1.4.1 GOVERNMENT INTERVENTION IN MARKETS

WHAT ARE WE LEARNING?

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1.4.1 Government intervention in markets	a) Purpose of intervention with reference to market failure and using diagrams in various contexts: o indirect taxation (ad valorem and specific) o subsidies o maximum and minimum prices
	b) Other methods of government intervention:
	o trade pollution permits
	 state provision of public goods
	o provision of information
	o regulation
	o regulation
	provision of information

- O INDIRECT TAXATION (AD VALOREM AND SPECIFIC)
- O SUBSIDIES
- O MAXIMUM AND MINIMUM PRICES

O INDIRECT TAXATION (AD VALOREM AND SPECIFIC)

- An indirect tax is a tax on EXPENDITURE (does not take into account the ability of the person to pay Keep this in the back of your mind)
- There are two main types of indirect taxes in the UK ad valorem and specific

Ad valorem - e.g. VAT.

- The amount of tax charged increases in proportion to the value of the price of the good. For example, in the UK 20% value of VAT if a good costs £100 to the consumer then it means the firm receives £83.33 and the govt £16.67.
- If a good costs £200 then the VAT is still 20% but this time the gov gets more tax £33.34 (20% of £200)
- Therefore the tax received by the gov increases as the price rises

Specific (sometimes called a unit tax) – e.g. excise duties – main ones in the UK include alcohol, tobacco and petrol

- The amount of tax received by the gov does NOT change with the price of the good BUT the quantity/volume bought of the good
- At present in the UK the excise duty on beer (ABV strength between 2.8% and 7.5%) is £0.19 a litre; £0.27 for a packet of 20 cigarettes and £0.5795 per litre of petrol https://www.gov.uk/government/publications/rates-and-allowances-excise-duty-tobacco-duty/excise-duty-tobacco-duty-rates
- Therefore the excise duty on a bottle of beer is the same if the bottle costs £2 or £10
- DO NOT GET CONFUSED WITH CUSTOMS DUTIES a tax charged on imports (UK post Brexit?!)

O INDIRECT TAXATION (AD VALOREM AND SPECIFIC)

up as follows.	O'N
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Petrol cost before tax Excise duty	Pence 57.0 58.0
VAT @20%	115.0 23.0
Price at the pumps	138.0

For each of the following changes, calculate the new price of petrol. For each change, assume that the price at the pumps is initially 138p.

- (a) An increase in the cost of crude oil pushed up the cost of petrol before tax from 57p to 62p.
- (b) The government increased excise duty from 58p to 62p.
- (c) VAT was reduced from 20 per cent to 15 per cent.
- (d) The government removed both excise duties and VAT on petrol and instead introduced a subsidy of 2p a litre.

This question is useful for revision of both this topic and from 1.2.9

and instead introduced a subsidy of 2n a lime

(d) The government removed to

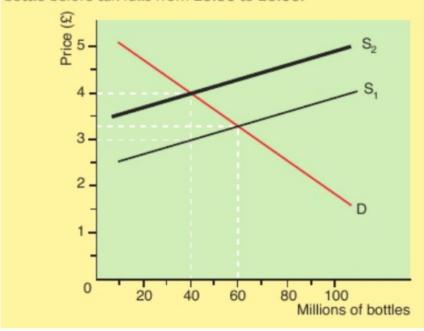
O INDIRECT TAXATION (AD VALOREM AND SPECIFIC)

Please have a look and think about this diagram

- The specific tax is essentially put on the producer
- Therefore costs increase (supply curve shifts to the left from \$1 to \$2
- REMEMBER the size of the tax is equal to the vertical distance between the supply curves
- The incidence of tax borne by the consumer is the difference between the two equilibrium prices – the remainder is what the producer would have wanted to pass on – BUT COULDN"T
- Therefore the amount of the tax they (the producer) can pass on to the consumer in the form of higher prices will depend on the PeD
- The more inelastic consumer demand is then the less responsive they will be to changes in price (they won't be happy with an increase in price, but they will essentially still buy it – look at notes on what makes demand price elastic or price inelastic

The incidence of a specific tax

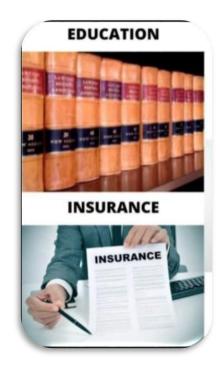
The imposition of an indirect tax of £1 per unit on wine will push up the supply curve from S_1 to S_2 . The vertical distance between the two supply curves at any given output is £1. As a consequence, equilibrium price will rise from £3.30 to £4.00. The consumer therefore pays an extra 70p per bottle of wine. The other 30p of the tax is paid by the producer because the price it receives per bottle before tax falls from £3.30 to £3.00.



What is meant by the term 'externality?'

A couple of valid definitions:

- The spillover effects on the third party from an economic activity undertaken by the first party
- When social costs and benefits differ from private costs and benefits
- Externalities can be either positive or negative





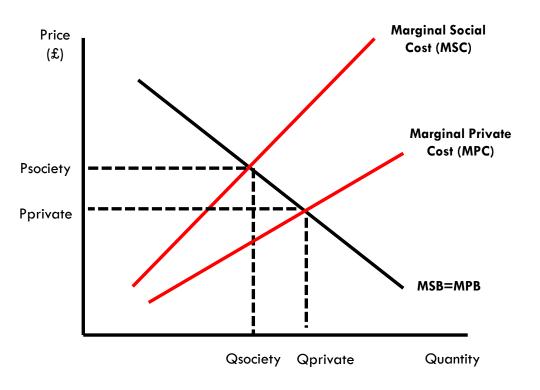




SCENARIO

Litter in the streets is always a problem. People drop finished cigarettes or beer bottles, or throw away the wrapping from their drips or hamburgers. What might be the best way to deal with this? Introducing laws or regulations banning littering, subject to a fine? Taxing cigarette and drink manufacturers and using the money to dean up the litter? Running information campaigns about litter? Accepting that it will always be a problem and getting local authorities and taxpayers to pay to dean up the streets?

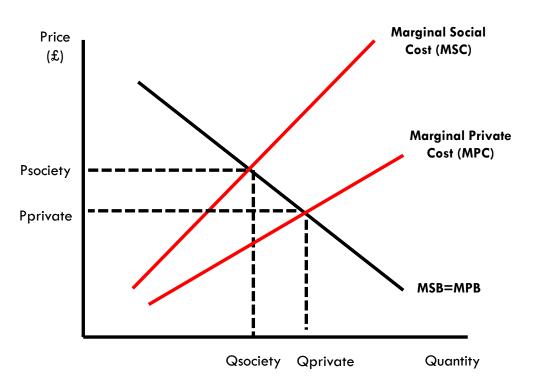
Market Failure – the external costs of production (negative externalities) – using marginal analysis



SCENARIO – factory pumping sewage into a river at zero cost

- Note that at the private equilibrium, the MSC>MPC
- This means that producing at this quantity results in a market failure
- As output rises, the MPC rises through the purchase of raw materials, fuel, wages etc, but the MSC rises at a faster rate because the dumping of the sewage is a cost to society but is not paid for by the factory owner
- Therefore the costs of production to society at the private equilibrium is higher than the private costs (i.e. the pollution to the river)
- Think back to our earlier notes society is the innocent 3rd party who has seen the adverse affect of the action of the factory owner (the 1st party) from the economic activity having played no part in the decision-making process
- Therefore, the market price Pprivate is lower than the true cost of Psocial and there is overproduction of the activity because the first party does NOT pay the full costs

Market Failure — the external costs of production (negative externalities) – using marginal analysis

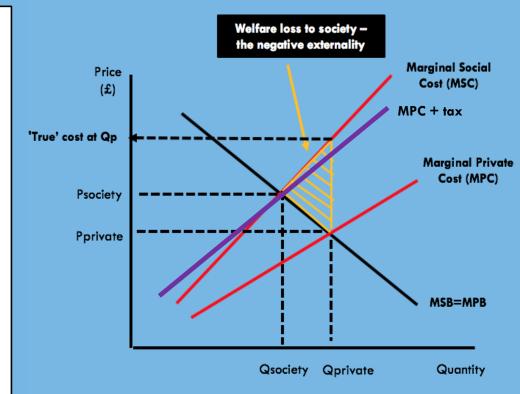


SCENARIO – factory pumping sewage into a river at zero cost

- We should think of this therefore a negative externality results in overproduction and consumption and lower prices being charged
- Therefore P<MC so we have allocative inefficiency
- If the factory owner had taken into account the impact on society of its decision to dump sewage into the river then we assume that it would choose not to do so.
- Therefore the level of output would fall to the social equilibrium (Qsocial) and the price would rise (to Psocial)
- At this point the market would not fail and we would be efficient as at this social equilibrium, MSC=MPB

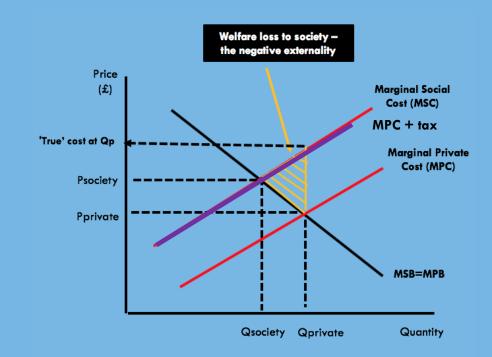
O INDIRECT TAXATION - AD VALOREM

- **IF** we assume that improving information gaps does not lead to changes in consumer behaviour then the gov needs to 'force' consumers into acting in a way that removes the externality (in this case a negative externality)
- In the examples we have covered we have spoken of the size of the negative externality (the adverse 3rd party spillover effect from the actions of the 1st party) rising as consumption increasing
- Therefore it makes sense to use an **ad valorem tax** (e.g. increase VAT) where the amount of the tax paid rises as the price rises
- By placing a tax on the product the marginal private costs of the consumer rises from MPC to MPC + tax
- ASSUMING THE VALUE OF THE TAX IS CORRECTLY SET AT THE EXACT VALUE OF THE NEGATIVE EXTERNALITY THEN CONSUMPTION/PRODUCTION FALLS TO THE SOCIAL EQUILIBRIUM AND THE EXTERNATLITY IS REMOVED
- How does this work? The idea is that although the first party still **only** take into account their own PC & PB, the tax has (conveniently) made them act in a way that results in them consuming in a way that means MPC=MSC at that point. Therefore, MPC=MSC=MPB at this point
- At this point equilibrium output falls to the social equilibrium (Qsociety) and the problems associated with the negative externality are removed



O INDIRECT TAXATION - SPECIFIC

- **IF** we assume that improving information gaps does not lead to changes in consumer behaviour then the gov needs to 'force' consumers into acting in a way that removes the externality (in this case a negative externality)
- In this example we are assuming that the difference between the MPC & the MSC does NOT
 rise when output rises therefore the two curves are parallel
- Therefore it makes sense to use a specific tax (e.g. increase an excise duty) where the amount
 of the tax paid per unit of output as the price increases
- By placing a tax on the product the marginal private costs of the consumer rises from MPC to MPC + tax
- ASSUMING THE VALUE OF THE TAX IS CORRECTLY SET AT THE EXACT VALUE OF THE NEGATIVE EXTERNALITY THEN CONSUMPTION/PRODUCTION FALLS TO THE SOCIAL EQUILIBRIUM AND THE EXTERNATLITY IS REMOVED
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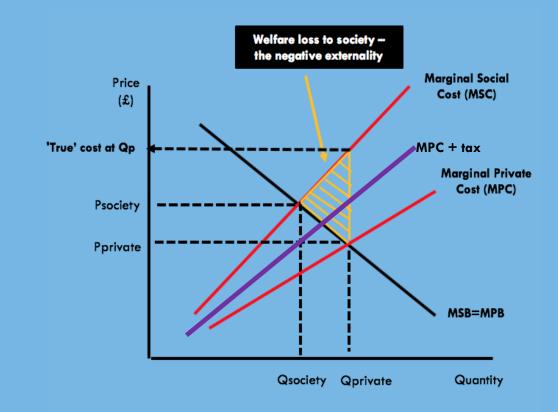
EVALUATION (1) OF INDIRECT TAXATION (AD VALOREM AND SPECIFIC) - ABSOLUTELY CRUCIAL FOR THE EXAM

"ASSUMING THE VALUE OF THE TAX IS CORRECTLY SET AT THE EXACT VALUE OF THE NEGATIVE EXTERNALITY THEN CONSUMPTION/PRODUCTION FALLS TO THE SOCIAL EQUILIBRIUM AND THE EXTERNATLITY IS REMOVED"

• How likely is this? In other words – how likely is a gov going to be able to identify the 'correct' size of tax to impose when there is some degree of subjectivity in terms of estimating the size and therefore value of the externality?

What if the gov underestimates the size of the externality?

- If the gov does this then the size of the tax imposed will be too small
- Therefore whilst MPC increases, it does not rise as much as it should
- Although output will fall and prices will rise they will do so by an insufficient amount
- As a result, there will be a fall in the negative externality but it will not be eliminated/removed



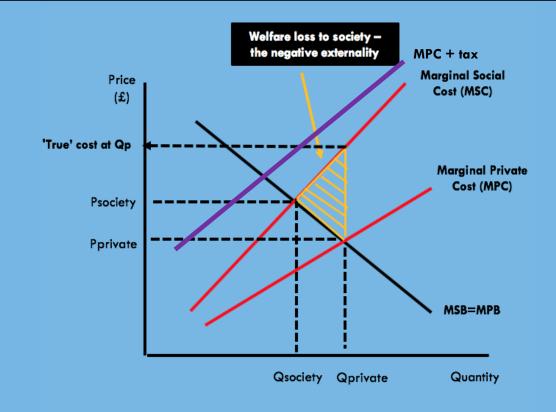
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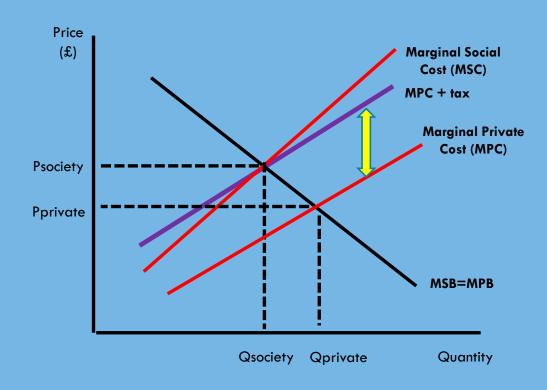
- If the gov does this then the size of the tax imposed will be too large
- Therefore whilst MPC increases, it rises more than it should
- Although output will fall and prices will rise they will do so by an excessive amount
- As a result, there will be a removal of the negative externality but it will create another problem (1.4.2 Government failure)

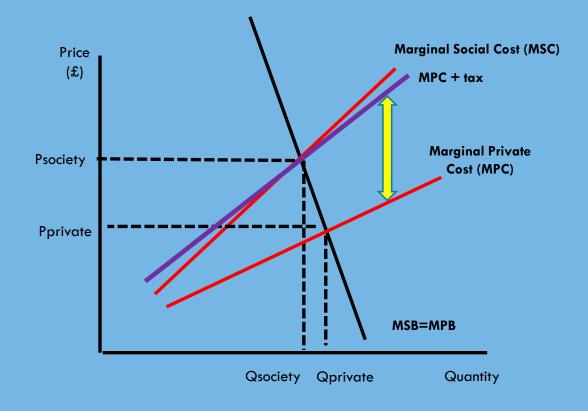


EVALUATION (2) OF INDIRECT TAXATION (AD VALOREM AND SPECIFIC) - ABSOLUTELY CRUCIAL FOR THE EXAM

"THE MORE INELASTIC IS DEMAND THEN THE GREATER THE SIZE OF THE TAX NEEDED TO REMOVE THE EXTERNALITY"

• If the demand curve for the activity is price inelastic then consumer demand is not very responsive to an increase in price – therefore in order to reduce consumption to the social equilibrium will need to be far greater than it is for consumption of a good that is responsive to changes in price (price elastic)





EVALUATION (3)



- The tax tends to be regressive therefore it hits those with the lowest incomes most as it does not take into the account the ability of the individual to pay
- Therefore can increase inequalities absolute poverty?
- In 1990s UK gov planned increases in VAT for gas & electricity (this rate is currently 5%) were abandoned due to public pressure (Gov said this was to help reduce greenhouse gas emissions)
- Might it result in illegal/hidden markets emerging?

EVALUATION (4)

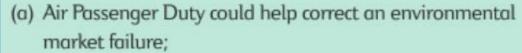


- Could the tax be inflationary? Cost-push inflation? (BUT DON'T START DRAWING AD/AS DIAGRAMS)
- Possible implications therefore for a loss of international competitiveness if the tax is not applied internationally? Would this result in increased unemployment
- Unless the tax is imposed internationally then will the externality/the 'problem' simply be moved overseas?

Air Passenger Duty, introduced in 1994 in the UK, is a specific tax on passengers flying out of the UK. It was introduced partly as an environmental measure: to discourage flying in order to reduce carbon emissions from aircraft. In 2015, the government reduced Air Passenger Duty on long-haul flights. Economy dass passengers would see their tax reduced from up to £97 to £71 whilst those flying premium dass would see a fall from up to £194 to £142. The government estimated the change could cost it up to £920 million over four years to 2019. While £985 million in tax would be lost through lower taxes, £65 million in tax would be gained because of increased ticket sales.

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Explain, using a diagram, how:



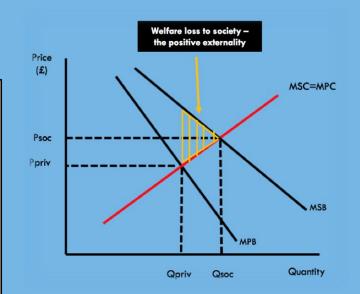
(b) the 2015 changes to Air Passenger Duty could increase market failure.



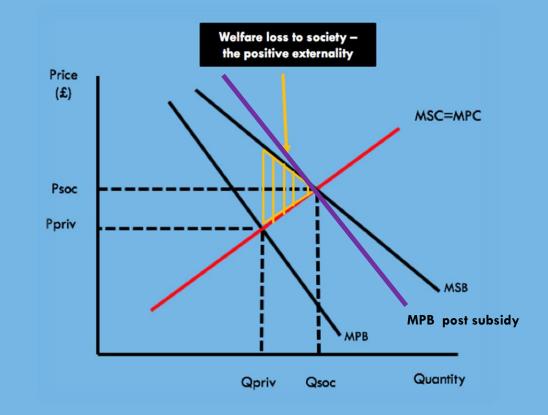
- O INDIRECT TAXATION (AD VALOREM AND SPECIFIC)
- SUBSIDIES
- O MAXIMUM AND MINIMUM PRICES

REVISION

- Note that at the private equilibrium, the MSB>MPB (therefore we are splitting the marginal benefit curve)
- This means that producing at this quantity results in a market failure insufficient gym work
- When we look at positive externalities we assume that the costs to the individual are the same as those to society therefore, MPC=MSC
- As output rises, the **MPC** increases through the purchase of gym membership, sports equipment etc (again, we assume that the **MSC** is identical)
- In terms of the individual the MPB is downwards sloping because each additional unit of exercise adds less to total benefit (not shown on the diagram) when compared to the previous)
- The argument here is that the MSB curve is further to the right than the MPB curve as the 1st party's decision to get fit means that they are less likely to suffer health problems and therefore leaves more hospital appointments in the future, less medication etc
- Think back to our earlier notes society 'loses' out because the first party chose only to take the amount of exercise to suit their own benefit and not the amount that would benefit society. NOTE again they (3rd party) did not take place in the decision-making process
- Therefore, the market price Pprivate is lower than the true cost of Psocial and there is under consumption of the activity because the first party does NOT take into account the benefits to society



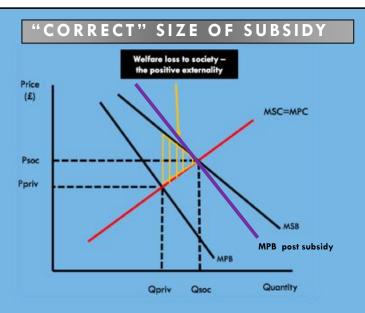
- O INDIRECT TAXATION (AD VALOREM AND SPECIFIC)
- SUBSIDIES
- O MAXIMUM AND MINIMUM PRICES
- Remember that the positive externalities in these cases (e.g. education) are those 3rd party benefits that are 'missed' out on due to the 1st party only considering their own private costs and benefits
- Therefore at the private equilibrium MSB>MPB and society loses out
- A subsidy could be used to subsidise the problems of a lack of information – if this was successfully implemented then the 1st party might consume more of the activity
- This would shift the MPB to the right from to MPB post subsidy
- This would mean that the first party is still focussed on their own private costs & benefits but so long as the subsidy awarded is the 'correct' size then the externality is removed and we move to the social equilibrium

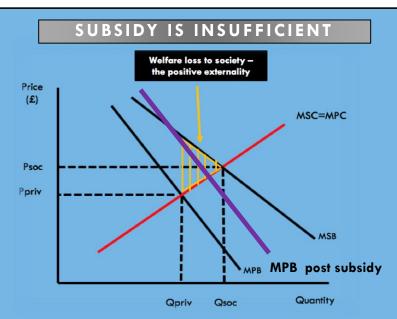


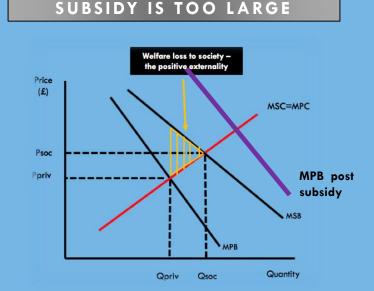
EVALUATION (1) of subsidies - Absolutely crucial for the EXAM

"Subsidies can be difficult to target" - the gov needs to make sure that they get the size of the subsidy 'right' and can target it at the 'right' people

- How likely is this? In other words how likely is a gov going to be able to identify the 'correct' size of subsidy to impose when there is some degree of subjectivity in terms of estimating the size and therefore value of the externality? Does the government have the correct information to make this decision
- Therefore if the subsidy is too small then we would see a reduction in the externality but it would not be eliminated; if it was too large then there would be too much of the good consumed and there would be a waste of government funds (opportunity cost argument here you should use this!)
- This can be shown below: look at the second diagram the subsidy is too small so although the externality is reduced it is still there so there is still market failure; on the last diagram the subsidy is too large so the MPB shifts too far and there is excessive consumption of the activity (ASK ME ABOUT THIS!)







EVALUATION (2) OF SUBSIDIES - ABSOLUTELY CRUCIAL FOR THE EXAM

"Subsidies may conflict with other Gov policies/objectives"

- The subsidy clearly will cost the government in terms of increased government expenditure if the government has a macro-objective of reducing the budget deficit then this may well be in conflict with this
- Would the subsidy ultimately mean an increase in taxes to pay for it? Again how would this 'fit' with a government objective of reducing levels of taxation?
- Don't forget that granting subsidies involves an opportunity cost the money spent on the subsidy is finance that could have been spent elsewhere

EVALUATION (3) OF SUBSIDIES - ABSOLUTELY CRUCIAL FOR THE EXAM

"Subsidies are politically difficult to remove"

• Those that receive the subsidy see an increase in their income - therefore removing it is controversial and can be politically unpopular (riots in India when food and fuel subsidies were removed) – DON'T go off on a political rant here!!

EVALUATION (4) of subsidies- absolutely crucial for the exam

"Potential for subsidies not being spent on the intended good/service"

• If a subsidy is given there is the risk of households not spending it on the intended good/service. Therefore, gov's may need to consider how it 'gives' the subsidy. Cash or Voucher?

SUBSIDIES

Please have a look and complete your answers here:

In 2014, the government announced that it was scrapping a subsidy scheme for large solar farms. Under the scheme, electricity was produced from solar panels deployed on a large scale at an individual site (nicknamed a 'solar farm'). The price of the electricity produced was then guaranteed into the future. The government said that the subsidy had been so popular that it would cost too much in future subsidies if the scheme were to be continued. In future, solar energy projects would have to compete with other sources of renewable energy, such as wind power, for subsidies under a different subsidy scheme.

Source: adapted from © the Financial Times 20.3.2014, All Rights Reserved.

- (a) Explain, using a diagram and solar energy as an example, how a subsidy increases output of a product.
- (b) Analyse, using a diagram, how the popularity of the subsidy scheme for solar energy, scrapped in 2014, could 'cost too much' for the government.

O MAXIMUM AND MINIMUM PRICES

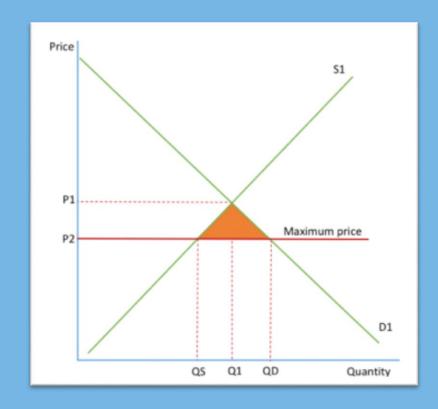
"For a maximum price to have an effect, it must be set below the current price equilibrium"

"For a minimum price to have an effect, it must be above the current price equilibrium."

O MAXIMUM PRICES

"For a maximum price to have an effect, it must be set below the current price equilibrium"

- A maximum price is a legally imposed price for a good that the suppliers cannot charge above
- They are set on goods associated with positive externalities. For example, they are set on food as a lack of food will have a negative impact on the NHS
- This approach has sometimes been applied to rents for accommodation when prices are too high
- They can prevent monopolies from exploiting customers
- The equilibrium position is P1Q1 but the imposition of the maximum price means there is excess demand of QD-QS, shown by the shaded area.

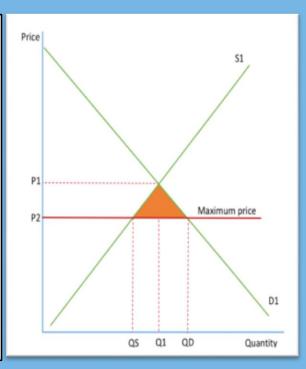


O MAXIMUM PRICES

EVALUATION (1) OF MAXIMUM PRICES - ABSOLUTELY CRUCIAL FOR THE EXAM

"Excess Demand is created as there will be a contraction in supply – it distorts the price signals" – works against Adam Smith's principal of the invisible hand

- Therefore even if the prices are reduced the problem of affordability might be replaced with the issue of shortages. Therefore does this actually increase societal welfare?
- Those who used to buy the good AND can still get it are better off as they have an increase in consumer surplus due to the fact that they pay a lower price (on the diagram this is the distance 0-Qs)
- But those who used to pay P1 for it but can no longer get it are now worse off (on the diagram this is the distance 0-Qs)
- Therefore will society as a whole better or worse off than before?



O MAXIMUM PRICES

EVALUATION (2) OF MAXIMUM PRICES - ABSOLUTELY CRUCIAL FOR THE EXAM

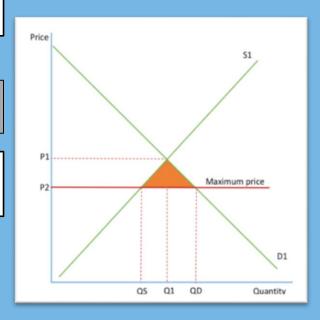
"Creation of illegal/hidden markets"

• Might producers who can no longer receive P1 be prepared to accept illegal payments from those frustrated consumers (distance Qs-Qd) who might be prepared to pay a price higher than P2 (illegally)?

EVALUATION (3) OF MAXIMUM PRICES - ABSOLUTELY CRUCIAL FOR THE EXAM

"Maximum prices will only have an impact if set below the free market equilibrium"

• If the price is set at (or above P1) then the maximum price has will have no impact.



O MINIMUM PRICES

"For a minimum price to have an effect, it must be above the current price equilibrium."

- A minimum price is a legally imposed price at which the price of the good cannot go below
- They can be set on goods associated with negative externalities, so that the price is raised to the social optimum point and consumption is discouraged (alcohol/tobacco)
- They also encourage producers to produce goods, so can be set on goods with social benefits that are underprovided by the market
- In the diagram, the market equilibrium price is P1Q1
- However, the minimum price is set at P2
- Quantity demand will now contract from Q1 to Qd; producers will now hope to produce more with quantity supplied will rise to
- As a result so there is excess supply of QS-QD, shown by the shaded area. BUT DUE TO THE LACK OF DEMAND THE PRICE DOES NOT FALL BACK TO P1 SO IN THEORY THIS FIXES THE PROBLEM BECAUSE THE 'FALSE' EQUILIBRIUM IS NOW AT P2/QD

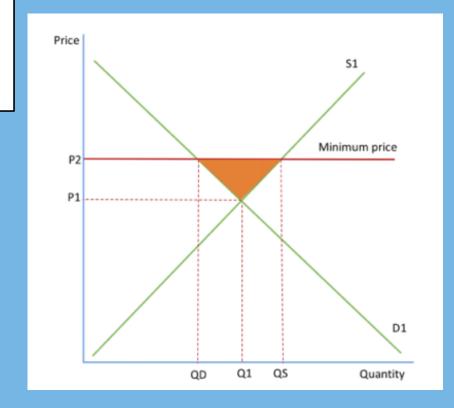


O MINIMUM PRICES

EVALUATION (1) OF MINIMUM PRICES - ABSOLUTELY CRUCIAL FOR THE EXAM

"For a minimum price to have an effect, it must be above the current price equilibrium."

- If the minimum price is set at the current equilibrium then it has no impact
- Likewise, if it was set BELOW the equilibrium price of P1 then again it would have no impact because there would be excess demand which would simply force the price back up to the equilibrium which would be above the minimum price



O MINIMUM PRICES

EVALUATION (2) OF MINIMUM PRICES - ABSOLUTELY CRUCIAL FOR THE EXAM

"What if the excess supply of Qd-Qs finds its way back into the market via illegal markets?"

- The theory assumes that the firm behaves legally and DOES NOT look at ways to sell the excess supply via illegal markets for a price P1
- Therefore for minimum prices to work, govt's must be able to prevent this from happening

