



Sample Papers – Set 1

EDEXCEL A Level – Paper 1 (Markets and Business Behaviour)

Answer Guide

This document is intended to support paper 1 of the first set of the EzyEconomics sample exam papers.

The answer guide provides a commentary on possible effective approaches to answer the sample exam questions.

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Section A

The straight answers are available on Pg 3

Section A is available as an automated assessment within the EDEXCEL Micro course at www.ezyeducation.co.uk. Students can attempt the Section A questions and receive instant feedback in the form of powerful bespoke feedback videos. Teachers can track their students' progress and see which questions proved most problematic. If you are not already registered, a free trial of the full EzyEconomics service is available to all schools. Contact us at info@ezyeducation.co.uk if you would like a demonstration of the system either at your school or over the phone.

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Question 1

- a) High barriers to entry reducing the contestability of the market.
- b) D
- c) Firm uses its monopoly power to set a price up to the demand curve
- d) Monopolists can reinvest supernormal profits earned into research and development projects.

Question 2

- a) 70.7%
- b) Some firms in the industry have significant market power.
- c) Discount firms have undercut incumbent firms to steal market share and sales.

Question 3

- a) Perfectly Competitive Market.
- b) Supernormal profit in the short-run
- c) Firms enter the market and reduce the market price.

Question 4

- a) Firms tacitly collude to fix their prices higher to maximise joint profits.
- b) Set a low price.

Question 5

- a) -0.29
- b) Price inelastic.
- c) Sales revenue increases.

Question 6a

Using a demand and supply diagram, explain why ‘average rail fares in the UK have risen by 24%’ (**Extract A, lines 3-4**). **[5 marks]**

There are two key elements required within this answer:



A good (but not the only) approach to this question is:

Demand Change

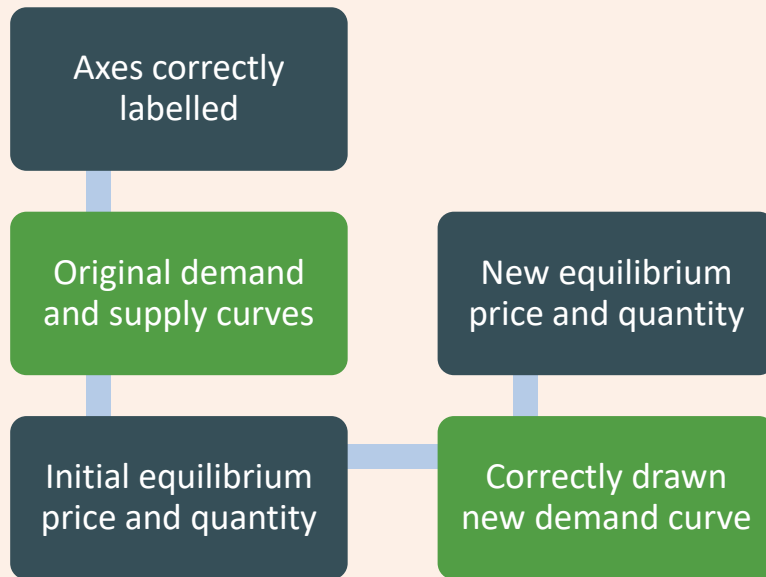
Beginning by establishing the context and highlight the shift in demand both introduces the diagram and squeezes in some application. For example:

“Extract A makes it clear that demand for rail travel has significantly increased, “an increasing number of commuters are using the rail network”. This can be modelled using a demand and supply diagram.”

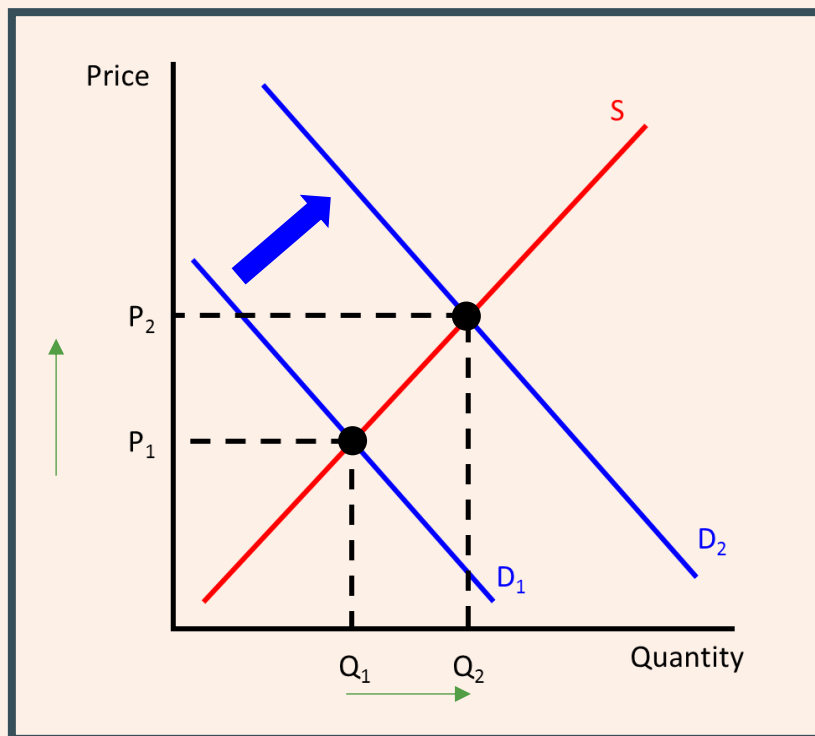
Diagram

Here the question revolves around a change in demand. Therefore, the appropriate diagram is a demand/supply diagram.

In this case, for the diagram to be completed accurately, the following features have to be present:



Use a ruler and ensure the diagram is neat and tidy.



Brief Written Explanation

The first thing your written explanation needs to do is to clearly explain what your diagram shows. To assist clarity, it helps to refer to the labels you have

given on your diagram. Where possible, the results of the diagram should be applied to the context of the question. For example:

“In the diagram above, the market for rail travel in the UK is depicted at an initial equilibrium of (Q_1, P_1) formed at the intersection of the original demand curve (D_1) and the supply curve (S). The increase in passenger demand is represented by an outwards shift in the demand curve from D_1 to D_2 . As a result, the market price increases until the market reaches a new equilibrium at (Q_2, P_2) .

This new equilibrium results in more rail travel being undertaken as represented by the quantity increasing from Q_1 to Q_2 and ticket prices increasing from P_1 to P_2 .”

You should be careful to make you get straight to the point of what this question is asking for: an accurately drawn demand and supply diagram. Your answer should take you no longer than **6 minutes**.

Within this question, marks are awarded for displaying the following skills:

Knowledge – 1 Mark

Application – 1 Mark

Analysis – 3 Marks

Question 6b

Examine two reasons why the UK government subsidises rail travel.

[8 marks]

There are four key elements required within this answer:



Reasons:

This question only requires you to explain the reasons **why** the UK government subsidises rail travel and does not require you to add in a diagram to show the impact of a subsidy to rail firms or require you to explain how they can go about funding and providing these subsidies.

As the use of subsidies in UK rail travel, is not explicitly mentioned in the extracts provided you need to be able to draw on your own knowledge and understanding regarding the reasons for subsidies being provided to companies that provide important public infrastructure. Then apply each reason to the context of the UK rail industry. Some examples are:

Reduce Prices

- Subsidies are payments made by the government to firms in order to reduce their production costs. When firms' production costs decrease it encourages them to raise output because their profit margins are higher with lower costs. When output increases this causes the price to fall for the consumers. So, effectively some of the lower costs have been passed onto the consumer through the form of lower prices.
- Subsidies provide support to rail firms through the form of fixed payments. These payments help reduce the overall cost for TOCs providing rail services on franchises that they currently own and operate on. The economic rationale is that the TOCs will pass on the lower costs to rail commuters through the form of lower rail fares.
- This is important for rail commuters because Extract A identifies that in real terms rail fares have been increasing rapidly. It states that since 2010, average rail fares have increased by 24%, outstripping the average weekly wage growth of 12% over the same period.

Positive Externalities

- Positive externalities represent social benefits that arise from the production or consumption of a good or service.
- Subsidies put pressure on the average price of rail fares to fall and this encourages consumers to switch away from using private cars as a mode of transport. The positive externalities of less congestion on the UK's roads and motorways and fewer pollutants being emitted from a reduced number of cars means that subsidies may generate positive externalities (increased social benefits) for society.
- Extract B identifies that currently rail commuters are suffering from more delays and cancellations on routes, whilst paying higher prices. This outlines the low satisfaction levels that TOCs currently have with the commuting population and therefore a future implication of this could be more commuters deciding to drive to work rather than get the train.

Geographical Mobility of Labour

- Rail travel is often seen as a preferred method of commuting for workers that have to travel long-distances to reach their working destination. However, this is often an expensive option to take because workers are travelling during peak times of the day when ticket prices are at their highest (Figure 1, Extract C) and also an unreliable option as there are many delays and cancellations throughout the UK's rail services (Extract B). Therefore, workers may accept jobs geographically closer i.e. within walking or driving distance.
- Subsidising rail firms can improve the geographical mobility of labour, as it helps reduce some of the labour market frictions and barriers that prevent workers taking up long-distance jobs. If rail firms lower prices as a result of government subsidies, workers may be incentivised to take up long-distance jobs as rail travel has become less of a drain on their disposable income throughout the year.
- This can also produce wider benefits for the economy as firms are able to access a wider pool of the population as potential employees.

Provides Support to Loss-making Firms

- Subsidies may help loss-making firms survive as it may provide them with the funds required to cover any losses made in the market.
- Providing fixed subsidy payments to loss-making TOCs may improve the quality of the rail services across the network as well as protect the thousands of jobs connected to this industry.
- Extract C highlights that many TOCs already have a low profit margin of 3% which currently means they spend 97p of every £1 generated to remain in control of a particular franchised route.

Encourages Investment

- Providing subsidies to firms within an industry increases firms' capacity to increase the amount they invest in infrastructure.
- Extract A explains that the UK rail infrastructure is managed by a publically owned company, Network Rail. This means that Network Rail leases the train stations, signalling operations and tracks to bidding TOCs. The TOCs can then make a profit by running a service on the franchised route they own. However, as the rail infrastructure is provided by the government, there is little incentive for private TOCs to reinvest back into it (free-rider problem).

You only need to identify and explain **two** reasons for providing subsidies to the rail industry. Do not try and explain each of these reasons as you will not be rewarded with higher marks.

Evaluation

This question also requires you to briefly evaluate the reasons that you have put forward. Therefore, the best approach to take here is to develop a brief evaluative comment for each of the two reasons you have mentioned.

Lack of 'on-rail' competition

- The lack of 'on-rail' competition on selected routes between TOCs may mean that these firms may not use subsidy payments to reduce prices as significantly as they may do if they were under intense competition with other TOCs on routes.

Loss-making Investment

- It may be the case that TOCs may not effectively use the subsidy payments that they have received from the government to invest in rail infrastructure. This results in a waste of resources in loss-making investment projects and the taxpayer may have to share the burden of this ineffective investment.

Price Elasticity of Demand

- The effectiveness of a subsidy to help reduce rail fares in the UK rail industry all depends on the elasticity of the demand curve. Theoretically the more inelastic the demand curve is, the greater the impact that the subsidy will have on rail fares as more of the subsidy is passed onto consumers.
- Demand for peak journeys is relatively inelastic, as commuters have to travel at those times in order to commute to work. The effect of the subsidy at reducing rail fares may be significant on these routes.
- For off-peak journeys, demand is relatively elastic, as commuters often do not have to travel at this time. The effect of the subsidy in terms of controlling rail fares is likely to be less significant on these routes.

Subsidy Reliance

- Subsidies may help loss-making TOCs survive but these firms may become over-reliant on the subsidy provided and therefore the subsidies may just provide a temporary solution to a permanent problem.

Opportunity Cost

- Subsidies to TOCs may encourage investment back into the UK rail industry, generating greater efficiency benefits. However, when the government provides subsidies for the rail industry there involves an opportunity cost as that funding is unavailable for other government priorities.

This is just a brief summary of just some of the evaluative comments that you could make within your essay. You should not aim to include all of these points as there is simply not enough time.

You should be careful to make you get straight to the point of what this question is asking for: clearly explaining 2 reasons why the government provides subsidies. Your answer should take no more than **10 minutes**.

Within this question, marks are awarded for displaying the following skills:

Knowledge – 2 Marks

Application – 2 Marks

Analysis – 2 Marks

Evaluation – 2 Marks

Question 6c

With reference to Figure 1, discuss the likely impact of price discrimination on the profits of Train Operating Companies (TOCs) within the UK rail industry.

[12 marks]

The key to answering this 12-mark question effectively is to realise that an answer which covers all of the main exam skills is required. This question is predominantly focused upon examining your ability to present structured and coherent analysis, relying heavily upon well-written chains of reasoning all in the context of the UK rail industry. But, at the end of your response you should include some evaluative comments to recognise different viewpoints to those supported in the evidence. It is important to ensure that your response answers the question and provides a relevant and technically correct explanation.

Be careful to read the question carefully – here the question is prompting you to discuss the **impact** that price discrimination has on Train Operating Companies (TOCs). An easy mistake to make would be to focus your answer on the impact that price discrimination has on consumers as well as firms. Whilst not completely irrelevant to the topic being discussed, this kind of response would not be effectively answering this specific question.

A good (but not the only) approach to this question is:

Step 1: Introduction

The introduction provides an opportunity to demonstrate that you understand the topic the question is asking about and structure your response. It is also a good opportunity to demonstrate some knowledge (AO1) by providing definitions of the key terms and some application (AO2) by making a clear link with the context of figure 1.

The example below makes a clear reference to the context (UK rail industry), provides an appropriate and applied definition (price discrimination) and sets up the rest of the answer by describing what we are trying analyse (different prices being charged to different consumers).

“The process of firms charging different prices to different segments of the market for an identical product, without cost differences, is an example of price discrimination. This is a commonly used pricing strategy within industries where firms have the ability to exert significant control over supply and therefore can effectively separate the market into different consumer types, based on their willingness and ability to pay. The rail industry is an example of an industry where conditions are ripe for price discrimination to be implemented by firms effectively. There are several reasons for this, most importantly because rail tickets can be sold to different commuters, based on their necessity to travel. This explains why rail firms charge a higher price for commuters that travel during peak times of the day but a lower price for commuters during off-peak times of the day.”

Step 2: Analysis

There are several forms of price discrimination. The form alluded to in this context is third degree price discrimination. This is where firms charge different prices to different groups of consumers. In this example, consumers are grouped based on their need to travel.

To demonstrate relevant knowledge and application (AO1 & AO2) skills, beginning the heart of your response with a discussion of what form of price discrimination is being implemented would be useful and making reference to the relevant figure. A good example is:

“Price discrimination can be implemented in three main forms. In the example of the UK rail industry, it appears that it is third-degree price discrimination that is being utilised. This involves firms segregating consumers into different groups, based on their willingness and ability to pay, and charging these groups of consumer’s different prices.

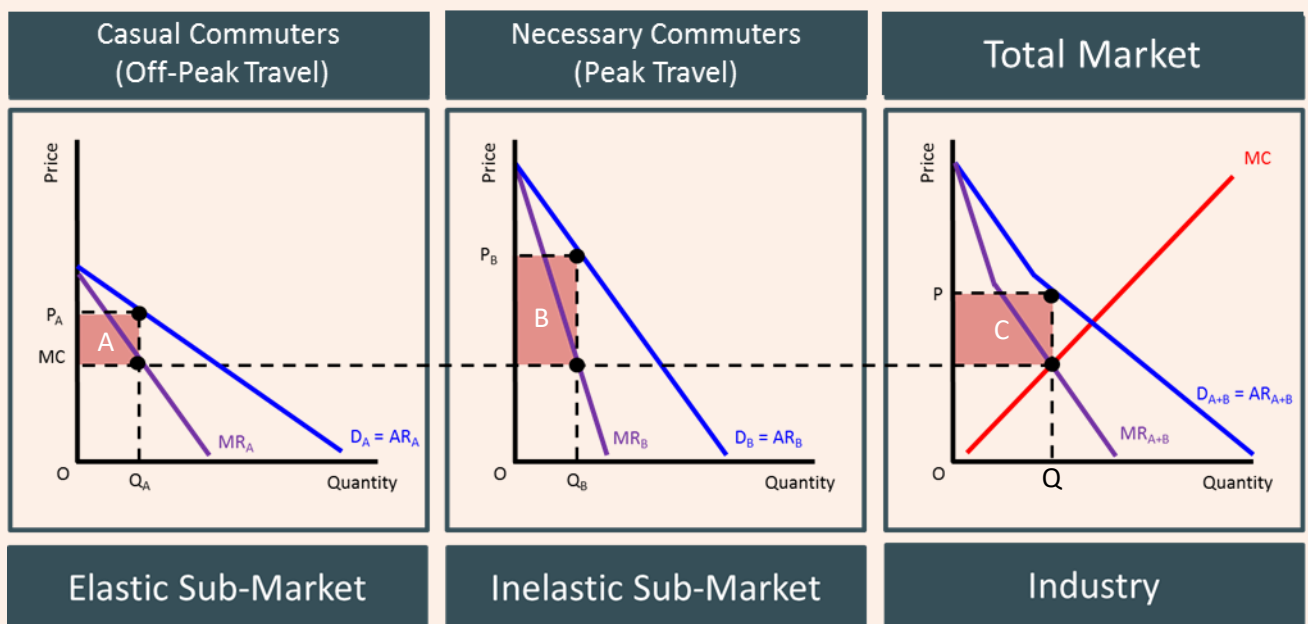
As the law of demand states that there is an inverse relationship between price and quantity demanded, price discrimination can be used to help evenly spread demand between different market segments for TOCs. This is best explained by looking at the example of peak and off-peak pricing, a pricing strategy often used within the rail industry in order to reduce congestion, delays on busy routes and avoid increase usage during quieter periods of the day. By putting ticket prices up during peak times of the day, it discourages casual commuters from using the trains, leaving just the necessary commuters to use the service at those peak times of day. Low prices during off-peak times entices those

casual commuters to use the trains during the quieter periods of the day to ensure that it still remains cost-effective for train companies to run trains during those periods.

In figure 1, we can see an example of peak pricing used by TOCs on two selected routes. For instance, on the Doncaster to London route commuters purchasing a ticket during a peak time of day are charged approximately £20 more than commuters choosing to travel at quieter periods of the day. ”

This initial discussion of what form of price discrimination is being implemented would be well supported by a standard third-degree price discrimination diagram.

This is a complex diagram that involves drawing three separate diagrams – a diagram representing necessary commuters, a diagram representing casual commuters and a diagram representing the combined market.



Use a ruler and ensure the diagram is neat and tidy.

A written explanation of the diagram would be useful as this leads you into the discussion of the benefits to a firm of implementing price discrimination, which is what the question is asking you to discuss. A good example would be:

“The diagram above, is an example of how TOCs have identified two distinct sub-markets – casual commuters and necessary commuters. The distinction between the two is represented by the different price elasticities for rail travel in each sub-market. Casual commuters face a relatively elastic demand curve

for rail travel, to represent the fact that they are not restricted in terms of the times they need to use the train, whilst necessary commuters face a relatively inelastic demand curve because some commuters need to use the train at specific times during the day to travel to and from work.

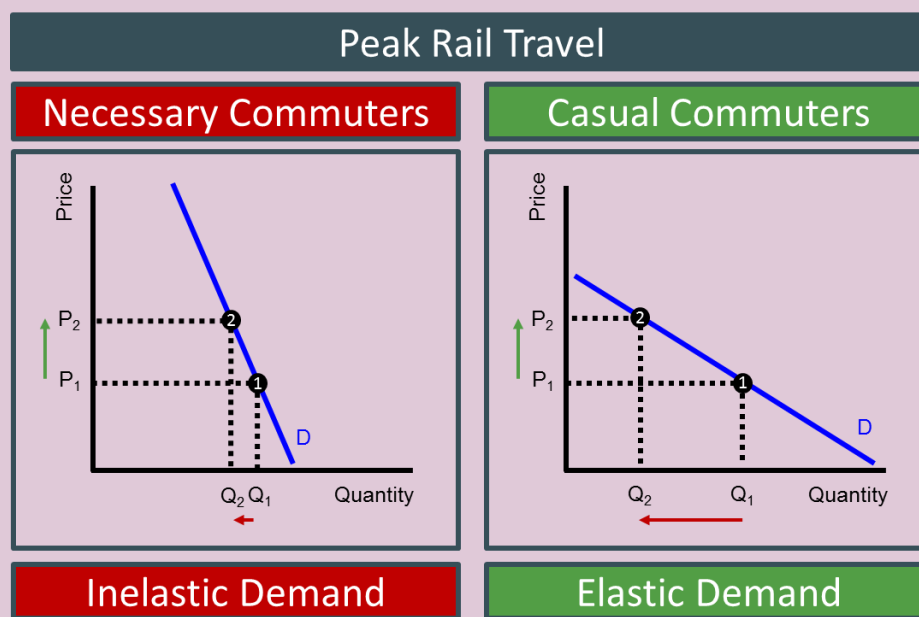
When the market is separated, the price charged during off-peak periods is lower at P_A as these commuters are more responsive to high prices. Whereas, necessary commuters, because of their inelastic demand curve, the price will be higher at P_B during peak times of the day, as they are willing to pay more and will respond less to price increases.

The prices are set in each sub-market for the firm to maximise profits. Profit maximisation for the firm will occur when $MC=MR$. This means that the profits derived from the casual commuters is equal to area A, the profits derived from necessary commuters is area B. The sum of the profits derived in areas A and B exceeds the profits earned if the TOC was to charge a uniform price to all commuters in the market (area C).

Therefore, as the profit earned from separating the market into segments is greater than setting a uniform price across commuters, it is optimal for TOCs to price discriminate based on different commuters' elasticities."

Alternative Diagram:

To show the relative elasticities of demand that different commuters have for rail travel, you could have shown the responsiveness of demand to a rise in the price of tickets during peak travel times. We can see from the diagram that even if prices rise significantly for necessary commuters such as workers, demand is not affected significantly. However, for casual commuters such as children or senior citizens, demand is significantly reduced as these commuters switch to quieter period of the day when rail fares are deliberately set lower.



Step 3: Evaluation

The explanation previously has explained that if rail firms can effectively segment the market, profits will be higher under price discrimination than compared to a uniform pricing strategy. But, in this question you also need to consider some of the limitations behind price discrimination for a TOC in the UK rail industry. These comments will represent evaluative comments and provide examples of why some of the theorised benefits of price discrimination for a rail firm may not come to fruition. Some examples of these may include:

Imperfect Information

- In order for firms to effectively price discriminate and segment the market, they must have detailed information about commuters' preferences and more importantly the willingness for a commuter to pay for rail travel i.e. the demand curves for each type of commuter. In reality, it is often quite difficult for TOCs to acquire this sort of information, which means price discrimination may be wrongly implemented or infeasible from the firms' perspective.

Profit Impact

- Even though price discrimination will increase the profits of a firm, it should be considered whether in fact this is the most effective way of increasing revenue and profits. There could be an argument for firms sacrificing profit today, by reinvesting back into the market, in order to reduce costs and end up with higher overall profits in the long-run. This may only be considered as a feasible strategy for TOCs if the sunk cost of investment can be recouped over time.

Equity Concerns?

- Profits may be higher for price discriminating TOCs, but a question has to be raised over the ethics and fairness of charging commuters different prices based on the necessity of travel.

Administration Costs

- To ensure that price discrimination leads to the increase in profits outlined by the economic theory, effective market segmentation needs to be put in place by TOCs, to prevent commuters from purchasing cheaper off-peak tickets during peak times of the day. This can be achieved by putting barriers at train stations and ensuring there is an effective way to monitor and check tickets i.e. by putting train guards on the train. However, for TOCs this is a costly process to implement. Therefore, if these costs are taken into account the profits from price discrimination for TOCs may not be as high as theoretically predicted.

As always, you are not expected to talk about every single one of these evaluative points, you just need to make reference to a couple to ensure that you have effectively discussed the impact of price discrimination on TOCs' profit levels.

Within this question, marks are awarded for displaying the following skills:

Knowledge – 2 Marks

Application – 2 Marks

Analysis – 4 Marks

Evaluation – 4 Marks

Question 6d

Assess one advantage and one disadvantage of Network rail being the sole provider of rail infrastructure in the UK.

[10 marks]

The key to answering this 10-mark question effectively is to realise that an answer which covers all of the main exam skills is required. This question is predominantly focused upon examining your ability to present structured and coherent analysis, relying heavily upon well-written chains of reasoning all in the context of the UK rail industry. But, at the end of your response you should include some evaluative comments to recognise different viewpoints to those supported in the evidence. It is important to ensure that your response answers the question and provides a relevant and technically correct explanation.

Be careful to read the question carefully – here the question is prompting you to discuss just **one** advantage and **one** disadvantage of Network Rail being the only provider of rail infrastructure in the UK. An easy mistake to make would be to focus your answer on Train Operating Companies (TOCs) rather than Network Rail itself. Whilst not completely irrelevant to the topic being discussed, this kind of response would not be effectively answering this specific question.

Introduction

A good (but not only) way to start this question is to focus on the phrase ‘sole provider’ and explain what is meant by that term in the context of Network Rail in the UK rail industry. A good example of how to introduce this into your answer is:

“Many industry commentators and rail commuters alike have raised concerns over the current structure of the UK rail industry. This is because Network Rail, which is publicly owned by the state, owns and manages the core infrastructure of the UK rail industry. They control and manage the train stations and railway tracks that train companies need to use to run a functioning service on.

When one firm is responsible for managing the entire infrastructure of an industry, this firm is classified as a monopoly. Here, Network Rail could justifiably be described as a natural monopoly. This is because for there to be more than one supplier of railway infrastructure, items like tracks and stations would have to be duplicated, which would be infeasibly expensive.”

This is an effective way to start your response as it showcases your knowledge and understanding of the current structure of the UK rail industry and provides you with the basis to go on and assess one advantage and one disadvantage.

Natural Monopoly

The most persuasive and powerful argument for Network Rail being the sole provider of rail infrastructure in the UK is the fact that it avoids the duplication of infrastructure costs, which would occur if multiple firms provided the infrastructure of the UK rail industry:

“The economic consensus is that greater competition within an industry provides lower prices for consumers, creates investment incentives for firms, a more efficient allocation of resources and higher welfare for society. However, the economic theory behind a natural monopoly provides a contrarian viewpoint to this logic for specific industries like the UK rail industry.

In the UK rail industry, it is argued that from an efficiency perspective it is beneficial for just one firm to manage the infrastructure. If other firms were to enter the market to try and provide an alternative infrastructure platform it will result in duplicated costs for the industry as a whole. The main reason for this is that the UK rail industry does not require and does not have the capacity to run two sets of tracks across every rail route in the UK. The benefit this would bring to the rail service would be small compared to the construction costs of building this duplicated infrastructure across the UK’s railways.

Therefore, by Network Rail being the sole provider of rail infrastructure in the UK it means the costs of production for the industry over time is lower.”

Lack of Competition

An obvious criticism of Network Rail’s structure is that it does not face any competition. A lack of competition, coupled with the fact that Network Rail is a public-sector organisation, may suggest that the organisation lacks incentives (like maximising profit) to maintain efficiency. This applies to both static and dynamic efficiency.

“By being a monopoly provider of rail infrastructure in the UK, Network Rail does not face the competitive pressures that firms in more competitive markets face. On top of this, Network Rail is a public-sector organisation, therefore with no private sector considerations to face.”

This lack of competition may lead to the organisation being complacent and not operating as efficiently as it could. In the short-run this is likely to mean productive inefficiency, where rail infrastructure is not supplied at the lowest possible costs. In the long-run, this may cause dynamic inefficiency, where Network Rail fails to innovate over time and reduce costs or increase their levels of service.”

It would be equally valid to use other advantages and disadvantages. The important thing is that whichever advantages and disadvantage you choose, it is clearly explained.

Evaluation

It is vitally important to weave in some evaluative comments into your response. These might include:

Government Provision

- The UK government is the main investor in UK rail infrastructure. By not outsourcing the maintenance of that infrastructure to private companies, it allows the government to exert more control on how the rail network as a whole should develop and flexibility to introduce major projects like HS2, without having to renegotiate contracts with private organisations.
- It also allows government 'subsidies' to the UK rail network to be provided via a public-sector organisation, rather than via a private-sector organisation who might use the subsidies to swell their profits.

Competition by Tender

- The effects of competition does not have to be only via having multiple suppliers at any one time. An alternative is to encourage firms to compete with each other at the time of tendering for a contract to perform Network Rail's role. This might introduce productive efficiency into the market as the cheaper the firm completes the work, the higher their profit levels.

Regulating a Private Sector Firm

- If the role of Network Rail was instead to be given over to a private sector firm, then the government would have to expend significant efforts to correctly structure their contracts, monitor the effectiveness fo the firm and intervene where necessary. These efforts may be significant enough to make it optimal to just have a public-sector organisation like Network Rail instead.

Within this question, marks are awarded for displaying the following skills:

Knowledge – 2 Marks

Application – 2 Marks

Analysis – 2 Marks

Evaluation – 4 Marks

Question 6e

Assess the impact of introducing more ‘on rail’ competition in the UK rail industry. **[15 marks]**

To access top marks in any economics essay, it is important to focus on two key elements:



As essay structure is a more general skill, we will focus on showcasing how to hit the different assessment objectives required for this specific question. However, hopefully the following discourse will provide some assistance with regards to essay structure.

AO1: Knowledge

Being able to display accurate knowledge is judged to be the most basic requirement. It is still important to be able to demonstrate accurate knowledge throughout your essay. You can signpost this by including accurate definitions. For example, in your introduction you might want to provide a definition of competition. For example:

“The amount of competition within a given market is the extent to which there are rival suppliers of the same good, each attempting to attract consumers in the face of each other’s presence.”

AO2: Application

Being able to apply your knowledge is particularly important for essays within data response questions. In this case the question particularly asks about the impact of introducing competition within the UK rail industry. Utilising the data extracts can provide some helpful angles to use in order to demonstrate that

you are applying economic theory to this particular market. Some examples are:

Extract A

- The ticket price data shows that average rail fares have significantly risen.
- This could be used to show that a lack of 'on-rail' competition may have resulted in bad results for consumers.

Extract B

- This explains that before a Train Operating Company (TOC) can provide train services on a line, they do engage in some competition, at the stage of applying for the franchise.
- This could be used as a slight rebuttal to the notion that there is no competition and to introduce some discussion about the nature of the market structure.

Extract C

- This provides the example of the East Coast mainline which has been opened up to increased 'on-rail' competition.
- This can be used to support the conventional theory that competition leads to lower prices and better services.

Extract C - Lines 10-12

- This explains that the typical profit margin is around 3% and that there are some fears that increased competition may cause fewer firms to compete for TOC franchises.
- This could be used as an evaluation of the conventional theory of firms with monopoly power charging monopoly prices and earning supernormal profits.

You are only expected to use some of these application examples in your essay. You can also introduce application via your own knowledge of the UK rail market. Some examples are:

Inelastic PED

- Many rail passengers in the UK are commuters who have little or no alternative method of travelling to work. This lack of substitutability is likely to mean that PED in this market is inelastic, especially for peak-time tickets.

Inelastic PES in short-run

- Increasing the supply of trains may be very difficult in the short-run as it would require building more trains and/or laying more tracks, both of which require significant long-run investment. This is likely to mean that supply is inelastic, at least in the short-run.

Government Subsidies

- The government currently intervenes in the market by providing significant subsidies and funding the operation of Network Rail, the public sector organisation in charge of improving and repairing the UK's tracks.

Regulated Prices

- Some ticket prices are heavily regulated by the government with a quasi-maximum price being set.

Natural Monopoly

- It can be argued that much of the UK rail industry is a natural monopoly, at least to some extent. This can be applied somewhat to 'on-rail' competition by explaining that only a certain number of trains can travel on a route at a given time without duplicating the infrastructure (tracks, stations etc) of the railways.

As ever, you only need to include some of these issues. Indeed, some of these application examples are quite high-level and would only be expected of highly sophisticated answers.

AO3: Analysis

The core of top-level essays consists of well-constructed, relevant analysis of the topic. This should be presented using logical chains of reasoning, and where appropriate, clear diagrams.

There are lots of analytical routes you could go down with a question like this.

The core analysis will involve an explanation of the theory of competitive markets, in comparison to uncompetitive markets. A good (but not the only) approach would be to consider the traditional theory of monopoly markets and then consider the outcomes of a perfectly competitive market. The argument can then be made that introducing ‘on-rail’ competition will shift the market along the spectrum from a monopoly towards perfectly competitive outcomes.

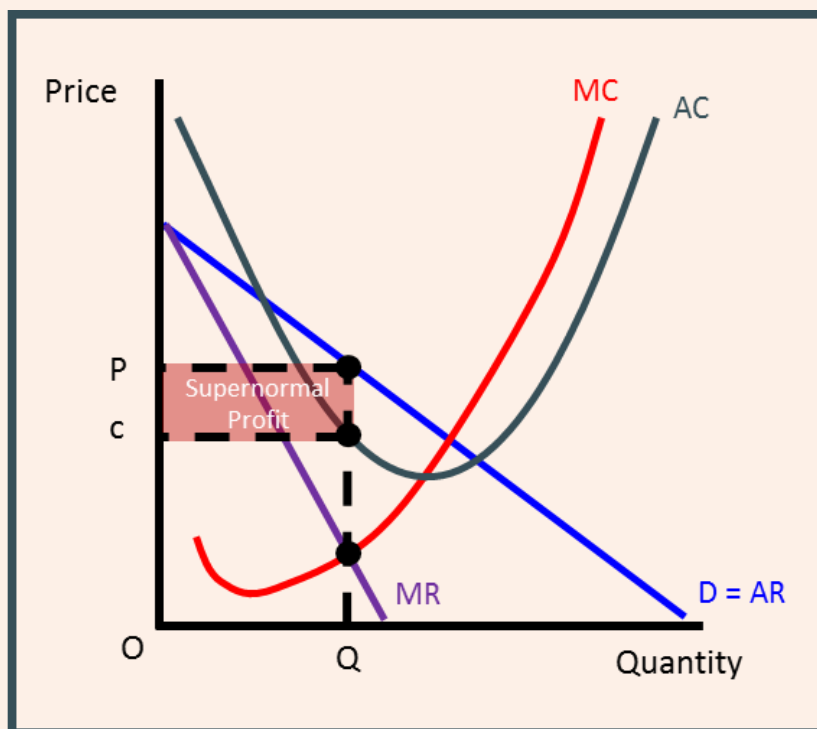
Monopoly Markets

In the absence of ‘on-rail’ competition, the UK rail industry can be argued to be a monopoly market, with only one Train Operating Company (TOC) available to a passenger travelling on a particular route. The following is a good example of a chain of reasoning which attempts to explain the implications of this:

“In the absence of competition on the particular routes they serve, Train Operating Companies (TOCs) are likely to hold some monopoly power. This will allow them to act as ‘price makers’ rather than ‘price takers’, setting the price which will maximise profits. This is likely to be above the price which would be set by a perfectly competitive market, leading to higher ticket prices for consumers and higher (supernormal) profits for firms.”

This chain of reasoning would be very well-supported by the standard monopoly diagram which shows these results. This shows the TOC facing the demand curve of the whole market, alongside the separate, steeper MR curve. The monopolist profit-maximises by producing where $MR = MC$ and charges a price P , which enables it to earn supernormal profit as shown by the shaded red area.

The monopolist is neither productively efficient, as it does not produce at the minimum point on the AC curve, nor is it allocatively efficient as the price does not equal marginal cost.



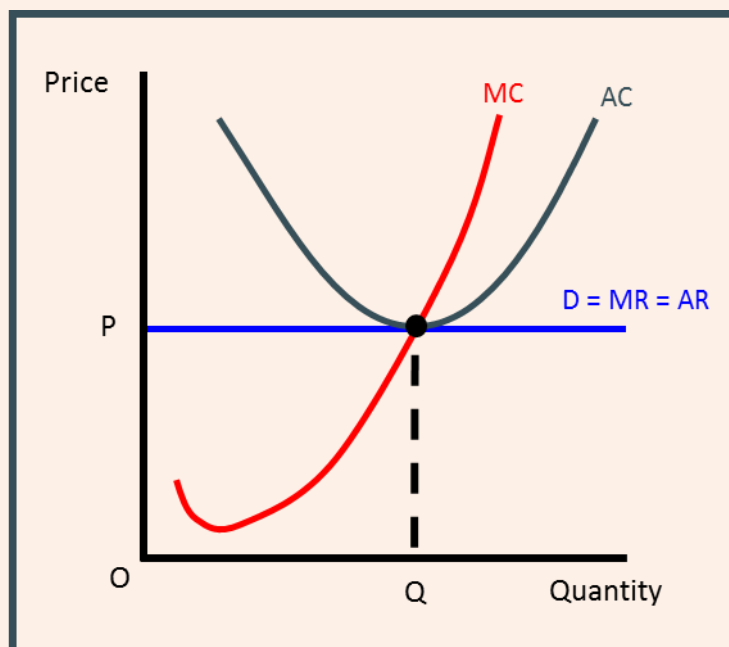
Perfectly Competitive Markets

Perfect competition represents a theoretical market structure which contains an infinite number of buyers and sellers, one homogenous good, no barriers to entry or exit and perfect information. It is useful to include an analysis of a perfectly competitive market to compare against the outcomes of a monopoly market. After introducing what a perfectly competitive market is and why it is useful to discuss it in answering this particular question, the following chain of reasoning could be used to explain the results of perfect competition:

“In a perfectly competitive market, firms are price takers, not price makers. This means that they must accept the prevailing market price as the infinite number of competitors they face prevents them from charging more than the market price. This market price is likely to be lower than the price charged by a monopoly firm and in the long-run is set at the level whereby firms make normal profits.”

Other relevant results about perfect competition include the facts that firms are both productively and allocative efficient and that consumers have a wide range of firms to choose from.

The typical perfect competition diagram (see below) could be used here to support the analysis, although if the monopoly diagram is also included in your essay you may decide to omit it in order to avoid spending too long on your answer to this question.



Having discussed the results of a monopoly market and a perfectly competitive market, the question itself can now be answered by explaining that the move to introduce more on-rail competition represents a shift down the spectrum of market structures from a monopoly towards a perfectly competitive market.

Increasing Competition

This results of this shift can largely be analysed by comparing the results of the monopoly market and the perfectly competitive market.

Lower Prices

- Passengers are likely to face lower prices, increasing their consumer surplus.

Higher Output

- Lower prices will cause a movement down the demand curve, inducing more journeys to be taken by rail.

Non-Price Competition

- In addition to competition putting downward pressure on prices, it is likely to also encourage firms to improve their levels of service.

More Efficient

- The market is likely to be more allocatively and productively efficient, ensuring a better overall utilisation of economic resources.

Smaller Profits

- Firms no longer earn supernormal profits, instead being restricted (in the long-run) to normal profits in the extreme case of perfect competition.

AO4: Evaluation

Including accurate and relevant evaluation in your essay is the most important thing to ensure you achieve top marks. Evaluation is the art of making supported judgements, of deciding which factors are most important and providing a counterargument against some of the analytical points made in the essay.

There a huge number of evaluative angles you could take within this essay. Here we will showcase some useful examples. You would not be expected to include all of these examples – there simply is not enough time!

The extent of the increase in Competition

- The question alludes to introducing more competition without explaining how that would be achieved. The extent to which competition is introduced will affect how far down the market structure spectrum towards perfect competition the market moves. It may be that it is difficult to effectively increase the level of competition due to the nature of the industry, where train companies would have to share a limited amount of track and station facilities.

The Short-Run

- Whilst a move towards a more competitive market suggests that there would be a stable market with all of the consumer and efficiency benefits that perfect competition suggests in the long-run, in the short-run there may be volatility. Increased competition might result in initially too many or too few firms entering the market, thereby not allowing the market to initially reach the efficient market equilibrium. Volatility may affect the reliability and stability of services, affecting passengers who may rely upon these services for essential travel.

The Importance of Investment

- Monopoly markets allow firms to make supernormal profits. These supernormal profits allow firms to invest in research&development or increased investment, safe in the knowledge that this will allow them to enjoy supernormal profits in the future. The prospect of earning only normal profits in the future due to competition may discourage firms from making important investment commitments including improvements to stations and increasing the number and quality of trains in service. This may be more important than any consumer and efficiency benefits from competition due to the importance of investing in expanding the scale of the UK railways to cope with future demand. This is related to the concept of dynamic efficiency as it might improve productive efficiency over time.

Government Intervention

- The extent to which increased competition would deliver the theorised consumer and efficiency benefits depends upon the extent and nature of government intervention in the market. If, for example, the government continued the practice of implementing price controls (through regulated fares) then the ability of market competition to reduce prices might be limited.

The extent of current inefficiency

- Extract C (Line 26) states that the typical profit margin currently for a Train Operating Company is only 3%. This could be argued to demonstrate that firms have less monopoly power than might be first imagined and therefore the level of inefficiency initially is smaller than would otherwise be thought.

Inelastic PED

- This increases the incentive for monopolists to exercise their monopoly power and set high prices as doing so results in few passengers lost.

Externalities of Substitutes

- An increase in competition is likely to increase the output (number of journeys) of the market. This might have a higher social benefit than first imagined as a common substitute to train travel is to drive. Driving produces negative externalities including increased emissions and congestion.

Overall, it is important to provide in your essay, a reasoned judgement; an argument which makes a decision about whether introducing more competition within the UK rail industry would, overall, be good or bad. It doesn't matter which side of the argument you make the case for – you will be examined on how effectively you structure that argument and how well you support it with economic theory.

The concluding paragraph of your essay is often a very good place to make clear what your overall reasoned judgement of the question is. Some people also like to include a similar judgement in their introduction, to signpost clearly to the examiner that they will be making an evaluative judgement in their essay.

Here is a good example of an attempt to, in one paragraph, argue that introducing more competition would be good for the industry:

“Overall, the case for introducing more competition into the UK rail industry is persuasive. Despite the fact that the arguments regarding the potential dynamic efficiency benefits of monopolist earning supernormal profits deserve consideration, the current market failure of productive and allocative inefficiency should take priority. This is especially so because long-suffering commuters often have few privately or socially appealing substitutes to train travel and thus their demand is likely to be price inelastic, making the likelihood of monopoly pricing more likely and more important to act against.”

Alternatively, it would be just as valid to argue that introducing more competition would be a negative development:

“On balance, introducing more competition into the UK rail industry would not be beneficial to the market. The allure of introducing more competition revolves around increasing static efficiency and increasing consumer here and now. Despite the importance of these factors, the most pressing issue for the UK rail industry is its future. Its ability to accommodate increasing demand is a matter of vital importance and can only be guaranteed by incentivising firms to invest in more trains and improving services through the prospect of enjoying supernormal profits as a monopolist now and in the future.”

There is a vast amount of content that it would be possible to cover when answering this question. As this essay is only worth 15 marks, not 25 marks like the essays in Section C, the key skill here is going to be to reign back

ambition and produce a tightly focused response which still includes some effective evaluation, explained clearly.

Essays are marked on a levels basis. The overall quality of your essay will be considered when deciding upon which level the answer is. There are 9 marks available for knowledge, application and analysis.

Level 1 [1 – 3 Marks] – Weak knowledge and understanding which includes generic or irrelevant information.

Level 2 [4 – 6 Marks] – A reasonable but narrow response.

Level 3 [7 – 9 Marks] – Accurate knowledge and application with coherent chains of reasoning.

There are a further 6 marks available for evaluation.

Level 1 [1 – 2 Marks] – Generic evaluative comments without relevant evidence.

Level 2 [3 – 4 Marks] – Reasonable evaluation which may be sometimes unbalanced or not fully supported.

Level 3 [5-6 Marks] – Strong levels of well-supported evaluation.

Question 7

‘Premier League footballers earn significantly more than nurses and yet contribute far less to society.’

Assess the case for government intervention in labour markets to improve pay differentials and achieve a fairer distribution of income.

To access top marks in any economics essay, it is important to focus on two key elements:



As essay structure is a more general skill, we will focus on showcasing how to hit the different assessment objectives required for this specific question. However, hopefully the following discourse will provide some assistance with regards to essay structure.

AO1: Knowledge

Being able to display accurate knowledge is judged to be the most basic requirement. It is still important to be able to demonstrate accurate knowledge throughout your essay. You can signpost this by including accurate definitions. For example, in your introduction you might want to provide a definition of the distribution of income. For example:

“The distribution of income is a key economic indicator of equality as it represents the extent to which workers receive different wage rates and salaries throughout an economy.”

AO2: Application

Being able to apply your knowledge to the relevant context is particularly important when writing an essay. In this case, there are lots of avenues for you

to make a contextual reference to the UK (and other economies) and specific examples of pay differentials and government intervention in the labour market. Some of these include:

The National Minimum Wage

- The UK introduced its minimum wage in 1999. Currently, the minimum wage has been re-branded for those aged 25 and above and is called the 'National Living Wage'. The National Living Wage is currently being increased significantly each year.

UK Inequality

- The UK's inequality levels, as measured by statistics like the Gini coefficient, are higher than those of most European countries, but lower than some other developed economies, like the USA. More attention has been brought to bear on the topic of the distribution of income in the wake of stagnant real wages for most of the distribution following the 2008 financial crisis.

Fat Cat Wednesday

- Increased focus has been applied to the incomes of the very rich in society. In 2017, 'Fat Cat Wednesday' was widely publicised to highlight that by Jan 4th the average FTSE 100 CEO had made the same amount of income as the average UK employee's average salary.

High-Level Taxation

- In 2013, the highest taxation rate in the UK was reduced from 50% to 45% on earnings over £150,000. Critics argue that this has exacerbated income inequality, whilst supporters claim that reducing the taxation rate has in fact resulted in the government raising more revenue than before.
- There has been a lot of focus upon the utilisation of dubious tax avoidance schemes by some of the richest individuals in the UK. Critics suggest that the government should do more to stop such schemes being abused.

Low-Level Taxation and Benefits

- The income threshold below which individuals pay no tax has been steadily increased over the previous few years. This amounts to an effective cut in the amount of tax paid by the lowest earners in society.
- Alongside this, benefit payments have been squeezed as a consequence of the emphasis upon economic austerity.

As ever, you only need to include some of these issues. Indeed, some of these specific application examples require extensive knowledge of the current UK economy and would only be expected of highly sophisticated answers. The general trends, however, would be useful components of mid-level responses.

AO3: Analysis

The core of top-level essays consists of well-constructed, relevant analysis of the topic. This should be presented using logical chains of reasoning, and where appropriate, clear diagrams.

There are lots of analytical routes you could go down with a question like this. The heart of the analysis will discuss some possible government interventions in the labour market and their likely effects upon pay differentials and the distribution of income. One (of many) possible structure of the analysis is to begin by explaining why an unequal distribution of income is potentially a problem, then detail some of the possible government interventions and their likely impacts.

Inequality

Where an economy is subject to inequalities in the distribution of income and wealth, there are two main arguments why society might view this as a negative phenomenon and want the government to intervene.

The first is a consideration of the fairness of pay differentials. This relates the concept of inequality to the concept of inequity (unfairness). Whilst a contentious view, there are many who believe that severe pay differentials are inherently unfair and for honest labour, the divergences in wages should be reduced. Much economic thinking assumes that the government is interested in the overall welfare of society as a whole (the sum of all individuals), in which case there is an argument to be made that if the government can intervene to reduce income inequality and inequity then they will have a positive effect upon society's overall welfare.

The second is to consider pay differentials as a source of market failure. This is especially the case if those at the bottom end of the distribution of income are pushed into poverty. The argument is that the market is failing to provide a

sufficient labour income for workers to be fully functioning members of society. Low incomes may prevent them from being able to afford an effective education or from being able to search for jobs effectively. Consider being unable to apply for a job because you couldn't afford a suit for the interview.

Explaining the potential costs of inequality explains why we might consider possible government interventions later in the analysis. For example:

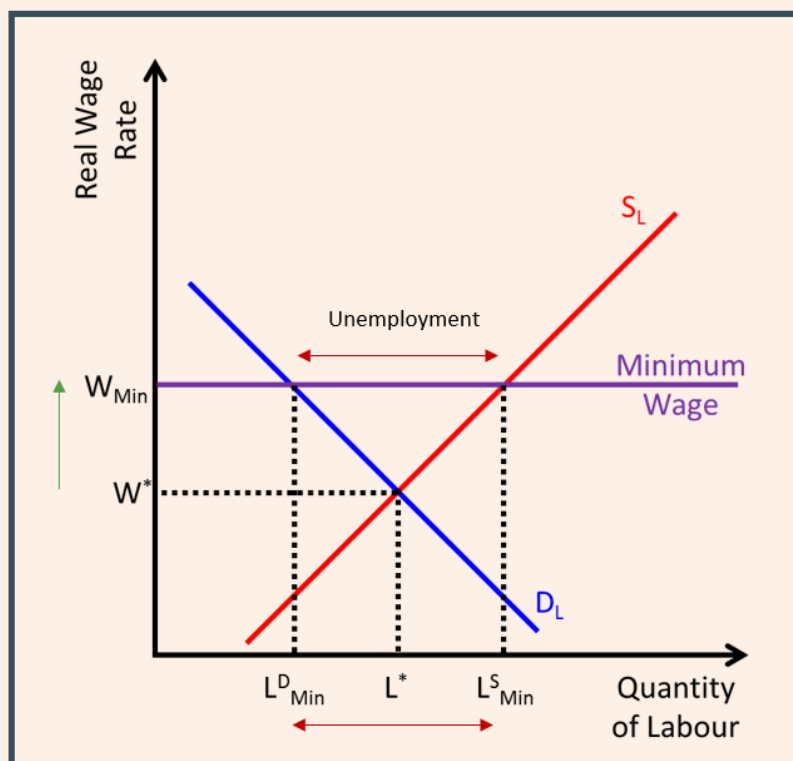
“Pay differentials and the unequal distribution of income that results are arguably very damaging to the overall welfare of society. The concept of the equity of different wage rates has been a long-discussed topic in economies around the world. Socialists have often argued that wide pay differentials are simply unfair and that governments should implement policies to increase the fairness of labour markets. Furthermore, many argue that an unequal distribution of income is an example of market failure, as it can impose costs upon society. The inability of those subject to poverty to engage in essential consumption decisions may restrict their ability to effectively participate and progress in the workforce.”

Once the rationale for examining government intervention has been established, the essay can move on to specific examples of possible government interventions. In each case, it is essential that the form of the proposed intervention is clearly explained and that there is a good chain of reasoning which details its likely effect upon pay differentials and the distribution of income.

There are lots of possible examples that could be used. There is simply not enough time to attempt to detail every one of them. You should focus on two or maybe three of what you consider to be the most important or illuminating examples. Possible examples include:

Introduce / Increase the Minimum Wage

A minimum wage essentially operates as a minimum price within the labour market. It prevents firms from paying below a certain threshold as a wage to their workers. It can have a potentially large impact upon the wages earned in low-paying industries. The effects are best analysed with the assistance of a diagram:



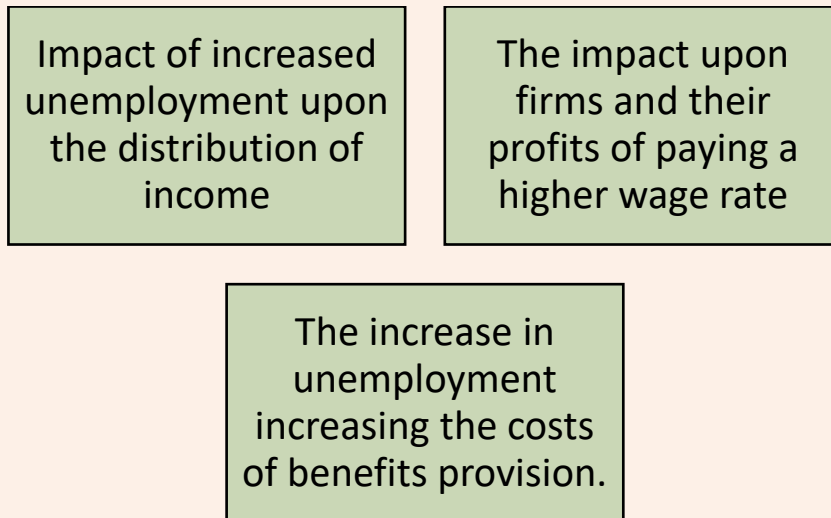
It is essential that the diagram is followed by a clear explanation of what the diagram is depicting. For example:

“The diagram showcases the impact that a minimum wage would have upon a low-paying labour market. This labour market is at an initial equilibrium formed by the intersection of the supply of labour (S_L) and demand for labour (D_L) curves, where L^ workers are employed at a real wage rate of W^* . The introduction of the minimum wage (W_{Min}) at a higher real wage rate than the initial equilibrium (W^*) moves the market out of equilibrium.*

The upshot of this is that workers who remain employed within the industry receive an increased real wage rate. Increasing the wages of these low-paid workers is likely to, in isolation, make the distribution of income more equal.

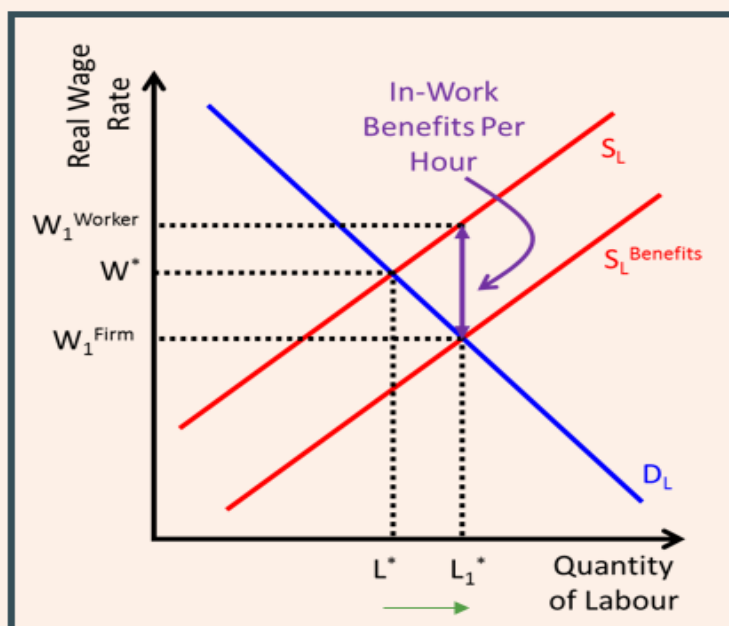
However, as firms are now forced to pay each worker the minimum wage, they demand fewer workers (L^D_{Min}). This in contrast to the impact upon the supply of labour. The higher wage being offered encourages more people to be willing to take up roles in the industry. The disequilibrium, therefore, results in classical unemployment to the extent of $L^S_{Min} - L^D_{Min}$.”

Further analysis of this potential intervention might include the following:



Providing / Increasing In-Work Benefits

Providing additional financial support to workers who receive low wages is a common intervention undertaken by many world economies. It is analogous with the government providing a subsidy for the employment of labour. Again, this can be most effectively analysed with the assistance of a diagram. However, note that this diagram is a little more complicated than some of the standard labour market diagrams and you may not have encountered it before in your studies. Analysing this intervention without the use of the diagram would be acceptable if written clearly.



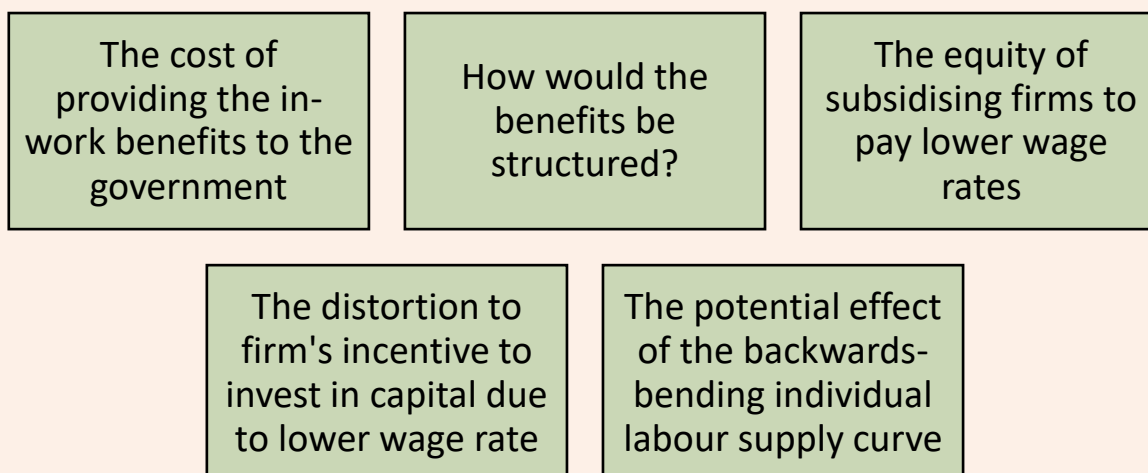
The accompanying explanation could be:

“The diagram showcases the effect of the government intervening in low-paying labour markets by providing in-work benefits, like the UK government’s policy of tax credits. This is modelled as a subsidy for labour, paid to the supplier (the workers).

The diagram shows the effect of this subsidy is to shift the supply of labour curve outwards from S_L to $S_L^{Benefits}$. The incidence of the subsidy is split between workers and firms, with the real wage rate paid by firms falling from W^ to W_1^{Firm} , but importantly with the effective real wage rate paid to workers increasing from W^* to W_1^{Worker} . The in-work benefits paid by the government to the workers therefore outweighs the reduction in the wage rate paid by firms.*

This increase in the real wage rate received by workers in low-paying jobs is likely to decrease the inequality of the distribution of income. Another helpful effect is that the provision of in-work benefits encourages an increase in the quantity labour employed in these industries, from L^ to L_1^* , potentially resulting in a fall in unemployment. As the unemployed are prime candidates to be at the very bottom of the distribution of income, this is likely to also improve inequality.”*

Further analysis of this potential intervention might include the following:

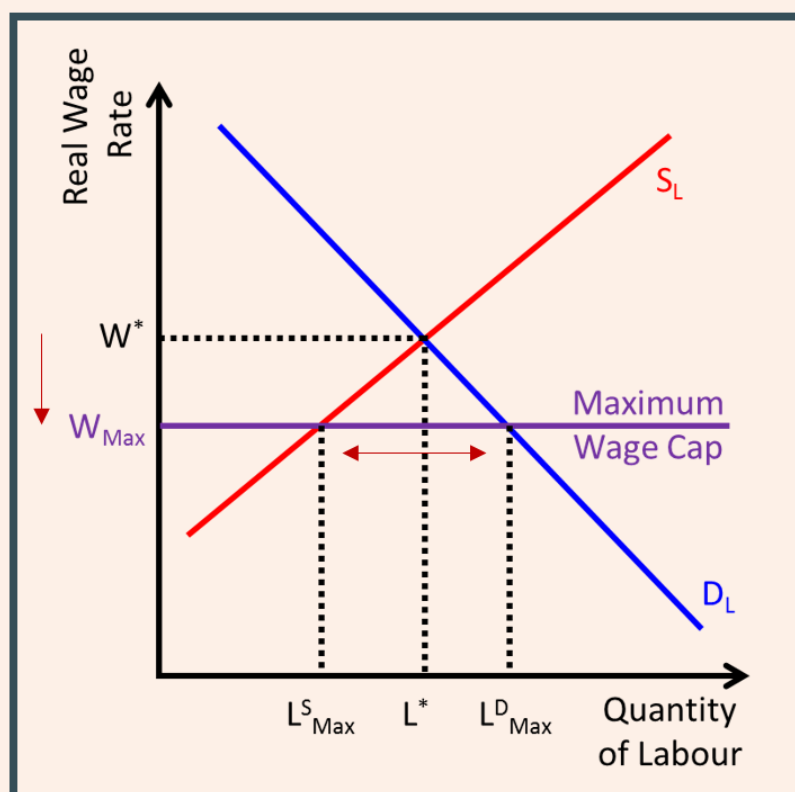


The two interventions considered so far have both been aimed at lifting the incomes of those at the bottom of the distribution of income. The next possible intervention looks at the dragging down the incomes of those situated at the very top of the distribution.

Maximum Wage Cap

A maximum wage cap would operate as a maximum price within the labour market. In practice, it might manifest itself as a 100% (or close to) marginal taxation rate above a certain threshold. This policy is not unheard of – during the second world war, the highest marginal taxation rate in the UK was 99.25%.

A diagram of a high-paying labour market (perhaps the market for CEOs) with a maximum wage is, unsurprisingly, helpful to illustrate this analytical thread:



The explanation to accompany the diagram might resemble this:

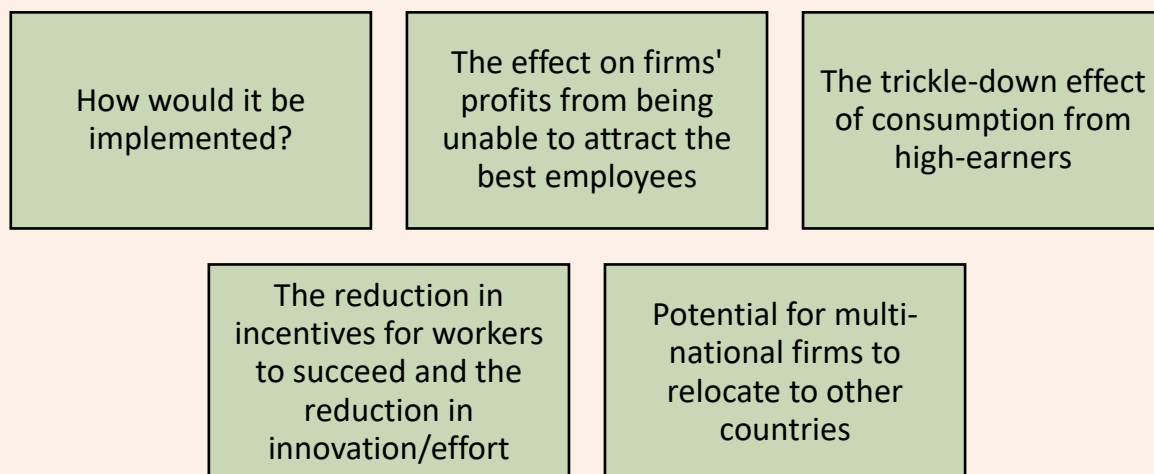
“In high-paying labour markets, a maximum wage cap which is set below the initial equilibrium real wage rate (W^) will influence the market by pushing it into a state of disequilibrium. Here a wage cap of W_{Max} has caused the demand*

for labour (L^D_{Max}) to be higher than the supply of labour (L^S_{Max}), resulting in classical unemployment. By reducing the number of those employed in a high-paying industry, the distribution of income is favourably affected.

Indeed, for those who do remain employed at the new real wage rate of W_{Max} , they do indeed receive a lower real wage rate than previous, which will also help to make the distribution of income more equal.

Whether, however, reducing the number of the highest-paid, and therefore potentially the most productive, workers in employment is worth the reduction in pay differentials is an important consideration.”

Further analysis of this potential intervention might include the following:



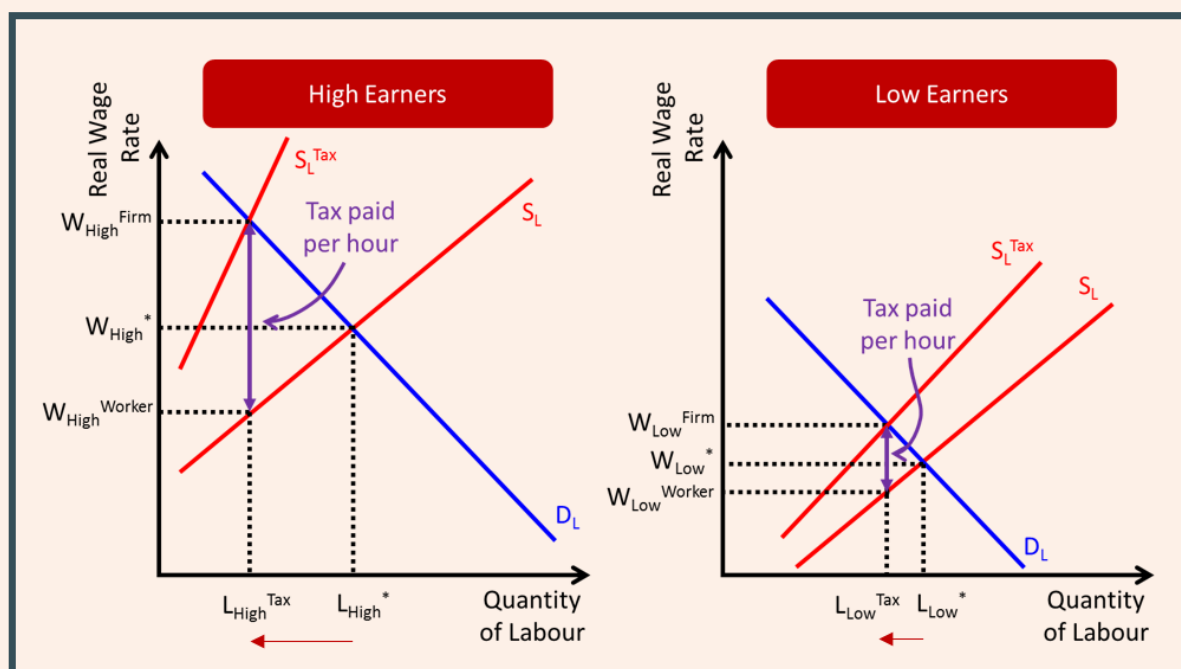
(More) Progressive Taxation

The progressiveness of taxation details the extent to which the marginal rate of taxation paid by workers increases as their labour market incomes increase.

For example, a highly progressive taxation system would have very low marginal taxation rates for low earners but very high marginal taxation rates for high levels of earnings.

Most countries enforce a taxation system which is progressive – it is the degree of progressiveness which differs.

Similarly, to the in-work benefits discussion, this can be helpfully represented by a diagram, although analysis without a diagram would be acceptable:



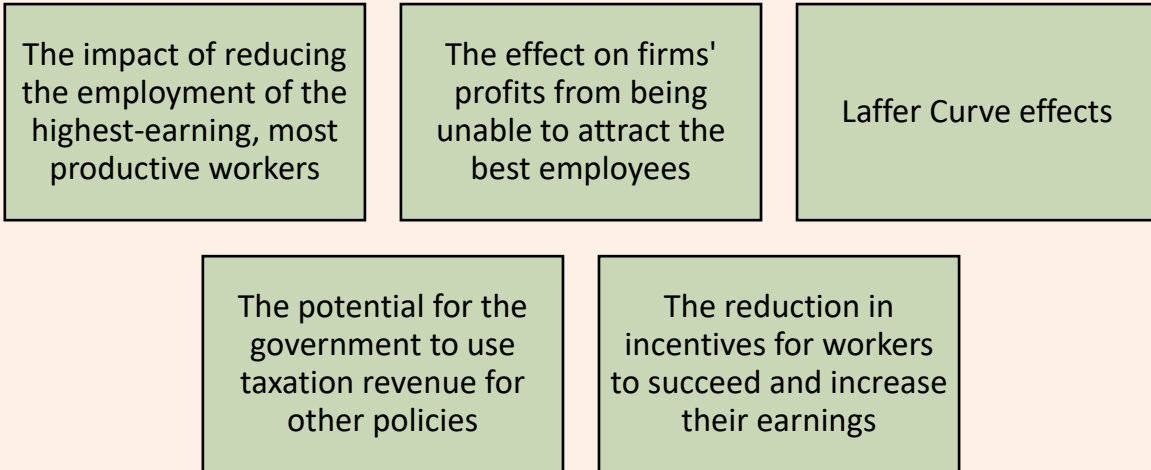
The explanatory discussion might appear like this:

“In the diagrams above, the government has implemented a highly progressive taxation system. For industries where earnings are high, represented by the diagram on the left, the taxation system results in a large inwards shift in the supply curve from S_L to S_L^{Tax} .

This causes a large fall in employment from L_{High}^ to L_{High}^{Tax} . Firms must also pay a significantly higher wage rate, (W_{High}^{Firm} rather than W_{High}^*). Despite this, the wage rate received by these workers falls significantly (as the incidence of the taxation is shared), from W_{High}^* to W_{High}^{Worker} .*

The effects of taxation in the low-paying industry are all the same in terms of direction, however because the rate of taxation is significantly lower, the size of each of the effects are consequently also lower. Overall, therefore, the progressive taxation has a far greater dampening effect upon the wages received by high earners than that of those receive by lower earners, helping to make the distribution of income more equal.”

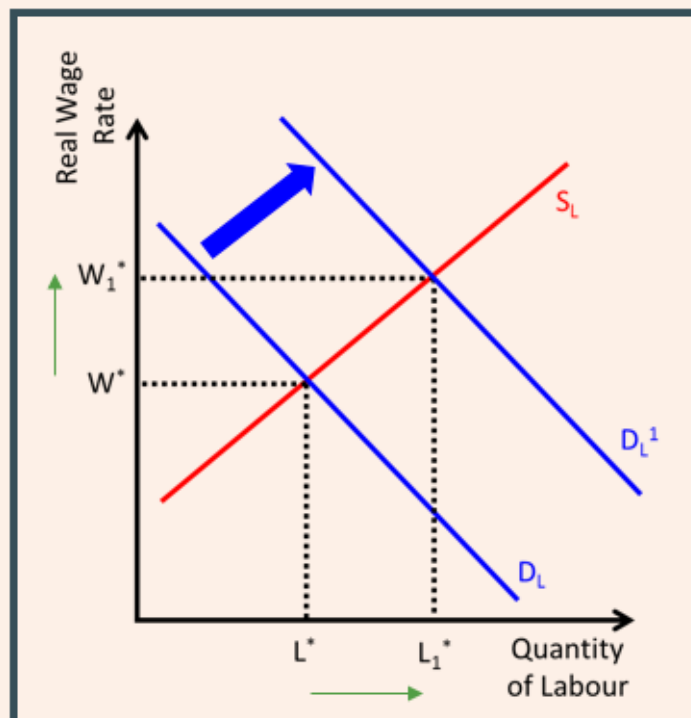
Further analysis of this potential intervention might include the following:



Investment in Education and Training

Increased government investment into the provision of education and training programmes is likely to increase the productivity of an economy’s workforce. This in turn will increase the marginal revenue product of workers. If increased investment is focused upon increasing the productivity of low-skilled workers then the effects upon the labour market can have a significantly positive effect upon the distribution of income.

Again, this is most easily and effectively explained with the help of a diagram:

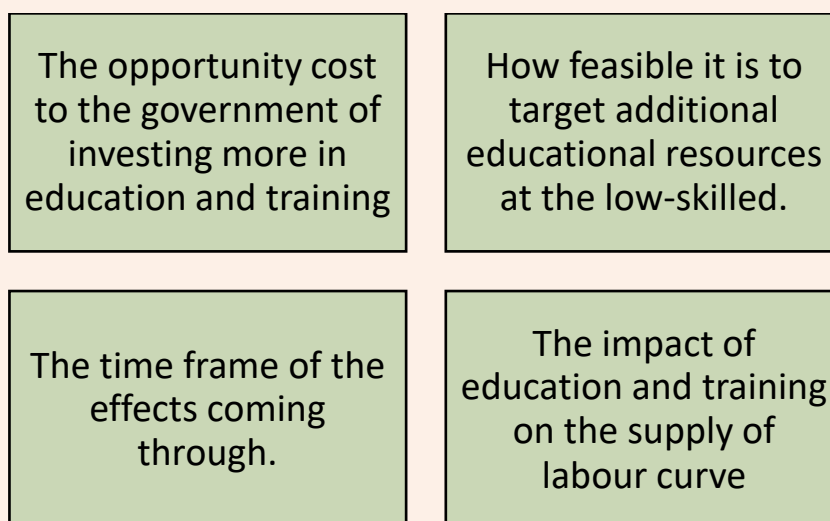


The explanatory discussion might appear like this:

“An increase in the productivity of the low-skilled through better access to education and training will have the primary effect of increasing workers’ marginal revenue product. This is represented on the diagram above by an outwards shift in the demand for labour curve from D_L to D_L^1 as firms demand more of these more productive workers.

The effect of this upon pay differentials is two-fold. Firstly, the real wage rate received by these low-earners increases from W^ to W_1^* . Secondly, the amount of labour employed in this now higher-paying industry, increases from L^* to L_1^* . Together, these effects will increase the incomes of those towards the bottom of the distribution of income, thereby improving inequality.”*

Further analysis of this potential intervention might include the following:



There are a variety of other potential interventions you could analyse including (but not limited to):

Legislated Wage Ratios

- Forcing companies to ensure that their highest earners are not paid more than a certain multiple of their lowest earners.

Unemployment Benefits and Support

- Whilst it might be slightly contentious as to whether this is an intervention in the labour market to improve pay differentials, it certainly will have an effect upon the distribution of income as the unemployed are the most likely to be at the very bottom of the distribution of income.

Universal Income

- A recently touted idea by some economists to replace unemployment and in-work benefits with a state provided sum paid to every member of society regardless of their income level. Designed to support low earners and the unemployed and remove some of the disincentives to work that benefits which reduce as income increases result in, its potential impact upon the distribution of income is being investigated by economists currently.

The key with the potential interventions that could be analysed is to understand that there simply is not the time to analyse them all. The best strategy is to very effectively detail only two or three of them.

Hopefully by analysing specific interventions you will have discovered that normally efforts to reduce pay differentials and improve the distribution of income come with accompanying economic costs. This represents a trade-off between equality and other economic factors.

A paragraph to explicitly highlight awareness of this trade-off would be powerful and would represent high-level analysis and allow for movements into powerful evaluative points. For example:

“It is clear that ‘free lunches’ are hard to come by. Acting to curb pay differentials and therefore improve the distribution of income rarely can be achieved without negatively affecting other economic factors. As a result, effective policies should consider the trade-offs which arise on an intervention-by-intervention basis.”

AO4: Evaluation

Including accurate and relevant evaluation in your essay is the most important thing to ensure you achieve top marks. Evaluation is the art of making supported judgements, of deciding which factors are most important and of explaining in what circumstances particular factors assume the most importance.

There are many evaluative angles you could take within this essay. The points you effectively make will be dictated by the particular interventions you have focused on in your essay. Here we will showcase some useful general examples which could be adapted and applied to individual interventions or evaluate the overall premise of the question. You would not be expected to include all of these examples – there simply is not enough time!

The Initial Extent of Inequality

- Just how unequal a society is will affect the size of the potential societal benefits from improving the distribution of income. An economy with exceptionally high pay differentials may be more likely to decide that improving them are more important than other economic factors which form the part of a trade-off.

The Size of the Intervention

- Whether it be what level the minimum wage is set or quite how high the taxation rate of high earnings are, discussing how the size of the intervention will affect the size of the economic effects is a very useful evaluative tool.

Time Frame

- Some interventions may only result in improvements in the distribution of income over a lengthy time period (i.e. in the long-run). Alternatively, practicalities might mean that a particular intervention has to be implemented gradually. This lack of an instant result may distort the trade-off between using the intervention to improve the distribution of income and other economic factors.
- Any changes to the incentives for workers to work hard and be successful may have long-term consequences for the productive capacity of the economy which are hard to predict. It may reduce the incentive to promote innovation and invention and may mean creative destruction occurs.

Government Failure

- Any government intervention runs the risk of causing unintended consequences. Interventions in the labour market may run a particularly high risk of resulting in government failure as they affect the incentives on offer to workers and firms. Organisations and individuals are often capable of ingenious ways to get round the intended results of a government intervention.

Government Finances

- The ability and appetite of the government to engage in costly labour market interventions will depend upon the state of its financial position. A government with a large deficit and national debt may prioritise other economic objectives over an equal distribution of income.

Labour Elasticities

- For many interventions, a compelling evaluation can be built around a discussion of the likely elasticity of labour demand and/or supply. This evaluation can often be presented with the assistance of a diagram.

Equity

- Any discussion about equality can quickly lead to a debate about how closely equality represents equity (fairness). Some argue that actually some degree of inequality represents fairness as it reflects different levels of talent and effort within the workplace.

Overall, it is important to provide in your essay, a reasoned judgement; an argument which makes a decision about whether government intervention in labour markets to eliminate pay differentials would, overall, be good or bad. It doesn't matter which side of the argument you make the case for – you will be examined on how effectively you structure that argument and how well you support it with economic theory.

The concluding paragraph of your essay is often a very good place to make clear what your overall reasoned judgement of the question is. Some people also like to include a similar judgement in their introduction, to signpost clearly to the examiner that they will be making an evaluative judgement in their essay.

Here is a good example of an attempt to, in one paragraph, argue that government should intervene to reduce pay differentials:

“Overall, the case for government intervention in labour markets is persuasive. Despite the economic trade-offs which are likely to be present in any attempt to improve the distribution of income, reducing pay differentials and in doing so increasing the welfare of the worst-off in society should be, within reason, the highest priority of the government. This is especially so in economies like the UK where extremely high pay in sectors including financial services diverts an inequitable share of economic resources towards a small section of society.”

Alternatively, it would be just as valid to argue that governments should, on balance, refrain from intervening in labour markets:

“On balance, government intervention in labour markets should be avoiding in most circumstances. Whilst concerns about income inequality and pay differentials are valid, any attempt by a government to actively solve these issues is likely to, at best be ineffective, and at worst negatively impact more important economic objectives. The most pressing concern for the government should be able increasing the incomes and welfare of all in society, not focusing upon re-distribution away from the well-off towards those at the bottom of the ladder and in doing so reducing the size of the overall pie.”

Essays are marked on a levels basis. The overall quality of your essay will be considered when deciding upon which level the answer is. There are up to 16 marks available for knowledge, application and analysis:

Level 1 [1 – 4 Marks] – Weak knowledge and understanding which included generic or irrelevant information.

Level 2 [5 – 8 Marks] – A narrow response which contains some knowledge and understanding but under-developed chains of reasoning.

Level 3 [9 – 12 Marks] – Accurate knowledge and understanding with clear analysis but the answer may lack balance.

Level 4 [13 – 16 Marks] – Precise knowledge and understanding with relevant and coherent analysis.

Essays are marked on a levels basis. The overall quality of your essay will be considered when deciding upon which level the answer is. There are up to 9 marks available for evaluation:

Level 1 [1 – 3 Marks] – Generic evaluative comments without relevant evidence.

Level 2 [4 – 6 Marks] – Reasonable evaluation which may be sometimes unbalanced or not fully supported.

Level 3 [7 – 19 Marks] – Strong levels of well-supported evaluation.

Question 8

In October 2016, despite the environmental concerns from local campaign groups, the UK government approved plans for the development of fracking sites in Lancashire to provide the UK shale gas and oil industry with a boost.

Assess the view that taxation is the most effective form of government intervention in markets that are affected by negative production externalities

[25 marks]

To access top marks in any economics essay, it is important to focus on two key elements:



As essay structure is a more general skill, we will focus on showcasing how to hit the different assessment objectives required for this specific question. However, hopefully the following discourse will provide some assistance with regards to essay structure.

AO1: Knowledge

Being able to display accurate knowledge is judged to be the most basic requirement. It is still important to be able to demonstrate accurate knowledge throughout your essay. You can signpost this by including accurate definitions. For example, in your introduction you might want to provide a definition of government intervention in the context of a market that produces negative externalities. For example:

“Markets that produce negative production externalities impose an external cost onto society which results in the over-production of a good and an inefficient allocation of resources. Left to the free market alone, this is likely to result in market failure as private firms fail to consider the full cost of their actions.”

The government can help rectify the market situation by affecting the incentives behind decisions made by individuals and firms. This can help move the market outcome closer to the social optimum so that welfare in the market is maximised. Indirect taxation is one appropriate way of dealing with markets that fail, due to the production of negative externalities, as it aims to ensure that the producer pays the full cost of the negative externality.”

Introducing your essay by showcasing your knowledge and understanding of the subject matter of the question will lay the foundations of your essay. In this section of the essay a detailed demonstration of your understanding of the key economic terms and concepts is required.

AO2: Application

The essay question is preceded by a contextual reference to the UK fracking industry. This particular industry offers a wealth of interesting application opportunities, which we will explore. Introducing application by referencing other industries would also be productive. Some examples include:

Environmental Concerns

- Fracking creates environmental pressures such as: a greater number of pollutants released into the atmosphere, contamination of local water supplies, destruction of protected local areas, noise pollution from the construction and maintenance of fracking sites and respiratory problems created because of higher pollution.

Emerging Industry

- The UK fracking industry is an emerging industry where firms and governments are discovering the potential and problems that fracking shale gas and oil has on the UK economy. This means the level of uncertainty in this market is higher compared to more conventional markets.

Other relevant industries

- Manufacturing industries are often cited as prime example of markets which result in negative production externalities. The pollution and waste caused in the manufacturing process often imposes costs onto others in society that are not considered by the manufacturer.

Some of these application points require a high level of knowledge and understanding regarding the UK fracking industry. You are not expected to discuss all of these points.

AO3: Analysis

The core of top-level essays consists of well-constructed, relevant analysis of the topic. This should be presented using logical chains of reasoning, and where appropriate, clear diagrams.

There are lots of analytical routes you could go down with a question like this.

The core analysis will involve an explanation of the advantages and disadvantages of using taxation to specifically deal with markets that fail due to the production of negative externalities. This analysis will be aided by using a diagram to show the impact that an indirect tax can have on internalising the externality. A good (but not the only) approach would be to consider the impact of an indirect tax being placed on a market where the good is over-produced and then discuss the alternative forms of government intervention which may or may not be as effective. This is because the phrasing of the question using ‘most effective’ is prompting you to talk about other means that are available.

Indirect Taxation

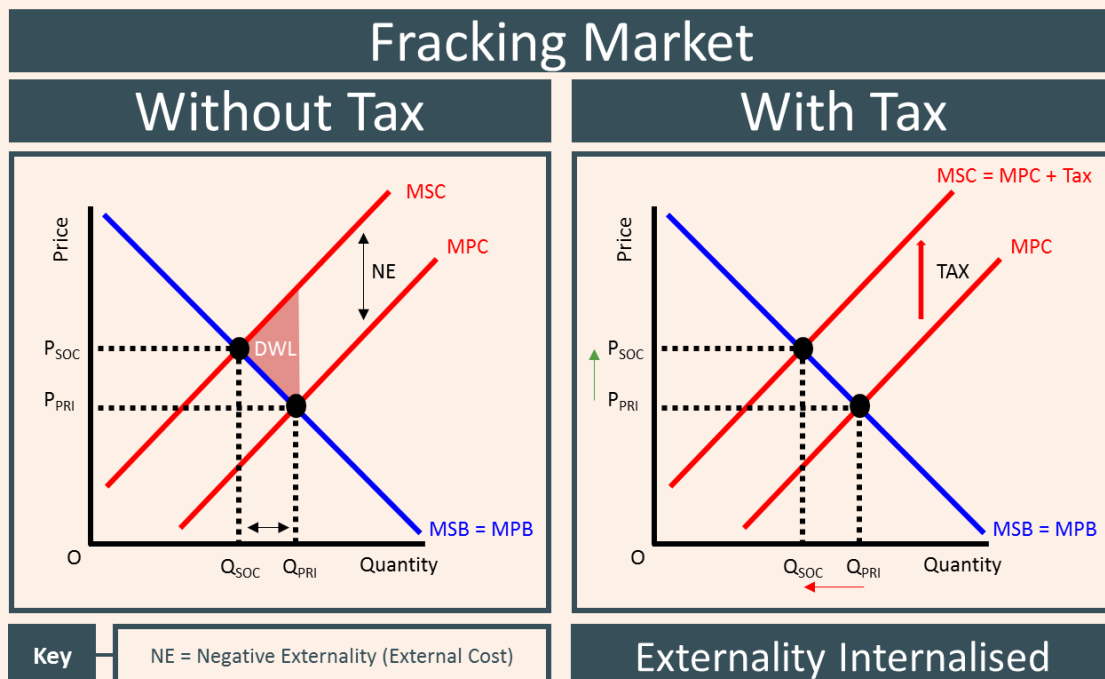
Before you go on to analysis the effect of an indirect tax on the market it is important to set the scene, regarding the initial market outcome without government intervention.

In the absence of government intervention, the UK shale gas industry is likely to produce negative externalities, as the process of fracking creates environmental concerns such as pollution. This means that there will be a divergence between the MSC and MPC, the difference representing the external cost passed onto society through the over-production of the good. This creates a market failure because the external costs of pollution are not considered by the producer. The following is a good example of a chain of reasoning which attempts to explain the implications of this:

“In the absence of intervention from the government, the fracking industry produces significant environmental problems such as the destruction of local areas and health problems imposed on society from more pollutants being dispersed into the atmosphere. These social costs are not imposed onto the shale producers that are involved in the production of shale gas and oil, but onto society. This means that producers will not consider the full costs of fracking in the UK and produce at the profit maximising point for them i.e. $MPC = MPB$. This equilibrium is likely to be above the social optimum ($MSC = MSB$) and therefore the overproduction of the good results in an accumulated deadweight loss for society.”

Taxation is one method of intervention that can be used to correct the market failure. Indirect taxes are taxes that are imposed on the producers of goods and services and these taxes can be passed onto the consumer. In this case, the tax is intended to make UK shale producers pay the full social cost of the materials they are fracking from the ground at fracking sites. If the tax is equal to the external cost of production (negative externality), then the tax will effectively increase producer’s private costs so the private costs of production equals the social costs of production.

This chain of reasoning would be very well-supported by standard MSC/MSB diagrams. At A-level you are expected to represent externalities using a MSC/MSB diagram so that you can apply marginal analysis to explain how the tax being imposed on the market internalises the negative production externality.



The tax that is imposed always represents the difference between the original MPC curve and the new MPC curve ($MPC + Tax$). Because of the tax being imposed on the market, less shale gas and oil is produced at each price level resulting in output falling from the private optimum (Q_{PRI}) to the social optimum (Q_{SOC}). The price level has also increased because of producers passing on part of the tax onto consumers. The increase in price creates a movement up the MSB curve.

If the tax internalises the entire externality, the increase in the price and the contraction in the quantity produced results in an efficient allocation of resources and corrects the failure in the market. This is represented by the deadweight loss triangle being removed from the market as the optimal quantity is being produced.

Effects of Taxation

Having discussed the results of imposing an indirect tax on a market that fails because of the production of negative externalities, the question itself can now be answered by explaining the relative advantages and disadvantages of using this form of government intervention to create an efficient allocation of resources. The advantages include:

Corrects Incentives

- The tax aims to correct the incentives of the producer by imposing the full cost of the negative externality they produce onto their own costs. If the tax is significant enough it will encourage shale producers to try and develop more energy efficient alternatives or an energy friendly production process towards extracting the materials that they require. This may in fact slow down the development of the fracking industry and reduce the negative externalities produced in this industry over a longer period of time.

Internalises Externality

- If the tax imposed is set at the right level (equal to the external cost) then it will be effective in removing the deadweight loss triangle in the market. This is because producer costs will be equal to social costs and if a producer faces higher costs it will be incentivised to cut production.

Raises Economic Efficiency

- The tax reduces/eliminates the deadweight loss triangle by reducing the amount of overproduction in the market. This results in efficiency benefits for the market as it moves towards a more efficient allocation of economic resources.

Raises Tax Revenue

- Provides the government with tax revenue which can be used to provide subsidies to help develop more energy efficient alternatives. The revenue can also be used to repair damage to the environment which may have been caused by setting up fracking sites in the UK.

The disadvantages of taxation include:

Sustainability

It can be argued that the imposition of taxes on firms in the fracking industry may not actually be an effective solution to the problem of pollution. This is because unlike production limits or bans this does not actually guarantee a reduction in pollution as taxes only aim to affect the firms incentives.

Significance and Size of Tax

- It is often difficult for governments to be able to accurately quantify the size of the externality being created and therefore it is difficult to set the right tax on firms. This is particularly the case for the UK fracking industry as there are lots of different environmental pressures created, which makes it difficult for governments to accurately place a value on the overall external costs that fracking imposes on the environment.

Tax Evasion

- It may be the case that even if UK shale producers have an indirect tax imposed on them to change their incentives, they may find a loophole in the tax system to avoid paying this tax. If so, this may prevent certain firms from taking into account the external costs, which causes the market to still have an inefficient allocation of resources.

Incidence of Tax

- The effectiveness of using taxation to internalise an externality will be reduced, if the producers pass on a large percentage of the tax to consumers. This is because when an indirect tax is applied to a producer they can decide to pass on a percentage of the tax to consumers to reduce their overall tax burden. If demand is relatively inelastic, then this encourages producers to pass on more of the tax to consumers, which means that the private costs of the producer may not increase by as much as is required for the tax to internalise the externality.

Administration Costs

- It can be very costly in terms of time, resources and money to not only administer taxes on firms but also to monitor the behaviour of firms ex-post to ensure that taxation has in fact altered the incentives of firms.
- Introducing a less government-involved solution such as tradeable pollution permits might be a less costly solution to administer.

Alternative Forms of Government Intervention

The question is asking you to assess whether taxation is the ‘most effective’ form of government intervention towards tackling negative production externalities. Therefore, some alternatives should be discussed. This will enable you to talk about the relative advantages and disadvantages of these forms of intervention have over taxation. Here are some examples of alternative forms of government intervention:

Legislation

- The government could decide to limit or ban the production of polluting firms in the UK shale industry. This enables the government to prevent the overproduction of the good in the market and restore efficiency.
- This provides an alternative to taxation because by placing a production limit on the producer it reassures society that environmental damage will decrease by a precise amount.
- A direct ban on the production of a good is often only considered if the dead weight loss triangle that emerges is so large that actually internalising the externality is not feasible with the current information the government have.
- The downside with this form of intervention is it can sometimes be very difficult for the government to enforce this limit/ban effectively, as many firms may have the incentive to 'cheat' on this agreement. Even if the government has punishments in place to penalise producers defecting from the agreement, these fines may not be a large enough expense as a proportion of total costs to change the incentives of the defecting firm.

Increased Environmental Standards

- The government could pass a law relating to the environmental standards that the producer has to abide by. This is an alternative way of internalising the externality, as the firm itself is responsible for ensuring that they can meet the agreed environmental regulation. The idea is that any firms that do not currently meet the standards, need to invest in order to do so, which raises the marginal private cost.
- This can create wider economic benefits for society because the firm may have to invest in order to develop the production process so that environmental standards are met. Knowledge spill-over effects from one firm to another can help reduce environmental concerns in related energy markets.
- Difficult to universally apply environmental standards to all firms within the market and some emerging firms may not have the resources to invest, which could lead to a reduction in competition in the long-run.

Tradeable Pollution Permits

- If there is an agreed and tangible way of measuring the environmental damage that fracking brings to the ecosystem of local areas, then it may be possible to introduce and issue tradeable emission permits into the market as a market-based solution to the problem. It is essentially a market-based solution as the government holds the responsibility for initially issuing and distributing the permits and then firms trade those permits in order to ensure that each firm pollutes at the right level based on their production process.
- The permits provide firms with the rights to pollute up to a certain level, anything above that level and the firms need to buy more permits from other firms which do not require them. The process of buying permits increases the private costs of production for the firm.
- This provides a more equitable way of dealing with pollution as firms which have the most energy-efficient production processes are rewarded.

Subsidies

- The government may provide subsidies to firms, as a reward for keeping their pollution levels below a certain level.
- Despite this being an alternative strategy it is unlikely to be effective in the fracking industry as the environmental effects of fracking are often disputed and not easily measured, which means providing subsidies is not only a costly solution but one that is difficult to administer as well.

Compensation

- Firms that pollute could be required to pay compensation to local residents that are negatively affected by the production of UK shale gas and oil. The compensation payments will increase the private cost of production for firms and will incentivise firms to reduce production.

Of course, you are only expected to propose and introduce some of these alternative solutions to taxation and **not** all of these, as otherwise you will not have time to develop enough evaluation points within your essay.

AO4: Evaluation

Including accurate and relevant evaluation in your essay is the most important thing to ensure you achieve top marks. Evaluation is the art of making supported judgements, of deciding which factors are most important and of explaining

There a huge number of evaluative angles you could take within this essay. Here we will showcase some useful examples. You would not be expected to include all of these examples – there simply is not enough time!

Difficult to Quantify Externality Size

- It is often difficult for governments to be able to accurately quantify the size of the externality being created and therefore it is difficult to set the right level of tax on firms. This is particularly the case for the UK fracking industry as there are lots of different environmental pressures created, which makes it difficult for governments to accurately place of a value on the overall pressure that fracking puts on the environment.

Market Failure vs. Government Failure

- If the government intervenes in a market with very little accurate and reliable information at its disposal, it will make ill-advised and uninformed decisions and this may in fact make the dead weight loss triangle in the market bigger than it was before intervention took place. This results in government failure. All industries involve uncertainties regarding the value and true cost of externalities that are produced but the UK fracking industry is an industry where there is a lack of concrete evidence that has been established regarding environmental pressures, which means the scope for government failure is likely to be higher in this industry compared to alternative industries.

Market Conditions

- It is important to not generalise the theoretical result that one form of government intervention will prove more effective than another form of intervention in all markets. This is because each market is different and the complexity and uncertainty surrounding the market changes as you move from one to another. For instance, in the shale industry, taxation may not be as effective a policy as compared to the airline industry because the evidence regarding the environmental concerns from fracking is not as clear-cut as it is in the airline industry.

Unintended Consequences

- Some forms of government intervention could create unexpected side-effects which damage the efficiency and welfare of the market in the long-term. For instance, imposing stricter environmental standards on firms in the UK shale gas and oil industry may create job losses and ultimately lessen competition in the market, because it is not appropriate to universally apply environmental standards to all firms within the market. Some emerging firms may not have the resources to invest, which could lead to a lessening in competition in the long-run. This is a particularly important issue to consider in the UK fracking industry as it is an upcoming and developing industry where lots of new firms have recently taken up a position in the industry.

Equity Concerns?

- When deciding upon imposing a tax on firms that operate in the UK shale gas and oil industry, there may be concerns regarding whether the form of government intervention is in fact equitable or not. This is because it can often be difficult for the government to identify not only what firms are polluting but more importantly to what extent each firm is responsible for the environmental damage and pressures created.

Cost of Administration

- It is important to take into account the cost of planning, setting and policing forms of legislation in the market to correct negative externalities. This is because if the cost of administration exceeds the cost of pollution itself to society, then it is debatable whether in fact it is beneficial to intervene in a market that produces negative externalities.

Overall, it is important to provide in your essay, a reasoned judgement; an argument which makes a decision about whether taxation is the most effective form of government intervention towards correcting markets that fail as a result of the production of negative externalities. It doesn't matter which side of the argument you make the case for – you will be examined on how effectively you structure that argument and how well you support it with economic theory.

The concluding paragraph of your essay is often a very good place to make clear what your overall reasoned judgement of the question is. Some people also like to include a similar judgement in their introduction, to signpost clearly to the examiner that they will be making an evaluative judgement in their essay.

Here is a good example of an attempt to, in one paragraph, argue that taxation is the most effective form of government intervention:

“Overall, the case for using taxation as a way to rectify the market failure in industries exhibiting negative production externalities is persuasive. Whilst there are some concerns about how effectively a government can establish what the right level of the tax should be and how to effectively implement the intervention, in today’s modern society this concerns should be diminished. Governments are able to use a variety of techniques to ensure their estimates are good and their interventions will be successful. Moreover, done right, taxation can ensure a complete solution to this market failure by forcing the producers to fully internalise the externality.”

Alternatively, it would be just as valid to argue that an alternative form of government intervention should be considered when considering the UK fracking industry:

“On balance, indirect taxation should not be considered to be the best solution when trying to rectify negative production externalities. The uncertainty present in many industries means that any intervention by a government, at best an arms-length away from the production practicalities, is likely to misestimate and produce government failure. Far better to introduce a market-based solution like tradeable pollution permits, which incentivises firms to adapt and change their ways but provides flexibility for those who struggle initially.”

Essays are marked on a levels basis. The overall quality of your essay will be considered when deciding upon which level the answer is. There are up to 16 marks available for knowledge, application and analysis:

Level 1 [1 – 4 Marks] – Weak knowledge and understanding which included generic or irrelevant information.

Level 2 [5 – 8 Marks] – A narrow response which contains some knowledge and understanding but under-developed chains of reasoning.

Level 3 [9 – 12 Marks] – Accurate knowledge and understanding with clear analysis but the answer may lack balance.

Level 4 [13 – 16 Marks] – Precise knowledge and understanding with relevant and coherent analysis.

There are up to 9 marks available for evaluation:

Level 1 [1 – 3 Marks] – Generic evaluative comments without relevant evidence.

Level 2 [4 – 6 Marks] – Reasonable evaluation which may be sometimes unbalanced or not fully supported.

Level 3 [7 – 9 Marks] – Strong levels of well-supported evaluation.