

ECONOMICS

Higher 2

Syllabus 9570

Examiner's Report

Year 6 Common Test 2023



ECONOMICS

Y6 H2 Common Test 2023

Paper 9570/02
Paper 2

Question 1

While some countries such as Malaysia provide subsidies on electricity, other countries like Singapore allow the free market to determine its price. In 2022, the price of electricity in Singapore surged from \$0.18/kWh to \$0.32/kWh, partly due to a rise in the price of imported natural gas.

- (a) Explain the possible reasons for the surge in price of electricity in Singapore. [10]
- (b) Discuss whether providing subsidies for electricity is the best way for Singapore to improve outcomes for society. [15]

Part (a)

Introduction:

- As stated in preamble, electricity prices are determined by the free market → free forces of demand and supply.
- “Surge” means significant extent of rise in price:
 - likely due to both rise in demand and fall in supply;
 - coupled
 - with price-inelastic demand for a change in supply; and
 - price-inelastic supply for a change in demand

Body: Explain 3 reasons (1 DD, 1 SS and PED or PES) for the sharp rise in price of electricity

A. Demand Factor

Possible Factors:

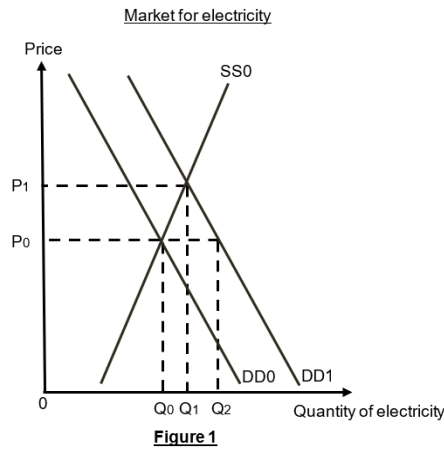
- Economic recovery as borders open and economic activities resume
- Covid measures and work-from-home/or easing of Covid measures leading to more people going outdoors for entertainment and recreation – thus higher demand for electricity.

Elaboration: Economic recovery (rise in income) together with easing of Covid measures:

- Rise in demand for manufactured goods as well as services/recreation/entertainment as safe distancing measures cease and incomes start to rise (apply YED concept – these goods are normal goods → $YED > 0$) – rise in demand for electricity as electricity is a factor input (derived demand).

Economic Analysis:

As shown in Figure 1, with the rise in demand, the demand curve shifts from DDo to DD1. This causes a shortage of Q0Q2. With this shortage, consumers bid up prices to compete for these goods. As prices rise, some consumers leave the market as they can no longer afford it and there is a fall in quantity demanded from Q2 to Q1. A higher price entices firms to increase the quantity supplied from Q0 to Q1 due to greater profitability. The final equilibrium price rises to P1 and quantity rises to Q1.

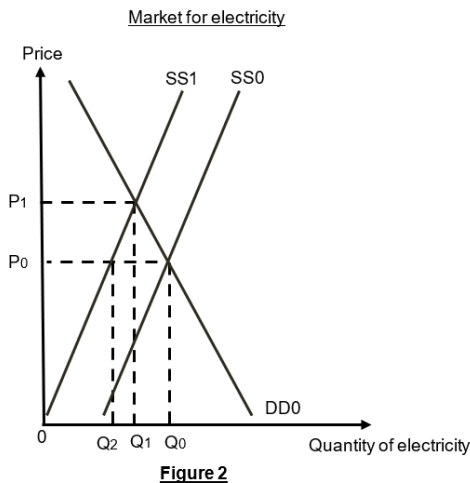


Applying PES: Supply of electricity is price-inelastic as it takes time for Singapore to increase quantity supplied since the input – natural gas has to be imported. Time is needed to sign new contracts or find more foreign producers. As a result of producers not being able to respond to price changes, it will require a significant increase in price to clear the shortage → surge in prices.

B. Supply Factor

- From preamble, there is a rise in price of imported natural gas that is an input for generating electricity. This makes up the bulk of the cost of producing electricity. The cost of production rises significantly since Singapore is reliant on imported natural gas and is a price-taker.

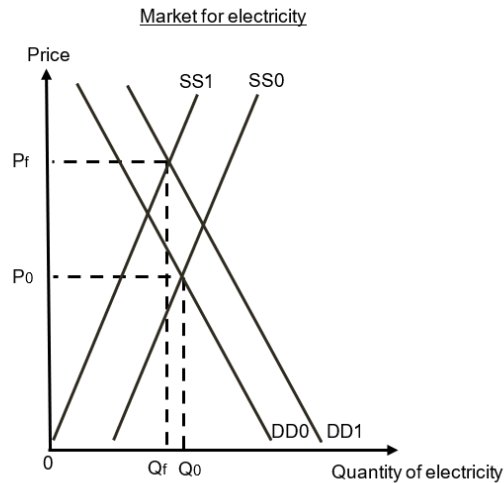
Economic Analysis:



As shown in Figure 2, with a rise in production cost, firms are less willing and able to supply electricity at the prevailing price P_0 . As a result, the supply of electricity falls. The supply curve shifts from SS_0 to SS_1 . With the resultant shortage, prices are bidded up (as with earlier analysis).

Applying PED: Demand for electricity is price-inelastic as there are lack of close substitutes → it is used in daily lives to power electrical appliances and thus essential for businesses and households. As a result of consumers not being responsive to price changes, it will require a significant increase in price to clear the shortage when SS falls → surge in prices.

C. Combined Effect



As shown in Figure 3, both the rise in demand and fall in supply lead to a net shortage and the final equilibrium price rises from P_0 to P_f . Furthermore, given price-inelastic demand and supply, the price rose significantly for the shortage to be corrected, accounting for the surge in price of electricity.

Mark scheme:

Knowledge, Application, Understanding, Analysis		
L1	- A descriptive response - Glaring conceptual errors - No theoretical framework/no link to DD-SS framework - Confused between DD and SS factors	1 – 4
L2	- Evidence of use of DD-SS framework but with some gaps/flaws in analysis - Analysis lacks relevant details - Underdeveloped explanation of DD and SS factors - Application to the context of electricity is weak - DD and SS curves shift w/o any appln of PED or PES - did not apply to preamble of rise in price of natural gas - no adjustment process - If answer uses firm analysis and couches response in terms of monopolistic pricing	5 - 7
L3	- good analysis of both DD and SS factors (including PED or PES) - well applied to the context of electricity - applied PED or PES	8 - 10

Examiners' comments:

This question part requires students to use a demand-supply framework to analyse why prices rose significantly in the year 2022. Students need to explain one demand factor and one supply factor to explain the surge in prices, and then apply PED and PES to account for the huge extent of rise in price.

This question was mostly adequately attempted with good use of a demand-supply framework. But the quality of the responses varied significantly across scripts. In many cases, answers failed to recognise that in the context of Singapore, natural gas is an input used to generate electricity. Some answers instead erroneously stated that natural gas is a substitute to electricity. Moreover, links to changes to demand were not always well-explained – with some answers stating that the cause of demand rise was a rise in population without any justification as to why there can be a population rise in one specific year 2002. Responses that linked demand factors to Covid measures or easing of Covid measures tend to be more convincing in their discussion.

*A glaring problem that surfaced **once again** was the failure to apply price elasticities of demand and supply to the question. As a result, the rigour in analysis was compromised. We have been through this. As a rule of thumb, elasticities are usually useful in a discussion of change in price for a high mark question – more so when the cue word ‘surge’ means a large extent of change in price.*

There were some answers that combined a DD-SS framework with a firm (MR-MC analysis) – pointing to market power as one of the reasons for the surge in price. However, market power explains price-setting ability, which does not really explain why prices rose, unless there was a rise in market power. Moreover, even a price-setter will face changes in exogenous factors that affect its demand and cost conditions. Generally, a simplification in the form of demand-supply framework is used in markets for oil, airlines and electricity when the context is about market conditions affecting equilibrium price and quantity.

Some other areas for improvement:

- *Weak explanation of adjustment process.*
- *Stating price-inelastic demand or supply without a clear or convincing reason. Merely stating no close substitutes is not a sufficient justification for PED. Students should instead elaborate clearly on the use of electricity to households and firms to highlight its importance.*
- *Many times, PED was mentioned without a clear link to a change in the supply. PES was also not well-applied to a change in demand.*
- *Demand factors tend to be too generic such as people getting wealthier, population increases or increased use of electronic gadgets without a convincing link to a specific year 2022.*

Part (b)

Introduction:

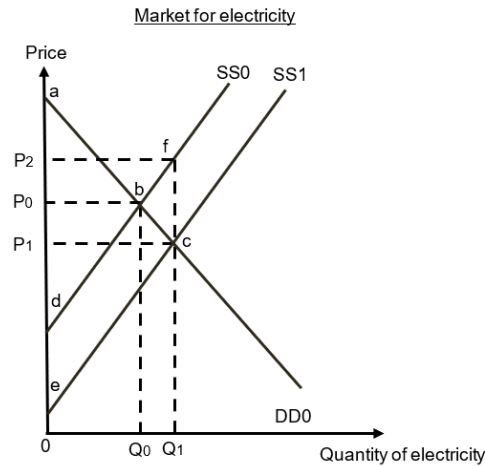
- Outcomes for society can be analysed in terms of effects on consumer and producer welfare as well as deadweight/welfare loss.
- From the preamble: price of electricity has risen significantly. This reduces affordability especially for the lower-income households and raises the production costs of firms – which may lead to rise in prices of goods and services and cost-push inflation.

Body: Discuss 2 policies and how it leads to improved outcomes

A. Subsidies (as stated in the preamble)

Thesis: Explain how a subsidy works → improved outcomes

- Unless otherwise stated, a subsidy on a good is assumed to be an indirect subsidy which is given to producers. This acts like a fall in their cost of production. At the prevailing price, firms are willing to produce more. As seen in Figure 4, this increases the supply of electricity, and the supply curve shifts to the right from SS0 to SS1. Prices are then reduced to clear the surplus. The final equilibrium price falls to P1 whilst quantity rises to Q1.



Benefits to stakeholders:

- As equilibrium quantity rises, consumer surplus rises from P_0ab to P_1ac . Consumer welfare improves as they get to enjoy a higher quantity Q_1 with a lower price P_1 .
- Producer surplus rises from P_0bd to P_1ce . Producer welfare improves, as producer surplus is a proxy for industry profits.
- A lower price benefits consumers especially those in the lower-income group. Moreover, consumers also benefit from a lower inflation rate since electricity is a major input in production processes.
- Since demand for electricity is price-inelastic (as compared to a relatively price-elastic supply), the fall in price is more than proportionate to the rise in quantity. Thus, consumers enjoy a greater share of the subsidy per unit.

Anti-thesis: Limitations of the policy

- Deadweight welfare loss arises since a subsidy distorts the free market (assuming no market failure), In this case, there is an overproduction of electricity by Q_0Q_1 , thereby leading to a deadweight loss of bfc . The cost to society of producing 1 extra unit of electricity exceeds the benefit.
- Issue of funding – illustrate the amount of funding from diagram [subsidy per unit $\times$ eqm qty ie. $P_1P_2 \times Q_0Q_1$]
 - Opportunity cost as less can be spent on education and healthcare – link to importance of healthcare for Singapore's ageing population
 - Can link to issue of inability to finance/budget deficit and its associated negative consequences eg. reduces ability to spend in future and affects welfare of future generations
 - ***This idea is not expected:*** Can also link to macroeconomic impact of a trade deficit. As natural gas is imported, the huge total spending on imports can cause the exchange rate to depreciate. This may further reduces the ability to import and also cause imported cost-push inflation.

[If answer links a subsidy to a rise in demand, it has to be clearly stated that it is intended as a direct subsidy. An example needs to be used to substantiate the analysis and the difference between the market price and the lower price that consumers pay needs to be clearly explained]

B. Alternative Policies [any one policy well-discussed]

1. Encourage/grants for R&D in renewable sources eg solar power, windmass, hydroelectricity, water turbines

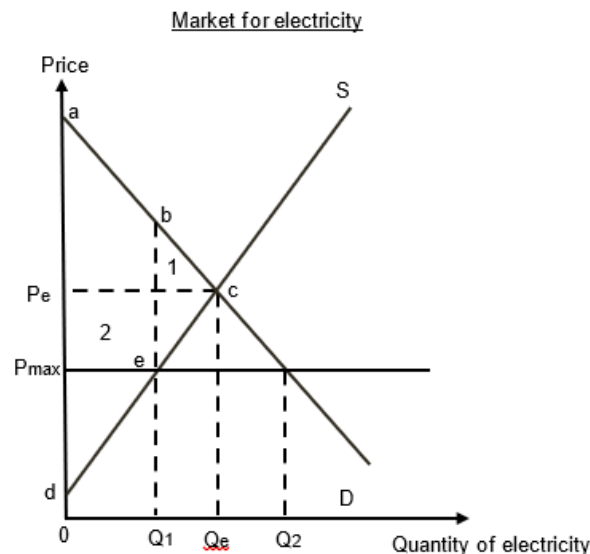
Thesis: Explain how R&D works → improved outcomes

- Over the long term, if successful, supply of electricity increases and prices fall (effects similar to Figure 4)
- Both CS and PS rise as illustrated in Figure 4
- More benefits:
 - The added advantage as compared to a subsidy is that the development of renewable energy overcomes problem of reliance on imported natural gas. The latter is a finite resource and is also subject to erratic price fluctuations.
 - Does not distort allocation of resources compared to a subsidy ie. there is no deadweight loss
 - Over the LT, firms save cost compared to importing natural gas

Anti-thesis: Limitations

- Cost gap between developing new technology vs using natural gas still very wide
- Long time lag in r&d and in broad implementation in use of solar power
- Issue of government funding and receptivity of firms
 - how much of the r&d cost firms have to bear - may be unwilling as the TFC cuts into their profits
- Given Singapore's smallness, lack of economies of scale in developing new technology
- Constraints of land in solar power use

2. Price ceiling



Thesis: Explain how a price-ceiling works → improved outcomes

- As shown in Figure 5, a price ceiling has to be set below equilibrium price to be effective. With a price set at P_{max} , it effectively reduces price below market equilibrium price and may thus help consumers.
- With a quantity transacted of $0Q_1$, consumer surplus may rise as seen from a change from area P_eac to $P_{max}abe$, provided area 2 is greater than area 1.

Anti-thesis: Limitations of price-ceiling

- But producer surplus falls from area $P_e cd$ to $P_{max} ed$. Compared to a subsidy, where both CS and PS rise, a price ceiling may not work well as well as it affects the welfare of producers. This is especially since firms already face a rise in production cost due to rise in price of natural gas. In this regard, they suffer a double whammy with rising cost and fall in PS which is a proxy for industry profits.
- A shortage arises as the quantity demanded $0Q_2$ is greater than quantity supplied (aka quantity transacted of $0Q_1$). Some consumers may not benefit as there is also an overall reduction in production by $Q_e Q_1$.

- Moreover, a deadweight welfare loss of cbe arises since there is an under-production of QeQ1 as compared to a free market allocation.

3. Raise awareness of need to conserve energy:

Need some brief details of campaign ideas such as Earth Day.

Thesis: Explain how a raising awareness works → improved outcomes

- Reduces demand for electricity/reduces wastage (link to leftward shift of DD curve)
- Keeps price from rising (especially if the price rise is due to rise in demand/can mitigate rise in price due to fall in supply)
- LT benefit: conserve for future generations
- Can also be linked to need to import less natural gas and its associated benefits

Anti-thesis: Limitations

- Success hinges on receptivity – takes time to change mindset
- affluence and ability to afford by higher-income can be a dampener on success
- Dampener on economic growth due to fall in economic activity

An idea which is acceptable but scope for link to DD-SS framework may lack rigour

Tiered pricing [Good suggestion but no framework]

- A lower price for basic level of consumption and a higher price for those that consume beyond this level
- Benefit:
 - helps the lower-income to meet basic needs for electricity
- Problem: electricity use may be more dependent on the number of persons per household. If lower-income households have more members, their need for electricity can still be higher.

Conclusion and Overall Evaluation

- **Make a summative statement about whether subsidies is the best way for Singapore to improve outcomes**
- **In a discussion of policies, the evaluation can be couched in terms of comparison of policies**
 - Subsidy not a long term solution given its immense impact on government budget especially if it is an across-the-board subsidy.
 - Therefore, subsidies can be targeted at lower-income households eg utilities rebates – even Malaysia is now moving towards targeted subsidies instead of across-the-board subsidies
 - Can be a temporary measure in response to surge in price due to SS factors; if rise in price due to demand factors, tiered pricing can be a better measure to discourage wasteful consumption
 - But a subsidy may be better than a price ceiling since it increases both CS and PS. On the other hand, a price ceiling causes PS to fall.
 - In comparison, r&d may be a better measure. Though both subsidy and r&d require government funding, in the LT, firms may become more cost-efficient due to r&d. Moreover, it reduces reliance on a finite resource – natural gas and reliance on such imports
 - Leaving to free market forces may be the way to go – but combine with r&d (to increase SS) and education (to reduce DD).

Mark scheme:

Knowledge, Application, Understanding, Analysis		
L1	- No theoretical framework/Descriptive and journalistic writing - Meaning of question not properly grasped. - Major conceptual errors - Answer mostly irrelevant or inaccurate. - Did not discuss subsidy	1–4
L2	Evidence of use of theoretical framework and analysis linked to outcomes for society - but with some gaps in analysis and inconsistent use of theoretical framework - Gaps in analysis of the 2 policies - Only analysed subsidy or alternative measure. - Policies discussion one-sided/No limitations - Not clearly linked to society's/consumers'/producers' welfare - Irrelevant alternative policy	5-7
L3	2 requirements fulfilled- clear discussion of subsidy and 1 alternative policy and good link to outcomes for society - Excellent diagrammatic analysis of both policies - Good application to the Singapore context and preamble.	8-10
Evaluation		
E1	- A superficial conclusion /assertion - Mere one-liner w/o substantiation/that does not offer any insight	1 - 2
E2	Substantiated evaluative comments about the relative merits/demerits of each policy	3 – 4
E3	- Insightful and perceptive judgement on which policy is better able to lead to a more desirable outcome for society - Based on 2 insightful ideas - Evaluation should be a weighed consideration of what was discussed in the level analysis such as a comparison of the 2 policies discussed, rationale for why subsidy is the best/may not be the best policy.	5

Examiners' Comments:

This question part required students to discuss the use of subsidies and one other policy in the context of rising prices of electricity. In this question, outcomes to society is linked to welfare of various stakeholders such as consumers, producers, government and society. Students were expected to discuss how the policies work (which makes the thesis) and the limitations of the policies (which make the anti-thesis).

The use of demand-supply framework is the most appropriate for this question as explained in part a. Students who consistently used a DD-SS framework tend to attain higher marks than those who used firm (MR-MC) analysis. Moreover, the link to consumer surplus and producer surplus are best illustrated with the DD-SS framework.

Most answers discussed subsidy and chose price ceiling as an alternative policy. There were fewer answers that offered r&d in renewable energy as an alternative. In sum, these responses tend to score well as candidates were able to use appropriate DD-SS analysis to link to effects on CS, PS and deadweight welfare loss. However, r&d might be a better policy since a price ceiling may be a double whammy for firms as they are already facing a rise in cost and now, face further fall in revenue arising from a price cap.

There were some students who tend to associate outcomes for society only to the issue of externalities. As a result, they did not pay heed to the fact that the issue in this question was rising prices. As a result, they chose to discuss that electricity generated negative externalities which warranted the imposition of taxes. Such a policy was totally not in sync with the main issue stated in the question. These students failed to recognise that a tax will cause prices to rise further.

Some other students chose to use a firm analysis to suggest use of MC and AC pricing or even introducing competition to reduce market dominance. But this was again not really in sync with the root cause of the problem – rising prices due to rise in price of natural gas.

Some other areas for improvement:

- In many scripts, consumer surplus and producer surplus (which are the core concepts in this discussion) were mentioned in a cursory manner without any clear illustration or link to the DD-SS diagram.
- Some responses did a very detailed discussion of both indirect and direct subsidy, leaving them with no time for discussing an alternative policy. In any discussion on a tax or subsidy on goods and services, it is always taken theoretically that it falls on the firm i.e. an indirect tax or subsidy. There is no real need to discuss both types of subsidies. In the discussion of direct subsidies, students often failed to give a clear example of what is a direct subsidy (an example being utilities rebates). More importantly, they also failed to explain that with a direct subsidy, there is a difference between the market price and the price that consumers pay. This clarification is important since a rise in demand causes the market price to rise but consumers are paying a price that takes into account the subsidy.
- There were many answers that asserted that a black market may arise – is that physically possible to buy electricity off the black market? Do note that this is not likely in the market for electricity in most countries especially Singapore.

Essay Q2

Different governments have different priorities with regards to spending on national defence and education. The following data shows Singapore's and Thailand's budget allocation in these two areas in 2021.

Countries	Defence (% of Government Spending)	Education (% of Government Spending)
Singapore	15.3%	13.4%
Thailand	4.8%	14.7%

- (a) Explain why the free market fails in the provision of defence and education. [10]
- (b) Discuss the factors affecting government priorities in spending on defence and education. [15]

Part (a)

Introduction:

The free market completely fails in the provision of defence as it is a public good. When left to the free market, there will be zero provision. On the other hand, the free market fails partially in the provision of education due to positive externality in consumption and/or imperfect information, leading to under-consumption and hence under-production of education.

Body:

1. Explain why the free market fails in the provision of defence → zero-provision

- A public good is non-excludable when it is impossible or very costly to exclude non-payers from consuming and benefitting from the good once it is provided.
- **Application:** National defence is non-excludable → Although many citizens might value defence highly, it will typically still not be supplied by the private sector. This is because nobody will have incentive to voluntarily pay for defence services because non-payers cannot be stopped from benefitting from it once it is provided.
 - o People would become free riders and private producers will not be able to charge for it. This lack of profitability leads to non-provision of national defence by the profit-maximising private firms in the free market, resulting in a missing market for public goods like national defence.
- A public good is non-rivalrous in consumption when the consumption of the good by one person does not reduce the amount or benefits available to others.
- **Application: Defence is non-rivalrous** → Once defence services are provided, it can be consumed by everyone within the national border. If an additional person enters the border, this person's consumption of the defence services does not reduce the amount of protection or security available to other residents. In other words, the supply of a public good, once provided, is not depleted by an additional user. Thus, the marginal cost of providing for and allowing an additional user to share in the usage of the defence services is zero. To achieve an allocatively efficient provision of a public good, consumers should pay a price equal to the marginal cost of serving an additional user ($P = MC$). Since the marginal cost of serving an additional user is zero ($\$0$), for allocative efficiency to be achieved, a public good that is already produced should be made available free of charge ($P = \$0$) to all individuals to achieve an efficient allocation and optimal consumption level.
 - o However, when left to the free market, profit-maximising firms will never provide goods at a price of zero. Thus, any non-zero price charged for goods that are non-rivalrous in consumption would discourage some users from enjoying the public good, resulting in under-consumption and allocative inefficiency since one more person's consumption of the good costs society nothing.
- Hence, given the non-excludable and non-rivalrous nature of the good, the free market will not provide defence at all and the market fails as defence is socially desirable to ensure that the country can enjoy peace and stability, and that our sovereignty and territorial integrity are protected. This helps to improve the standard of living of its citizens as they feel safe and secure.

2. Explain why the free market fails in the provision of education → under-provision

A. Positive externalities in consumption

- Positive consumption externality occurs when external benefits are enjoyed by third parties from the consumption of a good or service by private individuals. Education generates positive externality in consumption.
- Assume the market for education services is perfectly competitive. Figure 1 shows the market demand and market supply curves for education. The supply curve reflects the MPC of producing education services to the private producers (e.g. costs of hiring teachers and buying school supplies). Assuming no production externalities, the MPC of producing education services is the same as the MSC (i.e. $MPC = MSC$).

- The demand curve reflects the MPB of consuming education services. It shows the additional satisfaction or benefit the private consumers gain from each additional unit of education consumed. In the pursuit of self-interest, utility maximising consumers only consider their own private benefits (e.g. better career prospects and higher future earnings, as well as, the satisfactions from attaining knowledge, etc.) and private costs of education (e.g. the free market price they actually pay for attending school).
- However, these private consumers ignore the external benefits or positive externalities generated for the rest of society. For instance, a more highly educated workforce leads to improved labour productivity and higher economic growth and in turn, greater ability for the government to collect taxes to help subsidise disadvantaged families.
- The presence of positive marginal external benefits ($MEB > 0$) from consumption creates a divergence between the MPB and MSB from consuming education services. The MSB arising from individuals' consumption of the good is higher than the MPB by the amount of the MEB.

$$MSB = MPB + MEB, \quad \text{When } MEB > 0, \text{ then } MSB > MPB$$

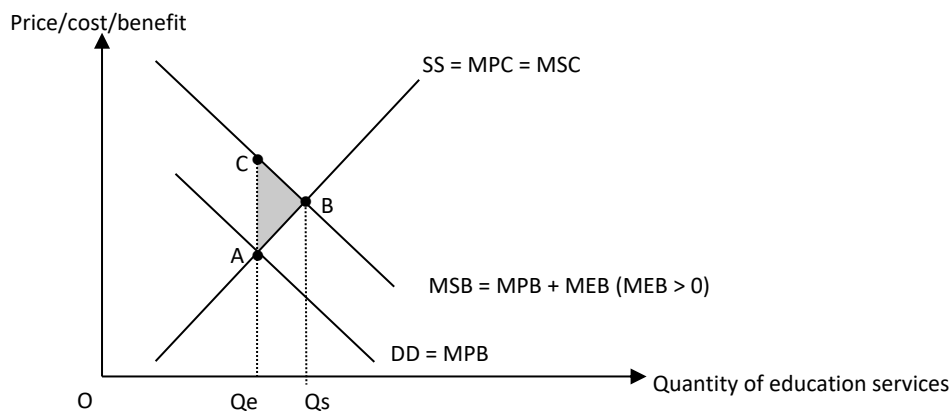


Figure 1: Market for Education- Positive Externality in Consumption

- According to Figure 1, the free market equilibrium is at OQ_e units of output, where $MPB = MPC$. On the other hand, the socially desired output level is higher at OQ_s units, where $MSB = MSC$. There is an under-consumption of education services by $Q_e Q_s$. At the free market output level OQ_e , MSB exceeds the MSC of education. DWL to society is represented by area ABC as the loss in social benefits from not consuming $Q_e Q_s$ units exceeds the value of the resources saved by not producing $Q_e Q_s$ units from society's point of view.
 - o Monetary value of societal benefits derived from output $Q_e Q_s$ = Area $Q_e C B Q_s$
 - o Monetary value of resources used in producing output $Q_e Q_s$ = Area $Q_e A B Q_s$
 - o Deadweight loss in not consuming output $Q_e Q_s$ = Area ABC
- The free-market equilibrium output OQ_e is thus allocatively inefficient, due to the under-consumption of education services from society's point of view. Too little resources are channelled to the consumption and production of education services. By increasing the output, society would be better off and it would gain more in social benefits than it would incur in social costs.

B. Imperfect Information

- Imperfect information about the private benefits arising from consuming a good or service can also lead consumers to undervalue the full benefits of these goods or services and hence consume too little in the eyes of the government.
- Education can help individuals obtain higher literacy rate and employability with higher skills set, leading to better job prospects and potential salary in the future.

- As such, many individuals are not fully aware of all the benefits of education on themselves, causing them to underestimate and hence undervalue their private benefits from consuming education. Many will choose not to go for higher education. If left wholly to the private sector, it is likely that the demand for education at DD0 due to imperfect information is lower than the demand DD1 under perfect information in Figure 2.

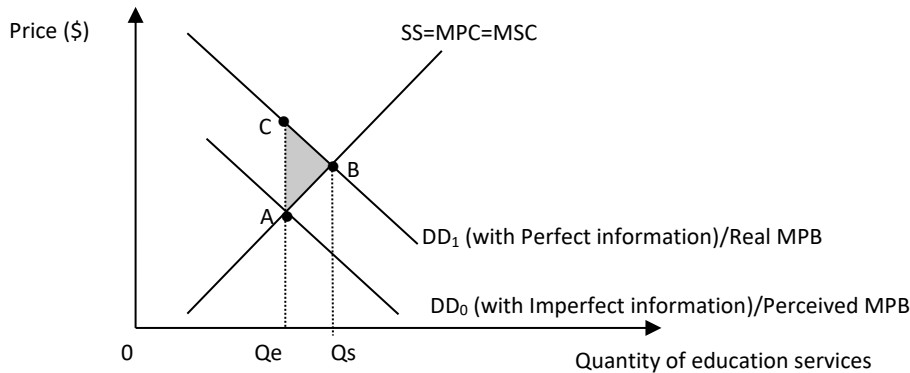


Figure 2: Market for education (information failure)

- The free market equilibrium under imperfect information occurs at output $0Q_e$ where $DD_0=SS$. However, the socially optimal level of consumption and production is at output $0Q_s$ where $DD_1=SS$. Hence, with imperfect information, education is under-consumed by Q_eQ_s units and too little resources will be diverted to the consumption and production of it. The free market fails to achieve allocative efficiency. A welfare loss represented by area ABC arises from imperfect information will be incurred by the society as the social benefits lost in not consuming Q_eQ_s units of education exceeds the cost of resources saved by the society in not producing Q_eQ_s units of education.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	- A descriptive response - Glaring conceptual errors - No analysis on the market for defence and education	1 – 4
L2	- Underdeveloped explanation of sources of market failure. - Analysis lacks relevant details - Application to the context of defence and/or education is weak - Lacking scope of analysis (Analysed only defence or education) - Max 6m: flawed link to defence as merit goods/did not link to defence as public goods - Max 7m: gaps in analysis-no eg. of externality/imperfect information	5 - 7
L3	- Good analysis of market failure from both defence and education using examples. - Detailed explanation supported with well-drawn diagram. - Education linked to either positive externality or imperfect information can be given full credit.	8 - 10

Examiners' Comments:

Part (a) of the question is generally done well and most students were able to get high L2 marks. The structure and content in most students' scripts were well-organised and theoretically sound, and most used appropriate economic framework in their explanation. However, there are some areas of concern:

- *Insufficient scope of explanation:*
 - o *There are a significant number of students who incorrectly explained education as a public good and grouped the explanations together with defence, or explained defence as a merit good together with education. Hence only one source of market failure has been considered and explained.*
- *Lack of depth of explanation:*
 - o *There were students who identified both non-rivalrous and non-excludability of public goods like defence but did not define the characteristics, or explain the implications of how these characteristics led to a missing market.*
 - o *Students are to elaborate on the positive externality brought about by education using examples to illustrate the external benefits on third party in the economy. Some students did not have any examples, or their external benefits lacks elaboration on who are the third parties who can benefit from education.*
- *Other gaps/conceptual errors:*
 - o *There were a minority of students who explained public goods theoretically, without any contextualisation to defence to illustrate as an example. The explanations are basically rehearsed explanations of public goods from the lecture notes, which lacks link back to answering the question.*
 - o *A significant number of students confused the implications of non-rivalry and non-excludability in consumption for defence. For example, due to non-excludability, $MC=0$, $P=MC=0$ and hence a missing market, which is incorrect as this explanation is for non-rivalry in consumption.*
 - o *Some students explained education as positive externality in production instead of consumption which is incorrect. Hence their following explanations were on the divergence between MPC and MSC due to MEC, when it should be divergence between MPB and MSB due to MEB. Note, when you are unsure, the rule of thumb should always be positive externalities $\rightarrow$ diverge benefits curve, negative externalities $\rightarrow$ diverge cost curves.*
 - o *A number of students identified the area of deadweight loss incorrectly and did not explain how the deadweight loss arises.*
 - o *A number of students confused the examples for positive externality and imperfect information. The student recognised the presence of positive externality in consumption for education, but explained that the consumers are not aware of the true benefits of education, which explains imperfect information.*

Part (b)

Introduction:

- According to the data given, Singapore allocates a larger percentage of spending to defence and lesser percentage to education, whereas Thailand allocates a larger percentage of spending to education and lesser percentage to defence.
- There are different reasons for the differences in budget allocation.

A. On Education:

1. Differences in the extent of positive externalities in consumption

- Singapore allocates a lower budget for education than defence as the literacy rate of the population is relatively high (compulsory education act in place since 2000) and the additional benefit to the society with an additional unit of education is minimal as compared to Thailand.
- In Thailand, there is a larger population size and the economy consists of a large rural sector which the majority of the population are not education. Hence, since Thailand's literacy rate of the population is lower, the additional benefit to the society with an additional unit of education will be significant.

- Figure 3 and 4 illustrates the difference in the extent of positive externality of education between Singapore and Thailand. As the divergence between MPB and MSB is smaller in Singapore than Thailand, the extent of underconsumption of education in Singapore is only $Q_{eSG}Q_s$ which is much lower than the underconsumption of education in Thailand of $Q_{eT}Q_s$. Hence Singapore government needs to allocate lesser subsidy per unit of CA whereas Thailand needs to allocate a greater amount of subsidy per unit of EF to increase the consumption of education.

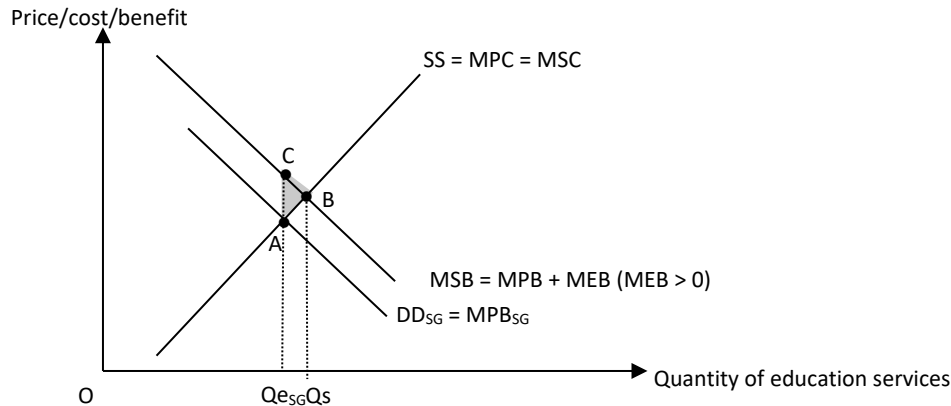


Figure 3: Extent of Positive Externality in Education in Singapore

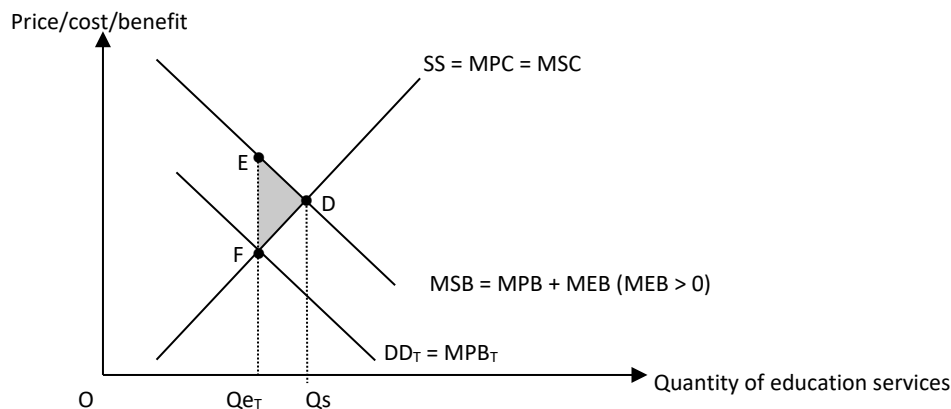


Figure 4: Extent of Positive Externality in Education in Thailand

2. Differences in the extent of imperfect information

- Singapore allocates a lower budget for education than defence as the literacy rate of the population is relatively high and parents in Singapore are aware of the private benefits one could get from higher education. The Singapore government has also been continuously raising awareness on the need for higher education as the population recognized that Singapore's economy is focused on tertiary services and a high level of education is important.
- On the other hand, there is lower literacy rate attained in the population in Thailand. Hence, parents with relatively poor educational qualifications may be unaware of all the long-term benefits that their children might derive from a proper education, including better job prospects, healthier lives, ability to raise children with better skills, etc. Because the knowledge of these private benefits is an ongoing learning process, parents in poor countries like Thailand will tend to underestimate and undervalue the long-term private gains from receiving a proper education. Moreover, Thailand has a large rural sector

where parents do not see the need to send their children for higher education, but more for their children to help out in the farms. Previously, Thailand's comparative advantage could lie in cheap and unskilled labour.

- Figure 5 and 6 illustrates the difference in the extent of imperfect information in education between Singapore and Thailand. As the divergence between $DD_{\text{perfect info}}$ vs $DD_{\text{imperfect info}}$ is lower in Singapore than Thailand, the extent of underconsumption of education in Singapore is $Q_{eSG}Q_s$ which is much lower than the underconsumption of education in Thailand of $Q_{eT}Q_s$. Hence Singapore government only needs to allocate a smaller amount of subsidy of CA as compared to Thailand which needs to allocate a larger amount of subsidy of EF to increase the consumption of education.

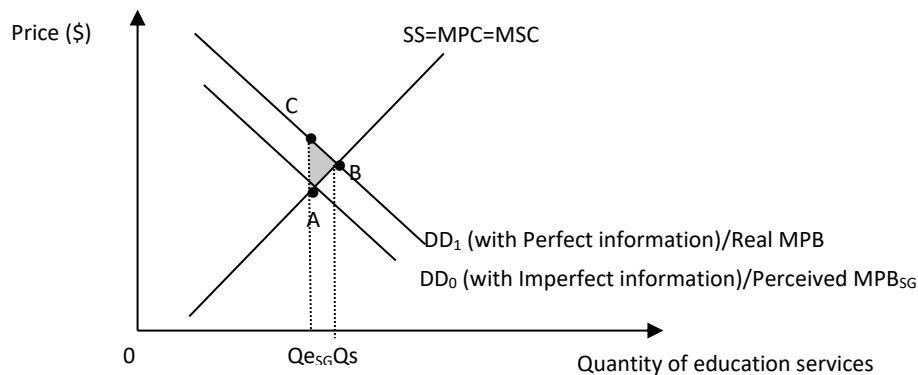


Figure 5: Extent of imperfect information in education in Singapore

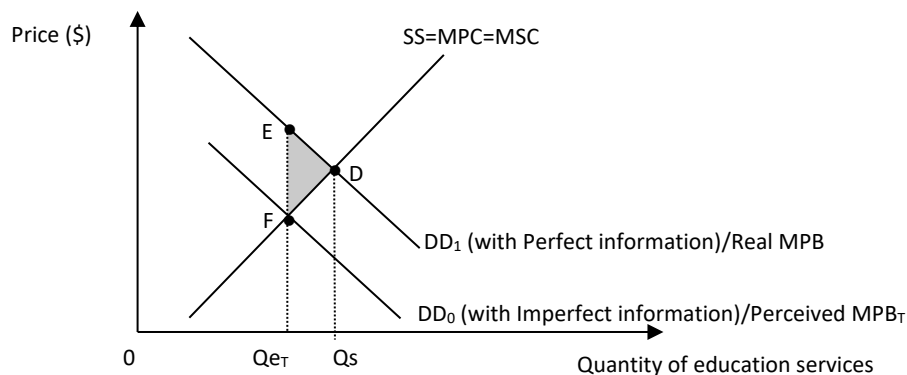


Figure 6: Extent of imperfect information in education in Thailand

3. Differences in the extent of inequity

- Singapore is a high-income country where real GDP per capita is high → this means that private individuals can better afford education i.e. they have the dollar votes. But in Thailand, due to its lower real GDP per capita and large rural sector that is of lower-income, there is likely a lack of effective demand – even if people recognise the need for education. As education is considered as an essential good in today's global economy, the lack of access to education leads to inequitable outcomes.
- Given that governments are concerned with both efficiency and equity, the Thai government allocates a larger % of its resources to education spending to achieve more equitable outcomes.

B. On Defence:

1. Differences in economic priority: stability in the region to attract FDI (SG) vs improving social mobility (Thailand)

- Both Singapore and Thailand recognizes the need to provide for defence. However, Singapore deems the benefits of providing defence to the society to be greater than Thailand, hence Singapore allocates a higher budget for defence than Thailand.
- Singapore is also a small country and vulnerable to attacks by other countries. Hence Singapore government prioritize the aim of political stability and security. The higher spending helps to ensure that Singaporeans can continue to enjoy adequate security from external threats and evolving threats. With recent lessons learnt from Russia-Ukraine war, it reinforce the importance of deterring threats and the high spending on defence allows Singapore to be well-equipped with new defence technology and equipments → this helps to improve standard of living in the country.
- Higher defence spending can ensure greater stability in the region which promotes higher investor confidence. This attracts foreign direct investment (FDI) into our country thus increases aggregate demand as investment is a component of aggregate demand. Singapore relies heavily on FDI as we only have a small pool of domestic entrepreneurs. With an increase in FDI, there could be higher quantity of capital and quality of capital, thereby increasing the productive capacity and aggregate supply of the economy. With a stable country, this enables Singapore to attract FDI to attain both actual and potential economic growth.
- On the other hand, Thailand is less dependent on FDI for economic growth and relies more heavily on its agriculture products and domestic economy for economic growth. It has a large rural sector and has a comparative advantage in its cheap labour. Thailand allocates less budget for defence than Singapore as the government prioritize the aim of improving societal welfare. The government aims to tackle the more pressing issue of income inequality and equity problems, which worsened after covid-19 pandemic. Hence Thailand allocated a higher budget for education than defence to improve social mobility and employability to increase income and SOL of citizens.

2. Differences in opportunity cost in the use of funds

- Singapore allocates less budget for education than on defence as compared to Thailand as there is higher opportunity cost in the use of funds for education as the funds could have been spent on improving defence and hence political stability. As Singapore's education system has been well-established with good infrastructure and trained educators, additional spending on education will yield marginal external benefits on the society. In comparison, by allocating more resources to defence, there is a more significant increase in benefits for the economy through better economic growth and hence standard of living of the citizens.
- On the other hand, Thailand allocated less budget for defence than education as compared Singapore as there is high opportunity cost in the use of funds for budget as the funds could be spent on improving societal welfare. Hence Thailand allocated a higher budget for education than defence to improve social mobility and employability → to increase income and SOL of citizens.

Conclusion and Overall Evaluation:

- Given the nature of Singapore's economy, Singapore is highly dependent on FDI for economic growth as she has a very small domestic market and relies on external demand for growth. As Singapore is a small and vulnerable country susceptible to attacks from other countries and in face of rising threats in the international arena, Singapore government places security as a higher priority as compared to attaining higher literacy rate and increasing productivity levels via education to attract higher amount of FDI.
- The extent of underconsumption for education due to positive externality and imperfect information is likely to decrease significantly over time as the Singapore government has been consistently allocating a significant budget to increasing the quantity and quality of education, and educating citizens on the importance of education such as skills retraining and upgrading. This helps to reduce the extent of

divergence between MPB and MSB in Figure 1, or real MPB and perceived MPB in Figure 2. Hence, this allows Singapore to allocate lesser budget to education as compared to defence today.

- However, Singapore needs to be mindful if the percentage allocated to education is too little given that human capital is the only resource in Singapore. With our ageing population and a relatively small population size.
- Thailand allocates a larger percentage of spending on education as a more educated labour force could help Thailand in restructuring its economy to a capital-intensive and higher value added industries. This allows Thailand to improve its economic growth and thereby improving the standard of living of its citizens.
- However, there is insufficient data given to show the percentage of spending allocated to primary, secondary, or tertiary education. It is relatively more important to allocate a greater percentage of spending on universal primary education rather than tertiary education - where private returns is greater than social returns. Without such data on the composition of spending in primary vs tertiary vs other areas of education, it is difficult to make a judgement if the allocation is a sound one.
- In conclusion, no government is able to accurately identify the socially optimum level of defence and education due to imperfect information. It is thus hard to make a judgement if Singapore's or Thailand's is a better approach. Nonetheless, the respective governments are likely to have made a decision based on a weighed consideration of benefits vs costs – assessed in terms of impact on economic growth, equity and other factors.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	• A few valid points. • Answer mostly irrelevant or inaccurate. • Shows some knowledge. • No analysis on the market for defence or education. • Meaning of question not properly grasped. • Inadequately explained or descriptive.	1–4
L2	• Gaps in the analysis: -lacks comparison in explaining defence and/or education -lacks market failure framework in analysis • Max 6m: lack of scope: -discussed only defence or only education -discussed only Singapore or Thailand -insufficient number of reasons discussed	5–7
L3	• Excellent diagrammatic analysis on different extent of market failure in both Singapore and Thailand, for both defence and education. • Good scope – at least <u>2</u> reasons well-discussed for education and defence • Good application to the context	8–10
Evaluation		
E1	• A superficial conclusion /assertion.	1 - 2
E2	• Substantiated evaluative comments about the relative advantages of either approach.	3 – 4
E3	• Insightful and perceptive judgement on which approach is better	5

Examiner's comments:

Most students were able to get at least L2-6 marks for part (b) of the question. While the majority of the students were able to identify at least 2 factors affecting government priorities in spending, the analysis lacks market failure economic framework and cost-benefit analysis, hence explanations are generally descriptive.

- Most students were unable to identify the need to discuss different extent of market failure in Singapore and Thailand for defence and education. Hence economic framework and analysis is lacking and the students cannot obtain beyond L2 marks.
- Some students recognised the need to explain the difference in extent of market failure. However, the comparison between countries was either incomplete (one-sided analysis on only one country in their elaboration), or very brief explanation on why Thailand has a larger extent of market failure in education than Singapore (vice versa). There were also no diagrams to support their analysis.
- There were many scripts that did not show a comparison of priorities between different countries, and limited the whole explanation to only one country, eg. Singapore.
- Costs consideration by the government also tended to be stated rather than explained e.g. Government should consider the amount of budget and opportunity cost incurred. Students should go on to explain how amount of budget affects government priorities are affected in deciding whether to allocate more funds to defence or education, or other sectors and opportunity costs are often generic examples like government could allocate the funds elsewhere in healthcare. Such answers lacked elaboration on the extent of opportunity cost that may be incurred by government, and lacked links to why government should allocate more funds to a particular sector.
- Many students managed to score at least 2 marks for evaluation marks where they recognised that government changes their priorities on spending according to changing economic situations. For e.g. during covid-19 pandemic, the government would prioritise spending on healthcare sector more than defence and education to increase the healthcare facilities and healthcare services consumption, hence lesser funds will be allocated to defence and education.
- Students should note that no marks will be awarded for a summary of factors that government should consider in their priorities on spending, but instead students can evaluate which factor might be more significant than others in determining the government priorities or if there are any other factors that might cause the priorities to change.

Essay Q3

- (a) **Explain the internal and external factors that determine a country's sustained economic growth.** [10]
- (b) **Discuss whether achieving a high rate of economic growth should be the main goal of a government to improve the standard of living of its citizens.** [15]

Part (a)**Approach**

- Define the key term of sustained economic growth.
- Internal and External factors that determine actual growth.
- Internal and External factors that determine potential growth.

Introduction

- Clarify key term of sustained growth → actual growth and potential growth.
- Actual growth → Increase in real GDP (largely caused by AD increase)
- Potential growth → Increase in productive capacity (increase in AS → rightward shift)

Body: Explain any 3 factors (internal and external factors that affect actual and potential growth)

A. Explain how internal factors and external factor causes actual growth

1. Internal Factors → Actual Growth

Government Policies

- Expansionary fiscal policy:
 - Increase in government spending increasing (G)
 - Decrease in direct tax rates increase (C) and (I)
 - Increase disposable income → increasing purchasing power → increase consumer spending.
 - Increases the post-tax profits of investment projects → rightward shift of the MEI curve → for the same interest rates, more projects provide a rate of return greater than interest rate → firms will increase investment spending.
 - The rise in C and I → increase in AD
- Expansionary monetary policy
 - Change in interest rates increasing (C) and (I)
 - For the same MEI curve, with lower interest rates, more projects provide rate of return greater than interest rates → firms will increase investment spending.
 - With lower interest rates → lower cost of borrowing → consumers more willing to purchase big-ticket items
 - With lower interest rates → lower reward for saving → lower opportunity cost of spending → consumers more willing to spend
 - The rise in C and I → increase in AD

Economic Performance

- If the country is achieving strong economic performance, this will lead to strong consumer and investor confidence
 - Consumers are more optimistic about future incomes → rise in C
 - Firms predict a rise in profitability of investment → rise in I
 - The rise in C and I → increase in AD

2. Explain how external factors causes actual growth

Economic performance of trading partners

- Economic growth of trading partner → increase in income → increase in purchasing power → increase in demand for normal goods
- Assuming a country's exports are normal goods → increase in demand for exports → ceteris paribus, net export component in aggregate demand (X-M) would increase thus increasing aggregate demand

Analysis: Actual growth can be caused by increases in aggregate demand

- Increase in aggregate demand causes planned spending > planned production / shortages
- Firms respond by increasing output in the next time period.
- The increase in national income → triggers multiplier process → results in multiplied increase in Real GDP (brief explanation of the multiplier process)
- Thus, actual growth occurs as seen by Real GDP increased.

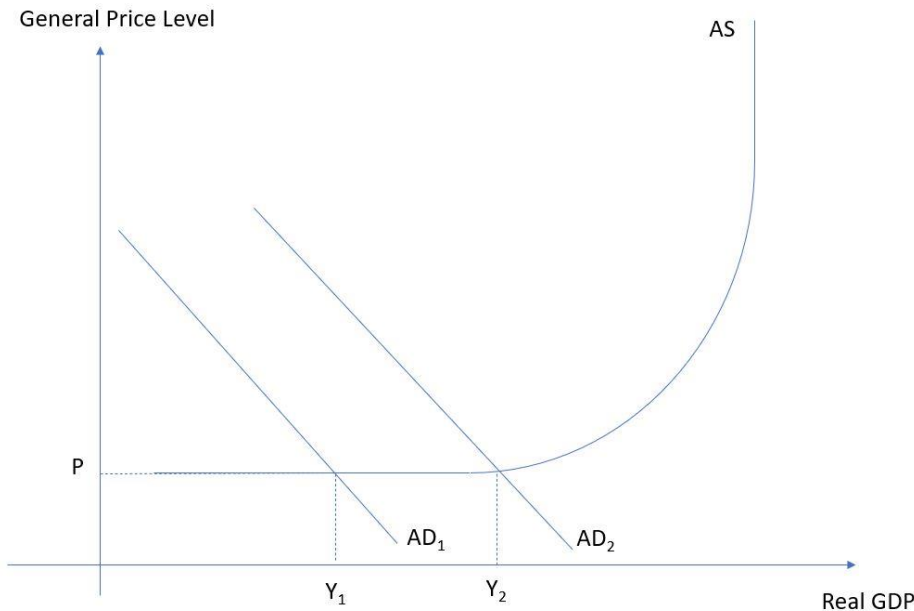


Fig 1. Actual growth caused by increase in aggregate demand

B. Explain how internal factors and external factor causes potential growth

3. Explain how internal Factors → Potential Growth

Government Policies → Increase in size of the labour force

- Can be caused by various factors, population growth / labour laws / immigration.
- With growing labour force, assuming labour productivity constant, the maximum output that can be produced when all labour is fully utilized would increase.
- Thus, the productive capacity of the economy is increased, reflected by an increase in the full employment level of output from Y_{F1} to Y_{F2}

4. Explain how external factors → Potential Growth

Global Economic Performance → Increase in FDI in the economy

- Can be caused by increased confidence in the future economic outlook.
- Can be encouraged by strong global growth.
- Increase in FDI spending → more spending on capital goods → increase in the rate of fixed capital formation.
- With increase in quantity of capital goods / quality of capital goods (R&D) → the productive capacity increases as the maximum output that the economy can produce has increased.

Analysis: Potential growth is caused by factors that increase the productive capacity, reflected as AS curve shifting right.

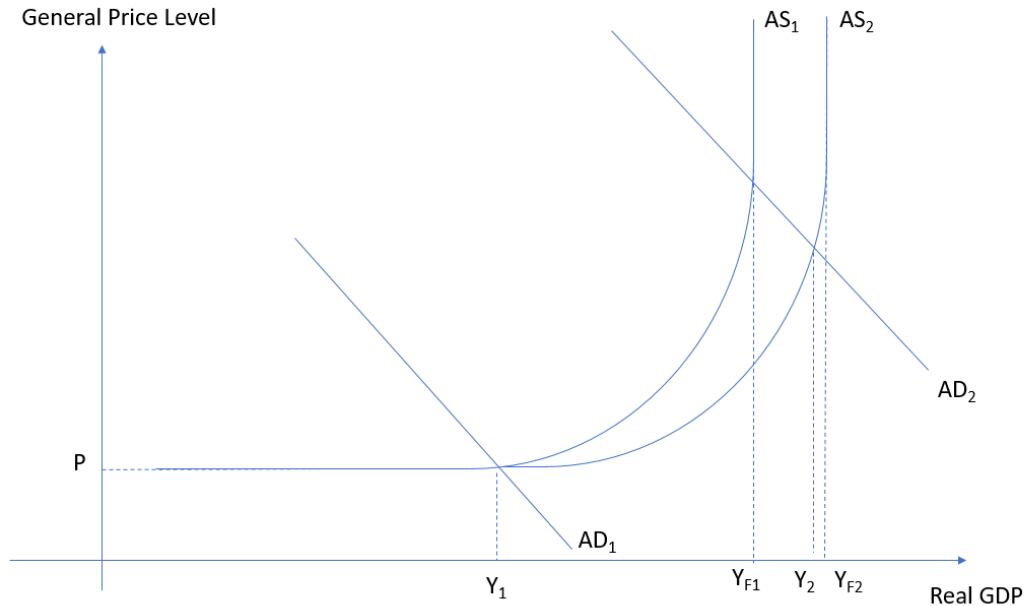


Fig 2. Sustained growth from combined actual and potential growth

Conclusion:

- An economy can achieve sustained growth when it has achieved both actual and potential growth. As seen in figure 2, with the increase in AD from AD_1 to AD_2 , the economy is able to achieve actual growth but is eventually constrained by the full employment level of output stopping at the output of Y_{F1} . In order to continue growing, potential growth is needed to increase the full employment level of output from Y_{F1} to Y_{F2} . This allows the economy to grow beyond the initial full employment level of output of Y_{F1} , achieving output level of Y_2 .

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	- A descriptive response - Glaring conceptual errors - No analysis on the concept of sustained growth (neither AG nor PG)	1 – 4
L2	- Underdeveloped explanation of sources of sustained growth - Analysis lacks relevant details - Lacking scope of analysis (only AG OR PG, or only consider internal OR external)	5 - 7
L3	- Good analysis of sustained economic growth from both internal and external factors. (A total 3 factors) - Detailed explanation linking to actual growth and potential growth. - Good diagrammatic analysis illustrating both AG and PG	8 - 10

Examiners' Comments:

- Many students misunderstood what 'factors' referred to and interpreted internal factors as internal components of AD (C,I,G) and external factors as external components of AD (X-M)
- While some students listed points that would qualify as factors, they failed to clarify the root cause and therefore it was unclear if the change was an internal or external change.

- A large majority of answers were able to mention productive capacity and AS when attempting to explain potential growth, however these concepts were often just mentioned without first explaining what those concepts were and thus the explanation lacked rigor.
- A small minority of answers had concept errors with regards to what sustained growth meant, either discussing how long the AD would rise or discussing irrelevant issues such as the environment or the income distribution.

Part (b)

Approach

- Show that high rate of economic growth improves SOL
- Show that high rates of economic growth can worsen SOL
- Show that other goals are also important to SOL

Introduction

- Define key terms → “high rate of economic growth” and “standard of living”
- High rate of economic growth → Real GDP increasing at a high rate
- Standard of living → measurement of quality of life → two aspects, material and non-material
- Material SOL → related to consumption of goods and services → affected by real GDP per capita
- Non-material SOL → related to intangible aspects → health / education / pollution

Body:

Requirement 1: Discuss how high economic growth affects SOL

Thesis 1: Achieving high rate of economic growth can improve material SOL

- Governments can achieve high rate of economic growth through expansionary dd-management policies or SS policies.
- High rates of growth → real GDP increasing at a high rate
- Assuming population growth constant or lower than GDP growth → Real GDP per capita increases → purchasing power of the average person goes up → can afford more goods and services
- Households purchase more goods and services → satisfy more material wants → material welfare increases → rise in SOL

Thesis 2: Achieving high rate of economic can improve non-material SOL

- High rates of growth → Real GDP increases
- PP increases → households can afford better healthcare / nutrition / housing → higher life expectancy
- PP increases → more households can afford education / more years of schooling → literacy rate increases
- High growth rates → output increases → derived-demand for labour increases → demand for labour increases → unemployment rates decrease
- Lower unemployment rates → less stress caused by social-displacement
- Lower unemployment rates → less occurrence of crime → better safety
- Non-tangible aspects of life such as health, education and safety are improved.

Anti-thesis 1: Achieving high rate of economic growth can worsen non-material SOL (unsustainable growth)

- Depending on the source of EG → Higher rate of growth → increase in Real GDP → increase in industrial output
- Increase in industrial output → greater rate of usage of natural resources → can deplete natural resources such as wood / land / oil

- Depleting the natural resources → lead to fall in productive capacity → leads to decrease in potential future material standard of living due to less goods and services produced in the future
- Increase in industrial output → more pollutive industrial activity → can lead to worsening of the environment such as air and water pollution → leads to decrease in non-material standard of living due to health hazards from polluted environment

Other acceptable points:

- Students may also discuss how high economic growth (depending on how it is achieved) may come at the expense of rising income inequality which may adversely affect material and non-material welfare.
- Students may discuss how high economic growth may lead to overheating → price-instability → this can lead to certain groups of people becoming worse off as nominal wage rise < inflation rate. To the extent that income inequality is high, and a significant proportion of people are made worse off, SOL may not rise. In the longer run, the high growth cannot be sustained and price instability may lead to fall in I and X and fall in EG → fall in SOL. Do note that this will happen in a different time period.

Requirement 2: Explain alternative aim of the government → improve SOL

Anti-thesis 2: Improving Income distribution is another goal that the government should prioritize to improve SOL

- Growth may not always be even if growth is caused by technology changes or export-led growth.
- Can therefore lead to structural unemployment due to the mismatch between job requirements and the skillset of unemployed workers.
- Therefore leads to a larger income gap between the obsolete workers and the workers in growing industries.
- The improvement in income distribution can be achieved via redistributive policies such as transfer payments, supported with a tax.
- By increasing the marginal tax rates for high-income brackets, using the revenue generated to fund transfer payments to the lower income, growth can be achieved.
- This is because the marginal propensity to consume is higher for lower income groups than higher, thus taxing the rich to fund transfer payments to the poor would increase overall consumption in the economy and thus increase AD causing actual growth.
- Thus, there can be improvements in Real GDP per capita, leading to improving material SOL.
- At the same time, the income gap is reduced leading to less social tension and better social cohesion. Thus, improving the non-material SOL of citizens.

Note: Other acceptable possible aims include price stability in the SR to medium run and sustainable growth

Conclusion and Overall Evaluation:

Economies at different stages may prioritize different goals.

- Whether high economic growth should be the main goal to improve SOL depends on the level of development of the economy
 - Developing economies are more likely to need to focus on high growth rates while developed economies are more likely to focus on growth being kept at a sustainable and inclusive rate
 - Developing economies → low GDP per capita, many unused FOP / high unemployment
 - Developed economies → high GDP per capita, close to full employment / tight labour markets. May choose to prioritise other aims to improve SOL further.
- For some countries such as Singapore, achieving high growth rates can still be the main aim as high growth rates can mitigate the problems faced in other areas.
 - High growth can generate tax revenue, can be used by the government to fund redistributive policies like GST vouchers

- Singapore government follows the philosophy of “growing the pie” to allow improvement of the SOL of the lower income.
- A small proportion of an overall “larger pie” of the economy would improve the purchasing power of lower income groups.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	• A few valid points. • Answer mostly irrelevant or inaccurate. • Shows some knowledge. • No analysis on the link between growth and SOL • Meaning of question not properly grasped. • Inadequately explained or descriptive.	1–4
L2	• Gaps in the analysis of how growth can affect SOL • Lacking scope → only consider positive OR negative impacts of growth • Lacking scope → only consider material OR non-material SOL • Lacking scope → only considers growth but does not explore how other goals may be important with regards to SOL	5-7
L3	• Thorough analysis of how achieving the goal can affect SOL either positively or negatively. • Good scope – considers both material and non-material aspects of SOL • Good scope – both positive and negative impacts of economic growth on SOL • Good scope – considers how other goals may be important to achieve improvement in SOL	8-10
Evaluation		
E1	• A superficial conclusion /assertion.	1 - 2
E2	• Substantiated evaluative comments about whether a high rate of growth should be the main goal	3 – 4
E3	• Insightful and perceptive judgement on whether a high rate of growth should be the main goal weighed against other goals	5

Examiners’ Comments:

- A common observation was that students answered the question as if the question was “which economic goal is the most important” OR “which policy should the government use” without focusing on the main question requirement of standard of living → these scripts fared poorly as they did not address the question.
- The majority of students did well in linking the concept of purchasing power to material welfare, however many answers linked growth to purchasing power purely through employment and income. As such, many answers neglected to use the concept of Real GDP per capita growth to link to increases in purchasing power.
- Many answers struggled to elaborate links with regards to non-material standard of living, either providing cursory answers such as “they can afford more healthcare” or repeatedly just linking to the idea of being more or less stressed depending on the economic situation.
- A common concept error with regards to explaining the negative impact of too high economic growth was that students interpreted that any demand-pull inflation would result in fall in purchasing

power due to higher prices. However, as long as Real GDP per capita is rising, the purchasing power is still increasing despite the higher prices as the impact of inflation has already been adjusted for in the Real GDP calculation. Students should use the concepts of nominal wage or nominal income in order to argue that purchasing power has fallen.

- Many also did not plan their points to have a good variety with regards to scope. A lot of the paragraphs simply present the benefits of alternative goals as a way to prevent the negative impact of high economic growth without links to improving SOL.

Essay Q4

It is within Singapore's power to become more productive and competitive to manage economic challenges that have resulted from the Covid-19 pandemic, the war in Ukraine and China's slowing growth. Amidst these challenges, the goods and services tax (GST) rate is set to increase from 7 to 9 per cent by 2024 to support the growing needs of the population.

Source: adapted from National Day Rally Speech, 2022

- (a) Explain the intended and unintended effects of raising GST in Singapore. [10]
- (b) Discuss whether “becoming more productive and competitive” is the only way for Singapore to overcome its economic challenges. [15]

Part (a)

Introduction:

- GST: form of indirect taxes that is imposed on all goods and services in Singapore
- Intended effects: desired outcomes of the government in raising GST
- Unintended effects: undesirable outcomes of raising GST that are not part of the government's objective in decision-making
- “in Singapore” → effects on KEI such as EG and inflation, and on government budget

Body:

Requirement 1: Explain the intended effects of raising GST in Singapore

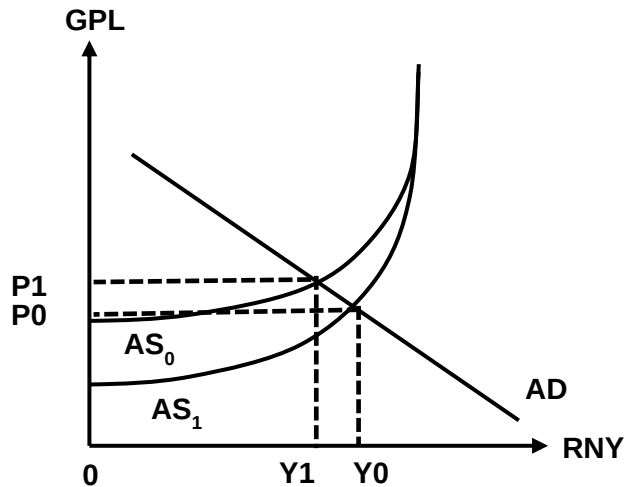
- Context of Singapore: “support the needs of the population”:
 - o Singapore has an ageing population → rising expenditure in healthcare and social spending and lower tax base (less people will pay income taxes) → rising expenditure without corresponding increase in may result in strain on government budget over the longer term → reduces fiscal sustainability.
- **Point 1:** Rise in GST → imposition of indirect tax on all goods and services in Singapore will increase government revenue. This will improve the government's budget position → “yield additional revenues of about 0.7 per cent of GDP per annum” (todayonline)
 - o Allows the government to run on budget surpluses ($G < T$) and accumulate national reserves → leads to confidence in the economy given the ability of the government to deal with crisis/events (such as a global pandemic or recession) → link to impact on KEI
 - o Allows the government to spend without running excessive budget deficits ($G > T$) which can lead to the crowding out effect and rise in national debt
- **Point 2:** By raising GST, government can increase spending over the longer term without borrowing / drawing out from reserves → This increase in G will lead to a more than proportionate increase in

AD and RNY due to the multiplier process where spending creates income and income generates greater spending.

- This will result in economic growth and employment in the longer run when spending takes place.
- Spending to “meet the growing needs of the population” such as healthcare and social expenditure could increase SOL of its people → link to material (rise in real GDP/capita, greater ability to consume goods/services) and non-material welfare (rise in life expectancy)

Requirement 2: Explain the unintended effects of raising GST in Singapore

- **Point 3:** Raising GST → form of indirect tax → imposed on producers and burden is shared between consumers and producers → acts like an increase in COP → fall in AS as producers will be less willing and able to produce at each GPL



- Given the fall in AS → AS curve will shift from AS₀ – AS₁ → there will be shortage of G&S at the existing GPL. As such, there will be upward pressure on GPL → rise in GPL from P₀ to P₁ → coupled with cost-push inflation associated with Covid-19 and the Russia-Ukraine War → Rise in inflation rates
- The rise in inflation rates will result in the unintended effects of rising cost of living → reduce affordability of basic goods and services → inequitable outcomes especially in the context of Singapore where income inequality is quite high, and fall in SOL for certain groups of people
- The fall in AS will also cause national output and RNY to fall as firms have less incentive to produce / sectors of economy less incentive to spend → lower economic growth
- The longer run unintended effects if inflation is not kept in check: fall in export competitiveness, rise in cost of doing business in Singapore etc. → dampens economic growth in the longer term

Conclusion:

- Raising GST leads to unintended effects in the short run while intended effects take place in the longer run.
- The government has taken measures to reduce the unintended effects of increasing GST e.g. giving GST credits especially lower-income households to offset the rise in prices and maintain affordability of goods and services.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	- A descriptive response without economic framework e.g. No technical analysis on the effects of raising GST → no use of AD/AS framework at all - Glaring conceptual errors - Irrelevant arguments - No application to the Singapore context	1 – 4
L2	- Some application to the Singapore context - insufficient scope of explanation - o only intended or unintended effects – max 6m - o only 1 point each under intended/unintended effects – max 7m - Lack of depth of analysis – inconsistent use of economic framework in explaining the effects of GST, did not elaborate on the effects of budget surpluses/deficits etc.	5 - 7
L3	- Good application to the Singapore context e.g income inequality, types of govt spending, likely impact on inflation - Good scope of explanation – addressed both intended and unintended effects and 3 arguments made. - Good depth of analysis – use of economic framework in explaining effects of rising GST	8 - 10

Examiners' Comments:

- This part of the question was poorly attempted with far too many students not knowing how GST works through the economy.
- There were some scripts which explained the possible effects without addressing the question on which effects were intended and unintended. These scripts were not able to get beyond mid L2 marks as it was not answering the question.
- Lack of scope of explanation:
 - o There were students who did not identify 3 effects of the rise in GST be it intended or unintended effects. These scripts were not able to score beyond L2 marks.
- There was a general lack of application to the Singapore context – many students did not make use of what was given in the preamble on “amidst these challenges” – hinting that there are tradeoffs, and the “growing needs of the population” – hinting about reasons for GST hike.
- Insufficient depth of explanation:
 - o The lack of depth of analysis is what prevents many students from scoring beyond L2 marks for many questions. Points were stated with no point-by-point linkages.
 - o In explaining the intended effects of GST, many students correctly identified that government needs to raise revenue through GST in order to spend. However, the impact of this spending was stated rather than explained. Some just superficially stated that if govt spends on healthcare, quality of healthcare will improve – without any links to SOL or the context of ageing population. Or if the government spends on infrastructure or educational needs – there was no use of the AD/AS framework to explain the impact on the economy.
 - o For students who identified the regressive nature of GST and thus worsening income inequality in a country and rising inequity – many students did not explain why tax as a % of income was higher for the lower income than higher income.
 - o For those mentioned that higher tax revenue is required for higher government expenditure – these scripts did not explain how avoiding a budget deficit is important or the effects of depleting national reserves.

- **Conceptual errors:**

- Scripts which contained serious conceptual errors without sufficient valid core arguments were unable to score beyond L1 marks.
- Far too many students analysed the rise in GST with a fall in AD instead of the fall in AS. These scripts stated the intended effect of GST is to tackle the rise in inflation due to the Russia-Ukraine war. Students went on to explain that the rise in GST will cause a fall in purchasing power of consumers, which leads to a fall in AD, leftward shift of the AD curve, which causes a fall in GDP. This analysis is flawed as GST is an indirect tax levied on producers, even though it is borne by consumers in the form of higher prices. When consumers are affected by the rise in price, the fall in consumption is known as the “wealth effect”, which is reflected by a movement along the AD curve, and not a shift of the AD curve. Also, intuitively, alarm bells should ring in your head as it should not make sense that a rise in GST will cause a fall in prices.
- Likewise, there were students who correctly identify the unintended rise in GST causing a fall in RNY and rise in UE. While the effects are correct, the analysis was flawed as these scripts analysed the effects via a fall in AD instead of AS.
- There were students who identified the rise in GST as a form of contractionary fiscal policy as rise in GST will lead to a rise in government revenue and if $G < T$, it is a form a contractionary FP. This argument is flawed as it is not the intent of the government to contract the economy via a rise in GST, and while there is a rise in government revenue, government expenditure is likely to increase to meet the “rising needs of the population”.
- There were a few students who explained how GST caused a fall in AS as COP increased now that FOP are more expensive due to GST → this is flawed as GST is not imposed on FOPs but on final goods and services. Students should have explain the impact of an indirect tax on AS instead.

Part (b)

Introduction:

- Establish what is meant by economic challenges: Higher inflation rate, lower economic growth/higher unemployment, worsening BOT/BOP
 - Covid-19 pandemic: supply chain disruptions → rise in COP
 - War in Ukraine: rise in prices of raw materials such as crude oil, fertilisers, and agricultural products → rise in COP
 - China's slowing EG: dampening I and X
 - The fall/slowdown in AD and fall in AS → reduce EG, rise in UE and rise in inflation
- Interpret the requirements of the question: being more productive and competitive requires the use of supply-side policies. SSP may help Singapore to manage some of its economic challenges but given its limitations, there are also other policies that the country can and should adopt to manage its challenges.

Body:

Requirement 1: Discuss how being more productive and competitive will help Singapore to overcome its economic challenges

T1: Explain possible SSPs → more productive and competitive → overcome challenges such as inflation and slowdown in EG

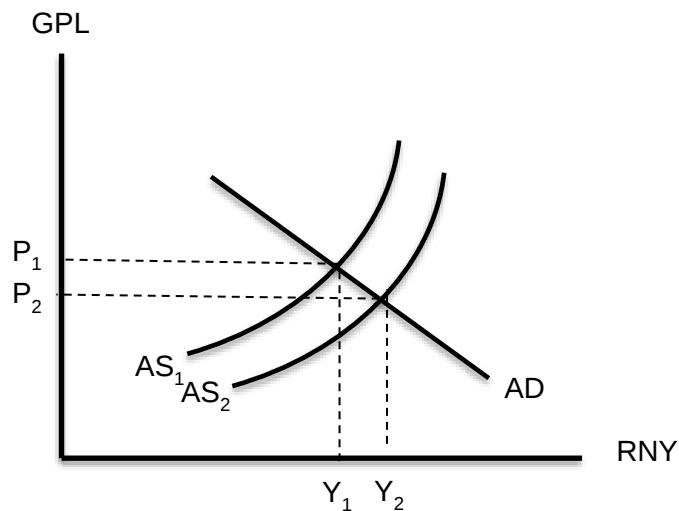
Policy 1a: To be more productive

- Government can provide subsidies for Education and training or R&D
- As people acquire knowledge and skills → accumulate human capital → increase in quality of labour

- Rise in productive capacity
- Fall in COP if increase in wage rates < rise in productivity
- Increase in AS
- With greater R&D → improvement in technology → increase in productivity of FOP such as labour and capital
 - Rise in productive capacity as more output can be produced with given amount of resources
 - Fall in COP as less resources is needed to produce each unit of output
 - Increase in AS

Policy 1b: To be more competitive

- Government can adopt market oriented policies such as pro-competition policies → strengthen anti-trust laws and reducing BTE in industries and/or reduce direct taxes
- With pro-competition policies → firms have greater incentive to become more efficient in their production processes
 - Fall in COP
 - Rise in productive capacity to the extent that competition leads to innovation/improvements in technology
 - Increase AS
- With fall in direct taxes such as lower personal income taxes → higher disposable income → attract foreign talent / increase incentive to work → increase size of the labour force
 - Rise in productive capacity
 - Keep wages low
 - Increase in AS
- Illustrate and explain the effects of rise in AS diagrammatically
 - The rise in AS will lead to a fall in GPL → dampens cost-push inflation due to the pandemic and Russia-Ukraine war
 - The fall in GPL will result in rise in RNY as all the sectors of the economy has more incentive and ability to spend (wealth and foreign substitution effect) → dampens the fall in EG/rise in UE



AT1: Limitations to these policy measures

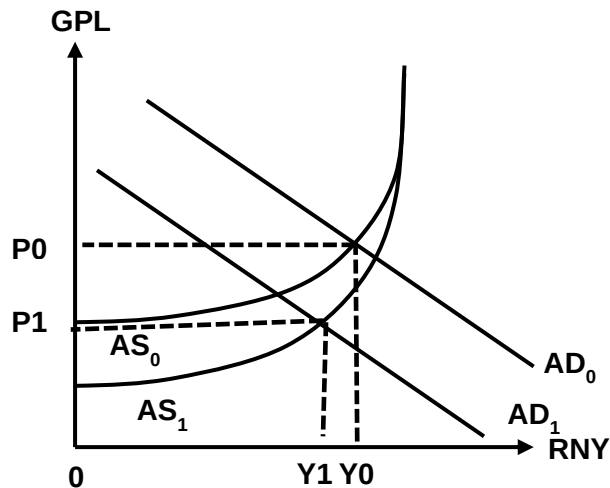
- Education/training and R&D takes a long time to take effect → ineffective in the SR to manage the effects of high inflation and slow EG
- Uncertain outcomes of Education/R&D: depends on the quality of R&D/Training, amount of resources spent etc. → may not be able to manage the challenges even in the longer run

Requirement 2: Discuss other policies that will help Singapore to overcome its economic challenges

AT2: Being more productive and competitive((SSP) is not the only policy → there are other policies → overcome inflation and slowdown in EG

Policy 2: ER policy → manage rising inflation

- MAS can appreciate the S\$ against a trade-weighted basket of currencies.
- Appreciation of S\$ will reduce the price of imported FOPs and finished goods (in S\$)
 - o Fall in CPI
 - o Fall in COP → rise in AS → fall in GPL
 - o Reduces imported cost-push inflation
- Appreciation of S\$ will increase the price of exports (in f.c)
 - o Fall in export competitiveness → fall in X → fall in AD → fall in GPL → reduces dd-pull inflation (if any → from covid-19 recovery)
- Illustrate the effects of appreciation of S\$ on the economy



EV: limitations of ER policy

- Conflict with EG in the SR as the fall in AD > rise in AS (not all the factor inputs will be imported while overall P_x rises)
- As Singapore is dependent on exports for economic growth → there is a limit to the extent of appreciation of S\$
- Policy will help to manage inflationary pressure but not slowing EG from China

Policy 3: Expansionary FP → manage slowing EG/effects of rising inflation

- Expansionary FP → Rise in G on infrastructure and social spending (less likely fall in T given the preamble) → more than proportionate increase in AD and RNY → EG, lower UE rate → manages the slowdown of China's EG and effects of pandemic on EG/UE
- Illustrate the effects on the economy
- Govt spending such as supermarket credits can help to boost the domestic economy and alleviate the rise in prices due to the war and the pandemic.

EV: limitations of FP policy

- Singapore has a small k size given high MPS and MPM → unlikely that FP will result in significant impact on EG and UE. Or government spending has to be significant to tackle the challenges

- Costly → Strain on government budget → could result in drawing out of reserves or opportunity cost

Conclusion and Overall Evaluation

- Summative statement: Becoming more productive and competitive is just one way for Singapore to manage the economic challenges of slowing EG, rising UE and rising inflation given the global events of the pandemic, the war and slowing growth in China, but it is not the only way as there are other policy tools that are available to the government as well.
- Given that measures to becoming more productive and competitive takes time to work, it is unable to manage economic challenges effectively in the short run. These measures also do not tackle all the economic challenges i.e. slowing AD due to China's economic slowdown, and hence require DD-management policies. Hence, the government should adopt accompanying policies such as ER and FP in the short run.
- Having said that, being more productive and competitive through supply-side policies may be the only way for Singapore to tackle our economic challenges in the long run given that there is a limit to how much we can allow the Singapore dollar to appreciate given its trade-offs and how expansionary fiscal policy cannot be sustained over time given the Singapore constitution (balanced budget over the political term) and impact on national reserves. These measures can also overcome China's slowdown by making Singapore goods more competitive in other markets and more attractive to foreign investors.
- Any other insightful points.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	• Answer mostly irrelevant or inaccurate. • Descriptive answer without use of economic framework in analysis. • No reference at all to the Singapore context.	1-4
L2	• Insufficient scope of discussion ○ Only looked at policies that address productivity and competitiveness → Max 6m (if balanced with limitations) ○ Only looked at alternative policies – max 6m ○ Only addressed challenges of EG/UE OR inflation → max 6m • Gaps in analysis → insufficient depth of elaboration ○ Did not identify and explain measures that will improve productivity and competitiveness ○ Did not explain how the measures work to manage the challenges of EG/UE or inflation • One-sided answer → no limitations of SSPs and did not bring in other policies → max 5m	5-7
L3	• Good scope – at least <u>2</u> policies well discussed i.e., one measure that is linked to productivity/competitiveness and one other policy (ER or FP) • Well-balanced answer with limitations of SSP • Good depth of analysis with consistent use of economic framework and linkages to economic challenges • Good application to the Singapore context e.g. availability of reserves, size of k	8-10
Evaluation		
E1	• A superficial conclusion /assertion • Substantiative judgement on only the measures to achieve greater productivity and competitiveness	1 - 2

E2	• Substantiative judgement on measures to achieve productivity and competitiveness and on the other measures • Other insights – if it is not the only way, but is it best way? • Did not give overall judgement	3 – 4
E3	• Insightful and well substantiated judgement on whether productivity gains and rise in competitiveness is the only way.	5

Examiners' Comments:

- Lack of application to the question:
 - There were scripts which explained all the policies without linking it to the economic challenges which were clearly stated in the preamble. Instead, these scripts simply explained various policies and linked it to how it would affect the KEIs but did not apply to the context of the question or address the key requirements of the question.
 - Students suggested policies that were not relevant to the Singapore context for e.g. the use of I/R policy instead of E/R policy, and SSPs were generic and lacked use of examples.
- Lack of scope of discussion:
 - There are 2 clear requirements to address this question well. (1) to discuss how becoming more productive and competitive can overcome economic challenges and given its limitations, and (2) to explain alternative way/s to overcome the challenges. However, many scripts were not able to get beyond L2 marks either because it lacked explanation of limitations of becoming more productive and competitive OR did not explain the alternative ways/policies.
 - Quite a significant number of scripts also did not identify what measures could be undertaken to be more productive or competitive and hence either lacked the application of relevant economic framework or were generic in explanation.
 - There were scripts that only addressed 1 economic challenge – that of low EG/high UE without tackling high inflation from the pandemic and war. These scripts were not able to get beyond L2 marks.
 - As an alternative policy, students suggested a depreciation of the S\$. However, the purpose of the depreciation is to achieve export competitiveness – which seems to be part of “becoming...more competitive”, rather than an alternative policy. These answers thus lacked scope of discussion as there was no valid alternative policy discussed.
- Insufficient depth of analysis:
 - There were far too many students who did not explain how Singapore can become more productive and competitive and went straight into the effects of it. These responses failed to recognize that policies are needed “becoming more productive...”, and without which, students would not be able to recognise the limitations.
 - There was also insufficient depth in explaining how SSPs affect productivity and competitiveness (which many did not bother to define), and how productivity and competitiveness will affect aggregate supply in terms of COP/productive capacity, and how the rise in AS will affect RNY and GPL through the adjustment process, and in turn EG/UE/inflation. Many merely stated these effects without point-by-point linkages.
 - Explanation of limitations of “becoming more productive and competitive” also tended to be superficial.
- Conceptual errors:
 - This serious conceptual error was repeated in part (a) and (b) where students wrote that being more productive will cause the price of exports to fall, and the rise in exports will cause AD to rise and AD curve to shift to the right, which leads to EG and fall in UE. However, the rise in X due to fall in GPL is known as the “international substitution effect” which is reflected via a movement along the AD curve and not a shift. The analysis of rise in X causing a rise in AD is sound if students attribute it to a lower relative inflation rate (as a result of becoming more productive and competitive) or due to improvements in the quality of our exports.

- Some students were confused about the effects of an appreciation of S\$. These students suggested the appreciation of S\$ to solve low EG as the appreciation of S\$ will lead to a fall in prices of imported FOP, and the fall in COP will increase AS and thus increase RNY/EG. However, the analysis is incomplete as it did not factor in how X-competitiveness would have fallen which affects AD and RNY. Students should note that the appreciation of S\$ will always lead to an overall fall in RNY in the SR even when AS rises.
- Evaluation for this question was generally weak as many students did not address the question on whether it is the “only way” to manage the challenges. And for those students who did, the reasons were not well substantiated. Many also did not link it back to managing economic challenges or provided a justification with respect to alternative measures and measures that can be adopted to become more productive or competitive.

Essay Q5

Wall Street widely expected the Federal Reserve Bank to raise interest rates by 25 basis points, which is exactly what happened. However, the US dollar subsequently fell amidst fears of a banking crisis.

- (a) Explain a possible reason for the interest rate hike by the Federal Reserve Bank and why the US dollar fell despite this interest rate hike. [10]
- (b) Discuss the reasons why a government might find it challenging to resolve the problem of stagflation. [15]

Introduction

- The interest rate hike is part of contractionary money policy
- Interest rate is the price of money and changes in interest rate will have various impacts on the economy → EG/UE/inflation/BOT/ER

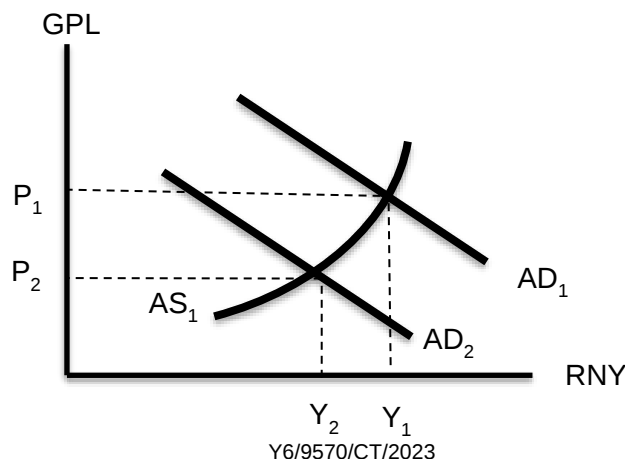
Body

Requirement 1: Explain reason for the interest rate hike.

To manage high inflation

- The US economy could be experiencing high inflation. This might be either demand-pull or cost-push in nature or both. For example, the Fed's quantitative easing policy and commitment to low interest rates in the aftermath of the subprime crisis and during the Covid pandemic might have created asset bubbles and contributed to demand-pull inflation.

Analysis



- Contractionary MP via a hike in interest rate will reduce AD via consumption and investment (primarily). The higher interest rate increases the cost of borrowing. This disincentivizes consumers from purchasing big -ticket items such as cars since the cost of credit increases. Also, there would be fewer investment projects that have an MEI exceeding the interest rate, reducing investment.
- The fall in autonomous aggregate expenditure will lead to a more than proportionate decline in AD due to the multiplier effect where the fall in one person's expenditure causes a fall in income to another and a subsequent decline in induced consumption.
- As a result of the fall in AD, planned expenditure < output and there is unplanned accumulation of inventories at the current general price level. Firms reduce demand for factors of production, causing the cost of production to decline. As a result, the GPL falls from P_1 to P_2 , dampening inflationary pressure in the economy.

Requirement 2: Explain the reason for the fall in US dollar despite the interest rate hike

Hike in interest rate:

- The hike in interest would increase the return from interest-bearing US financial assets relative to those in other countries. This increases the demand for USD due to the inflow of hot-money, (or fall in the supply as well as agents are less willing to exchange USD for foreign currency), and the USD should have appreciated ceteris paribus.

However, there is fear of a “banking crisis”:

- A fall in the US dollar refers to a depreciation. A possible reason could be the fear of a banking crisis.
- Economic agents lose confidence in the banking system and fear a loss of their deposits. As a result, speculators expect the US dollar to depreciate in the future → hence causing an outflow of hot money.

Analysis:

- Demand for USD falls in the forex market. Supply also increases if there is an outflow of hot-money.
- Downward pressure on the exchange rate (the price of USD in terms of a foreign currency e.g. GBP)
- New equilibrium price of USD is lower. (a depreciation)

Synthesis – to address the ‘despite the interest rate hike’

- Thus, the fear of banking crisis outweighed the former effect causing the demand to decrease and supply to increase by a larger extent. The net effect was therefore a depreciation.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	- A descriptive response - Glaring conceptual errors - No analysis on the GPL and forex market	1 – 4
L2	- Underdeveloped explanation of reasons for the interest rate hike and/or the depreciation (cursory statements). - Analysis lacks relevant details (Gaps in the analyses) - Reasons were not contextual or general (e.g. fall in exports caused the depreciation). - No AD-AS analysis – max 7m	5 - 7
L3	- Good analysis on reasons for both strands of the question. - Well applied to the context/preamble of the question. - No synthesis on why exchange rate depreciated despite the interest rate hike – max 8m - No AD-AS diagram – max 8m	8 - 10

Examiners' Comments

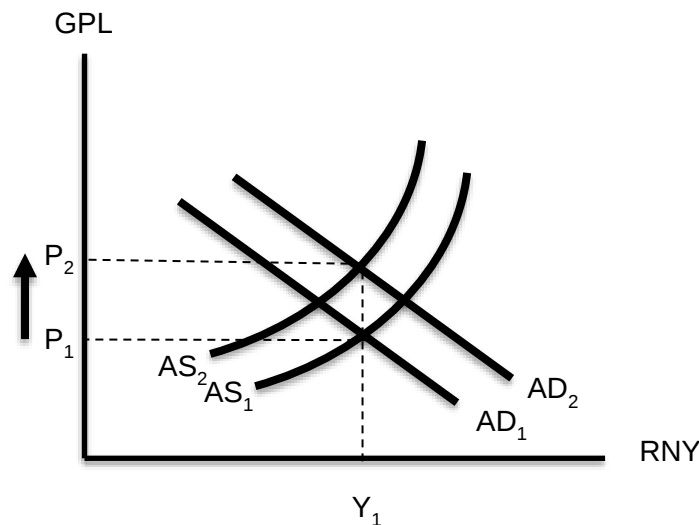
Most students understood the requirements of the question and were able to couch their responses in terms of the government's intended objective to reduce demand-pull inflation and how the banking crisis caused the US dollar to depreciate. However, the quality of responses varied across answers.

- A few students failed to see the interest rate hike as contractionary monetary policy. Even though the question mentions the Federal Reserve Bank raised the interest rate, a few erroneously attributed the rise in the interest to changes in the loanable funds market.
- While most were able to explain the fall in investment, the depth of the analysis was quite varied with some simply making a brief reference to the marginal efficiency of investment e.g. 'Based on the MEI theory, there is an inverse relationship between the interest rate and investment.' Simply stating the inverse relationship does not suffice as an analytical explanation.
- There were a few students who did not draw the AD-AS diagram or apply AD-AS analysis in explaining the fall in GPL. In some answers, there was insufficient elaboration of how the fall in AD led to GPL falling. Some brief elaboration of either the reverse multiplier leading to many rounds of fall in AD or the adjustment process leading to surpluses is expected.
- Some students did not respond to the 'despite the interest rate hike' part of the question and did not explain the effect of the hot-money inflow on the exchange rate. Students failed to address that theoretically due to interest rate increase, the US dollar should actually appreciate due to hot money inflows.
- One glaring mistake was confusing hot money flows (which put simply is about placing money in US banks or buying US bonds) with FDI which is a direct investment (referring to MNCs setting up business operations in the USA).
- Some explained the depreciation without using the information given in the question on the banking crisis and as such did not score well for the second requirement. They instead chose to use reasons such as a balance of trade deficit or high inflation in the USA. While these are correct theoretically, such answers usually did not earn the full range of the marks they did not pay heed to what was in the preamble.

Part (b)

Introduction

- Stagflation is combination of stagnant economic growth and high inflation. It is also associated with high unemployment.
- It is usually caused by a small increase in AD and a fall in AS or fall in AS leading to stagnant/falling growth and high inflation.



Body: Discuss the challenges in solving stagflation

Discuss the use of Demand-management policies + Challenges

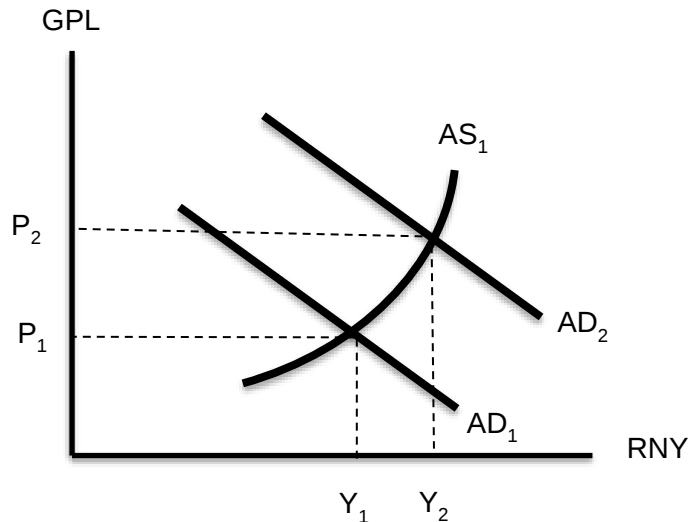
Demand-management policies could address the weak AD in a stagflation and achieve economic growth. Briefly explain either expansionary fiscal policy or monetary policy.

A: Use of expansionary MP

- A fall in interest rate would lower the cost of borrowing and increase consumption and investment as explained in part (a). The increase in autonomous aggregate expenditure shifts AD rightward and would lead to a multiplier effect as the increase in national income from it is a basis for future rounds of induced consumption which shifts AD further rightward. RNY increases more than proportionately reflecting actual economic growth from Y_1 to Y_2 .

B: Use of expansionary FP

(Explain how expansionary FP works through the multiplier to increase AD and RNY.)



[Note: Contractionary policies do not directly target the weak AD in a stagflation although they could be used to reduce inflation.]

Challenges:

1. Conflicts/Trade-offs in macro goals

- In resolving growth by shifting AD to the right along the upward sloping portion of the AS, the economy could experience bottlenecks. As firms bid for factors of production, the cost of using factor inputs increases leading to a rise in GPL from P_1 to P_2 . This worsens the inflation problem although it resolves the stagnant economic growth and high demand-deficient unemployment.

2. Liquidity Trap

- A liquidity trap occurs when the interest rate is near zero and it is infeasible to reduce it further via conventional expansionary monetary policy. Even if the central bank resorts to quantitative easing by increasing the purchase of long-term financial assets such as bonds, the easy access to cheap credit could lead to asset price inflation and worsen the inflation problem during a period of stagflation.

3. Effects of government debt from expansionary FP

- Expansionary FP could have unintended consequences if the government incurs a debt. This might be the case where governments lack fiscal prudence or in economies where the size of the multiplier is small and a higher level of government expenditure would be necessary to increase RNY significantly. In a period of

stagflation, increasing debt when confidence is already low could exacerbate the fall in I and C, and restrain any potential increase in AD from expansionary FP, making stagflation difficult to resolve.

Discuss the use of supply-side policies to increase AS + Challenges

Stagflation is also caused by a fall in AS due to rising cost of production e.g. supply shocks caused by higher prices of imported inputs such as oil.

A. Policies to reduce cost of production only

i. Wage subsidy/Wages and incomes policy.

In times of stagflation, workers will ask for higher wages as goods and services become less affordable. This will further increase in the cost of production and wage-price spirals could develop, causing AS to decrease (shift up) and GPL to rise further.

The government could subsidise wage increases to dampen wage-push inflation. This will prevent AS from shifting upward and limit the increase in cost of production and GPL.

Alternatively, the government could freeze wage increments and bonuses or cut the employers' CPF contribution. Such intervention would reduce the cost of production and AS would shift down, reducing GPL and increasing RNY.

ii. Subsidise imports of raw materials and other factor inputs.

The government could subsidise crude oil, natural gas, basic food items and other essential inputs. This would increase the AS through a reduction in cost of production. The downward shift would reduce the GPL and lead to actual economic growth.

Challenges:

Difficulty in reducing wages.

- In a period of rising inflation and economic stagnation, it would be difficult to cut or freeze wage increments as this would negatively impact the purchasing power and material SOL of workers.

Limitations of subsidizing wages or imported raw materials.

- Subsidizing wages and other imported raw materials would make economic agents overdependent on the government, making it more difficult to withdraw these subsidies if the stagflation is prolonged.
- It would also be difficult to end inflationary expectations or the external causes of the increase in cost e.g. supply-side shocks might continue to occur even after the first round of subsidies. This might be a huge strain on the budget leading to a debt problem.

B. Policies to increase productive capacity and cost of production

i). Encouraging R&D/investment in alternative sources of energy.

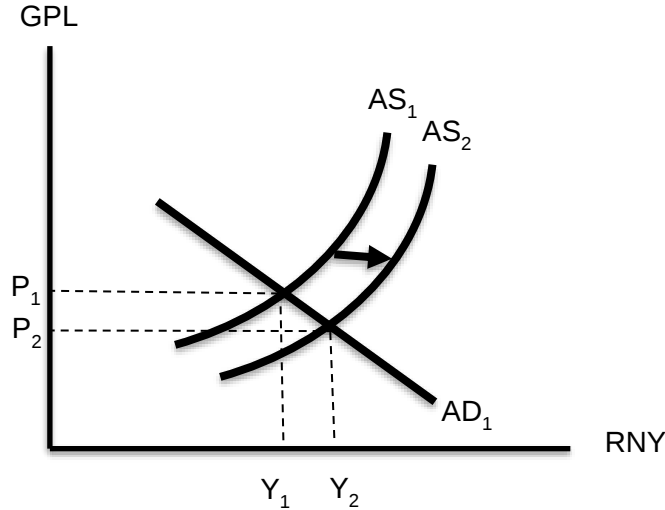
ii) Diversify the industrial structure to reduce dependence on imports.

iii) Investments in human capital.

Assuming that the root cause of stagflation is the external shocks from rising import prices, the government could use supply-side policies to reduce the dependence on imported factor inputs. These include subsidizing R&D into greener sources of energy to reduce the dependence on imported fossil fuels such as oil or natural gas. The government could also provide infrastructure and subsidize training in other sectors such as food production, to reduce reliance on imported food and limit the adverse impact of imported inflation. Investments in human capital such as skills upgrading can improve productivity such that productivity growth > wage increments.

Analysis:

As productivity and technology improves, productive capacity increases and AS shifts right. Unit cost of production also falls, causing the AS to shift downward. This causes GPL to fall to P_2 dampening inflation. RNY also increases to Y_2 , resolving the stagnant growth.

**Challenges:****Limitations of diversification**

For small and open economies, diversification might not be feasible due to the lack of land for agricultural production or to develop alternative sources of energy. Due to lack factor endowments particularly land, the cost of production would be high since resources need to be diverted from other sectors and it is unlikely that domestically produced food or energy would be cheaper than imports. Hence, stagflation is not resolved.

Long-time horizon for effectiveness and uncertainty

Skills development and R&D breakthroughs take time. In the short-term, it would not have any effect on alleviating stagflation. Furthermore, there is uncertainty due to the lack of receptiveness of workers and firms to retraining and the efforts at R&D might be unsuccessful with no breakthroughs. As such AS would not shift right significantly to resolve stagflation.

Conclusion and Overall Evaluation

Stagflation is challenging to resolve since it consists of 2 macroeconomic problems i.e. slow growth and high inflation. This creates additional stress on the government since the solution requires a minimum of 2 policies since there are 2 dimensions to the problem of stagflation.

- Demand management policies alone are largely ineffective since these will lead to conflicts in macro-objectives. Hence the government will need to incur additional expenditure in implementing SSPs alongside demand management policies. Countries which are in high debt might not be able to resolve stagflation.
- Supply-side policies tend to be ineffective in the short-term due to the long- time lag for effectiveness. Therefore, there doesn't seem to be an effective and desirable way of resolving stagflation in the short-term.
- Finally, the source of stagflation is likely to be external factors rather than domestic factors making it difficult to resolve using policies, since it is outside of the control of the government.

In view of the above, stagflation is relatively difficult to resolve for economies that are small and open, and for governments which are highly in debt since it requires a multitude of policies.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	• Answer mostly irrelevant or inaccurate. • Shows some knowledge but no analysis of the challenges or problem. • Meaning of question not properly grasped. • Inadequately explained or descriptive. • No reference made to any particular policy.	1-4
L2	• Response lacks scope i.e. either demand-management or supply side-policies were suggested but not both. Failed to explain at least 3 challenges faced by governments. • Gaps in the analysis/explanation. • Policies and challenges were not well applied to stagflation. (a generic response). • Max 7m – Limited scope (only demand management or supply-side policies; only 2 challenges explained.)	5-7
L3	• Good scope- Discussed at both dd management and supply-side policies and their challenges. • Sound and rigorous analysis of policies and challenges. • Well-applied to the context of stagflation and not generic.	8-10
Evaluation		
E1	• A superficial conclusion /assertion.	1 - 2
E2	• Substantiated evaluative comments about the challenges faced by governments in resolving stagflation.	3 – 4
E3	• Good scope in the evaluation. Insightful and perceptive judgement on the challenges faced.	5

Examiners' Comments:

- There were many answers that misinterpreted what is stagflation. Stagflation is about two economic phenomena – weak growth (weak AD) coupled with high inflation (fall in AS).
- A good response would have examined the causes of stagflation. Very few did this.
- There were a few students who did not know what stagflation referred to. An incorrect definition was applied, and this had an adverse impact on the relevance of the policies put forward. A common flaw saw stagflation as a situation where prices did not change.
- Weak responses discussed challenges without any clear reference made to a specific policy. At the other extreme, there were some responses which were too focused too much on how the policies work with a very cursory discussion of challenges.
- Policies and challenges were largely 'cut and paste' with little effort to contextualise.

*****END*****

"Start where you are. Use what you have. Do what you can." ~ Arthur Ashe