods have **zero marginal cost**; for example, once streetlights have
street, the cost to supply street lighting to the second person to walk down that s

The free rider problem

Public goods present a problem for those who pay for it.
there is no way to charge people for using it. So if they were
provided privately, the provider would have to cover the entire cost, but
everyone else could use the good for free – 'free riding'. 'Free
riders' are people who choose not to pay or intend to pay for the
good but still consume it. This means they will not be provided for
by the free market because the producer cannot force people
to pay for the good and/or force everyone else to pay for it once the producers ha
this, the examples above have been reused to show how 'free riders' may or may n

> ***The free-rider p***
> ***rivalrous*** *(one p*
> *doesn't stop anot*
> ***excludable*** *(you*
> *the good). This ca*
> *such goods – or t*

> **Example 1b:** Street lights – public good – has a free-rider problem
> The light from street lights cannot be easily confined to just the person who pays
> buy a street light for outside their house, but this means others can use the light
> were to put a high wall around the area of the pavement that the street light cov
> unfeasible and hazardous to other pedestrians. Neighbours wouldn't buy their o

would already be one supplied and they could use it free of charge. Nobody wo
because they would just wait until their neighbour bought one. They could club
them, but this is effectively what the council does. Because nobody would buy a
manufacture one. Instead a governing body charges taxes to communally collec

Example 2b: A chocolate bar – private good – does not have a free-rider proble
Chocolate bar producers can ensure the chocolate bar is only supplied to those w
eat some of the chocolate, but you have purchased each gram of the chocolate w
else does. By the other person eating some, supply has still diminished; there is
a chocolate bar does not have a free-rider problem and is therefore provided by

This is why in practice public goods are provided by the gov ment. There is no i
by private individuals. If, for any reason, the govern t not willing to provide p
underprovided by the market. Underprovisi a good is a type of **market fai**

Technological change and goods

Advances in te affect what goods and services are classed as 'public'
Anyone can t from them. They are non-rival and non-excludable.

However, this changed with the arrival of encoded satellite and cable services. The
have to pay a monthly fee in order to receive these broadcasts.

An economist might argue that this system is more efficient. It means that those w
programmes can choose to subscribe to certain platforms and channels – the price
and consumers. Think about the enormous sums that broadcasters pay to secure
By and large these matches are shown on subscription channels because the cost
onto the consumers – those who want to watch the games and are willing to pay

Quasi-public Goods

*Occasionally the distinction between private and public goods is not clear-cut. C
appear to be public but take on certain characteristics of private goods. These ar
A good example is the road network. Anybody can drive on the roads (given cert
the minimum age and possessing a licence). In theory, roads could be restricted,
toll system. Further, using roads can also reduce the benefit for others as conges
partially 'excludable' and 'rivalrous'.*

Exam-style questions – Public Goo

Multiple-choice questions

1. A public good is:
   A. rivalrous and excludable
   B. non-rivalrous an cludable
   C. riva ar excludable
   D. no ous and non-excludable

2. Which of the following is a pure-private good?
   A. National defence
   B. Washing up liquid
   C. A fireworks display
   D. A beach

Section 2.11a: Government Intervention

This section will help you to:

- understand why governments intervene in markets
- explain some of the different methods a government might use to intervene
- evaluate the effectiveness of government intervention in eliminating market

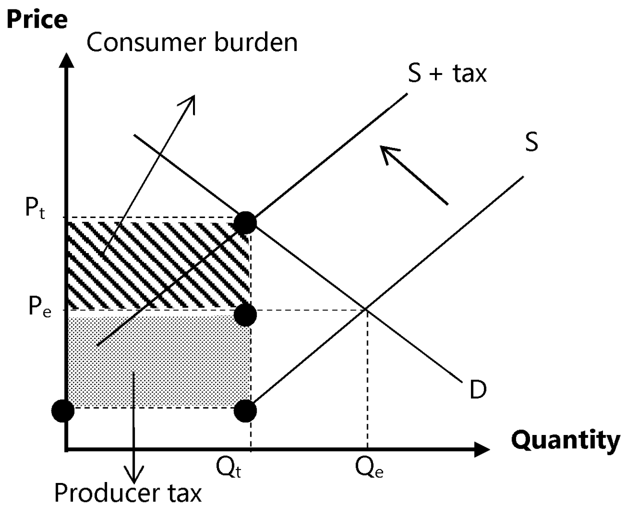
Why do governments intervene in markets?

By intervening, governments aim to correct **market failures**, or at least reduce the the market failures (such as negative externalities and imperfect information) can a these market failures will persist unless the government steps in. This section anal methods a government may use to intervene.

Taxes

The government may wish to use an **indirect tax** on goods which produce negati their consumption or production, and raise tax revenue. For example, in the UK we t more recently a tax on sugary drinks has been announced. In terms of production should tax carbon emissions to combat global warming.

When the government taxes an item such as cigarettes, part of the cost is borne b by the consumer, as the following diagram shows:



Indirect tax
or services (e
Direct tax *-*
income tax)

Before the tax, the market is in equilibrium where S = D, at price P_e and quantity Q to the left, since it becomes more costly to supply the same amount (the vertical d equal to the size of the tax). Now the price is P_t and quantity is Q_t. The striped ar consumers (due to higher prices) and the shaded area shows the burden of tax on revenues). The sum of these areas is the tax revenue that the government earns.

Going back to the externality diagrams, this tax, if calculated correctly, should **inte** by the demand curve. Supply should be shifted back to the socially optimum level

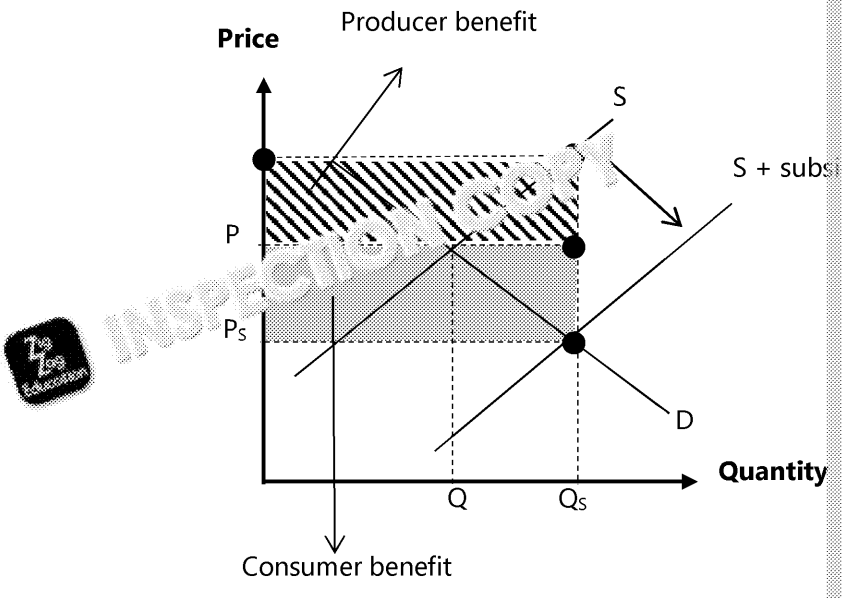
In 2014–15, the UK government earned £10.5 billion from alcohol taxes and £9.6 b together this amounts to around 4% of total tax revenue, so the revenue side of th

When answering a question about the impact of an indirect tax, it is important to demand. If the demand curve is inelastic, more of the tax burden will fall on the is elastic, more of the tax burden will fall on the producer.

Subsidies

What if, instead of discouraging the consumption of a particular good, the govern consumption? In this case, the government may subsidise a good, particularly tho For example, the government subsidises consumers who purchase solar panels, al significantly in 2016.

The effect of a subsidy is to shift supply to the right, as shown on the following di



The subsidy shifts supply to the right, lowering the price for P to P_S. The benefit t revenues) is shown by the striped area. The benefit to consumers (in the form of l shaded area.

However, the subsidy costs the government an amount equal to the sum of the tw drawbacks of subsidies – they have opportunity costs.

Another problem with subsidies is that they could lead to waste and inefficiency i the subsidy is too generous. The EU bans certain forms of subsidies as they are c unfair competitive advantage (this links to macroeconomics).

However, a subsidy could overcome a market failure if the market quantity is lowe quantity. Solar panels (as a source of renewable energy) are a good example of t too high for most consumers, but after the subsidy more consumers are willing to

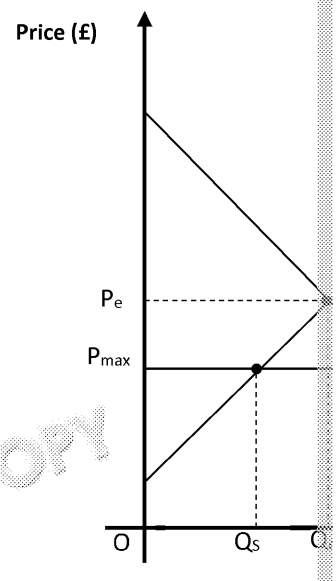
State provision of goods

Another form of intervention that a governm n av is to provide goods that market. Public goods are an excell m ere, as we know public goods are benefit to the supplier – but th ive a arge benefit to society. Therefore, it mak provide public goods ight include national defence, public parks, street lig

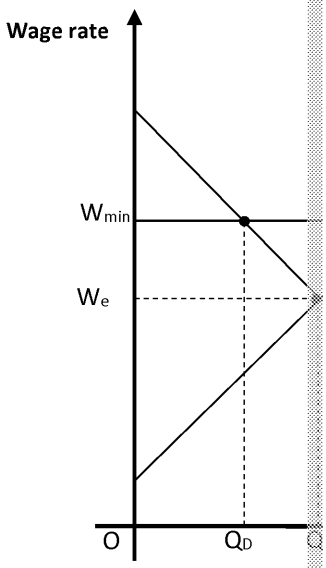
Price controls

The idea of maximum and minimum prices was introduced in the 'disequilibrium' section. A government may choose to cap the prices of goods that are deemed necessities, or in cases where they think firms are deliberately overcharging consumers.

The maximum price diagram can be seen top right.



On the other hand, a government may use a minimum price (e.g. the Scottish government has proposed imposing a minimum price for alcohol). The national minimum wage is also an example of a minimum price, shown in the diagram bottom right.



The concern with policies such as the minimum wage is that it creates unemployment, since the supply of labour (Q_S) exceeds the demand for labour (Q_D). However, empirical evidence for this is mixed, and most economists agree that gradual increases in the minimum wage don't cause noticeable unemployment: perhaps firms absorb the minimum wage into their costs instead.

Legislation and regulation

The government has the power to create laws and regulations in an economy. The to correct market failures. For example, after the financial crisis of 2008 (a market f have faced some greater regulations, such as stricter rules on how much money th

Other examples of government regulation in the UK includ

- Various laws that prevent firms from acting an on competitively
- Appointing independent regulatory bo to oversee certain industries, e.g. electricity market and the Fin ces Authority regulates financial insti
- Restricting the age a ain goods can be consumed, or banning the

The govern an impose minimum requirements for firms to follow, for exam permission have to be obtained before new houses can be built, and firms substances in their production processes. These sorts of regulation take time and but they are a useful addition to government policy.

The success of these policies really depends on how well they are thought out and market failure. Many would argue that laws banning the use of soft drugs such as productive, since people continue to use them illegally, and if the government pro tobacco, they could divert profits away from drug dealers and into the public purs argue that it prevents more potential users from becoming addicted.

Tradeable pollution permits

The basic idea of pollution permits is this: the government issues a certain number of
they then sell to firms via an auction. Once the permits have been allocated between fi
one another, so larger, more profitable firms are likely to end up with more of the per
economists prefer tradeable pollution permits, as they argue that it leads to a more ef

The advantage of this system is that the government can fix the total level of pollu
cheat, which can be expensive to monitor). On a diagram, the quantity of pollution
optimum level, below the free market level.

Also, the fact the firms can trade permits between one another should make the sy
permits will reach equilibrium. Given the cost to firms of obtaining these permits, it
encouraged to adopt greener production methods, as it would be in their own inte

Public–private partnerships

A public–private partnership is when the government collaborates with a private fi
advantages of this approach is that the government can benefit from the expertise
organisation without having to rely just on their own resources. These sorts of ar
popularity over the past few decades, after problems with the 'command-and-con
became obvious. For example, a top-down approach to regulation means that firm
and go beyond the basic environmental standards. With public–private partnershi
stake in the success of environmental protection, there are better incentives for fir

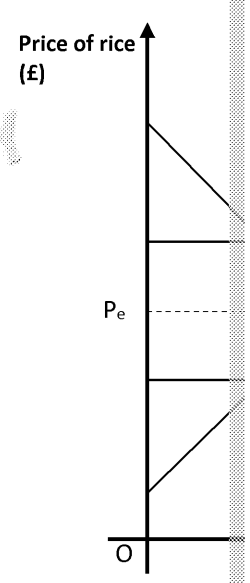
Information provision

We saw in Section 2.9 that information asymmetries can lead to market failure. Th
these market failures by providing better information to the public. For example:

- In the UK energy market, many consumers find it difficult to compare the pric
since tariffs are complicated. The government has encouraged energy provid
result, to aid consumers who may get a better price by switching to another p
- The government requires cigarette packets to have clear health warnings, and
awareness of the dangers of smoking.
- The government requires certain standards to be met by advertisers, to prevent th
- Food items such as soft drinks are required to display their ingredients, and al
etc., although some would argue that the way it's presented can still be unhe
avoid unhealthy food.

Buffer stock systems

Buffer stock systems are used by some governments to stabilise the prices of agricultural goods (particularly in developing countries where many people depend on agriculture for their livelihood). Look at the graph (right) showing the market for rice.



Suppose one year there is a particularly good harvest. Then there will be an excess of supply over demand (supply would shift to the right), and price would fall below the minimum allowed by the buffer stock. To prevent rice farmers losing out, the government buys up the excess (adding to demand) and stores it for later, until existing supplies are depleted.

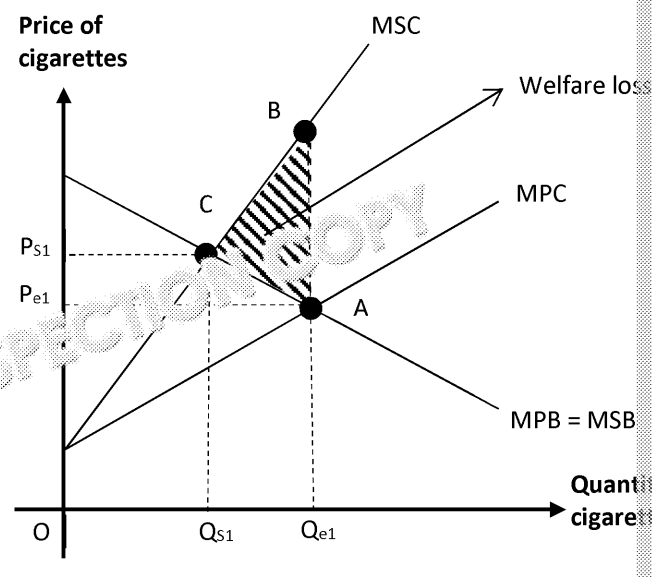
On the other hand, if in one year the crop was particularly bad, the government would sell its reserves of rice to stop the price exceeding the maximum.

This type of scheme relies on the government's ability to effectively store and preserve the produce, make sure that it has the money to buy up produce during bumper crops, and keep sufficient stores for times of shortages.

Exam-style questions – Government inte

Multiple-choice questions

The following diagram shows a negative externality arising from the consumption



1. If the government taxes a good which is demand elastic, then:
   A. the burden of tax is borne more by the consumer
   B. supply will shift by more than if demand were inelastic
   C. the burden of tax is borne more by the producer
   D. demand shifts to the left

2. The most likely result of a successful information campaign by the governme merit good would be:
   A. gaining a positive externality from production
   B. disequilibrium in the market
   C. demand shifts to the right
   D. supply shifts to the right

Essay questions

3. Some countries are concerned about the negative health consequences of ob sugar consumption. As such, taxes on sugary drinks have been announced ir Evaluate the effectiveness of a sugary drinks tax as a way of correcting marke

Section 2.11b: Government failure

This section will help you to:

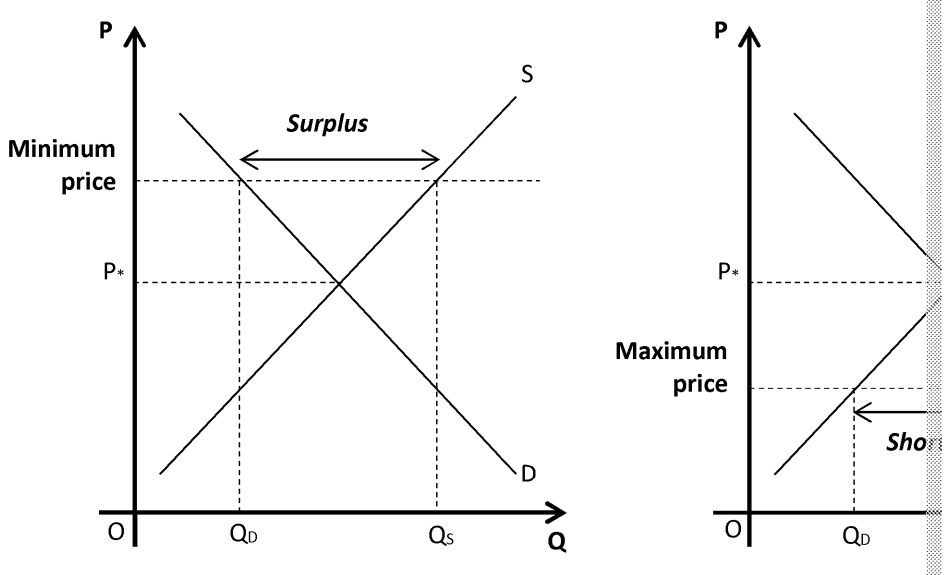
- understand the meaning of government failure
- understand the potential causes and consequences of government failure

In the previous sections we've considered how governments can intervene in mark reduce the effects of negative externalities. Thus far we've mostly assumed that th not so straightforward – governments can intervene with taxes, subsidies and regu situations *worse*.

This is the idea of **government failur** ov ents can intervene in markets with intention of co ting a market failure and actually *cause* a misallocation of resources. Government intervention does not necessa oru the economic welfare of the population.

Governme government attempt to cause or wo

An example of government intervention might be the setting of minimum prices (perhaps) or setting of maximum prices (for reasons of fairness and to prevent exp show, these approaches lead to overproduction or underproduction.



If train-ticket prices are capped at a certain level then demand will be higher than s to develop methods to deal with this and it's likely that th uality of the service o compromised.

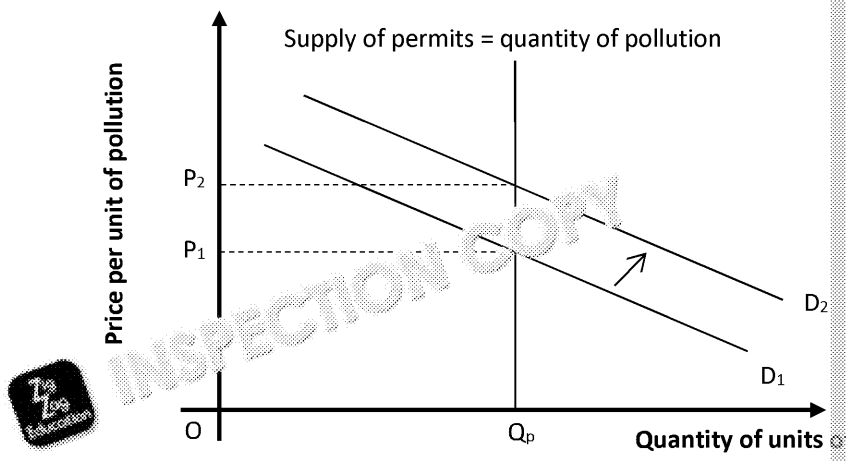
If farmers are guaranteed a cer i pri e for their output then they will produce m market. This food will e h (wasteful) or be stored (expensive).

As well as shortages and surpluses, there can be other downsides to governn

- **Information –** Often it can be hard to accurately estimate the costs and bene may be higher than estimated once the programme is put in place.
- **Changing government policies –** Policies may need to operate over the lon Under a democratic political system, newly elected parties may cancel interve governments for political or ideological reasons. This can cause waste and in changes can cause uncertainty for businesses about the future, which may re
- **Bureaucracy –** Administration costs for government intervention programme resources in this way, intervention may not be more efficient than the free-m
- **Moral hazard –** The population's behaviour might change once government know that they have free access to health care then they may engage in more their health (e.g. smoking and drinking). Similarly, if pe e know that they c then they may not work as hard to improve th ki and employment chan
- **Regulatory capture –** Governments ma tr ce policies that benefit certa than consumers. A good exa th U's Common Agricultural Policy (CA badly in the past but w operation due to the lobbying and pressure vested in sts ulture. Recent efforts have improved the CAP (there a food) u mains an expensive and bureaucratic policy.

Some specific cases of government failures:

- **Providing public goods –** it can be argued that government provision of go the market for these products; however, this is mostly irrelevant as there is lit goods originally.
- **Taxing goods with high negative externality –** taxing may cover the cost o of the tax may mean the consumer ends up with the burden of the tax. In th cigarette market, this may be a good thing and may give a greater incentive t of the non-renewable energy market, however, there could be some unintend generation of electricity in this market uses fossil fuels which release harmful p the same is true for the extraction and consumption of petrol and gas. A tax this externality, but energy is a modern-day necessity and, with the burden fa leave some people unable to cover their costs of living which presents a soci
- **Tradable pollution permits –** the tradable permits allow pollution to be dist depending on their needs but the aim is to reduce the total pollution emitted are usually richer firms, and as with taxes, the poorer firms will find they are u while rich firms carry on polluting. See diagram below.



The subsidy removes the need of the firm to become more efficient and reduce co essentially means they are already reduced. This means a subsidy discourages the within the market.

Maximum price cap – after the Second World War, house rental prices in the USA sudden increase in demand, as many soldiers came home and began to look for h impose a maximum cap on rent levels. This led to an excess demand as more pe but fewer landlords were willing to supply houses at this price. The aim of the go the ability to rent houses, but instead people found they were unable to as there w the demand.

Minimum price cap – this will create an excess of supply as more people will be wi (willing to work), but fewer people will be willing to pay this price (producers won't h machines instead or find the costs of expanding are greater than the benefits). Alth find they are in a better position, it will leave some people unemployed and in a wo

Further your economic kno... ...e: Laissez-faire

The French term 'laissez-faire' m... ...e alone' and is used to describe mark without subsidies, regu... ...tariffs imposed by governments. The main arg markets is ... ...ket can operate perfectly on its own. Rather, govern problems ... ...intervention at all. However, some may argue that some form required i... ...market – for example, providing merit goods or providing subsi Whether there should be more or less government intervention in markets is a no clear answer.

Exam-style questions – Government f

Essay question

Suppose the government wanted to protect those on low incomes by preventi Discuss how imposing a maximum price for a staple product such as bread cou

Chapter 3: Business Obj

Section 3.1: Business objectives

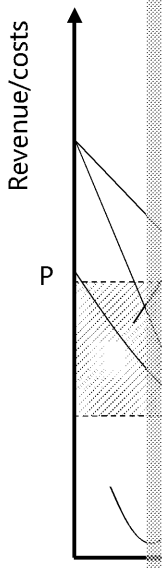
This section will help you to:

- understand the different possible objectives of businesses, and why business
- understand the principal–agent problem

Business objectives

The most common business objective is **profit maximisation**, i.e. receiving the high that a business's principal objective is profit maximisation serves as the one of the fu classical economics! Profit is total revenue minus total costs. On a costs and revenue achieved when marginal cost equal marginal revenue (note: revenue curves are cov

Wherever a firm produces, where it hits the AR curve is the revenue the firm will receive from that good. This is because the AR curve is effectively the demand curve (remember from Theme 1) and will show the price of a good at a given quantity; revenue is **price × quantity** and so the curve shows the revenue. The average cost curve shows the cost of producing each good at that quantity.



So, if a firm is producing at Q, the cost of each good is shown where the line hits the AC curve, and the price the firm will sell the good at is shown where the line hits the AR (demand) curve. The profit a firm will make from each good is shown by the difference between the point where the line hits the AC curve and where it hits the AR curve, because **Profit = Revenue – Cost**.

QUANTITATIVE SKILLS

Remember that profit is maximised when **marginal revenue = marginal cost.** Graphical of output that firms produce at. But **be careful**: you have to extend the line upwards fro MR to find the cost (AC curve) and revenue (AR curve) on the y-axis.

Formula

The profit-maximising point is where **Marginal Revenue = Marginal Cost**.

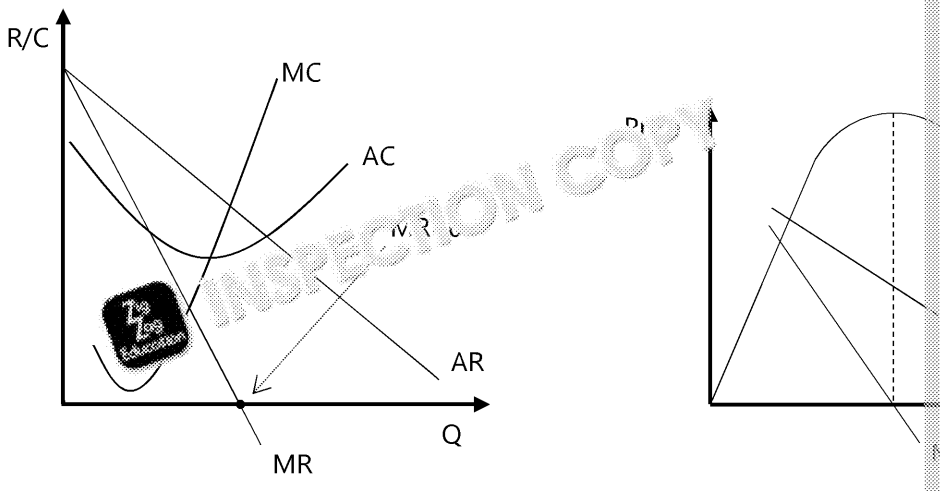
At this point is the largest quantity of goods a firm can produce with revenue bein Because we are looking at the marginal curves, the revenue for the next unit of qu less than the cost of the next unit of quantity (marginal cost), so the next (margina profit than the previous one. Producing at the unit of quantity previously will prov to make more profit and so the maximum amount of profit that a firm can produc between these two points, when marginal revenue equals marginal cost.

Businesses may pursue other objectives for a variety of reasons. For example, a ma salaries, or having a large workforce to direct. If a business manager is motivated b sells, then they may wish to produce at a different point on the curve. A firm may and, therefore, aim to minimise costs.

Revenue maximisation

Remember the revenue curves: when total revenue is at its maximum, marginal re
who do maths, the marginal curve is the differential of the total.

At this point, the price elasticity of demand is at unit elasticity. Remembering from
increase price from this point, the result would be a fall in revenue because the re
the increase in quantity. An increase in price from this point would also cause tota
decrease in quantity sold would outweigh the gain from increased price.

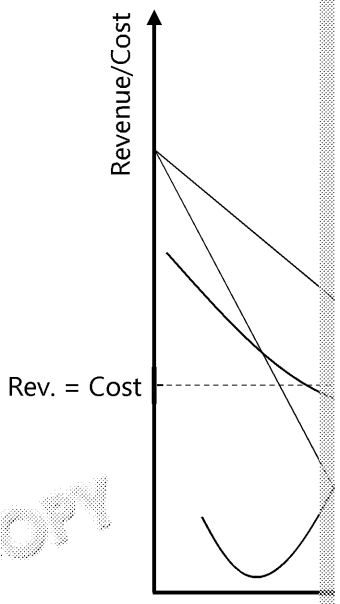


Formula

The revenue-maximising point is when: **Marginal Revenue = 0**.

Sales maximisation

At the sales maximisation point, firms are producing as many goods as they can before they make a loss. There are a few reasons why a firm might do this: charities and other not-for-profit organisations may operate at this point because they are trying to maximise the amount they do and only need to break even in order to maintain operations. Firms may wish to operate at this point in order to flood the market with their goods and gain market power. By selling a lot of goods at a low price the firm can drive other competitors out of the market.



At the sales maximisation point, the average revenue of the goods produced is equal to the average total costs of all the goods produced and, therefore, the firm just breaks even. Producing any more g s would mean the firm would be ma nd producing any less would m has not maximised its s.

Formula

The sales maximisation point is when **Average Costs = Average Revenue**.

Recap! Watch these tw
the business o
https://www.youtube.com/
https://www.youtube.com/

Satisficing

In economics, the term 'satisficing' is the idea of achieving the **minimally accepta** solution. In terms of business objectives, this refers to the idea that some firms ma profit that their shareholders accept – perhaps just above normal profits – instead Satisficing may occur because of a divorce of ownership from control (see the *prin* firms prioritise short-term gains over higher long-run growth.

Other objectives

Some firms are not-for-profit, e.g. charities. In this case, their objective may be to objectives of charities will vary from case to case.

For-profit firms may have a similar objective of corporate responsibility: per their primary aim. Corporate social responsibility is that businesses monit environment and social welfare, and mak hat ney are acting fairly. It is a fo

Principal–agent pr

The princip nt is about the divorce of ownership from control. This responsibili other person. This occurs when owners of a business expand a human resources or accounts, for example; the owner has divorced their ownershi resources and passed the responsibility on to a manager. The owner is called the p known as the agent. If a company sells shares in the stock market then those who become the principal because they own some of the firm. The seller (original own manages the business.

The problem that arises from this scenario comes from the possibility of conflictin be sure whether the agent is acting in the best interest of the agent or the firm. Be receive a percentage of the profits, they will generally want a firm to act in a way t However, the agent may wish to take a different stance and act in a way that may may instead manage the firm in a way that uses less resources by following more processes.

The principal–agent problem occurs when people cannot ensure that their interests are being served by agents. This is because of asymmetric information: there is not the same level of knowledge across both parties. Agents may take advantage of this difference in information – putting the person they are representing at a disadvantage.

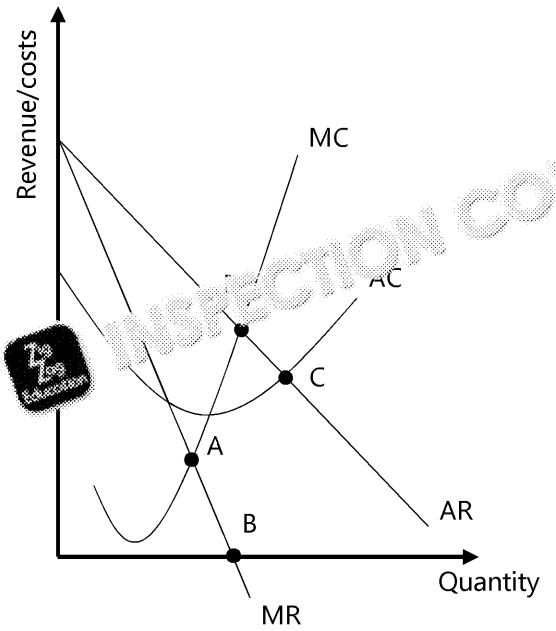
Principal– *conflicts of misalignm principals a from a divo a business*

A good example is provided by estate agents. Imagine you are trying to sell your lot more about the market than you – it is their job to understand it. You hope tha knowledge to get the best price possible for your property. The estate agent, thou lower your price below the market rate in order to ck and easy sale.

Exam-style questions – Business obje

Multiple-choice questions

1. Look at the diagram below:



At which point would a firm aiming to maximise revenue operate at?

A. A
B. B
C. C
D. D

2. In the context of a firm, the principal–agent problem occurs when:
   A. the objectives of a firm's managers differ from the objectives of a firm's
   B. the owners of a firm disagree on the type of product to produce
   C. when the workers in a firm distrust the owners
   D. when a firm can't agree on a deal with their suppliers

Section 3.2a: Costs

This section will help you to:

- understand and calculate the following concepts: total cost, total fixed cost, average total cost, average fixed cost, average variable cost, marginal

This section covers costs, an important consideration for firms. Clearly, firms want to while still earning plenty of revenue, but we can go into more detail than this. At A discussion to costs, but we explore revenues in Year 2 Economics.

Fixed costs and variable costs

(Total) Fixed Cost (FC or TFC)

Fixed costs are costs that remain the same regardless of how much a firm produces

For example: *a fixed cost would be the rent on a factory at £1,000/month. If the firm the rent would be £1,000/month. If the firm produces 50,000 units of a good the rent*

Fixed costs are those that the firm would still have to pay even if the firm wasn't p independent to the level of production.

(Total) Variable Cost (VC or TVC)

Variable costs are costs that vary with a firm's production.

For example: *electricity bills are a variable cost. If the firm increases production by 10 will need more electricity to do so. The electricity bill would change and increase in lin*

The amount of variable cost is dependent on the level of production.

Total Cost (TC)

Total costs are all the costs that the firm encounters. These are variable costs and calculation for total costs is...

$$\textbf{Total Costs} = \textbf{Fixed Costs} + \textbf{Variable Costs}$$

Because total costs include variable costs, the total cost will change as production marginal productivity causes the value of total cost and the volume of output to in That is, when the firm is producing very few goods and wants to increase producti marginal amount of goods the firm will produce) will be more than the increase in firm is producing a large number of goods and the resources are near their maxim of increasing production will be more than the increase in actual output.

Marginal cost

This is the cost of producing an additional unit of outp

Average Costs

Average Fixed Cost (AFC)

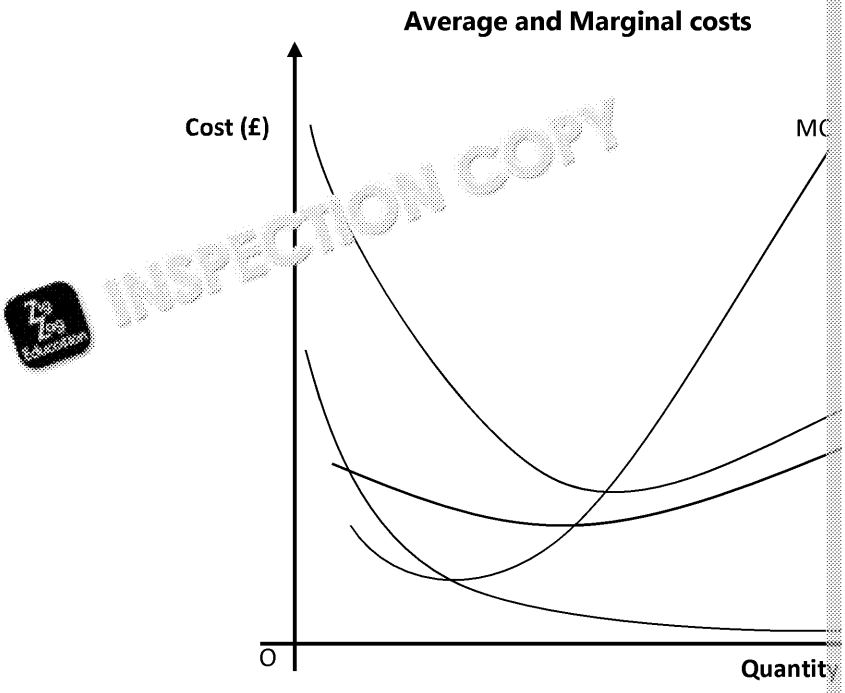
Average fixed cost is the cost the firm encounters from its fixed costs. Alth constant with changing production, average fixed costs fall as production increases incident; the number (total fixed costs) stays the same but is being shared acro (quantity). So the average fixed costs fall.

$$\textbf{Average Fixed Costs} = \frac{\textbf{Fixed Costs}}{\textbf{Quantity}}$$

Average Variable Cost (AVC)

Average variable cost is the average cost the firm encounters from its variable cost stops falling with increased production and instead begins to rise. This is because marginal productivity; because each additional resource produces less than the one is needed and, therefore, the variable cost will increase after this point.

$$\text{Average Variable Costs} = \frac{\text{Variable Costs}}{\text{Quantity}}$$



Average (Total) Cost (ATC or AC)

Average total cost is the average cost the firm encounters for the production of its of total costs, it involves variable costs and will change with production.

$$\text{Average Total Costs} = \frac{\text{Total Costs}}{\text{Quantity}}$$

The difference between average variable cost and average total cost gets smaller a because average fixed cost falls as production increases, so then does average total cost brings the curve closer to average variable cost, particularly when including the diminishing marginal productivity.

QUANTITATIVE SKILLS

A lot of the quantitative skills required at A level (up to 20% of the marks) may be covered of the firm' calculations – concepts such as average and total costs. These calculations are you're comfortable with the terms and the formulas to get the marks in your exam.

Exam-style questions – Costs

Multiple-choice questions

1. Which of the following best describes a firm's marginal cost curve?
   A. As output increases, marginal costs fall, then increase steeply.
   B. As output increases, marginal costs stay constant.
   C. As output increases, marginal costs increase, then fall.
   D. As output increases, marginal costs always increase.

Look at the following table, showing the costs of a firm:

Output	50	100	150	
Fixed costs	40	0	40	
Variable costs	25	40	75	

2. At which level of output are average total costs minimised?
   A. 100 units
   B. 150 units
   C. 200 units
   D. 250 units

3. Average fixed costs:
   A. always fall as output increases
   B. always rise as output increases
   C. always remain constant as output increases
   D. rise, then fall as output increases

Section 3.2b: Economies and diseconom

This section will help you to:

- understand the law of diminishing returns
- distinguish between different types of internal and external economies of sc
- evaluate the pros and cons of economies and diseconomies of scale for firm

The law of diminishing returns

There is a point where the additional output created from using an extra (marginal) additional output that was created from using the previous marginal resource.

For example: a firm produces books. It has one table with four chairs and two chairs, so the firm hires another writer. Increasing the amount of labour will cause t produces to increase from 30 to 50.

Increasing the amount of labour again by one writer so that now all the chairs are increase to 40 books.

An additional writer (fifth writer) will increase the number of books the firm produc third and fourth writers each did. The fifth writer has no chair. Each writer can only gone to lunch. The firm might make each writer take lunch on a rota in order to m crowded, the writers will get in the way of each other and the efficiency has been swapping' throughout the day. Increasing to five writers has increased production output by six books, but this is less than the previous 10-book increase.

This is the law of diminishing marginal productivity; the productive return from inc diminishes. The law of diminishing marginal productivity is a short-run phenomen can be corrected and improved in the long run; in this example, in the long run th (tables and chairs).

Economies and diseconomies of scale

As a firm grows it has a greater opportunity and is more able to reduce its long-ru abilities are called economies of scale and they affect the long run because they re can get in the long run (when they have changed all their factors of production). D a firm becomes too big. The firm loses efficiency after a certain size and the avera again. Economies and diseconomies of scale can occur internally or externally.

Internal Economies of Scale

Internal economies of scale result from growth of an individual firm and benefit th cost per unit. Internal diseconomies of scale result from growth of an individual fi increasing its long-run average cost per unit.

Types of Internal Economies of Scale

- ***Purchasing Economies***
  The economies of scale that most students remember is the ability of large firm services can be bought cheaper if consumers are buying a large number of th large quantities of raw materials have the bargaining power to reduce the pri reduce their average costs.

- ***Spreading Fixed Costs (Technical and Marketing Economies)***
  Firms with large outputs can spread their fixed costs across a large quantity and unit is lower. **Technical Economies:** large firms may have the funds available t factors of production, such as a large bakery could buy large and productive do factory for quick and mass production. Because these factors are expensive, th

quantity of goods to spread out the cost of the factor and reduce average cost. dough machine once a week, for example, its average costs will be high. **Mark** advertising are expensive. If a firm only sells a small quantity then the sunk cos level of output and the return from the campaign would not be worth the inves

- ***Financial Economies***
  Banks often view large firms as being less likely to default on their loans. This can borrow money at a lower rate of interest than smaller firms, which is chea costs. Equally, large firms have the ability to offer expensive assets as collater borrower offers to the lender to keep if they cannot pay them back.

- ***Risk-bearing Economies***
  Some ventures are very risky and likely to collapse. A large firm is more able t ability to bounce back after a loss. These risky ventures can increase product firms are hit harder by losses or failed high investments because they have output and less wealth from the small amount of capital they own.

- ***Specialisation and Division of Labour***
  In order to increase production a firm may hire more workers. Once the work could organise its production using the idea of division of labour and specialis productivity and reduce costs; however, there need to be enough employees t Specialised departments within the company, such as accounting, operation, m improve efficiency and cut costs as well.

Types of Internal Diseconomies of Scale

- ***Communication and Coordination Diseconomies***
  It is harder to communicate with work colleagues when the firm is large, espe is greater chance of imperfect flows of information in large firms and often it t These time lags can create a more inelastic supply. Equally, coordinating acti employees is much harder than coordinating activities with a smaller workfor

- ***Employee Motivation Diseconomies***
  Employees in small firms tend to be involved and have a greater interest in the s in large firms tend to be less motivated for the firm to succeed because they fee

- ***Principal-agent***
  As firms grow larger there is a greater need for the divorce of ownership (i.e. t which could lead to a creation of inefficiencies and increased costs. Increasin (shareholders) could only come from increasing the average cost (ensuring re proportionally), or the agent (managers) may choose an option that best suits best for the firm. Hence, the principal-agent problem revolves around the iss

External Economies of Scale

External economies of scale occur from outside the individual firm and are instead a market. They advantage all the firms within the market by lowering their long-run a diseconomies of scale disadvantage all the firms within the market by increasing the

Types of External Economies of Scale

- ***Transportation and Communication Economies***
  As industry in a particular area expands and grows, the transportation links to This is because the more transportation that takes place to move goods to an government will invest in providing better roads. This will improve the efficie and reduce their average costs.

- ***Skilled Labour Economies***
  As an industry grows, the number of workers that are skilled in that industry g skilled labour, which means for the other firms within the industry, it is easier workers and firms do not have to pay for training. This will reduce their long

- ***Research Economies***
  The more firms within an industry, the more likely it is that some of them wou
  development of cheaper raw materials, quicker and more efficient productio
  goods. Although patents and copyright may prevent a firm from taking thes
  beneficial overspill, many firms can adopt these ideas or be inspired for othe
  productivity and reduce costs within a market.

Types of External Diseconomies of Scale

- ***Transportation and Communication Diseconomies***
  An increased number of firms will increase the use of transport and communi
  computers. This will lead to congestion on the roads and higher levels of Inte
  transportation and communication. Adding barriers here will cause firms to l
  productive and increase their average costs.
- ***Supply of Workers Diseconomies***
  More firms mean the demand for labour increases. The supply of labour may n
  excess demand and a shortage of labour. This will have a similar effect on wage
  capacity would [illegible] wages will increase as firms attempt to encourage workers
  costs. [illegible] costs of finding and recruiting workers will increase as it will be h
  may even [illegible] added relocation costs if the only spare workers live some distance
  result from finding new employees with a lack of labour will also add costs for a
- ***Resource Competition Diseconomies***
  The more firms within an industry, the more demand there will be for the res
  that market's goods. This increasing demand will cause the price of these res
  cake market, the more bakers that exist, the more demand there is for eggs, a
  will increase the costs for all the bakeries in the industry.

Section 3.2c: The short run and the long

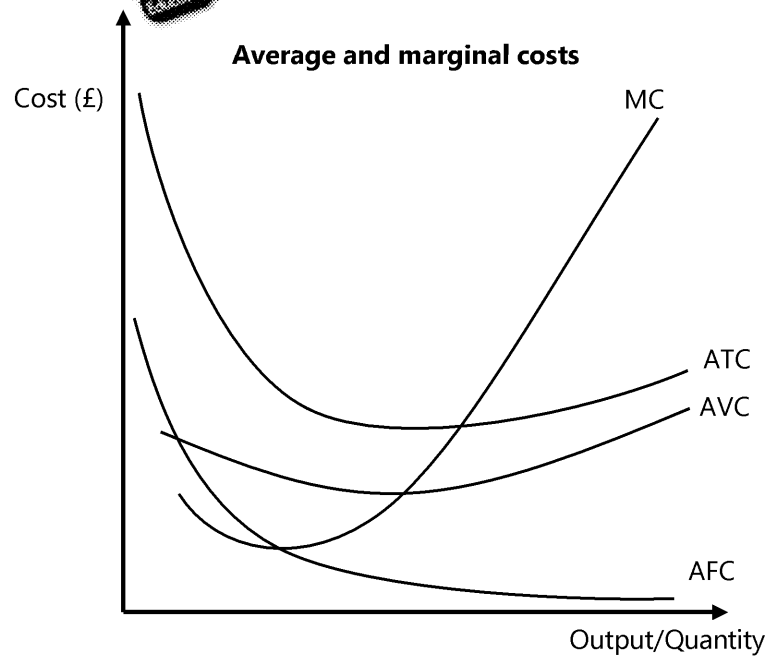
This section will help you to:

- differentiate between the long run and short run
- show the relationship between costs and revenue and output on a diagram
- understand the difference between average costs in the short run and long
- understand the concept of the minimum efficient scale

In economics, we have technical definitions for the short run and the long run: the
time! The short run is when at least one factor of prod is fixed. For example,
able to adjust the number of workers it can hir (la but it cannot adjust its nu
long run, all factors of production are

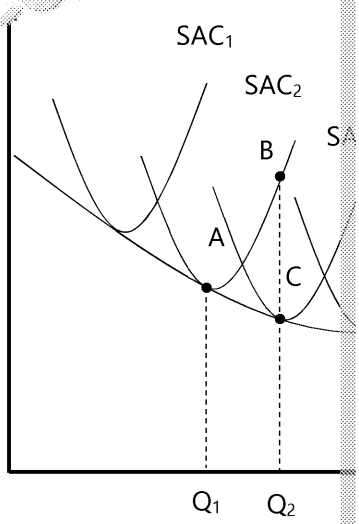
Short-run average costs and long-run average costs

A quick rec e relationship between costs and output:



Costs can be split into fixed and variable costs. Variable costs increase as output i
same regardless of the level of output (e.g. the cost of a licence for selling a good
total) are these costs divided by the level of output. Marginal cost is the cost of pr
curves are plotted above.

The short-run average costs differ from
long-run average costs. Short-r
average costs are affect d law of
diminishing a ctivity and
are what cre e U-shape of the
curve.



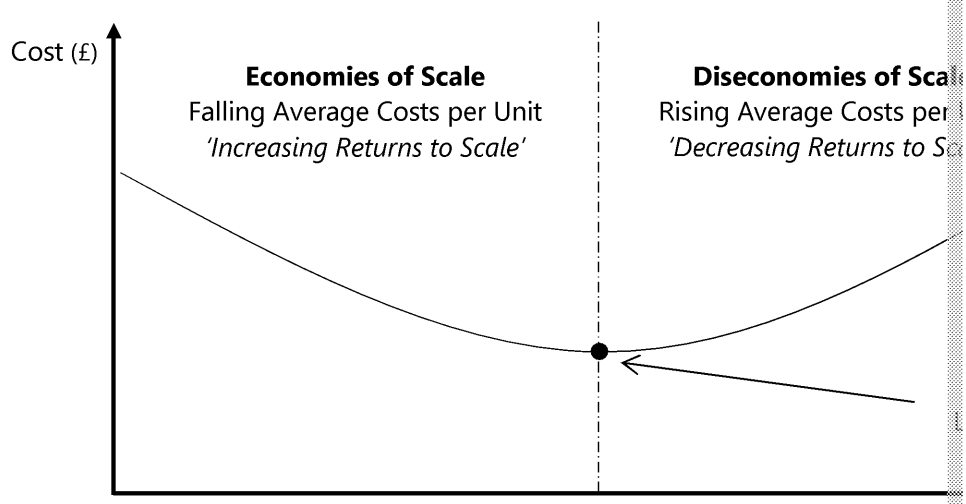
However, in the long run all the factors of production can be changed, and, therefore, everything can be changed to become more productive, efficient and less costly.

For example, a firm is at point A producing Q_1. Demand in the market increases an increase supply. The firm initially buys more raw materials, pays overtime to worke workers. Being in the short run, the firm moves along SAC_2. Output has increased due to the law of diminishing returns; the factory is crowded, there are not enoug getting in each other's way. This increase in demand appears to be a permanent c expensive and the issue of limited space reduces the productivity, so the firm deci producing at this quantity it needs to make some changes. The firm changes the v include longer hours, hires more staff on a permanent contract and changes its or course, to be in the long run the firm buys more machines and rents more factory back on the long-run cost curve. Output is Q_2 and costs are lower.

The long-run average cost curve (LRAC) is also a positive parabola, as is the short- short-run costs were about the productivity of the factors, the long-run average and diseconomies of scale, which are about the size of the firm.

Minimum efficient scale

The bottom of the LRAC curve is the 'minimum efficient scale'. It is the point of pr average cost when all the economies of scale have been fully utilised. A firm o 'productively efficient'. The point of productive efficiency shows that a firm is using possible because it is producing the maximum possible number of goods with its possible cost in the long run. At this point, firms are taking advantage of all the ec achievable. Producing beyond this point will only result in diseconomies of scale a concept of MES is particularly important in industries in which there are high *fixed* implication is that potentially only a single firm can operate in the industry effecti particularly high – i.e. a natural monopoly.



Exam-style questions – Economies of

Multiple-choice questions

1. When a firm experiences economies of scale:
   A. marginal costs are minimised
   B. average costs are minimised
   C. as more labour is added, average costs fall
   D. as output increases, average costs fall

Look at the following table, showing the costs of a firm:

Output	100	300	500	70
Total cost	1,000		4,000	6,3

2. Between which levels of output does the firm first experience diseconomies of
   A. 10 and 30
   B. 30 and 500
   C. 500 and 700
   D. 700 and 900

3. The law of diminishing returns would apply to:
   A. a multinational oil company buying more capital
   B. a farmer submitting a bulk order for manure
   C. a farmer buying a new field and hiring new workers for it
   D. a fruit and veg shop with only one store expanding its workforce

4. The short-run average cost curve begins to slope upwards because of:
   A. diseconomies of scale
   B. the principal–agent problem
   C. the law of diminishing returns
   D. economies of scale

5. A firm operating at the minimum of its long-run average cost curve is at:
   A. the minimum efficient scale
   B. minimum marginal cost
   C. the profit-maximisation point
   D. the point where average fixed costs equal zero

Section 3.3: Revenue and profit

This section will help you to:

- differentiate between different types of profit
- understand the relationship between price, revenue and output using a diag

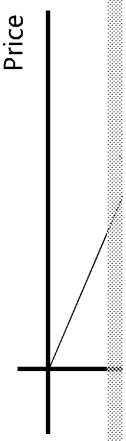
Revenue

Revenues are not profits; a firm can have revenue but still make a loss. This is beca firm receives from the sale of its goods; it has not taken into account the costs of t number of goods the firm has sold (quantity) and the price at which the goods are work out the equations for (a) the total amount of reve[illegible]m would receive fr average revenue the firm receives for the good[illegible] (c) the marginal revenue from marginal are the derivatives of total)?

Total revenue

Total Reve[illegible]Pr[illegible]Quantity

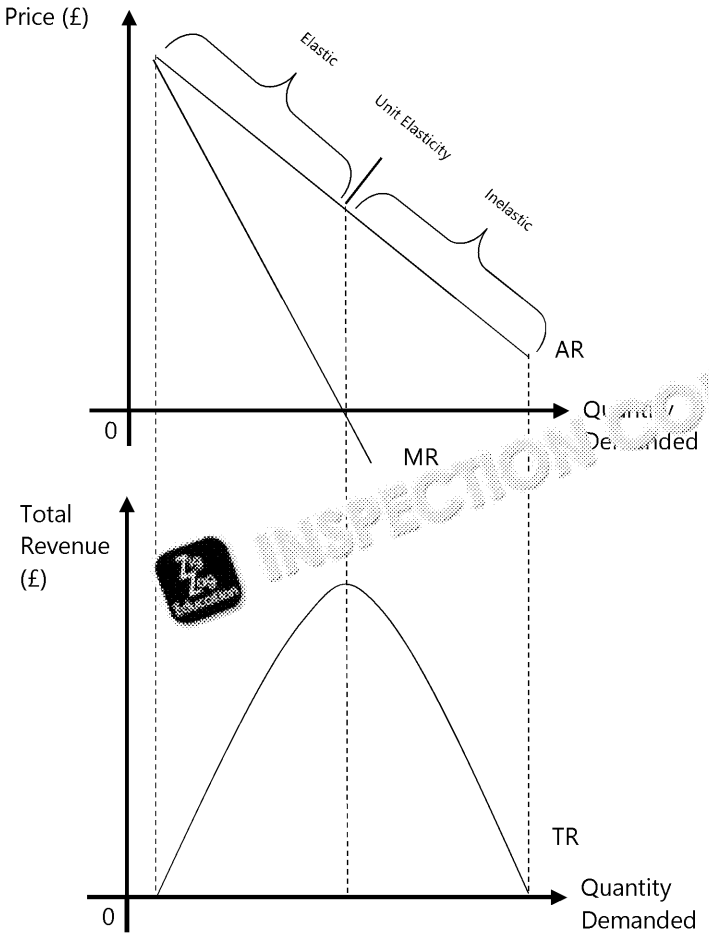
Total Revenue (TR) rises up to a point. The firm will make a loss on every good it sells after this point.



Average revenue

$$\textbf{Average Revenue} = \frac{\textbf{Total Revenue}}{\textbf{Quantity}}$$

If you were finding the average height of your class, you would add all your heights together and divide by the number of people in the class. Finding the average revenue is done in a similar way; you'd find the 'total revenue' and divide by the quantity of goods that were sold.



Average revenue sh[illegible] essentially the dem[illegible] mathematically...

AR = $\frac{\textbf{TR}}{\textbf{Q}}$, if **TR = P** [illegible]

The two 'quantities'[illegible]

Marginal revenue

Marginal revenue i[illegible] curve; therefore, it i[illegible] This means when t[illegible] maximum and begi[illegible] be 0. The slope of t[illegible] as steep as the ave[illegible] axis half way betwe[illegible] average revenue cu[illegible]

You will not need to[illegible] curve in the exam.

Different types of profit

In economics, profit is sometimes thought of in a few different ways. **Accounting** profit used in everyday conversation; it is simply total revenue minus total costs.

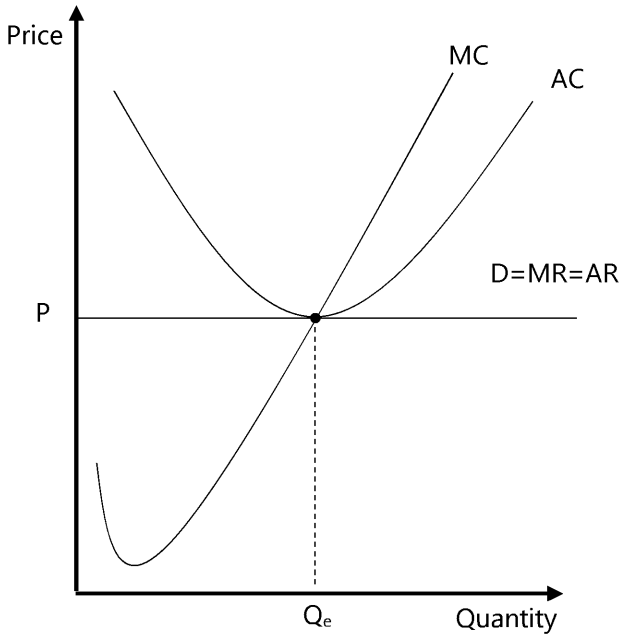
Economic profit, a different idea, includes the opportunity cost involved in gaining following one course of action you made £50,000 in profits and incurred £30,000 would be £20,000. But, if by following another course of action you could have ea £30,000, then your economic profit will be minus £10,000.

Economic profit = Total revenue – Total costs – Opportunity cost
-£10,000 = £50,000 – £30,000 – £30,000

Economic profit can be a useful tool for firms beca[illegible]ws them to compare b different projects.

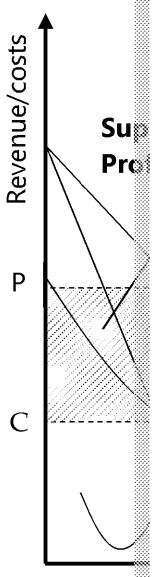
Another, separate set of [illegible]**normal** and **supernormal** profits. Normal pro required for a firm t[illegible]he market, while supernormal profits are any profits profits. Thes[illegible]epts can be a bit confusing, so it is helpful to look at the differe and costs diagram:

Normal profits



In this case, the firm is o equal to average revenu be zero profit, but in eco to be included in the co down. So this diagram s profits, but no supernor horizontal if the firm is o this is explained later in

In this case, the firm is making supernormal p[illegible]its s[illegible]own by the shaded area. If the firm were ch[illegible]a[illegible]ce of C then it would only be making norm[illegible]it, but in this case it has market power which [illegible]t to charge the higher price of P. As discusse[illegible] B[illegible]siness objectives section, supernormal profits are m[illegible]sed when MC = MR.



ACTIVITY

1. What is meant by revenue (and how does it differ from profit)?
2. What is the formula for:
   a) Total revenue
   b) Average revenue
3. a) Copy and complete the marginal and average revenue columns below
   b) What do you notice about the average revenue column and the price c

Quantity	Price (per unit)	Revenue	Marginal Re
1	£20	£20	
2	£19	[illegible]	£18
3	£18	[illegible]54	£16
4	[illegible]	£68	
5	[illegible]16	£80	
6	£15	£90	
7	£14	£98	
8	£13	£104	
9	£12	£108	
10	£11	£110	
11	£10	£110	
12	£9	£108	
13	£8	£104	
14	£7	£98	
15	£6	£90	-£8
16	£5	£80	-£10
17	£4	£68	-£12
18	£3	£54	-£14
19	£2	£38	-£16
20	£1	£20	-£18

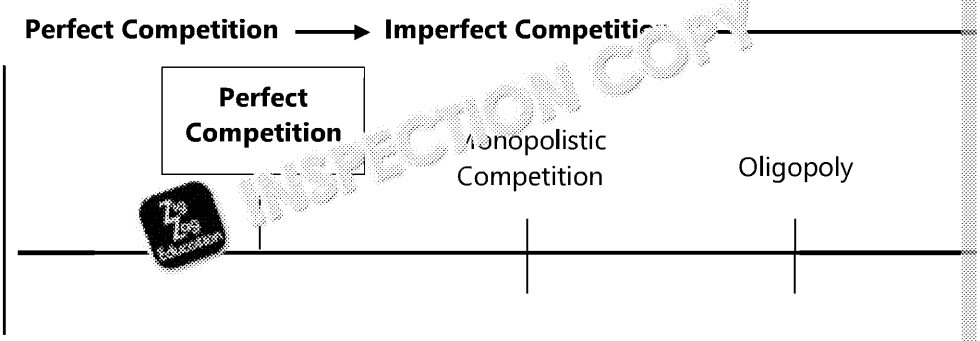
Exam-style questions – Revenue c

1. A business sells £10,000 worth of goods. Its total costs (excluding profits) ar
   minimum amount of profit that the business would acc[illegible]t to stay in busine
   A. The firm is making supernormal profit of £[illegible]
   B. The firm will go out of business.
   C. The firm is making super[illegible] of £1,000.
   D. The firm is makin[illegible] profit of £2,000.

Chapter 4: Market Struc

The following sections go through the four main market structures: perfect compet
oligopoly and monopoly. We will look at the characteristics of each using diagram
perfect competition.

Section 4.1: Perfect competition

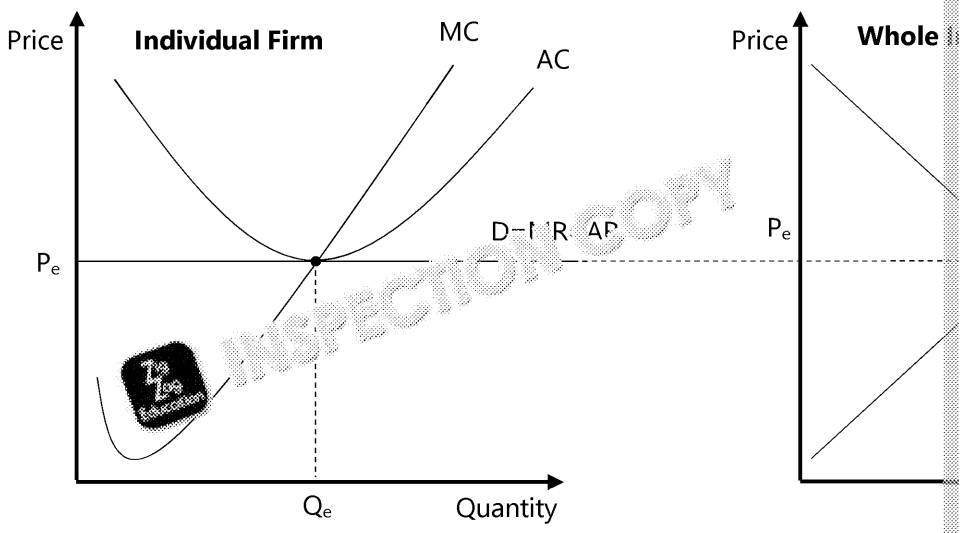


CHARACTERISTICS

- Aim to maximise profits
- Number of producers: infinite
- Concentration Ratio: very low
- Knowledge: perfect
- Product differentiation: homogeneous
- Price-takers
- Barriers to entry and exit: none
- No externalities

Barriers to entry:
There are many factors
entering the market, e.g
by existing firms, high
product standards.

Concentration ratio:
This is the size of the m
largest firms in the mar
firm concentration ratio
market shares of the th
12% + 10% = 37%).



Before analysing the model of perfect competition it's worth bringing up one cave
markets that exhibit the full set of characteristics of a perfectly competitive market.
the model is useless. It serves as a benchmark to which we can compare the efficie
because perfect competition is perfectly efficient.

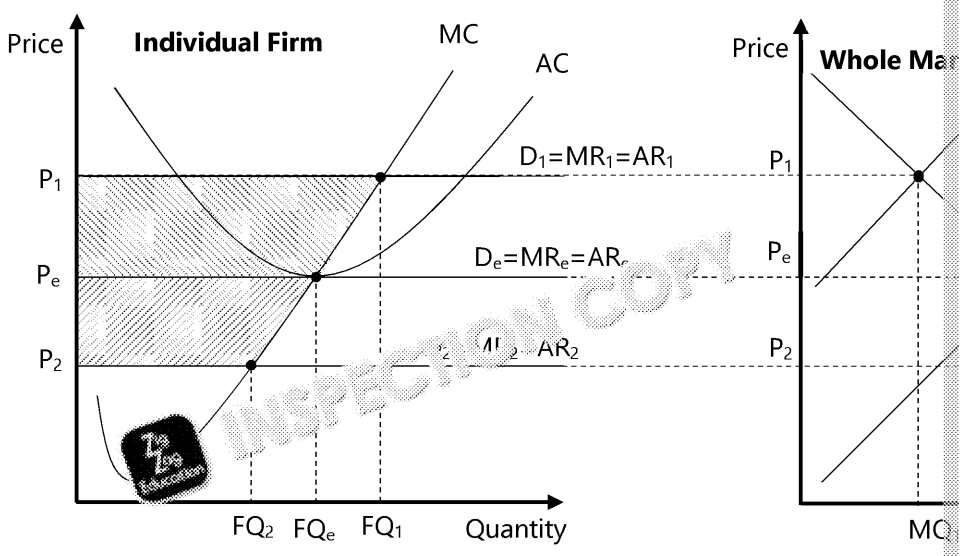
A perfectly competitive firm cannot change the price of its goods. It is a price-take
perfect knowledge of all prices within the market and a variety of producers from
product differentiation so the only factor consumers will use to help them decide
with is the price. This means the consumers are hypersensitive to price, they have
This means the individual firms will have flat demand curves, the average revenue
would be flat too. Marginal revenue would not change as firms increased or decre
too would be flat. Any increase above market price would result in all customers s
producer and the firm would need to once again lower price in order to sell. A firm
consumers if they decreased price below market price and would end up with a sh
money because the total quantity sold would be the same, but the revenue they r
less. The firm would once again raise prices to meet the demand.

Firms cannot set the price, the market sets the price. The supply within the whole
all the quantities each individual firm makes regards market supply, at higher p
willing to supply. At lower prices, firms would be willing to supply. The mark
individual consumers' demand curves. The price of the market and, therefore, the
interaction of these two market forces.

In the long run firms in a perfectly competitive market make only *normal* profits a
output – this is because AR = AC at Q_e. However, it is possible that in the short run
profits. If there was a sudden increase in demand at the industry level, the price w
the firm's individual demand curve would shift upwards to reflect this change in p
remained unchanged, the firm would be making a *supernormal* profit (attempt shi
upwards to see this). However, the presence of supernormal profits in the industry
enter the market that are able to do so because of a lack of barriers to entry. Even
would shift sufficiently to bring the price level back down to its initial equilibrium a
have been eroded.

Efficiency:
Perfectly competitive firms can achieve Pareto efficiency; this is when they are bot
efficient; it occurs when average revenue equals marginal costs equals average co

Profit Maximising in the Short Run and Long Run



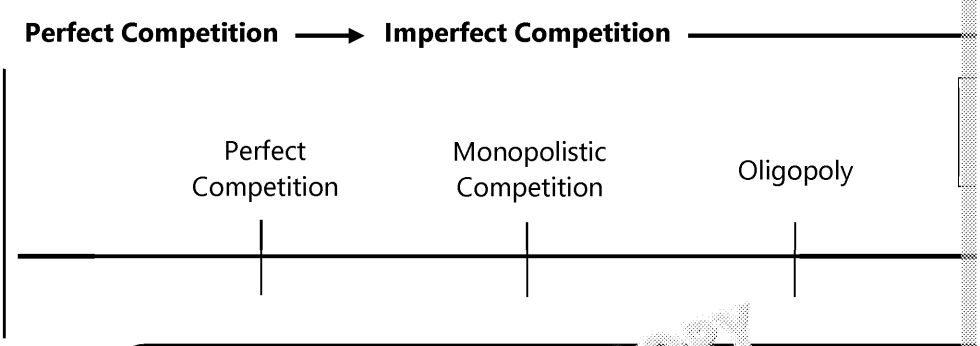
In the short run, perfectly competitive firms can make supernormal profits or losse
always gravitate back to normal profits. Remember, new firms can only exit and en
impossible to change (that includes buying from scratch) all factors of production

The market equilibrium is at MQ_e, at this point the 'market clearing' price is P_e. Be
the individual firm's prices are also P_e and they are supplying at FQ_e. At this point t
because the average cost of producing each good is equal to the average revenue

The individual firms may increase price to P_1, where $MR_1=MC$. At this point the firm
profits because the average revenue the firm receives for the sale of its goods is g
producing its goods. The industry as a whole is producing at MQ_1 where S_1 meets
factors of production can be bought and new firms can be created within a marke
knowledge, other firms will know about the supernormal profits and be attracted t
advantage of them; also, because there are no barriers to entry, there is nothing to
market. This will push the market supply out (because more firms are producing m
point where no more supernormal profits are being made. At this point, S_e equals
and the individual firms are also charging P_e, where only normal profits are made.

If there are too many firms in the industry, then the market supply will be at S_2 wit
The individual firms within the market would also charge P_2, causing the firms to m
revenue received from each good sold is less than the average cost of producing e
run, the loss-making firms out of business and they are able to sell all their factor
are no barriers to exit, there is nothing to stop the firms leaving the market. The su
firms exit and push the market clearing price upwards to P_e. The individual firms in
price to match the market price and firms will go back to making normal profits.

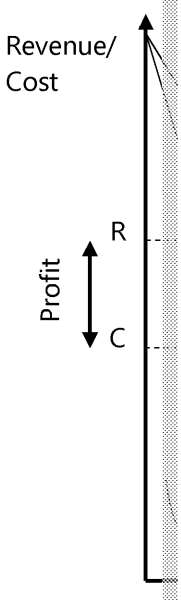
Section 4.2: Monopoly



CHARACTERISTICS

- Number of producers: one
- Concentration ratio: very high, one firm owns all the market share
- Knowledge: imperfect, there is knowledge that is unobtainable by
- Product differentiation: only one good in the market
- Price-makers
- Barriers to entry and exit: very high, impossible for other firms to

Monopolies are in direct contrast to perfect competition. Rather than many firms there is only one sole producer. They are the market, the demand for their product and the output of the firm are the market demand and supply. Because other firms are unable to enter the market, they are the only producer, which means they are price-makers. Barriers to entry can be created in a variety of ways: the knowledge of production may be a barrier to entry as there is imperfect information and competitors are unable to obtain the production knowledge. Also, because there are no other substitutes, consumers have very inelastic price elasticity of demands and, therefore, the monopoly diagram has very steep revenue curves. An example of a sole producer would be the Royal Mint, which, by law, is the only legal printer of UK notes and manufacturer of UK coins.



A single producer is hard to achieve in reality. In the UK, a firm is considered a monopoly by the regulators when it owns over 25% of the market. In the data in the previous section, Tesco would be considered a monopoly because it has a 29% market share.

Note that a monopoly is neither allocatively nor productively efficient because at the and/or long-run equilibrium P ≠ MC and production is not occurring at the minimum Monopolies, however, can gain benefits from x-inefficiency. Because there is no competition is no need to lower costs or improve efficiency.

Costs and benefits of monopolies

+ Monopolies can reinvest their supernormal profits into risky business investments companies. Many medicine developments have high risks associated with them enough and gain enough profit can provide the money for the research and d
+ Monopolies are generally large enough to compete with global companies.
+ The supernormal profits that monopolies earn can be reinvested into becoming competitive, which will have spillover effects for other firms within the market
+ Monopolies can take advantage of economies of scale which smaller companies This will lower average costs for firms, thereby allowing lower prices to be m

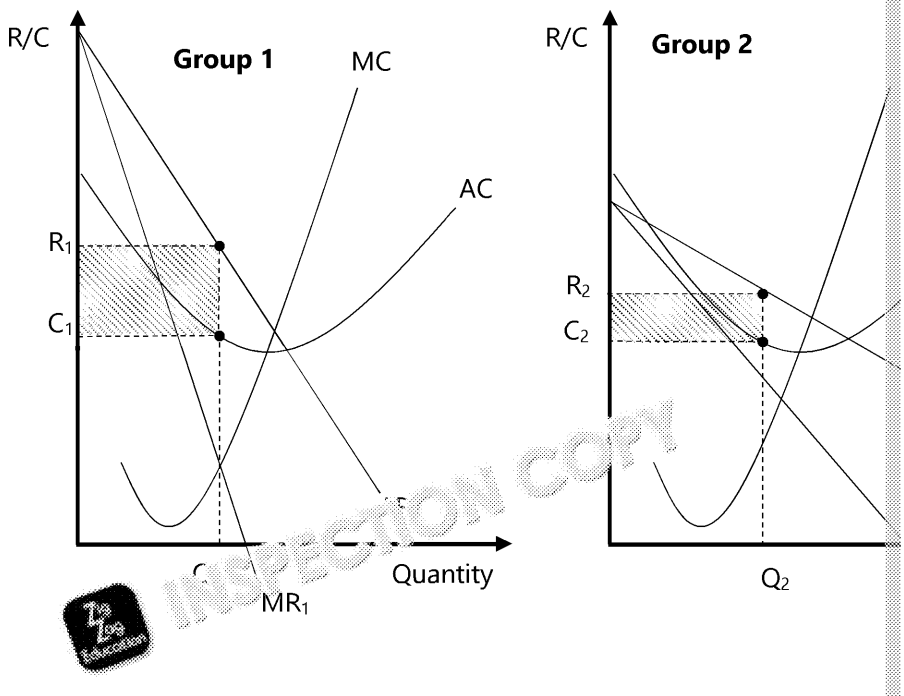
- The supernormal profits that monopolies gain, however, can make the incen efficiency redundant.
- The supernormal profits can be used to protect their high market power and other firms out of the market or preventing new firms from entering.
- Monopolies generally charge higher prices and reduce supply.
- Monopolies may use **price discrimination** (see below) to increase producer s reducing consumer surplus.
- Monopolies are inefficient as they do not produce where average costs are a resources, as average revenue (price) is higher than marginal costs.

Price discrimination

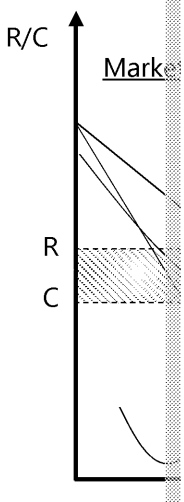
One feature of some markets is price discrimination: wher same firm provides to different consumer groups, with the intention o g profits above that a are three 'degrees' of price discrimination.

- **First degree** price discrimin ion (also known as perfect price discrimination) consumer a price eq l to their willingness to pay for a good – thereby maxi just a th ica , in practice no firm has the market power necessary to
- **Secon e** price discrimination is when a firm charges different prices d (i.e. offering discounts for bulk purchases). This encourages the buying of lar increase a firm's revenues.
- **Third degree** price discrimination is when a firm charges different prices to d Each individual consumer's willingness and ability to pay varies from one ano price according to each individual consumer, firms would be able to gain mo and transfer consumer surplus into producer surplus (see Topic 4.1.5.11).

For example: a student may be less able or less willing to afford train travel. There different prices to students via 'student discounts'. Cinemas may find demand is g times would be identified as 'peak times' and cinema companies may charge high

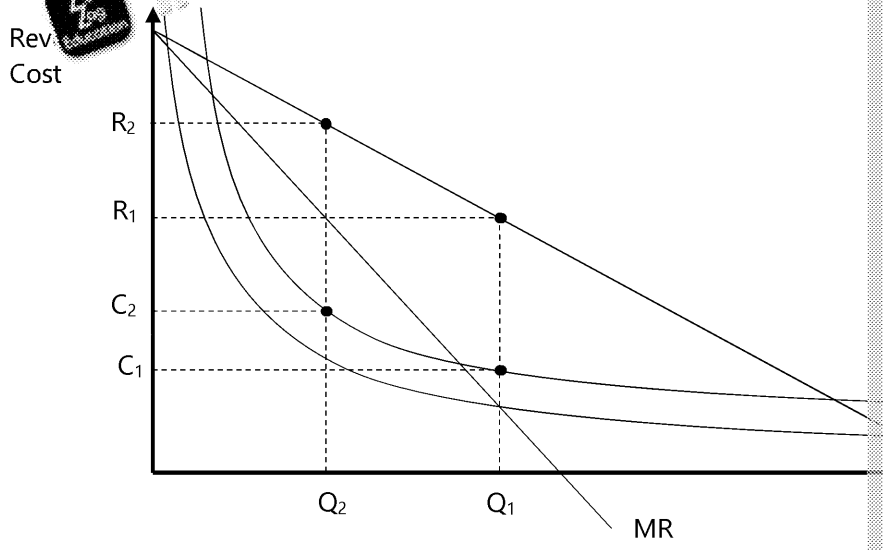


The diagram shows two groups of consumers and their demand for airline tickets. Group 2 are booking well in advance because they wish to shop around to find the cheapest tickets and know they need time to do this. They are price-sensitive and so their demand is price elastic. Group 1 are booking late with only a few days to go before the date at which they need to be in the other country. They are less price-sensitive because they need the flights and are more willing to pay the higher prices. Therefore, their revenue curves are steeper.



The market demand is shown in the diagram to the right. Here the revenue curve is a mixture of the two groups' curves. The profit area is smaller than the areas that the firm would rec[illegible] split the market into two groups. In this case it would be worthwhile the firm price-discriminating and charging two different prices.

Natural monopoly



The high sunk costs cause this long L-shaped average revenue curve. This is becau waterworks company, the costs of setting up the pipeworks and a factory to extra high. However, the marginal cost of an additional customer (the extra cost to prod very low, and again with the next customer. The more customers a natural monop This creates an average cost curve that is high to start with but sharply falls.

The diagram above shows the market structure of a natural monopoly. A natural mo creates monopolistic firms and this is because of the L-shaped average cost curve. U of natural monopolies due to the high level of infrastructure that is needed before e that have high start-up costs prevent new firms from entering; this occurs not only b diagram above shows, it is also unbeneficial for both firms and consumers to have tw

Q_1 shows the level of output that a profit-maximising natural monopolist would p C_1 and the price is R_1; this also indicates the cost to consumers. However, if a se market, the quantity supplied by each firm would be half of that which the first fir market is now shared between two producers and the firm now has to produce at smaller and face higher average costs because they are less able to make full use available. This is shown at C_2. Equally, from the point of view of the market as a wh second firm had to pay would be far higher than the fall in costs from a marginal means prices will be higher and can be shown by R_2, which is disadvantageous to From a profit point of view, the area created by Q_2 is far less than the profit area t conclusion, an additional firm to a natural monopolistic market structure would cr and higher prices for consumers.

Utility companies such as telecommunication companies are natural monopolies an
These industries had very little downwards pressure from competition and the gove
would begin to spiral. However, as shown, there is little benefit from allowing more
the high sunk costs. To get around this problem, the government 'opened up the in
that the government gave the infrastructure to a new company to look after. This al
market without the initial start-up costs because they could use the infrastructure th
telecommunications industry, the telephone wires were given to Transco, which is n

Monopsony

A monopoly is when there is one seller and many buyers. A similar, but different c
there is one buyer and many sellers. This is sometimes found in labour markets, w
workers, and also in other markets (e.g. the government might be the only buyer o
As with monopoly, monopsonists have market pow[illegible]na[illegible]ould be used exploitat
labour market gives an example with a diagram of how a monopsony works in pra

Efficiency and [illegible]polies

A quick rec
Productive [illegible]ncy = when resources are used optimally to produce output (lo
Allocative efficiency = when resources are distributed in such a way that maximis
Economic efficiency = when the criteria for both productive and allocative efficie

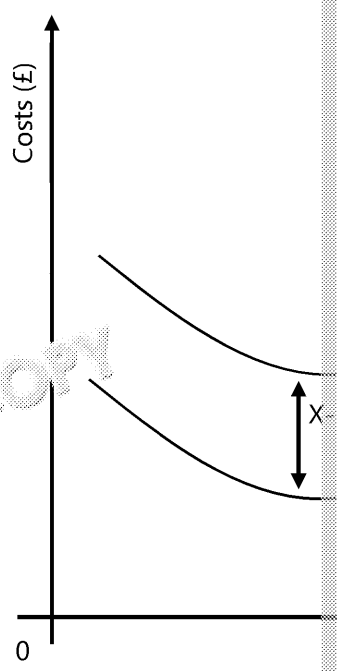
Static and dynamic efficiency

We can distinguish between efficiency at a single point in time (static efficiency) a
of time (dynamic efficiency).

A firm achieves static efficiency when it is productively efficient at a particular poin
but it is also helpful to consider whether a firm (or market) is acting efficiently ove
associated with reducing average costs over time. This could be due to adopting n
using more effective management techniques / working patterns.

X-inefficiency

X-inefficiency occurs when a firm is not operating as efficiently as it could be. On a diagram, this would be shown by its average cost curve being higher than its 'potential' average cost curve:



There are various reasons why x-inefficiency could occur. Perhaps the firm is receiving a subsidy from the government that discourages it from operating efficiently, or perhaps it doesn't face particularly strong competition in the market.

This raises an important point about the conditi[illegible]ns under which economic efficiency is likel[illegible]achieved. In terms of productiv[illegible]icie[illegible]y, it is important that firms fa[illegible]o[illegible]petition in the market – th[illegible]t[illegible]have to operate as efficiently as [illegible]le in order to survive. Allocative efficiency is likely to occur when there is effective competition in the market and where there is good information in the market. If consumers have difficulty working out the value of goods, for example, there might be some inefficie
Similarly, if firms have some freedom in the market to set prices higher than the ma
who would have bought goods at the equilibrium price will go unsatisfied: this is no

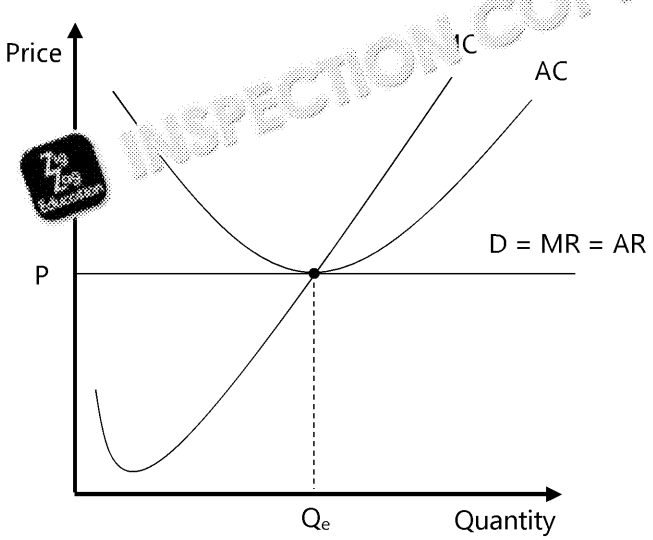
As such, it is likely that perfectly competitive markets will lead to economic efficien
markets (such as a monopoly) will be inefficient. These market structures are explo

The importance of efficiency

Achieving these types of efficiency perfectly is nearly impossible, but it is a useful i
aim for. If goods are produced as efficiently as possible and allocated as efficiently
will be very prosperous indeed. This applies both for static (a single point in time) e
period of time) efficiency.

Exam-style questions – Perfect competition an

1. The following diagram shows the costs and revenue of a firm in a perfectl



The demand curve is:

A. relatively elastic, since consumers have a wide range of choice
B. relatively inelastic, since firms supply necessity products
C. perfectly elastic, since the market price is fixed at P
D. perfectly inelastic, since firms never change the prices of their goods

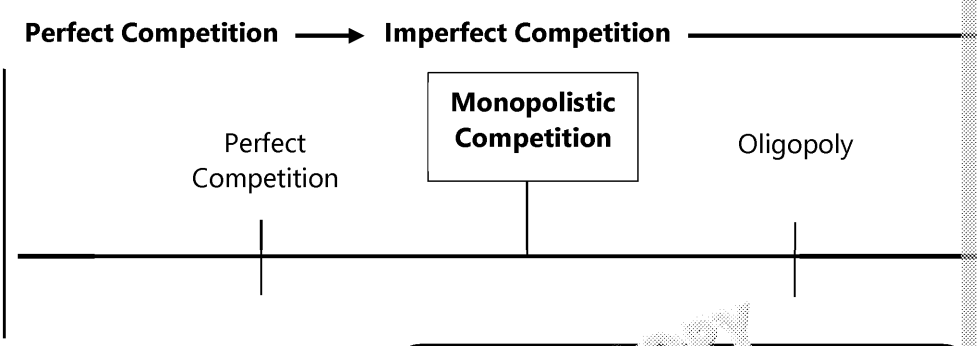
2. If a convenience shop opens in a small village, this is most likely to increase
   A. productive efficiency
   B. allocative efficiency
   C. x-inefficiency
   D. economic efficiency

3. If a firm removes an excess layer of bureaucracy in its management process
   A. productive efficiency
   B. allocative efficiency
   C. x-inefficiency
   D. dynamic efficien

Essay qu

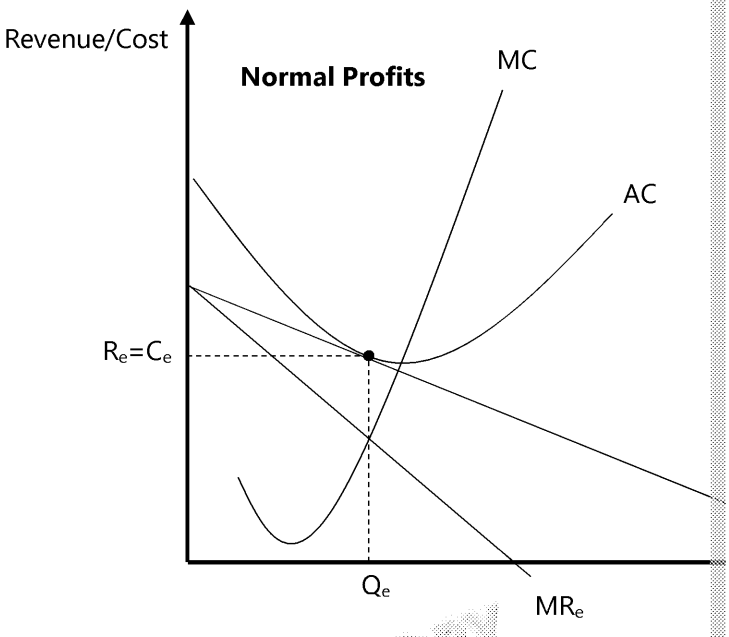
4. Suppose that a single firm had a monopoly over the air flights between two
   the extent to which a government should seek to promote greater competi
   Use a diagram in your answer.

Section 4.3: Monopolistic competition



CHARACTERISTICS

- Aim to maximise profits
- Number of producers: high
- Concentration ratio: low
- Knowledge: almost perfect
- Product differentiation: similar
- Price-makers
- Barriers to entry and exit: low

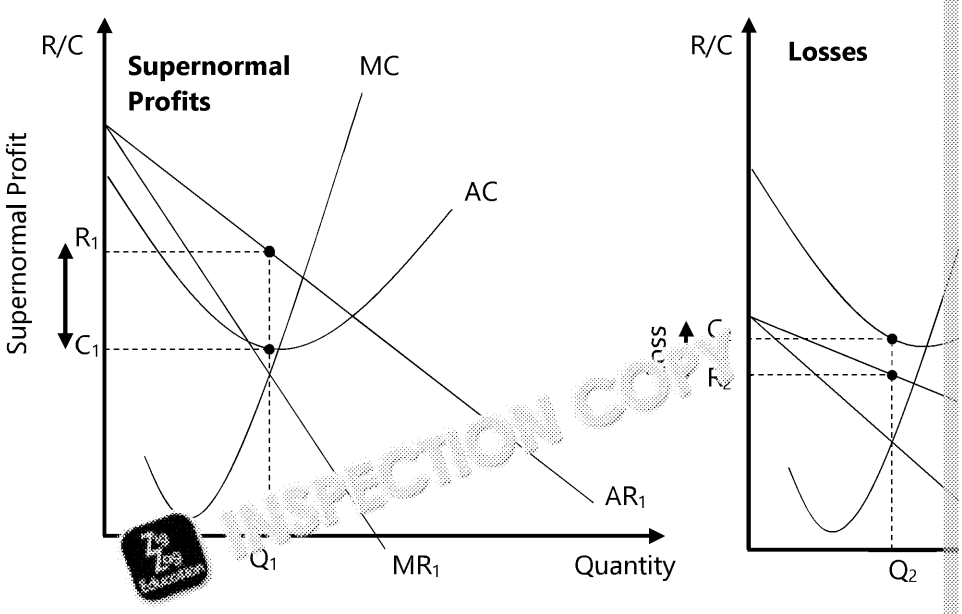


Because there is some product differentiation, firms are to some degree 'price-makers' and face a downward sloping demand curve as consumers' willingness to purchase changes with the price charged. Demand is not perfectly elastic. However, there is not a high degree of differentiation so the demand curve is relatively elastic, which creates very flat average revenue and marginal revenue curves.

Firms in a monopolistically competitive market are profit maximisers and so produce where marginal cost equals marginal revenue.

Efficiency:
To compete, monopolistically competitive firms must become more dynamic and innovative to lower costs and increase profits.

Supernormal profit in the short run and long run



In the short run a monopolistically competitive firm can make losses or supernorm
run firms will leave and enter the market until the firms can only make normal pro
the three diagrams on this page: 'Normal Profits', 'Supernormal Profits' and 'Losse
whole market and in all of them the costs that exist in the market do not change (
same place) and the firms always produce where MC = MR (the profit maximisatio
When the firms are making supernormal profits they are producing at Q_1, where c
revenue of R_1 for each good. Because there are very few barriers to entry and ther
information flows, new firms will enter the market in order to take advantage of th
cause the supply within the market to increase and cause the revenue curves to fla
profit the firms receive. This will occur until the curves flatten from MR_1 and AR_1 to
supernormal profits have been eroded and the firms are making normal profits.

When the firms are making a loss, they will produce at Q_2, where the costs they in
revenue they receive (R_2). There are no barriers to exit and so firms will be pushed
close. This will reduce the supply in the market and the revenue curves will steepe
and the firms receive only normal profits.

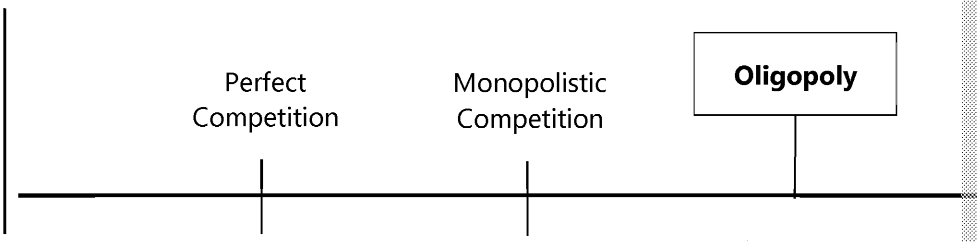
Evaluating monopolistic competition

Monopolistic competition has several advantages, including:

- Product differentiation leads to wide choice for consumers.
- Low barriers to entry make markets contestable, and may encourage firms to

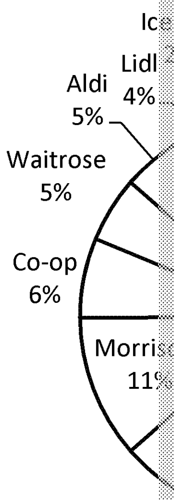
However, compared to perfect competition, monopolistic competition is not quite
higher than in perfect competition, so allocative and productive efficiency will not

Section 4.4: Oligopoly



CHARACTERISTICS

- Number of prod[illegible]
- Con[illegible]tio[illegible] high
- Kno[illegible]: imperfect
- Produ[illegible]ifferentiation: heterogeneous
- Price-makers
- Barriers to entry and exit: high



Market structures with a low number of firms tend to have high concentration ratios. Usually you will look at three- or four-firm concentration ratios, which means you look at the share of the market controlled by the top three or four firms in the market.

The pie chart shows the market share of nine supermarkets in the UK in 2014. The be calculated by adding up the market share for the 'N' number biggest supermar

- The **three-firm concentration ratio** would be calculated by adding up the m supermarkets. Using this data it would be Tesco with 29% plus Asda with 18% equating to 64%.
- The **four-firm concentration ratio** would be calculated by adding up the ma supermarkets. Using this data it would be Tesco with 29% plus Asda with 18% Morrisons with 11%, equating to 75%.
- The **five-firm concentration ratio** would be calculated by adding up the ma supermarkets. Using this data it would be Tesco with 29% plus Asda with 18% Morrisons with 11% plus Co-op with 6% equating to 81%.

Because of this high concentration ratio, the firms [illegible] market are **interdep** firms will consider the reactions of their com[illegible] to [illegible]efore making changes, and t actions or possible actions of the [illegible] his is because the competitors are l conditions and can pose a [illegible] rofits.

How do [illegible] compete?

Tacit collusi[illegible] aka implicit) = when firms do not want to engage in competitive behaviour and so behave uncompetitively. This is done without a formal agreement or mention. Because firms have not formally agreed to collude and the actions are hidden, tacit collusion is hard to de and prove firms are price-fixing.

Learn More!
Watch this video on OP
https://www.youtube.co

From this a price leader will emerge. A price leader is a firm that directs the price i will follow and copy the price. They will choose this price because a price that is an lose customers to the lower-priced firms; a price that is lower may spark a price wa

Overt collusion (aka explicit) = a formal and usually secret agreement to enter i
Cartels are a special form of explicit collusion. A cartel is a group of firms who act t
gain monopoly power in a market.

Price competition

Price wars

A price war occurs when competing firms try to obtain the lowest price in the mar
consumers. Other firms may be driven out of the market if they cannot sustain the
market share for the other firms in the industry. This has been evident in the UK su
years, with insurgents such as Aldi and Lidl undercutting traditional firms such as T

Predatory pricing

This is when a firm deliberately sets a price to driv[illegible]tors out of the market
price that provides no profit, or even mak[illegible]s. This works as long as the firm h
and retained profits) to sustain th[illegible]than the other competitors.

Limit pricin

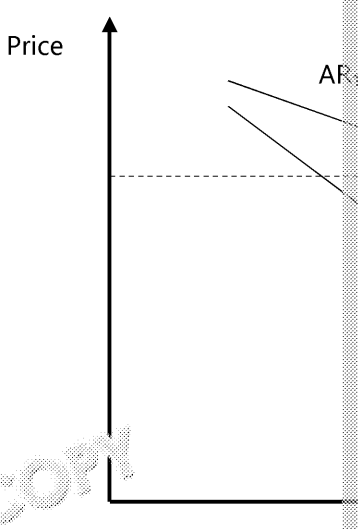
A limit price[illegible]ce that still makes a profit for the firm but discourages any new
increased pr[illegible]action will only be met by rising costs.

Non-price competition

There are many factors that consumers consider before choosing whether to buy a
price, but rather than competing for the best price, firms may choose to compete v
fashion, appearance or 'after-service care' – this is also known as 'product differen
significant for an oligopoly because the interdependence of pricing decisions mea
differentiate your product through quality rather than starting a price war!

The kinked demand curve

The kinked demand curve shows one way of looking at the interdependence of firms in an oligopoly.



Suppose two firms in a market both start at point E (price P_E, quantity Q_E). If one firm chooses to increase their price, they face a relatively elastic demand curve (AR_1), so more customers will choose to buy from the other firm. Clearly, this would be a bad strategy.

What happens if one firm chooses to lower their price? In this case, the other firm is likely to reduce their price as well to avoid losing market share. Since the difference in price between the firms remains the same, the demand curve is inelastic (AR_2). Therefore, both firms end up losing revenue.

This model suggests that firms in an oligopoly have an interest in keeping prices a
overt collusion or tacit collusion. This could be to such an extent that firms effectiv
maximising their joint profits.

Further your economic knowledge...

Game theory and the Prisoner's Dilemma

An interesting branch of mathematics is *game theory*. In an economic context, g
explain collusive behaviour and the interdependence of firms. First we will look
Dilemma' example:

Suppose two criminals are being held by the police. The prisoners are brought
to inform on the other criminal.

- If both prisoners inform on each other, they will both receive a sentence o
- If one prisoner informs and the other remains sile[illegible] informer walks fr
  year sentence.
- If both prisoners stay silent, they [illegible]ceive one-year sentences.

What would you do in [illegible]s situation – assuming you only care about the length
other pe[illegible]? L[illegible] the options in the table:

		Prisoner B	
		Inform	**Stay silent**
Prisoner A	**Inform**	A: 3 yrs, B: 3 yrs	A: 0 yrs, B: 10 yrs
	Stay silent	A: 10 yrs, B: 0 yrs	A: 1 yr, B:1 yr

Consider Prisoner A's thought process:

- If Prisoner B chooses to inform, the best option is for me to inform as well
  10 years.
- If Prisoner B chooses to stay silent, the best option for me is also to inform
  one year.

If Prisoner B applies the same logic then both of them will choose to inform. Th
three years in prison, when a much better solution would have been for both o
spend one year each!

How does this relate to collusion? Suppose you change the options to setting a
setting a 'low' price:

		Firm B	
		Low price	**High price**
Firm A	**Low price**	A: £100, B: £100	A: £500, B: £0
	High price	A: £0, B: £500	A: £300, B:£300

In this example, if both firms collude (i.e. keep prices high) they can share £300
renege on the deal and lower its prices, everyone b[illegible]rm B's products instea
£500 and Firm A makes nothing. If both fi[illegible] c[illegible]se to undercut, they share o

The incentive to undercut is the same as the incentive to inform in the P
better strate[illegible] re[illegible] of what the other firm does. But it still leads to a bad
each ins[illegible] £[illegible] each!

Of course the examples here are somewhat unrealistic: you can adapt the mod
between the two parties, repeated games, different incentives, etc. Changing th
predicted outcome. If in the second example Firm A had the option to lower its
might be less of an incentive for Firm B to cheat the first time round (since they
drop their prices in response).

In summary, game theory is a useful tool for predicting the market behaviour o

Advantages and disadvantages of oligopolies

Oligopolies can have advantages or disadvantages depending on the nature of th

The standard model of oligopoly typically results in higher prices and less choice f higher profits for firms, which is inefficient and bad for the market (particularly sin is why these kinds of market are often regulated heavily – e.g. the UK energy mark 'Big Six' firms). However, when firms do compete on price (as with the supermarke

Another potential advantage of oligopolies is that firms tend to focus on innovati from their competitors, which can lead to better products for customers.

How realistic is the theory of the firm?

The four market structures discussed above are pa theory of the firm', a g explain and predict the behaviour of firms In all economic models, they a As such, we can criticise the predi ese models, for example:

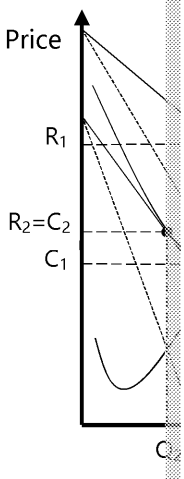
- It is not always true t seeks to maximise profitability. We have seen and non ives that any one firm can target. However, one argu always back of a firm's mind.
- Rarely do we see *perfect competition* or a pure *monopoly* in real life, hence th models should be taken with a pinch of salt. They do, however, provide usefu compare real markets.
- Divorce of ownership between the principal (shareholders) and agents (mana profit maximisation occurs fully because each agent has their own set of obje
- Firms that operate in the public sector or charities are likely to differ in their b private firm. Therefore, it's important to only apply the theory of the firm to p the public sector is criticised for a lack of profitability, but these critics tend to different objectives.

Section 4.5: Contestable markets

CHARACTERISTICS (perfect contestability)

- Barriers to entry or exit: none
- No sunk costs
- New entrants suffer no competitive disadvantage to incumbents
- Perfect access to technology

Contestable markets can occur in a variety of structures (e.g. perfect competition or oligopoly). The main characteristic of the market mean firms can come and go as they please. This makes the market vulnerable to 'hit-and-run' firms.



When a market has the possibility of making supernormal profits, new entrants are tempted to join and take advantage. Because there are no barriers to entry, firms can easily join the market (hit), and because the firm will not be disadvantaged due to being new and unestablished compared to the incumbent, the new entrants are able to take full advantage of the market and reap the supernormal profits. Once the price has been driven down by the increase in supply to the point where profits become normal, firms are able to leave the market (run) because there are no barriers to exit.

Implication of firms' behaviour

The implication of these 'hit-and-run' firms is that the 'threat' of new firms increase market. Firms will behave as though they are perfectly competitive even if there are market. This is because any price increase above costs (supernormal profit) will not firms into the market. Instead, to avoid this competitive and profit fluctuation, firms maximising objective and instead set a price that is equal to average costs.

Perfect contestability

If a market is perfectly contestable (see characteristics above) then firms will be allo efficient. If a firm were not productively efficient it would be forced out of the mark of production. Similarly, if the firm were not pricing its products in a way that was a would either be undercut by other firms (if prices were above equilibrium) or make equilibrium).

Degree of contestability

The extent to which these characteristics exist determines the degree of contestabi If the incumbents are well-established brands then consumers are unlikely to buy t brand loyalty). This means new entrants will be disadvantaged compared to incumb enter to take advantage of the temporary supernormal profits. Established brands a entry because new entrants will need to spend a lot on advertising and marketing t away from the established brands, and this is a sunk cost because the firm cannot retri spent it. The more established the brands the higher the barriers to entry are and th enter the market (the less contestable the market is).

The contestability of a market is a useful addition to the theory of the firm for econ certain markets that only have a few firms can act like a highly competitive market

Exam-style questions – More market str

1. In which of the following market structures is it possible for firms to make s
long run?
   A. perfect competition
   B. monopolistic competition
   C. oligopoly
   D. monopoly
   E. D only
   F. D and C
   G. D, C and B
   H. D, C, B and A

2. A good example of mono ist competition is:
   A. UK energy s ls
   B. er ets
   C. ents
   D. the stock market

3. Which of the following is not associated with oligopolies?
   A. the kinked demand curve
   B. game theory
   C. cartels
   D. price-taking firms

4. The table below shows data on the market share for the UK's largest superm

Supermarket	Aldi	Asda	Co-op	Lidl	Morrisons	Sains
Market share	4.8%	17.4%	6.4%	3.5%	10.9%	16.2%

Source: Kantar World

The four-firm concentration ratio is:
   A. 68.8%
   B. 73.3%
   C. 62.4%
   D. 79.7%

5. The key feature of a contestable market is:
   A. product differentiation
   B. firms compete on price
   C. a low concentration ratio of firms
   D. Low barriers to entry

Chapter 5: Labour ma

Section 5.1: Demand for labour

This section will help you to:

- understand the concept of the derived demand for labour
- understand the factors affecting the demand of labour
- understand the factors affecting the elasticity of demand for labour
- understand the meaning of productivity and unit labour costs
- understand marginal revenue product theory

Just like the market for products, economists look at the demand and supply of labour (i.e. workers). The interaction of demand and supply demands the wage rate in a particular job (the wage rate is the 'price' of labour). The markets for individual jobs can be considered a **submarket** of the overall demand for labour in the economy.

Deri
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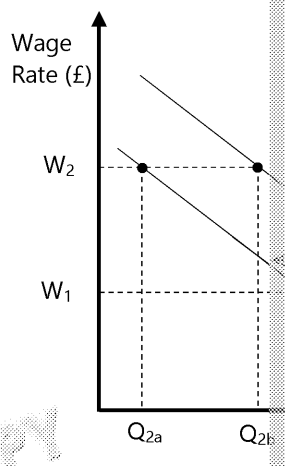
We say that the demand for labour is a **derived demand**, because it depends on the demand for the product that is being produced by the workers. F
workers who put together smartphones will depend on the market demand for sm

Factors that influence demand for labour (DL)

Wage rate

Wage is the price of labour and, as the law of demand states, as price increases, demand falls, so, as the wage rate increases, the demand for labour falls. Remember the substitution and income effect from Theme 1. The substitution effect is that as the price of something increases, consumers are likely to swap to consuming a substitute. Capital and labour are substitutes when it comes to production, therefore, as the wage rate increases, firms are likely to swap to using capital. The income effect explains that as people's incomes rise they are likely to increase their demand. A firm's income is the profit they make. If the wage rate goes up, then their profits fall (their incomes fall) and they will demand less labour.



Demand for goods (derived demand)

If the demand for a good goes up, then the producers of that good will seek to increase production. In order to increase production they will need more labour and so the demand for labour will increase.

Productivity of labour

If workers become more productive, then they will produce more goods in a defined time period. This means firms can increase their output without increasing costs because their workforce will produce more without the firm needing to purchase more labour. Therefore, if productivity increases, firms are likely to demand more labour. Productivity is determined by skill levels, training, education and general human capital.

$$\text{Labour productivity} = \frac{\text{Output per period}}{\text{Number of workers}}$$

Profitability of firms

If a firm is more profitable, it is able to expand production and purchase more labo
profitable the firm is, the more labour it will demand. This is why, in an upturn or l
likely to increase, because firms are more able to purchase labour. In a downturn o
labour falls as firms cannot afford to expand and may even need to downsize.

Substitutes

Labour and capital are substitutes when it comes to production. Therefore, the de
depend on the price of labour, but also the price of its substitutes. If the price of c
demand capital over labour and, therefore, the demand for labour will fall. If the p
switch to using labour and the demand for labour will rise.

The wage elasticity of demand for lab r

This is a similar concept to price elasticity of dema d the wage elasticity of dema
responsiveness of demand for lab r t change in the wage rate. A highly elasti
small change in the wage a m d to a large change in demand. One factor th
is the extent to hic can be substituted with capital (or machines, e.g. self-
checkout w t supermarkets). If workers can be easily replaced by capital, the
If workers ca t be replaced easily (e.g. highly skilled tech workers) then demand
firms will want to keep them on even if their wage rate goes up significantly.

The wage elasticity of demand also depends on the elasticity of demand for the p
elastic demand would mean that demand for labour working on this product wou
increase in the wage would increase the price of the product, greatly reducing de

The importance of differences in productivity between firm

The productivity of labour is a very important concept: firms and countries that ac
will have a massive advantage over their competitors.

Individual firms will be able to reach lower average costs (perhaps a lower minimu
productive workforce, which enables them to price their goods more competitivel
whole range of factors: the individual skills and talents of the workforce (this is kn
length of the working day, the incentives on offer, the level of training, working co

There are also noticeable differences in the productivity levels of different countries. Productivity growth is often considered to be one of the most important factors in determining long-term economic growth in an economy, since higher productivity means that more can be produced for less. Countries that can achieve high aggregate levels of productivity can also offer more competitive exports, giving them an edge in international trade.

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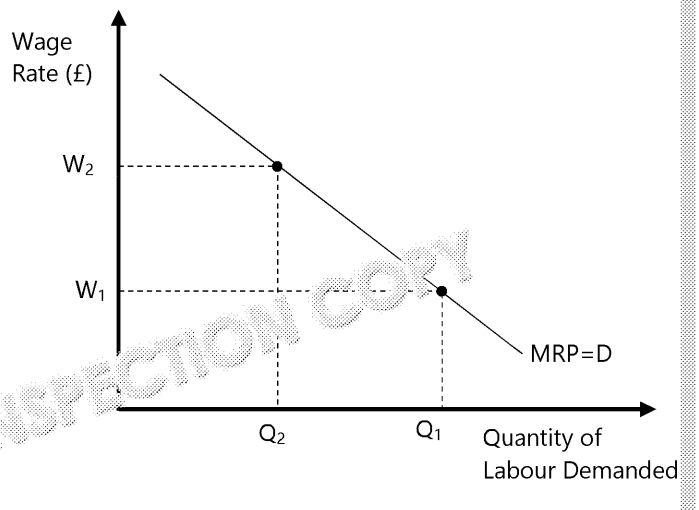
Marginal revenue product theory

This theory is one way of explaining how firms set the wages at which they hire wo
set equal to the value of the **marginal revenue product** of labour (MRP). MRP is t
the last worker hired.



Marginal productivity theory suggests that the labour demand curve will be down
worker produces less additional output (and hence less additional revenue) than t
because of the **law of diminishing returns**. Sometimes the MRP is shown as a cu

This theory would explain why more skilled workers earn higher wages: they are m
is higher.

Section 5.2: Supply for labour

This section will help you to:

- understand the factors affecting the supply of labour
- understand the factors affecting the elasticity of supply for labour
- understand the concepts of economic rent and transfer earnings

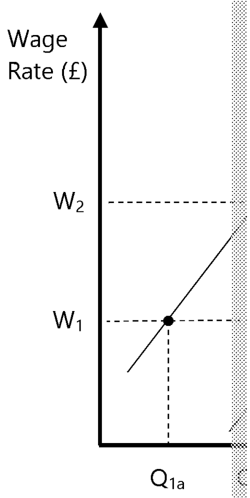
Factors that influence supply for labour (SL)

Wage rate

The wage rate also affects the supply of labour. From a supply point of view, the w
and incentive to work. At higher wage rates, more workers are likely to choose to w
will be higher. At lower levels of wage rates workers will be less incentivised to wor
This is especially noticeable if benefits for unemployment are high.

Size of working population

The size of the working population depends on school-leaving age and retirement age. If more people are able to work then there is a *greater* supply of labour. If the retirement age falls and the school-leaving age increases, then there will be less people of working age and so the supply of labour will fall.



Migration

If people of working age migrate then this will affect the supply of labour. If people who are unable to work or are not of working age migrate then this will have no effect on the supply of labour. If people immigrate (come into the country) then there will be a greater working population and the supply of labour will increase. If people emigrate (leave for another country) then the supply of labour will fall because there are less workers available in the country.

Willingness to work (preference for work)

Labour and leisure are substitutes because time is fixed and people can choose to
people would prefer to work because of the additional benefits of work (e.g. incom
increase. If people are less willing to work then the supply of labour will fall. Work
increased through wage rises but also by reducing the cost of working. So, for exa
they will need to pay for childcare while they work; this is a cost of working. By red
be more affordable and more people will be able to work, thereby increasing the s
also be increased through non-monetary factors, such as working conditions. If wo
people will be less willing to go to work.

Barriers to entry

There are many barriers to entry, such as the qualifications needed, legal requirem
visa) and length of training. These factors can prevent someone from entering the
affect the supply of labour. This can be occupation specific or nationwide, such as
order to work in certain countries (regardless of the occupation), or needing certif
or architect. If there are more barriers to the labour market, then less people can j
will fall. If there are low barriers to entry of the labour market, then more people w
the supply of labour will be greater.

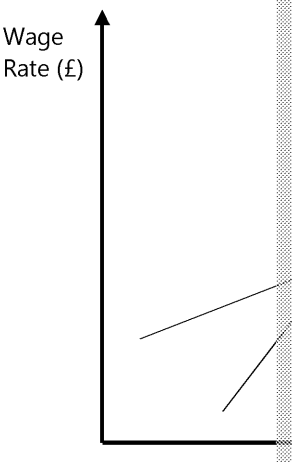
Trade unions

Trade unions can affect the supply of labour in a variety of ways. Firstly, they may a market because there are incentives of being a member, such as offering protectio conditions and high wage rates. This would increase the supply of labour. Secondl strikes and reduce hours. This will reduce the supply of labour in the market. Lastl of supply of labour. Because trade unions present a collective bargaining power, t more control over the market, and their supply curves will be more inelastic than f members of a trade union.

Wage elasticity of supply of labour

The wage elasticity of supply of labour (the shape of the supply curve) is affected b main factors is how easy it is for people to switch occupati[illegible]. The wage elasticity likely to be quite elastic, since people do not need [illegible] training to do these j with fewer potential candidates is likely to h[illegible] more inelastic supply, sinc significantly, not many people are [illegible] to switch into that profession. The elas on how flexible the job m[illegible] the jobs require a long notice period before s information [illegible] there is in the market. The invention of the internet w the ability [illegible] to search for jobs.

The wage elasticity of supply also depends on whether we look at an individual's **short-run** labour supply curve or the **long-run** labour supply curve. The long-run supply curve shows how much labour (in terms of hours) the individual is willing to supply given a permanent wage rate, whereas the short-run supply curve shows how much labour an individual is willing to supply given a short-term change in the wage rate.



In the short run, a worker may agree to work very long hours for a temporarily higher wage rate (e.g. overtime). Therefore, the short-run labour supply curve is more elastic. However, this is unsustainable in the long run – so the long-run labour supply curve is more inelastic. It takes a much greater increase in the long-term wage rate to tempt a worker to give up more of their leisure time. This is shown to the right.

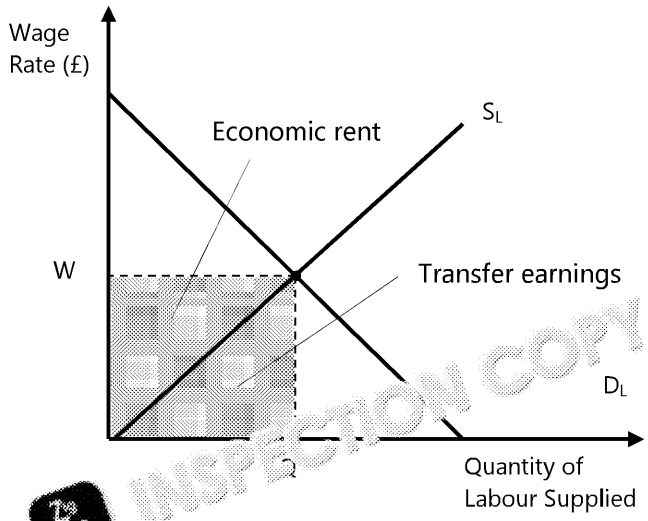
Economic rent and transfer earnings

The wage rate is one of the most important factors people consider before accept economic rent and transfer earnings, we can analyse the conditions under which p of the wage rate).

Example: suppose a bank manager is [illegible] £[illegible]0,000 a year. He/she would be willing Therefore, we can say that t[illegible] economic rent is £5,000. Economic rent is minimum wage rate [illegible] is willing to work and what they are actually paid.

Now suppose that this bank manager would never work for less than £19,000: they than work for less than this. In this case, £19,000 is the bank manager's transfer ea minimum reward required to keep a factor of production in its present use (in the employment).

Economic rent and transfer earnings can be shown using a diagram:



The size of economic rent and transfer earnings will differ from person to person, d
and the different *options* available to them.

Exam-style questions – Supply and Deman

1. Which of the following factors is likely to affect the wage elasticity of dema
   A. The ease with which labour can be substituted for capital.
   B. The proportion of total costs made up by labour.
   C. The elasticity of demand for the product being made.
   D. All of the above.

2. A worker earns £300 a week as a cleaner. They would continue working as a
   than this. This individual would choose not to work at all if they earned less
   economic rent is:
   A. £100
   B. £200
   C. £50
   D. £250

3. The marginal revenue product theory states that:
   A. Each additional worker is slightly more pro ... e than the last.
   B. The supply curve of labour is equ ... to the marginal productivity of labo
   C. A firm will hire workers ... e wage rate equals the amount of reven
   D. Each worker is p ... ge according to their marginal revenue produ

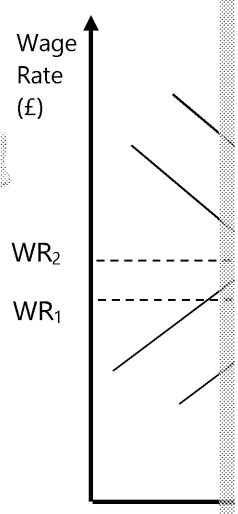
Section 5.3: The interaction of labour m

This section will help you to:

- evaluate the impact of flexibility, monopsonies, trade unions and bilateral m

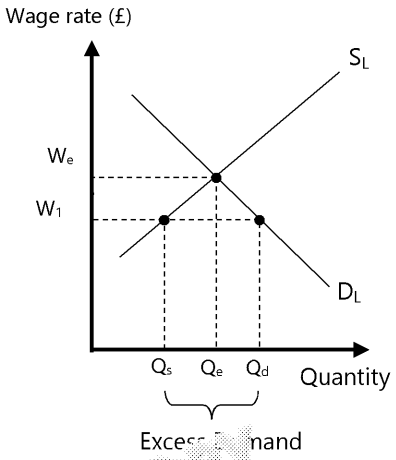
Wage determination

In a competitive market, the wage rate is determined by the labour market forces of supply and demand. If a factor of demand decreases then the demand curve would shift in and the wage rate would decrease. If there was an economic boom then consumers would have more income and demand more goods. Firms would attempt to increase production in order to meet this increase in demand. The labour market would see an increase in the demand for labour and the demand curve would shift out from D_{L1} to D_{L2}, the quantity of labour in the market would increase from Q_1 to Q_2 and the wage rate would increase from WR_1 to WR_2.



If there was an increase in the determinant factors of the supply of labour, then the supply curve would shift out and the wage rate would drop. If the government increased the school-leaving age to 18 (i.e. A Levels became compulsory), then the size of the w so would the supply of labour. The supply curve would shift inwards from S_{L1} to S_L available to fall from Q_1 to Q_{2S} and the wage rate to increase from WR_1 to WR_2.

If the wage rate is lower than the market equilibrium then more firms would be willing to demand labour at the wage rate and fewer workers would be willing to supply their labour at the wage rate. There would be a shortage of labour because Q_s is less than Q_d. Firms would need to offer higher wages in order to ensure the scarce labour works for them. The wage rate would be pushed back up towards the market clearing price.



If the wage rate is higher than the market equilibrium then more workers would be willing to supply their labour at th would be willing to demand the labour at the wage rate. There would be an excess more than Q_d. This excess supply would also show in the rate of unemployment. T firms to offer higher wages as there is a pool of readily available workers. Workers expectation of weak jobs with lower wages. The labour market should revert back believed wages were sticky and it was unlikely that workers would adjust their wag believed that the excess supply would remain until demand rose or supply fell.

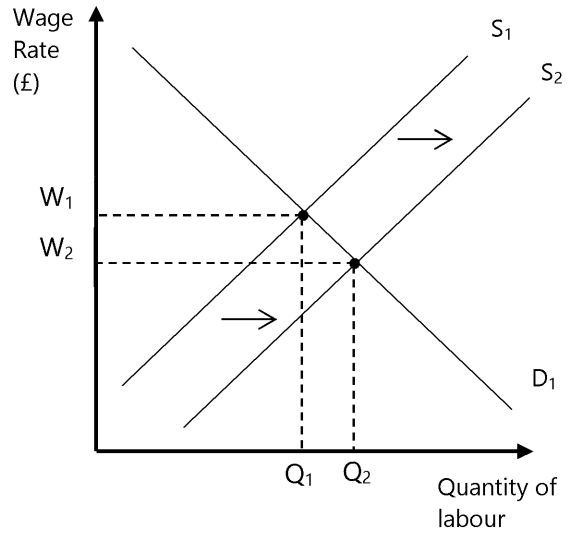
Wage differentials

Why do different people earn different wages? Most of these factors are quite obv
them out:

- Different skills requirements. Some jobs require much more specialised skills t
  a smaller pool of candidates for employers to compete for. Higher-skilled wo
  is more important now than ever, with improving technology meaning that m
  efficiently done by machines. Economists reckon that this explains part of the
  skilled and unskilled workers (another big factor is globalisation).
- Compensating wage differentials. Some jobs are strenuous or risky (e.g. work
  they might offer a higher wage rate to 'compensate' for the risk.
- The effects of market power. Unionised workers are likely to earn higher wag
  counterparts, while employees working for a monops[illegible]ay face lower wag
- Discrimination. Many experiments have been [illegible]n economics to try to dete
  discrimination in the labour market ([illegible]women, against minorities). T
  discrimination of this type sti[illegible]ex[illegible]th lower wages (or fewer job offers) fo
- Different value to th[illegible]. Some jobs generate more revenue for a busin
  perform[illegible]table tasks are likely to earn the highest wages. This te
  require[illegible]f the job.

Changes in supply: migration and the labour market

Migration is a very important economic issue at the moment, with the refugee cris
levels of net migration into the UK. It is a complex issue with both social and econ
level, migration represents a shift to the right in the supply of labour as a whole:



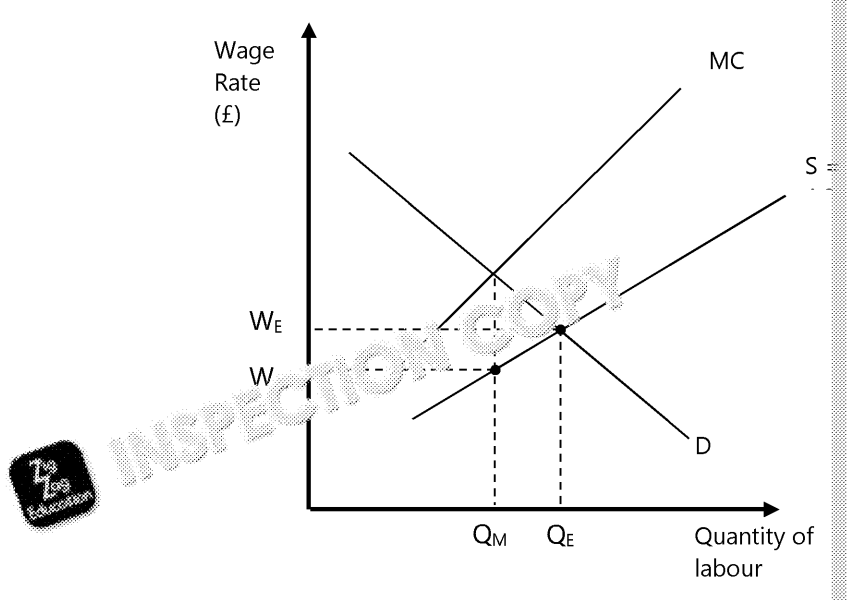
Ceteris paribus, this would reduce the wage rate in the economy from W_1 to W_2. H
increase demand for goods and services in the economy, [illegible]ould expect the de
shift to the right, potentially cancelling out the do[illegible]rd pressure on wages fro

An important factor in determin[illegible]t of migration is the skills the migrants
predominantly unskilled [illegible]at they will compete with existing unskilled w
could reduc[illegible]es. [illegible]the data analysis done in this area suggests that mig
existing mig[illegible]ather than native workers, and do not reduce the wages of nati
some evidence that large-scale migration discourages native workers from lookin

On the flip side, since migrants tend to be young and looking for work, they are m
to public finances and ease the burden on services such as the NHS. Nevertheless,
significantly to population growth in the UK, there are concerns that it is causing c

Monopsony employers

A monopsony labour market is one in which there is only one employer of labour. T
power in the labour market to keep wages and employment below the market equ



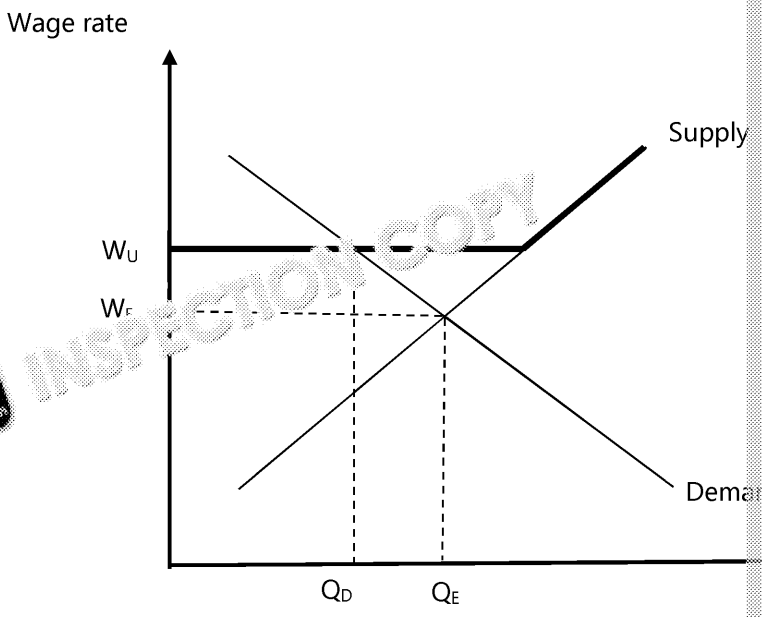
In a competitive market, the wage rate and quantity of labour are found where sup
a monopsonist, the marginal cost of hiring more workers is higher than the averag
same wage to all workers). Because of this, they choose to maximise profits by emp
D) and paying a wage of W_M – both of these are lower than the market rates.

One real-world example would be De Beers, a diamond company that acted as a m
century (before other firms were finally able to enter the market).

Trade unions

The presence of trade unions is an important feature of many labour markets. In the
BMA (British Medical Association), several teachers' unions (e.g. NUT and NASUWT) a

Trade unions are groups of workers in the same sector that negotiate good wages a
members. The figure below shows an example of how the effects of a trade union ca



The trade union negotiates a wage rate (W_U) that is above the market equilibrium i
market (W_E). The supply of workers is now the kinked bold curve.

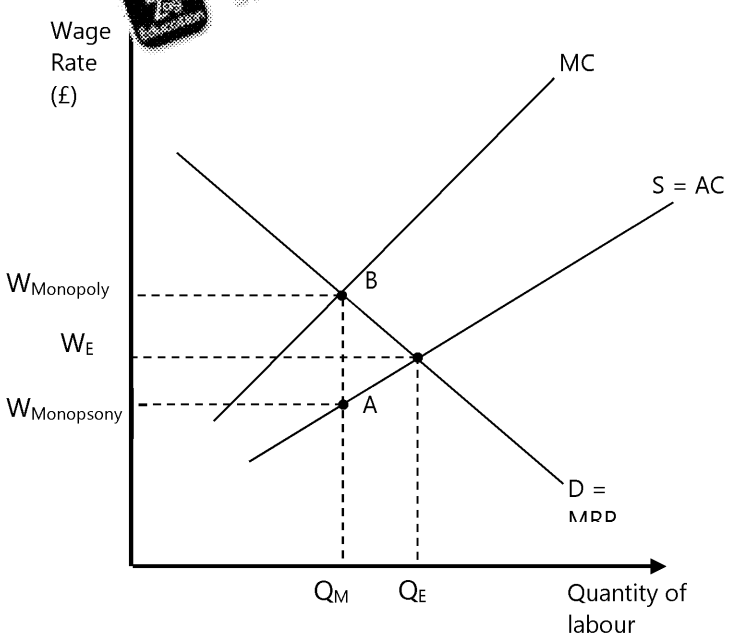
Critics of trade unions have argued that they create unemployment by forcing firm
the diagram, $Q_E - Q_D$ would be unemployed workers). Having to pay a wage above
damage the profitability of firms and reduce their competitiveness.

On the other hand, it could be argued that belonging to a trade union increases m
workers respond positively to being paid a good wage. Also, a trade union can art
managers more effectively as a bloc, allowing .the firm to improve its efficiency.

Trade unions can be particularly effective in overturning the market power of a mo
firm no longer has complete control over the wage rate.

Bilateral monopoly

In a labour market, a bilateral monopoly occurs wh[illegible] is both a monopoly (o
and a monopsony (one buyer of labour). In this case, both parties will try to use th
in their own interests: the monopsony will want low wage rates and the monopoly
outcome, therefore, depends on the relative strength of each party's bargaining po
monopoly is shown



If the monop
bargaining p
highest possi
MRP (if wage
make a loss).
monopsony f
bargaining p
lowest possib
Therefore, in
wage rate sh
$W_{Monopoly}$ and

Labour market flexibility

Labour markets will only reach equilibrium if they are sufficiently flexible. In the re
'frictions' that prevent labour markets from reaching equilibrium. These might inclu

- Geographical immobility. In the labour market model, it is assumed that work
jobs, and that geographical barriers are not an issue. In reality, people have fa
can be expensive to move house. This prevents the labour market from operat
- Occupational immobility. Some people may be unable (or just reluctant) to ch
be because of skill requirements, a lack of information or just a preference for t
- Sticky wages. Employers are often reluctant to cut wages, since it reflects bad
labour. It can be costly doing perfectly. Often employers will find other ways to ad
moving people on to part-time contracts, or 'freezing' wages (not increasing t
- The effects of wage bargaining / trade unions. Trade unions can negotiate hig
Monopsony employers can set wages below the equilibrium.

The government uses various policies to try to improve flexibility in the labour ma
- regulating trade unions (e.g. tough strike laws)
- providing an online job search tool, and giving advice to unemployed people
- improving the housing stock, and trying to make homes more affordable for
- trying to improve job opportunities in certain areas (e.g. Northern Powerhous
- subsidising training in important areas (e.g. nursing)

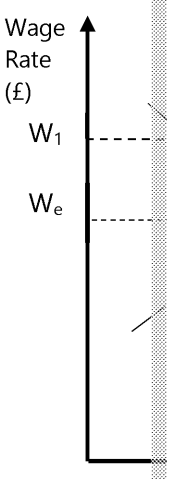
Further your economic knowledge...

The minimum wage

The minimum wage is one of the most important labour market policies in the
In the UK, the current Conservative government plans to increase the minimum
next few years, calling it a 'living wage'.

The national minimum wage is the lowest wage that a firm can legally offer. The
effects of the national minimum wage; it is similar to an excess supply diagram
minimum wage (WR_1) is above the market clearing wage (WR_e).

The higher labour prices mean firms' profits fall and so they are less able to purchase labour (incorrect). As labour becomes more expensive, firms will look to switch to using capital (substitution). At the new minimum wage rate, the demand for labour falls to Q_d as firms are less willing to purchase labour at this price. On the flip side, more people would be willing to supply their labour as the benefits of working (incomes) increase.



Because Q_d is higher than Q_s, there is an excess of labour, i.e. the amount of labour available for work is greater than the amount of labour firms are offering to employ. The spare labour shows the unemployment rate. This means the national minimum wage can create unemployment in the market.

Other disadvantages of the national minimum wage can include inflation. This is because firms will push their rising labour costs on to the consumer in the form of higher prices. Equally, as labour is able to compete on the international market with countries such as China. This wage can reduce international competitiveness, which can have an effect on the

However, there are also benefits of a national minimum wage. For one, it raises were earning less than the minimum wage. This can also reduce income inequal earning the least are brought up.

The effects of a national minimum wage will be more obvious the higher the m market equilibrium. If the minimum wage is set close to the market equilibrium small effect on the economy. Indeed, this seems to be the case in the UK, where evidence to suggest that the minimum wage has caused higher unemployment.

A maximum wage?

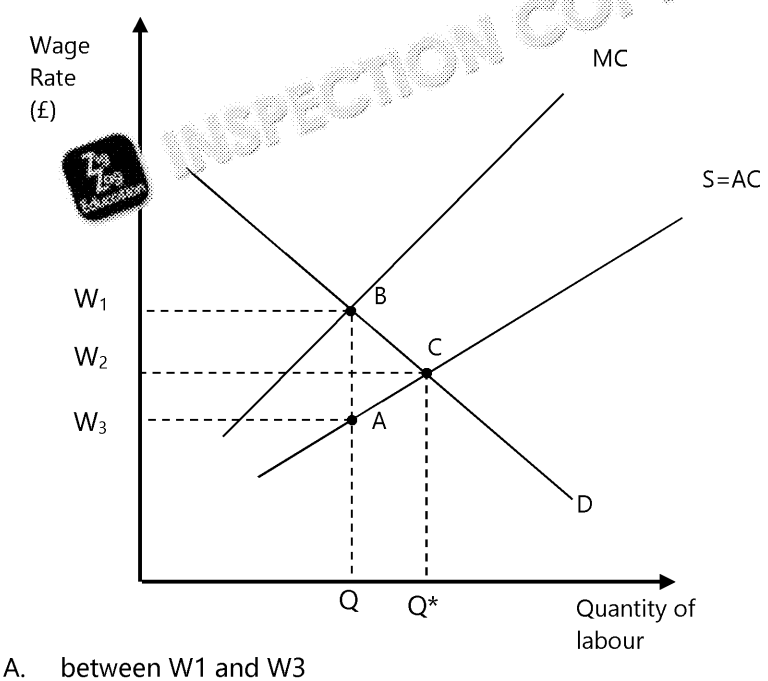
Maximum wages have occasionally been imposed in major economies, although the idea inequality from being too great. This idea might have popular appeal given the certain financial executives walked away with enormous bonuses despite having practice, it is likely that it would be difficult to implement, and may cause a sho occupations.

Exam-style questions – Interaction of labo

Multiple-choice questions

1. A firm hires workers to make toys. If (a) the demand for toys rises, and (b) th simplified so toy makers don't need to be so skilled, what would happen to
   A. The wage rate would increase.
   B. The wage rate would fall.
   C. The wage rate would remain unchanged.
   D. Cannot say.

2. In a bilateral monopoly, the wage rate must be:



   A. between W1 and W3
   B. W2
   C. between W1 and W2
   D. between W2 and W3

3. Wage discrimination is:
   A. when a firm offers different wages to different workers depending on t
   B. when wages are deliberately set below the market rate
   C. when certain groups of workers are offered lower wages than another
   D. when a firm offers different wages to different workers depending on t

Essay question

4. Evaluate the case for [illegible]y increasing the minimum wage to a 'living

Answers to Exam-style Q

Section 1.1: The economic problem

1. C
2. B
3. D
4. B

Section 1.2 and 1.3: Allocation of resources and opportunity

1. C
2. A
3. D
4. A

Section 2.4: Supply and dema[illegible]d surpluses

1. B
2. D
3. B
4. A

Section [illegible]he interaction of markets

1. B
2. C

Section 2.6: Elasticity

1. D
2. B
3. C
4. D
5. A
6. B
7. A

Section 2.7: The concept of the margin

1. D
2. C

Section 2.8: Market failure and externalities

1. C
2. A
3. D

Section 2.10 Public goods

1. D
2. B

Section 2.11a: Government intervention

Multiple-choice questions

1. C
2. C

Essay questions: indicative content

3.
- Explain how sugar can be consid[illegible]d[illegible]erit good / causes externaliti
- Use a diagram to show t[illegible]f a sugar tax: shift to the left of suppl
- Impact on quanti[illegible]s on (a) the size of the tax and (b) the price el
- If d[illegible]nd [illegible]elastic, the tax will be less effective: consumers will c[illegible]ng too much sugar.
- If d[illegible]nd is price elastic, the tax will be more effective since consumers sugary drinks significantly.
- Explore possibility that consumers substitute towards other sugary foods the externality is not eliminated.
- Explore possibility that government uses tax revenue to combat obesity
- Could conclude that a broader sugar tax would be more effective than o since it prevents consumers from simply switching to other sugary produ
- Could argue that tax could be replaced by or improved by an informatio dangers of excessive sugar consumption (e.g. type 2 diabetes).
- Could argue that tax would be regressive if consumers do not change th

Section 2.11b: Government failure

Essay question: indicative content

- Use a diagram to show the effect of a maximum price (below the market equ demand over supply.
- Government failure could be introduced in the form of shortages: producers at such a low price, leading to shortages.
- Consumers who are unable to buy bread due to the shortages may end up d increasing their prices and negating the gain in income from cheaper bread.
- Note that the effect of the policy depends on the level of the maximum price equilibrium, the greater will be the difference between demand and supply.
- You could note that the government could subsidise bread producers to help but this would have an opportunity cost.
- Bread manufacturers could only produce bread of lo quality to keep down consumer welfare.

Section 3.1: Business objectives

1. B
2. A

Section 3.2a: Costs

1. A
2. B
3. A

Section 3.2c: Economies of scale

1. D
2. C
3. D
4. C
5. A

Section 3.3: Revenue and Profit

Activity

1. Revenue is the amount of money a firm receives in total for the sale of all its g at the proportion that the firm has earned.

2. a) Total revenue = price × quantity
   b) Average Revenue $= \frac{\text{Total revenue}}{\text{Quantity}}$

3. a) Completed columns:

Quantity	Price (per unit)	Revenue	Marginal Reven	Average Revenue
1	£20	£20		£20
2	£19	3	£18	£19
3		£54	£16	£18
	£17	£68	£14	£17
	£16	£80	£12	£16
6	£15	£90	£10	£15
7	£14	£98	£8	£14
8	£13	£104	£6	£13
9	£12	£108	£4	£12
10	£11	£110	£2	£11
11	£10	£110	£0	£10

12	£9	£108	-£2	£9
13	£8	£104	-£4	£8
14	£7	£98	-£6	£7
15	£6	£90	-£8	£6
16	£5	£80	-£10	£5
17	£4	£68	-£12	£4
18	£3	£54	-£14	£3
19	£2	£38	-£16	£2
20	£1	£20	-£18	£1

b) They are the same values because the average revenue curve is the demand curve and the price of the good at each and every quantity.

Exam-style questions

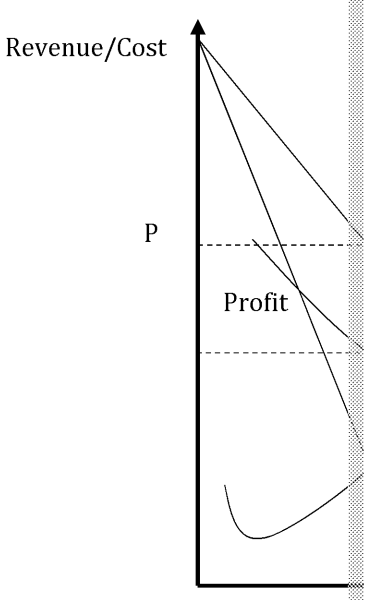
1. C

Section 4: Perfection competition and monopolies

1. C
2. B
3. A

Essay question

4. Your answer should first explain some of the basic characteristics of a monopoly market. A monopoly market is characterised by a single firm that has significant market power in setting prices. It is likely that barriers to entry are high in this market, otherwise other firms would be tempted to enter and reap some of the profits.



It would be helpful to show (and explain) the diagram for a monopoly in your answer (right).

Assuming that the monopoly is aiming to maximise profit, it produces where MC = MR (at price P and quantity Q). This is a lower output and a higher price than in a more competitive market, and it is also likely that the firm will not be productively efficient (AC will not be at its minimum).

If this is the case, then it is a bad situation for consumers: the firm is making supernormal profits at their expense and the government would be justified in trying to increase competition in the market. This could be achieved by, for example, imposing a maximum price, taxing the profits (although this could end up being passed on to consumers), lowering barriers to entry (perhaps by deregulation, although this strategy has some drawbacks).

However, it is not always the case that a monopoly is bad for consumers. The firm may be acting with social responsibility, and be using its profits to reinvest in the business. This could improve the flying experience for consumers, the convenience of flight times, or improve the safety of the aircraft, for example.

In the case of a natural monopoly, it may also be too expensive to encourage
since fixed costs are so high (this is unlikely to be the case in this type of mar

In summary, your answer should identify the main advantages and disadvanta
this market when possible) and explain some situations in which it might be r
government to intervene.

Section 4.3–4.5: More market structures

1. B (firms in an oligopoly can make supernormal profit in the long run if they fo
2. C (supermarkets and energy suppliers are oligopolistic markets in the UK, wh
perfect competition)
3. D
4. B
5. D

Section 5.1–5.2 Supply and demand for labour

1. D
2. C
3. C. D is not correct, because this would imply that workers of equal skill would
when they were hired. The MRP theory accounts for the fact that workers doi
the same.

Section 5.3: Interaction of labour markets

Multiple-choice questions

1. D. Point A indicates that demand for labour shifts to the right, and point B in
shifts to the right. The net effect of this on the wage rate depends on the size
the question so we cannot determine the change in the wage rate.
2. A
3. C

Essay question

1. You should first explain (ideally using a diagram) what the expected effect of
shows that, if the minimum wage is set above the market equilibrium rate, th
exceed the demand for labour, causing unemployment (but also increasing th
would therefore push the wage further above equilibrium than before.

   You could then discuss whether the benefits of higher wages (in terms of red
standards) would offset the costs of unemployment (there are many negative
could mention).

   There are several evaluative points you could make (in an exam you will likely
to give more context):
   - Level of unemployment depends on elasticity of demand and supply of la
   - Level of unemployment depends on how much higher the minimum wage is
   - Level of unemployment depends on how many people are affected by th
   - You could argue that it would boost employment, as it would allow some
co... afford to / were better off on benefits (this will depend on the co
   - De... on the capacity of employers to absorb higher labour costs. If e
making supernormal profits), they may be able to afford a fall in profits.
   - Depends on whether the economy is performing well or not: if the econo
unemployment, it might make matters worse.