

2020 GCE A Levels H1 CSQ1: The role of government in resource allocation [aligned to 8843 Syllabus]

(a)	Using information in Extract 1, compare the government spending as a percentage of GDP in the UK to that in other countries. The government spending as a percentage of GDP in the UK is the third highest among the countries, behind France and Sweden. [1] The government spending as a percentage of GDP in the UK is always higher than that of Singapore from 2008 to 2016. [1] The government spending as a percentage of GDP in the UK generally decreased from 2008 to 2016 while Singapore's remained relatively constant. [1] The government spending as a percentage of GDP in the UK is higher than that of 7 countries in 2016. [1] 3 key comparisons – 3m	[3]
(b)	Using information from Extract 2A, identify and explain three two factors that have caused the demand for passenger transport in the UK to change. Passenger transport in the UK comprises railway, bus & car transport. According to Extract 2A, the demand for passenger transport (railway) in the UK has been increasing from 1997 - 2017, except 2008 - 2009. Any 2 factors: <u>Factor 1: Low level of economic activity (Financial Crisis)</u> Level of economic activity affects the demand for passenger transport for commuting between home and work. As seen in Extract 2A, the contraction of the UK economy due to the financial crisis would cause the derived demand for labour to decrease since production and output decreases, therefore the derived demand for passenger transport to commute between work and home decreases. OR In the case of a financial crisis, incomes are likely to fall. Purchasing power of consumers decrease, and assuming passenger transport to be a normal good, there will be a fall in demand. <u>Factor 2: Population Size</u> Increase in population size increases the number of users and hence increases the demand for passenger transport. <u>Factor 3: Government Policy of freezing fuel tax</u> While “train and bus fares have been going up”, fuel tax on motorists has been frozen. This means that travelling by train and bus is relatively more expensive than travelling	[64]

		by cars. This will lead to a fall in the quantity demanded for passenger transport by rail and bus while the demand for passenger transport by cars increases, ceteris paribus.	
(c)		Using supply and demand analysis, explain the conclusion reached in Extract 2B that ‘the usual market adjustment process simply does not work’ in the UK housing market. 1. Explain ‘usual market adjustment process’ applied to housing market Disequilibrium in the form of shortage (due to, for instance, a rise in DD for housing) → upward pressure on P → As $\uparrow P \rightarrow \uparrow Q_s$ as producers are signaled to produce & $\downarrow Q_d$ as higher price rations consumers who are unwilling and unable to pay the higher prices out of the market, until shortage is eliminated at new eqm where eqm P and Q are higher → the market, through price changes, adjusts to restore equilibrium 2. Explain why ‘usual market adjustment process simply does not work’ in the UK housing market However in the UK housing market, when disequilibrium in the form of shortage exerts an upward pressure on price → As $\uparrow P \rightarrow$ Producers and consumers expect further $\uparrow P$. Such expectations of future price increases result in the following 2 characteristics of the UK housing market: ● Fall in SS as a result of sellers’ expectation of future prices. This is because if homeowners are expecting the price of the houses to rise in the future, this would reduce the current supply of housing into the market as they would be likely to hold on to their houses to sell in future for higher profits. ● Increase in DD as a result of consumers’ expectation of future prices. This is because if consumers expect the price of houses to increase in future, they will increase their demand for new houses in the current period so as to avoid paying higher prices in future. Hence the $\uparrow P$, instead of eliminating the shortage and restoring the housing market to a new equilibrium, led to $\downarrow SS$ & $\uparrow DD$ causing the disequilibrium in the form of shortage to persist preventing the market to adjust to a new equilibrium. <i>[Optional – included for understanding]</i> Moreover, as seen in Extract 2B, Britain has strict planning laws that prevent the increase in quantity supplied as prices rise. Therefore, as prices increases, while producers of housing and existing house owners are signaled to sell their houses, quantity supplied is likely to remain unchanged in the short-term i.e., $PES = 0$. At the same time, government’s ‘help to buy’ scheme has also led to increase in demand for housing which exacerbates the shortage and hence the rise in price. This causes sharp increases in housing prices further reinforcing expectations of future higher prices and so accelerate the increase in DD and fall in SS as explained earlier, preventing the housing market from reaching equilibrium.	[65]
(d)		Given the relationship that exists between price elasticity of demand (PED) and total	

		revenue, explain and comment on the claim in Extract 2C that the rate of indirect tax on scotch whisky should be cut.	[86]
		1. Given the relationship that exists between PED & TR, explain why the rate of indirect tax on scotch whiskey should be cut [4] ▪ Identify & explain relationship between PED & TR for scotch whiskey The price elasticity of demand is the degree of responsiveness of quantity demanded with respect to change in price, ceteris paribus. Total revenue is the amount revenue earned from sale of product which is the product of price and quantity. The imposition of indirect tax will increase the price of scotch whisky. Indirect tax is the tax on scotch whisky and will increase the cost of supplying scotch whisky for the producers. This reduces profits per unit and hence supply of scotch whisky. The shortage will cause an upward pressure on prices. Whether total revenue rises or falls depends on the PED for scotch whiskey. PED is likely to be > 1 since the rise in price from the 3.9% increase in indirect tax caused quantity demanded to fall so much (Ext 2c) i.e., fall by more than proportionate. Hence the rise in price is likely to cause a fall in total revenue as the increase in revenue from the rise in price is more than offset by the fall in revenue due to the more than proportionate fall in quantity demanded → inverse relationship between P & TR ▪ Apply relationship bet PED & TR to impact of ▲ indirect tax on <u>tax</u> revenue ➤ Indirect tax revenue = Tax per unit $\times$ $Q_{d \text{ after tax}}$ ➤ $\uparrow$ indirect tax ($\rightarrow \uparrow P$) $\rightarrow$ MTP $\downarrow Q_d \rightarrow \downarrow$ <u>tax</u> revenue (Ext. 2C: “government tax revenue actually fell”) as $\uparrow$ <u>tax</u> revenue from $\uparrow$ indirect tax $<$ $\downarrow$ <u>tax</u> revenue from MTP $\downarrow Q_d$ ➤ On the other hand, $\downarrow$ indirect tax ($\rightarrow \downarrow P$) $\rightarrow$ MTP $\uparrow Q_d \rightarrow \uparrow$ tax revenue (Ext. 2C: 2% cut in tax resulted in a 4% rise in revenues for government) ➤ In addition, producer post-tax revenue will also increase as $\downarrow P$ from the cut in tax $\rightarrow$ MTP $\uparrow Q_d \rightarrow \downarrow$ revenue from $\downarrow P <$ $\uparrow$ revenue from MTP $\uparrow Q_d$ ▪ Link back to Qn: Hence, indirect tax on whiskey should be $\downarrow$ because ➤ [Must write] It raises producer post-tax revenue $\rightarrow$ improves welfare of scotch whiskey producers. Scotch Whisky Association is requesting a cut to protect producer interest as the association represents whiskey producer interest. ➤ [Must write] It raises government tax revenue $\rightarrow$ greater budget to finance G for development and to provide subsidies for bus & rail (Ext 2A) and housing (Ext 2B) especially since UK’s G spending is $> 40\%$ of GDP – one the largest (Table 1 & 2) $\rightarrow$ boost AG & PG $\rightarrow \uparrow$ current & future SOL ➤ [Option 1] MTP $\uparrow Q_d \rightarrow$ Greater production by whiskey producers $\rightarrow \uparrow D$ for labour (derived DD) $\rightarrow$ create jobs and employment (Ext 2C: “... industry supports 40 000 jobs”) ➤ [Option 2] $\downarrow P \rightarrow \uparrow$ export competitiveness $\rightarrow \uparrow X$ since $PED > 1 \rightarrow$ Significantly boost AD and AG (Ext 2C: “... accounts for more than £4 billion in exports”) $\rightarrow \uparrow$ SOL 2. Comment $\rightarrow$ Present a different perspective [2] ▪ Other objective of indirect tax:	

	➤ However, other than earning tax revenue, indirect taxes are also imposed on scotch whiskey (or alcohol in general) by the government to “deal with market failures” (Ext 3) arising from negative externalities in alcohol consumption ➤ Drink-driving may result in accidents → inflict costs on 3rd parties in the form of medical/repair expenses for which they are uncompensated. Since alcohol consumers do not take into account these 3rd party costs, private costs < social costs → overconsumption of alcohol → welfare loss to society ➤ To reduce consumption to that which is socially optimal, indirect tax should ideally equate MEC at socially optimal level of consumption. Hence, assuming that indirect tax is at the ideal amount and the MEC remains unchanged, indirect taxes should <u>not</u> be cut. Other possible comment Questioning PED > 1 and ceteris paribus assumption: Given addictive nature of whiskey, PED could be < 1 as a rise in price leads to a less than proportionate fall in quantity demanded, so a tax increase causing a rise in P should lead to rise in TR, c.p. The fall in tax revenue when there was an increase in tax could be due to a fall in DD as a result of non-price factors (such as campaigns educating the public about the harmful effects of alcohol consumption) resulting in a fall in both P & Q, and not so much because the rise in price from the tax led to a more than proportionate fall in Qd. Hence, to increase tax revenue the government should <u>not</u> cut taxes. <table><tr><th>Levels</th><th>Descriptors</th><th>Marks</th></tr><tr><td>L2</td><td>L1 + a well explained analytical application of the relationship between PED & TR on why tax cuts should be implemented in the context of scotch whiskey. Makes reference to case material.</td><td>3 -4</td></tr><tr><td>L1</td><td>Identifies and explains relationship between PED & TR in the context of scotch whiskey</td><td>1-2</td></tr><tr><td>Ev</td><td>A criterion-based comment that casts reasonable doubt on the claim that indirect taxes on scotch whiskey should be cut.</td><td>1-2</td></tr></table>	Levels	Descriptors	Marks	L2	L1 + a well explained analytical application of the relationship between PED & TR on why tax cuts should be implemented in the context of scotch whiskey. Makes reference to case material.	3 -4	L1	Identifies and explains relationship between PED & TR in the context of scotch whiskey	1-2	Ev	A criterion-based comment that casts reasonable doubt on the claim that indirect taxes on scotch whiskey should be cut.	1-2	
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(d)	The UK government regards ‘sustainable transport’ such as bus travel and rail travel as generating positive externalities.													
(i)	Taking bus travel or rail travel as an example, explain how carefully what is meant by ‘positive externality’ results in inefficiency in resource allocation. Positive externality refers to the beneficial effect on 3rd parties due to the consumption of the bus travel that are not compensated for.	[24]												

	Since car and bus travel are substitutes as reflected by Extract 2 where freezing fuel tax raises car journeys relative to sustainable transport, we assume that demand for car travel falls if bus travel is preferred, thus there will be lower consumption of car trips. This reduces traffic congestion with fewer car journeys which reduces travelling time and enhances the productivity of road users and pedestrians, thus contributing to higher profits [monetised costs] for their employers [third parties], without compensation. Because of the existence of such positive externalities, there will be a divergence between the benefit curves where $MSB > MPB$ as reflected in Figure 1. As consumers aim to only maximise their own satisfaction, they will consume where $MPB = MPC @ Q_p$. The socially optimal output Q_s where $MSB = MSC$ exceeds the private output where $MPB = MPC$ hence causing an under consumption of sustainable transport of $Q_p Q_s$ and under allocation of resources. This causes deadweight loss of the area ABC and the market fails to allocate resources efficiently. Fig 1									
(ii)	Discuss the view that a government decision to subsidise bus travel and rail travel is the best policy to improve resource allocation when positive externalities exist.	[108]								
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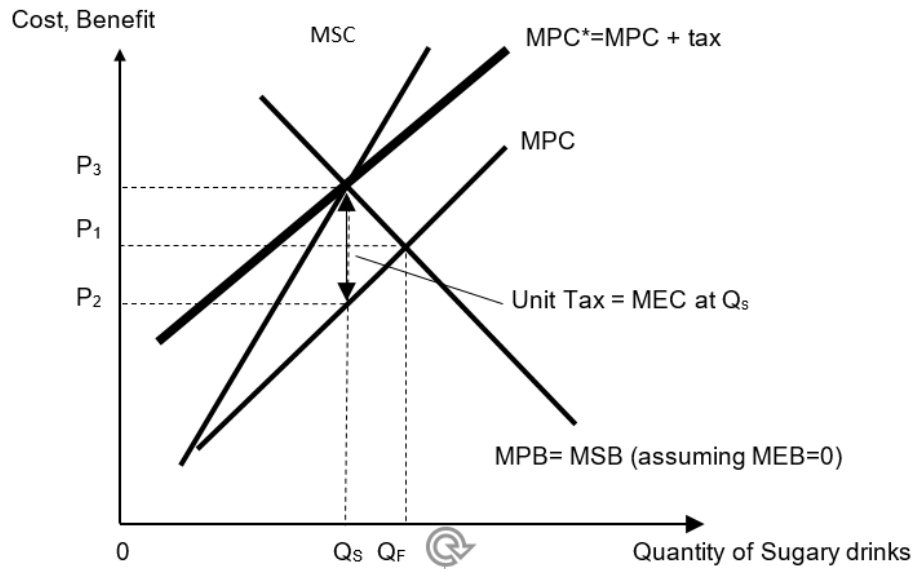
			<i>Requirement 1: How public transport subsidies address resource allocation when positive externalities exist</i> <i>Evaluation 1: Limitations of public transport subsidies</i> Conclusion: Stand, Substantiation, Something Special (optional)	<i>Requirement 2: How policy #2 addresses resource allocation when positive externalities exist</i> <i>Evaluation 2: Limitations of Policy #2</i>		
		Introduction The existence of positive externalities will cause market failure due to an inefficient resource allocation. To increase society's welfare the government implements policies to improve resource allocation. Requirement 1: Policy 1 - subsidy to bus and rail travel [What it is/How it works] With subsidy per unit to bus and rail travel equating to MEB at socially optimal output, the cost of supplying the bus and rail travel will be reduced and potential profit per unit increases. Supply of bus and rail travel increases and price decreases, causing MPC to be lowered. With reference to Fig 1 in dii, if ideal amount of subsidy is imposed, the private output will now occur where MPB equals to new MPC', coinciding with socially optimal output Qs and market failure is addressed. This will eliminate deadweight loss and allow economic efficiency to be attained. Furthermore, the switch to bus and rail travel would mean that demand for car trips will fall which reduces congestion. Subsidies are market-based policies that can be easily implemented to bring about socially ideal level of resource allocation without excessive government monitoring. In addition, subsidies will lower the price of bus and rail travel which reduces inequity as access to such essential means of transport now becomes more affordable, especially for lower income consumers. Evaluation: Limitations of subsidy [Criterion]: Constraint – The success of subsidy is dependent on the government budget. [Reasoning] The government would need to have sufficient budget to ensure that it is able to provide subsidies to bus and rail services.				Overview Context A1/A2 – Relevant point that addresses the question CD1: Relevant benefit-cost model for analysis CD2: Cause and effect analysis on how policy addresses resources allocation when positive externalities exist CD4/5 – Correctly drawn and referenced to diagram EV1/2: Elaboration of relevant

		Evaluation: Limitation of improving sustainable transport system Efforts to enhance the quality of sustainable transport is costly and requires time. Outcome is also uncertain as it depends on consumers' preference and receptivity. If after all the enhancements and public education, consumers still perceive bus and rail travel to be "inferior", consumers, especially higher-income ones, may not switch to sustainable transport and car ownership and usage will still be persistently high. Other possible policy: Legislation that limit car ownership While subsidy to bus and rail travel may work to improve resource allocation, the demand for bus and rail travel may be relatively price inelastic because it takes up a low proportion of income, hence a larger subsidy per unit may be needed to address the under allocation of resources sufficiently. There is a need to implement legislation to limit car ownership such as requiring car owners to purchase a certificate of entitlement for their ownership so that it can directly restrict the car ownership. <i>By raising the cost of motor vehicle ownership, people will be discouraged from buying their own vehicles and rely more on public transport.</i> With enforcement and penalty imposed, this will force users to switch to use of bus and rail travel, and consumers may find greater satisfaction derived from consuming bus and rail travel. Assuming the policy works well, consumers will now consume where new MPB equals to MPC, which coincides with the socially optimal level of output, eliminating the deadweight loss. Limitation of legislation: The implementation of certificate of entitlement that limits car ownership are blunt instruments that target all vehicle owners. Vehicle owners who drive during off-peak hours and on quieter, less busy roads do not contribute to the congestion and still pay the same motoring taxes as motorists travelling on heavily congested roads. Denying the former the use of their vehicles is inefficient as such taxes only reduce the welfare of this group of people but does little to correct the congestion problem. Conclusion: Overall judgment whether government subsidy to bus and rail travel is the best policy to improve resource allocation when positive externalities exist.	EV1/2: Elaboration of relevant evaluation point EV1/EV2 – Relevant evaluative point elaborated and
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		[Criterion – Root cause of the problem] The use of government subsidy to improve resource allocation may have some benefits in the short term. However, it may be limited because of the mindset of UK consumers about sustainable transport and preference towards car usage. [Reasoning, Opinion] In the case of private transport, many of the consumers are likely to be higher-income consumers who are not too concerned about costs of travel especially since fuel tax has been frozen, encouraging more car journeys and traffic congestion (Ext 2A). Hence, to encourage the consumption of sustainable travel and reduce car usage and ownership, subsidies on sustainable transport alone is unlikely to be sufficient. It is likely that subsidy is not the best policy to improve resource allocation. Instead, the limited government funds could be put to better use by financing enhancements to sustainable transport to encourage the switching to the sustainable transport system and also improving its reliability.			supported by root cause and context of high-income EV3 – Clear stand EV4 – Relevant use of context to play up the criterion of root cause/context EV5 – Recommendation of policy in view of root cause and context												
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(f)		‘Government interference with the freely operating market mechanism, whether for reasons of efficiency or equity, inevitably creates more problems than it solves.’ Discuss the extent to which this is a valid assertion.			[10]												
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	Intro: Efficient allocation of resources or allocative efficiency arises when resources are allocated in a way which enables society's welfare to be maximized. While free market forces could help achieve allocative efficiency, the presence of market failure such as the presence of externalities and imperfect information will cause market to fail. Thus, government intervention is needed for efficiency and equity. But in some cases, it can create more problem than good.	Overview Context																												

Requirement 1: Government intervention create MORE problem than it solves.



Explain why tax inefficient using tool of analysis – market failure diagram

How the tax works

- The free market of sugary drink originally consumes/produces at Q_f . A tax equal to the marginal external cost at Q_s (P_2P_3 per unit) is imposed by the government. There is internalisation of the externality, i.e. a tax makes the private firm/consumer take into account the negative externality in their decision making.
- This causes the firm/consumer's new MPC to shift up to MPC^* . As a result, the consumer produce consumes until its new $MPC = MPC^* = MPB$, i.e. at Q_s . The allocative efficient output level Q_s is achieved and the deadweight loss is eliminated. There is also a change in prices in the market. The equilibrium price was initially at P_1 but the new price is P_3 . The increase in price would reduce the quantity demanded, reducing the equilibrium quantity towards Q_s .

OR

- A decrease in the quantity / output of sugary drinks being produced may lead to a fall in demand for production. This could lead to a fall in the derived demand for factors of production such as labour. As such, this could lead to a fall in demand-deficient unemployment, and as workers lose their income; they experience a fall in purchasing power and their material SOL will worsen.

Explain how the tax result in larger deadweight loss than before

- Government often fails because of the inability to measure the MEC accurately leading to possibility of overtaxation where the $MPC + tax$

A1/A2 – Relevant point that addresses the question

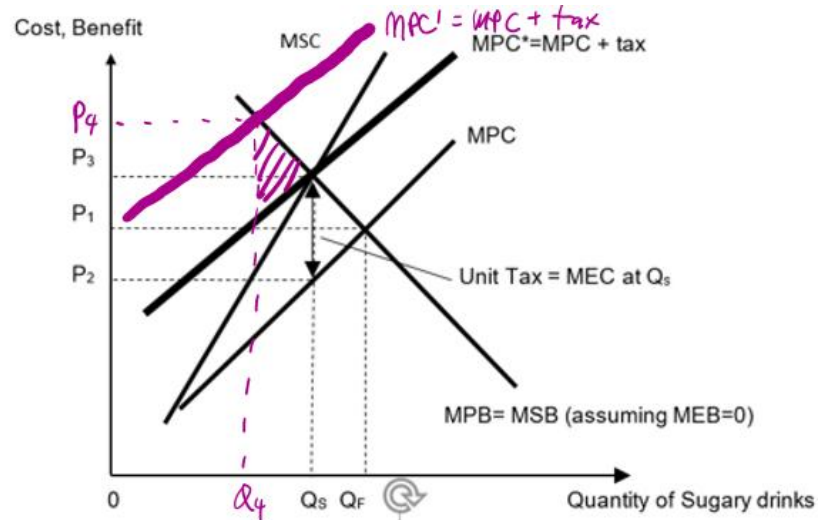
CD1: Relevant benefit-cost model for analysis

C1: Use of relevant example

CD2: Cause and effect analysis on how government interference worsens inefficiency

CD4/5 – Correctly drawn and referenced to diagram

will now be higher than MSC. The new market output will be lower than socially optimal output Q_s . Though the welfare loss arising from the market failure has been eliminated, a new welfare loss is created due to the underconsumption stemming from government policy failure.

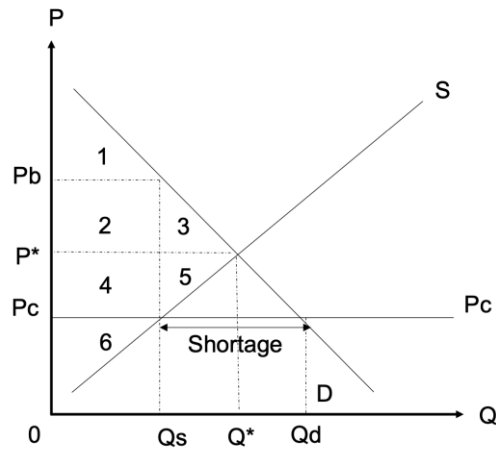


Evaluation: Government intervention create LESS problem than it solves.

- However, the government can easily adjust the tax such that tax that accurately reflects the Marginal External Cost (MEC), this shifts MPC up to MPC' , which will deter consumption from Q_f to Q_s . Furthermore, taxes increase government revenue which is a source of funds which can be used to fund education campaigns to close up the information gap on sugary drink. The overconsumption of sugary drinks could be due to the lack of information of the harm that it will cause. The new private equilibrium quantity Q_s which occurs where $MPC' = MPB$ is now the social equilibrium quantity Q_s , hence allocative efficiency is still achieved.

EV1/2: Elaboration of relevant evaluation point

Requirement 2: Government intervention may create MORE problems than it solves.



A government may choose to implement a price ceiling / maximum price, below the initial equilibrium price in order for the goods and services such as poultry to become more affordable. The government could be concerned with creating more equitable outcomes in the market by ensuring that the price of a good is kept at a level affordable to the majority, in order to protect consumers' interest.

A price ceiling P_c is imposed. This will result in a fall in quantity from Q^* to Q_s and a fall in price from P^* to P_c . The initial Total Expenditure (TE) is $P^* \times Q^*$. After the imposition of the price ceiling, it has fallen to $P_c \times Q_s$. This fall in Total Expenditure has benefited the consumers, since their overall spending on the good has decreased.

However, the price ceiling results in an increase in quantity demanded from Q^* to Q_d and a fall in quantity supplied from Q^* to Q_s . As a result, now Q_d is greater than Q_s , this then results in a shortage in the market. The shortage may cause a black market to surface. If there is a black market, sellers will illegally sell the goods at P_b , which is higher than the initial equilibrium price P_0 ; which suggests that equity worsens.

Evaluation: Government intervention create LESS problem than it solves.

With greater enforcement of the price ceiling and monitoring costs involved, the government may be able to ensure that there is no black market, and the

A1/A2 – Relevant point that addresses the question

CD1: Relevant DDSS model for analysis

C1: Use of relevant example

CD2: Cause and effect analysis on how government interference can worsen inequity

CD4/5 – Correctly drawn and referenced to diagram

EV1/2: Elaboration of relevant evaluation point

		price that the market enjoys would be at P_c, lower than the initial equilibrium price which allows for more equity. When the price ceiling is used temporarily as a stopgap measure; and concurrently with other policies to raise the supply of the good – this policy may create less problems as the effects of the shortage would be temporary. <u>Requirement 3 (optional): Government intervention create MORE problem than it solves.</u> How the subsidy works • In markets for positive externalities • Free provision of healthcare • Subsidise healthcare fully such that MPC lowers drastically such that $MPC = 0$. The new output consumed, Q^* will be $MPB = MPC = 0$ • Ideally if the MEB is large enough, then new output consumed will coincide with Q_s, allowing the welfare loss to be eliminated. Explain how the free provision result in larger deadweight loss than before • Government could overestimate the size of the MEB, leading to free provision as a decision. • The new output consumed would then be more than Q_s, indicating overconsumption and deadweight loss → wastage of resources • The market failure deadweight loss is eliminated but a new deadweight loss due to government policy failure • The deadweight loss due to free provision > deadweight loss due to market failure Evaluation: Government intervention create LESS problem than it solves. • If the deadweight loss arising from free provision < deadweight loss from market failure → create less problem than it solves • Full subsidy/free provision → MPC falls → such that $P = 0$ • At higher prices, lower income households tend to be priced out in the market, resulting in lack of access to healthcare, causing this group of consumers to experience a welfare loss • At $P = 0$, the lower income households are now able to gain access to healthcare, allowing equitable access to healthcare	
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		<u>Evaluative Conclusion:</u> Stand + Justification using STRAWS: To a large extent, whether government create more problems than it solves depends on the government’s ability to collect accurate data and information to guide policies decision. Furthermore, the government may create inefficiencies when they intervene in these markets due to additional factors such as administrative costs and bureaucratic red tape, and the rise of unintended consequences. But given accurate data collection, government intervention may not always bring about a better outcome to society occurs only to a small extent. Recommendation: Hence, in order to provide effective solutions, government must improve on their information collection systems, so that the information gathered can guide decisions that could result in less problems than it solves. Note the following answers can also be acceptable. Tax and inequity • If the tax is applied on pollution, such as the carbon tax → price adjustment process → Increase in equilibrium price and fall in equilibrium quantity • The increase in the price because of the tax would result in inequitable outcome as the lower income households will be disproportionately burdened relative to the higher income households. The lower income households will be priced out in the markets, especially in the markets for essential goods and services, resulting in inequitable allocation of resources. Freezing fuel tax and equity • Increase in usage of private cars → increase congestion → negative externalities and DWL → inefficiency in resource allocation • EV- freezing fuel tax → decrease in unit COP → increase SRAS → lower GPL and increase real GDP → increase unemployment. The lower GPL will also increase export competitiveness of the domestic goods	EV1/EV2 – Relevant evaluative point elaborated and supported by constraints/root cause faced by the government EV3 – Clear stand EV4 – Relevant use of context to play up the criterion of root cause/constraint EV5 – Recommendation of policy in view of root cause/constraint			
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