ASRJC JC2 Preliminary Examination

2024 H2 Economics Paper 2

Suggested Answers and Markers' Comments

Question 1

Market failure can occur due to imperfect information. For example, buyers know more information about their health problems than insurance providers in the healthcare insurance market while consumers of healthcare services may not be fully aware of the benefits of consuming healthcare services.

(a) Explain how the market fails due to imperfect information in the market for healthcare services and the market for healthcare insurance. [10]

(b) Discuss the policies that the Singapore government could adopt to ensure that the market for healthcare services operates efficiently. [15]

Suggested answers (part a)

Market failure refers to circumstances in which free, unregulated markets fail to achieve efficient allocation of scarce resources. Distortions in the market, for instance, imperfect information, prevent the price mechanism from allocating resources efficiently. In the real world, there is often a great deal of ignorance and uncertainty due to imperfect information. Imperfect information (and thus information failure) occurs when people have inaccurate, incomplete, uncertain or misunderstood data and so make potentially inaccurate choices. Market failure may arise due to lack of awareness of benefits in the market for healthcare services and due to adverse selection in the market for healthcare insurance.	Intro
R1: Market fails due to lack of awareness of benefits in the market for healthcare services. Consumers who consider healthcare services may underestimate their potential benefits as they may not have complete information about the full longer-term benefits from consuming healthcare services such as they did not realise that they could be productive at work which enables them to earn a higher wage in the future. This is an example of imperfect information, creating a divergence between the consumers' perceived Marginal Private Benefit ($MPB_{perceived}$) and the actual Marginal Private Benefit (MPB_{actual}) (Figure 1). $MPB_{perceived}$ represents the amount that consumers are willing and able to pay for each additional unit of healthcare service based on what they perceive to be the benefits they enjoy from its consumption. In this case, it is assumed that there are no positive or negative externalities, i.e. MPB_{actual} = MSB and MPC=MSC.	**R1: Market fails due to lack of awareness of benefits in the market for healthcare services.**

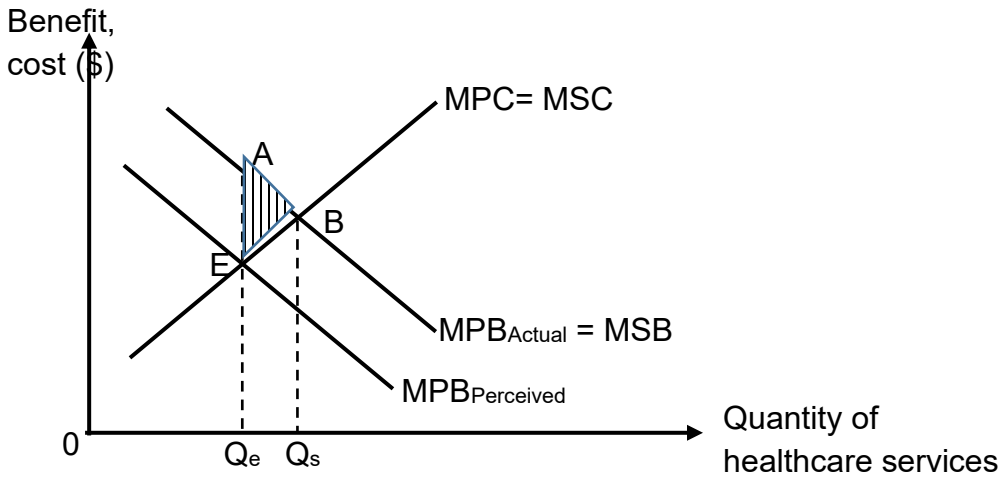

Figure 1: Underconsumption due to imperfect information

Individuals will consume healthcare service up to Q_e, where $MPB_{perceived}$ = MPC but the socially optimal output level is at Q_s, where MSB = MSC. Hence, consumers' imperfect information has led to an under-consumption of healthcare services.

If consumers had full information of the private benefits of healthcare services and consume additional Q_eQ_s units, society's welfare would increase because for these units of output, MSB>MSC (the additional benefit to society is greater than its costs). Instead, individuals consume only at Q_e. And so there is **deadweight loss** to society which is indicated by the shaded area ABE (by summing the excess MSB over MSC). Society could be made better off if more resources were allocated to the production of healthcare services.

R2: Market fails due to asymmetric information in the market for healthcare insurance.

Asymmetric information is when the economic agents (e.g. consumers and producers) involved in the transaction do not have the same amount of knowledge, resulting in a distortion of incentives and inefficient market outcomes.

Adverse selection describes a situation in which the uninformed side of the market must choose from an undesirable or adverse selection of goods. It is market failure that results when products of different qualities are sold at a single price because of asymmetric information. As a result, too much of the low quality product and too little of the high quality product are sold.

R2: Market fails due to adverse selection in the market for healthcare insurance.

Buyers of insurance might not divulge sufficient and accurate information about their health conditions to insurance companies. Buyers with higher risks (e.g. high risk individuals could be adopting unhealthy lifestyle) are more likely to buy health insurance with higher levels of coverage. This means that in the long run, insurance companies are likely to incur losses due to higher claims. In response, insurance companies will raise premiums (price of insurance) to cover their losses, but this will deter even more low risk individuals (e.g. low risk individuals who exercise regularly) from purchasing insurance. This will exacerbate the issue as the insurance companies will be left providing insurance to high-risk individuals, which may lead to an increase in losses, and a complete collapse of the insurance market (missing market for health insurance). This leads to a missing market for health insurance for low-risk individuals and an under-allocation of resources to the provision of health insurance. Moral hazard is a situation where economic agents take greater risks than they normally would because the costs that would result would not be borne by the economic agents themselves. For example, moral hazard can arise when one party in a transaction change his or her behaviour in a way that is hidden from and costly to the other party. For example, an individual who buys health insurance may be less careful in maintaining his or her good health as the cost of future health problems is not as high as it would have been without the insurance. In the case of fire insurance, a homeowner with fire insurance is likely to buy fewer fire extinguishers or take less care to prevent the occurrence of a fire as the insurance company now bears most of the cost of the damage in the event of a fire. These behaviours may result in higher losses for insurance companies, and they may be forced to close down, **leading to an under-allocation of resources to the provision of insurance.** Hence, market failure may arise due to lack of awareness of benefits in the market for healthcare services and asymmetric information in the market for healthcare insurance.	**Alternate R2: Market fails due to moral hazard in the market for healthcare insurance.**

There are two requirements in this question. For **each** requirement of the question, you will be assessed on your depth of analysis:

Depth of analysis	Descriptor
Analytical	An analytical explanation of question requirement with good application of relevant tools of analysis.
Cursory	An answer that shows cursory understanding of the question requirement and is lacking in AR and AP.
Knowledge	An answer that demonstrates weak understanding of the question requirement with many CK errors and possible QA errors.

Based on the depth of analysis for **both** requirements, you will be given a score:

Depth of Analysis	Mark
A+A	10
A+C	8 – 9
A+K	7
C+C	6-7
A+0	6
K+C	5-6
C+0	4
K+K	2-4
K+0	1-2

Marker's Comments

General comments:

QA	• The focus of the question is on imperfect information and there are two requirements for this question. Thus, students should give two different reasons/ sources, instead of applying the same content for both markets. • A few students wrote positive externality, even though it was clearly stated as imperfect information. • Market for healthcare services and market for healthcare insurances are different, hence students should explain separately.
CK	• Some students were confused between moral hazard and adverse selection and mixed the explanation for both concepts. • The focus in this question is on the lack of awareness of benefits which applies to consumers themselves, rather than third parties (which is the case for externality).
AR	• Students would need to provide economic analysis for this and used economic terms such as MPB (perceived) and MPB (actual), instead of generic terms. • Students should explain in detail (i.e. how the Qe, Qs and DWL were derived), instead of stating. This is especially so when the marks allocated is higher, thus students are expected to provide more rigour.
AP	• Students should apply in context (i.e. such as the lack of awareness of the specific benefits such as higher productivity), instead of generic terms.

Suggested answers (part b)

The Singapore government has adopted a range of policies in the attempt to correct market failure resulting from imperfect information. This includes provision of information and subsidy/ regulation such as compulsory vaccination programme. **R1: Provision of information** The government can provide information to help consumers value the actual benefit of healthcare service. For example, advertising campaigns to promote the importance of health screening help to encourage a healthy lifestyle and increase labour productivity at the workplace which leads to increase in personal incomes. By raising the awareness of the actual benefit of healthcare services, consumers' perceived benefit of healthcare services is increased, leading to a higher consumption of healthcare services. If the advertising campaign is successful, the divergence between perceived and actual benefit of	Intro **R1: Provision of information**

consuming healthcare services will be removed (i.e., $MPB_{perceived}$ shifted to MPB_{actual} in Figure 2). The socially optimal quantity of healthcare services consumed will then be achieved.

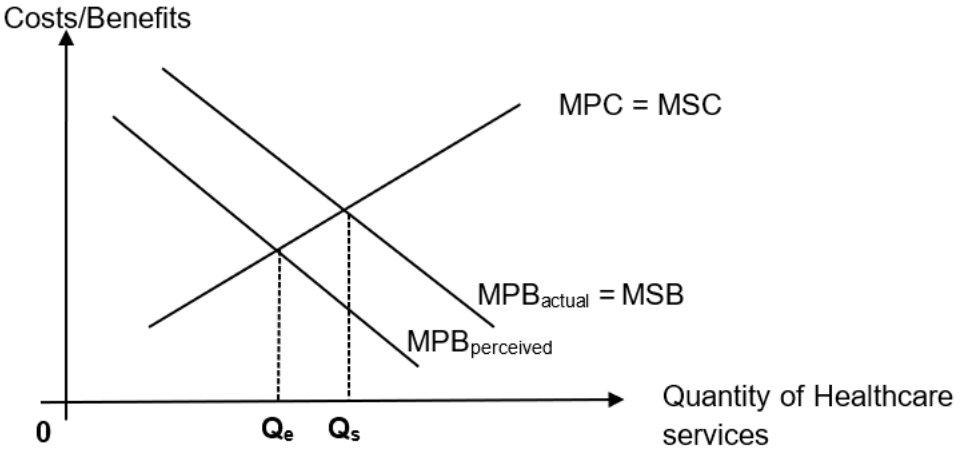

Figure 2: Provision of information in the market for healthcare services

However, provision of information merely provides market participants with better information but does not artificially distort the workings of the free market. This is favourable, especially from the perspective of the free market. However, the outcome is uncertain. This is because people may not have the willingness to access the information in the first place and even if they do, they may already have a pre-existing mindset on the benefits of healthcare services and the information provided may still not change their views. In addition, it takes time to change people mindset and thus, the desired outcome may not be immediate. Furthermore, the effects of campaigns are not enforceable compared to other policies such as regulation or subsidy.

However, this may not be a significant issue for Singapore as the population has a basic level of education and is literate to understand/ better appreciate the benefits of healthcare services through campaigns. Thus, the extent of ignorance of the benefits of healthcare services through campaign is low.

Int EV (consider context and significance of issue)

R2: Other policy - Subsidy

R2: Subsidy

The government can provide a subsidy per unit of output that is equal to the value of the marginal private benefit that consumers failed to consider due to imperfect information. This reduces the cost of production and increases the willingness and ability of producers to produce more. As shown in Figure 3, the MPC curve shifts downwards from MPC to $MPC_{with\ subsidy}$. The subsidy will reduce the cost of production as seen in the downward shift of the MPC curve and this will lead to a rise in supply of healthcare services. As a result, the price of healthcare services will fall and the quantity consumed will increase to socially optimum quantity of healthcare service, Q_s.

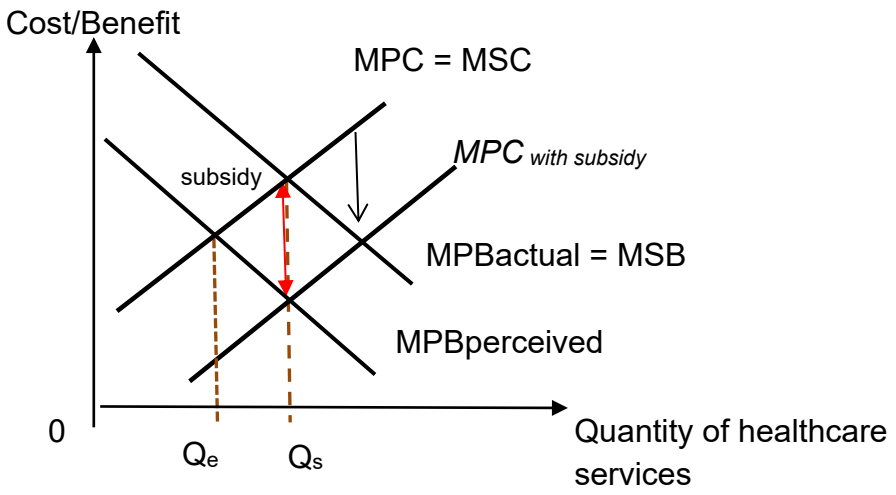

Figure 3: Subsidy to achieve Qs

However, the subsidy given may be too little due to a lack of available information about the extent of imperfect information, resulting in correcting the market failure only partially. Over-subsidising can also result in a greater deadweight loss as compared to the deadweight loss before intervention. For example, if the extent of imperfect information is not significant but governments fully subsidise healthcare services such that it is provided free at Qz, it will cause the area of deadweight loss to be larger at B as compared to the original area A as shown in Figure 4. Moreover, subsidy causes a strain on the government's budget which may limit the funds available for other areas, leading to inefficiency in other markets.

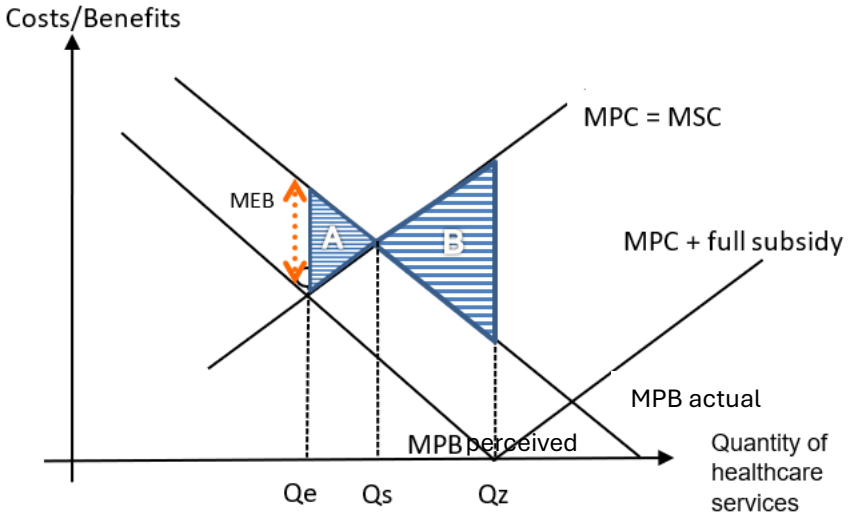

Figure 4: Over-subsidy leading to greater DWL

However, this may not be a significant issue as Singapore government has exercised fiscal prudence and accumulate reserves from past budget surplus. They should have the capacity to fund subsidies on necessities when there is an urgent need. Alternative: It is difficult to estimate the extent of the imperfect information as this may differ across different demographic groups. E.g. the younger generation may be less likely to underestimate the marginal private benefits of health screening as they are educated about the importance in schools and through social media but the less literate seniors might not fully appreciate the MPB of early detection of diseases through regular screenings.	Int EV
Alternate R2: Other policy - Regulation (compulsory vaccination) Regulations refer to the use of legal intervention to force consumers and producers to behave in certain ways. It is the use of government legislation to produce a more desirable economic outcome than that achieved by the free market. There are various types of vaccination programme available in Singapore. For example, the National Childhood Immunisation Schedule (NCIS) comprises childhood vaccinations recommended as the standard of care for protection against vaccine preventable diseases that are of significant healthcare burden to Singapore or would be so without these vaccinations. Currently, the NCIS covers vaccinations against 12 diseases. Of these, vaccinations against measles and diphtheria are compulsory for children under the Infectious Diseases Act. The National Adult Immunisation Schedule (NAIS) was established to provide guidance on vaccinations that persons age 18 years or older should adopt to protect themselves against vaccine-preventable diseases. These would increase the demand for healthcare services and increase the consumption level.	**Alternate R2: Other policy - Regulation (compulsory vaccination)**
However, enforcement measures must be adequate for rules and regulations to be effective. They would need to allocate resources for monitoring to ensure that there is compliance which may cause a strain on budget and manpower. However, this may not a significant issue with the development of technology to enhance administrative process in country like Singapore. With data entry and efficient system to track the vaccination schedule, the agency may be able to get notification of those who don't get vaccinated more easily which makes the monitoring process more efficiently.	Int EV
Evaluative conclusion: Each policy to correct market failure arising from imperfect information in the healthcare services market has its limitations. In the context of imperfect information being the main cause of underconsumption of healthcare services, the best policy is education as it tackles the root cause of the problem by closing the information gap unlike subsidy which does not enhance consumers' awareness of the actual benefits of healthcare services.	**Summative conclusion**

Alternative: Each policy to correct market failure arising from imperfect information in the healthcare services market has its limitations. In the context of Singapore, with increasing number of elderly without a stable source of income, subsidy might be more effective than provision of information at increasing the quantity consumed by reducing the prices of essential healthcare services for lower-income elderly who were unable to afford the high market prices. Moreover, it takes time to change mindset through provision of information for the group of elderly who might not be able to understand the information communicated through mass media due to language barriers.	

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K+K	2-4
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For this question, 5 marks are allocated for evaluation. Your evaluation is assessed based on this rubric:

	Evaluation
E3: 5	A well-explained evaluative judgement about **both requirements** PLUS an overall summative conclusion leading to a well-explained evaluative judgment on the policies in ensuring that the market for healthcare services operates efficiently.
E2: 3-4	**(4m)** A well-explained evaluative judgement about both requirements. OR Well-explained evaluative judgement about **one** requirement PLUS a learned evaluative statement for the second plus a **summative conclusion.** (**3m): Well-explained** evaluative **judgement** about **one** requirement PLUS a learned evaluative **statement** for the **second.**
E1:1-2	**(2m):** A learnt evaluative **statement** for t**wo** requirements OR a **well-explained** evaluative j**udgement** about **one** requirement. **(1m)** A learnt evaluative statement for **one** requirement.

Marker's Comments

General comments:

QA	• The focus of the question is on the healthcare services market, but some students wrote on healthcare insurance market. • Students should propose policies to address imperfect information, where possible since it is linked from part (a). Thus, one of the policies proposed should address imperfect information.
CK	• Some students couldn't explain how the policies work.
AR	• Students should explain in economic terms, instead of generic terms. For example, economic terms such as how the provision of information could bridge the gap between MPB_p and $MPB_{A,}$ instead of stating how the provision of information would address the issue without explaining.
AP	• Students who wrote on subsidy amount equal to MEB would not be able to address the issue directly since there was no explanation of positive externality prior to this. Thus, they would have to adjust the analysis to

	explain that the subsidy amount would be equal to the information gap between MPB_P and MPB_A.
EV	• Students should consider the context to weigh, instead of giving a generic/ rehearsed one. • In weighing policies, students should consider factors to compare such as greater certainty of outcome/ better address the root cause, instead of listing the limitations again.

Question 2

In New York City, economic growth and relaxation of regulations for developers of new rental projects can have different impacts on rent. The government puts in place rent control policies to limit how much rent can increase annually for certain rental properties.

(a) Explain the different impacts on housing rents due to economic growth and relaxation of regulations. [10]

(b) Discuss whether a rent control policy is the most effective way to address the affordability of housing rents. [15]

Suggested Answer (part a)

Suggested answer	Key points
In economics, the prices of goods are predominantly determined by the forces of demand and supply. This essay explores how the two distinct factors, influx of higher income professionals and relaxation of regulations, can differentially impact the prices of rental housing. With an increase in economic growth, there is increase in income levels and increase in purchasing power, leading to increase in ability and willingness to consume. Thus, the increase in income has seen an influx of higher income professionals to increase demand for rental housing. It **will cause rentals to increase significantly especially since the supply of houses is price inelastic.** Since housing is deemed as a normal good, the increase in consumers' income will hence lead to an increase in demand for rental housing. This is especially so for those who are not residents but foreigners working in U.S. who would prefer to rent than purchase properties. This results in a rightward shift of the demand curve from DD_0 to DD_1 as shown in Figure 1.	**Introduction:** *Determination of key concepts and direction of essay* **R1: Increases in economic growth will cause rentals to increase significantly as the supply is price inelastic.** *Explain the effect of increases in income on demand for rental housing*

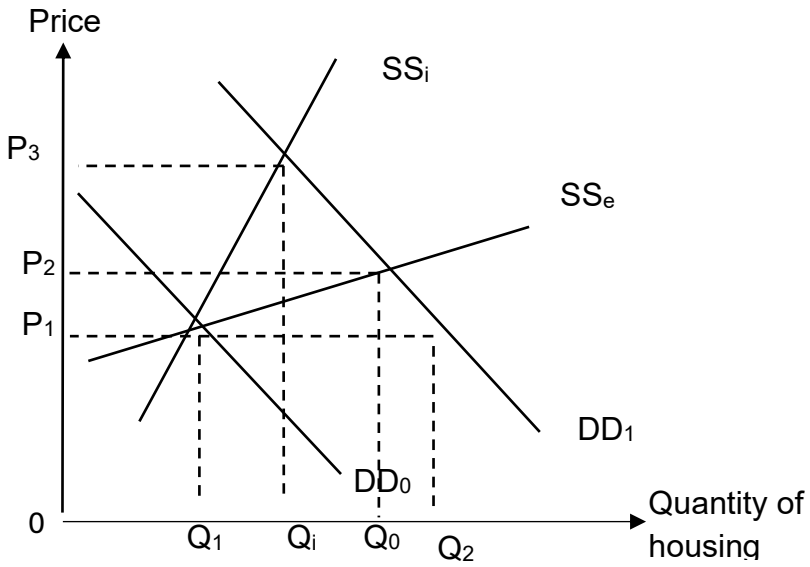


Figure 1

To analyse the extent of increase in price, we have to determine the PES value of rental housing. If the supply of rental housing is price elastic, the increase in price will be to a smaller extent from P_1 to P_2. If the supply is price inelastic, the increase in price will be more significant from P_1 to P_3.

Supply of housing is likely to be price inelastic due to the length and complexity of production process. Firms have to bid for the land released by the government, and it takes about 3-4 years for the apartments to be build and ready for use. The construction time could even be longer if they have to redevelop existing property. Thus, in view of these factors, the supply of rental properties is relatively price inelastic. Thus, an increase in price in rental housing is likely to lead to a less than proportionate increase in quantity supplied.

Explain why SS is price inelastic for rental housing

With supply of rental housing being price inelastic, the increase in demand for rental housing from DD_0 to DD_1 will lead to a shortage of Q_1Q_2 amount at the original price, P_1. This exerts an upward pressure on the market price. As price increases, quantity supplied increases and quantity demanded rise. As supply is price inelastic, the increase in price leads to less than proportionate increase in quantity supplied. This means that for the market to clear and reach a new equilibrium, the increase in price has to be greater in order for the increase in quantity supplied to clear the shortage. Thus, the overall increase in rental is to a larger extent.

Explain brief price adjustment process and how the changes affect price of housing

Alternative R1 (YED): Demand for housing is likely to be **income inelastic**. (i.e. 0<YED<1) and considered a normal good, specifically a **necessity good**. This is because there are more superior quality and luxurious housing. Rental housing is basic to have a roof over our heads. An increase in income increases the demand for rental housing **less than proportionately** from D0 to D1. As such the price of rental housing will increase by a smaller extent. Very often, elasticity values may not be accurate and reliable because of the way data is being collected and/or how up to date the data is. The income elasticity of demand value may be different from what is being assumed. For example, it is assumed that rental housing is considered to be necessities with 0<YED<1. However, there are rental housing at certain areas that could be considered a **luxury good** in the market. Hence, YED could be greater than one or demand for rental housing could be **income elastic** instead. This leads to a more than proportionate increase in demand and hence a large extent increase in rental prices.	*Alternative R1: Increase in economic growth will cause rentals to increase as it's a normal good (YED>0)*
Relaxation of regulations for new rental projects will cause prices of rental housing to decrease by a small extent since the demand for rental is price elastic. With relaxation of regulations for developers, for example, more land could be set aside for development of new rental properties. It could also include changes to allow a blend of residential rental projects with commercial and industrial uses in previously restricted zones. This could lead to an increase in the supply of rental housing. This results in a rightward shift of the supply curve from SS_0 to SS_1 as shown in Figure 2.	**R2: Relaxation of regulations will cause prices of housing to decrease to a small extent as the demand is price elastic.** *Explain the effect of relaxation of regulations on supply of rental housing*

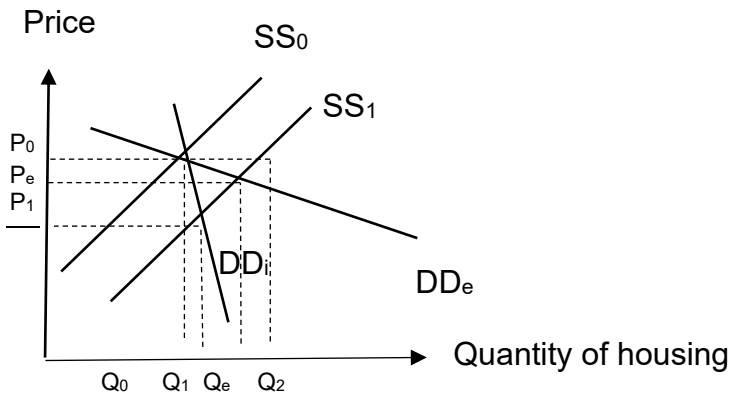


Figure 2

To analyse the impact of the increase in supply of rental housing on price, we have to determine the PED value of rental housing. If the demand for rental housing is price elastic (represented by the DD_e curve), the decrease in price will be to a smaller extent from P_0 to P_e. If the demand is price inelastic (represented by the DD_i curve), the decrease in price will be more significant from P_0 to P_1.	*Explain why DD is price elastic for rental housing*
Demand for rental housing is likely to be price elastic there are many other close substitutes for accommodation such as purchasing residential properties. Hence, decrease in rental housing prices is likely to lead to a more than proportionate increase in quantity demanded.	
Thus with demand for rental housing being price elastic, the increase in supply of rental housing from SS_0 to SS_1 will lead to a surplus of Q_1Q_2 amount at the original price, P_0. This exerts downward pressure on the market price. As price decreases, quantity demanded increases and quantity supplied falls. As demand for rental housing is price elastic, the decrease in price leads to more than proportionate increase in quantity demanded. This means that for the market to clear and reach a new equilibrium, the decrease in price will be less in order for the increase in quantity demanded to clear the surplus. Thus, the overall decrease in rental prices has decreased to a small extent.	*Explain brief price adjustment process and how the changes affect price of housing*
In conclusion, the factors of increase in economic growth and relaxation of regulations separately have different and opposing impacts on the prices of rental housing prices. The accompanying price elasticity concepts will also influence the extent of change in the prices of rental housing as well.	Concluding statement

Please refer to Qn 1a above for the mark scheme.

Marker's Comments

General comments:

QA	• Some students applied macroeconomic analysis. However, this is a micro question looking at 1 specific market (i.e. rental housing) only. • Weaker students failed to bring in elasticity concepts in their explanations on the impact of the rental prices. Elasticity concepts are expected so that the analysis could include **both direction and extent** of change in prices. • Question did not ask about impact on the market but impact on the rental price only so there is no need to comment on the impact on equilibrium output.
CK	• Students showed a good understanding of the reason for the demand and supply curve shifts with stronger responses providing in-depth explanation using demand and supply diagrams. Many students used supply and demand curves to show the impact of economic growth and a relaxation of regulations on the price of rental housing. • Stronger responses used two separate diagrams, one to show an increase in demand and the second to show an increase in supply. These stronger responses also made good use of elasticity concepts to comment on the extent of change in prices. Weaker responses drew only 1 demand and supply diagram or the diagram was incorrectly drawn.
AR	• Stronger students managed to analyse either price inelastic supply curve or inelastic income elasticity of demand with clear identification of the determinant to explain the extent of the price increase following an economic growth. These responses also referred to elasticity of demand concept to explain that extent of fall in rental prices following relaxation of regulations. The price adjustment process was also explained thoroughly. • Less competent responses did not refer to elasticities throughout their answers or applied elasticity concepts wrongly (eg: explaining PED following an economic growth and explaining PES following relaxation of regulations). Some students used a single diagram to explain the overall change in rental housing price that resulted from

	the combination of both changes. The consequence of a single diagram was that the explanation of the two different impacts on price was either difficult to separate or not fully developed.

Suggested Answer (part b)

Requirement 1: Explain how a rent control can help address affordability of rental housing prices to consumers.

Requirement 2: Explain how subsidies to developers (producers) to encourage building affordable housing for rental purposes.

Evaluation: This question requires intermediate evaluation for both R1 and R2, and an overall summative conclusion.

Suggested answer	Key points
Housing rental price is a significant economic issue that consumers greatly. This essay will discuss the effectiveness of various measures aimed at addressing the affordability of rental housing prices, including the implementation of a rent control policy and producer subsidies to encourage supply of affordable housing for rental.	**Introduction:** *Determination of key concepts and direction of essay*
To address the rising housing rental prices, the government could intervene through imposing a price ceiling on the rental market to keep the price of rental housing affordable. A price ceiling is a legal maximum on the price at which the good can be sold. When a price ceiling P_c is imposed as shown in Figure 3, the quantity demanded is at Q2 and the quantity supplied is at Q1. The quantity that is rented out is at Q1. Even when the shortage (Q_1Q_2 amount) of rental housing threatens to cause prices to rise to P, the landlords are not allowed to increase the price of rental. Thus, the price of housing rental remains stable at price P_c, which is lower than the equilibrium price. It is especially beneficial for low income tenants as the rental prices are lower than market rates.	**R1: Explain how implementation of a price ceiling can ensure affordability of housing rental prices to consumers.** *Definition of price ceiling and diagrammatic explanation of how it keeps rental prices stable*

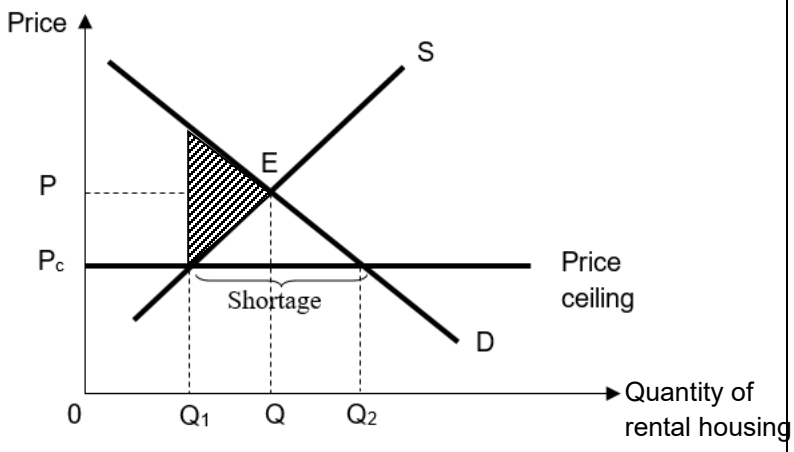


Figure 3

However, there is a shortage of Q_1Q_2 of rental housing as the quantity demanded is $0Q_2$ but the quantity supplied is only $0Q_1$. This shortage will persist because the market is prevented from adjusting itself. The shortage will cause queues or waiting lists or the restriction of rental by landlords to favoured customers. This may hurt the group of lower-income people the policy of price ceiling is intended to help, especially since housing is a necessity and is an essential good for survival. Moreover, at Q_1, society values each additional unit of the good more than what it would cost society to produce it. More resources should have been allocated to the production of rental housing for consumption by society. The shaded area (in Figure 3) illustrates the total monetary value of deadweight loss to society. Also, if landlords cannot raise rents to meet their maintenance costs, they have less money to reinvest in their buildings, leading to worn out conditions of the rental units.

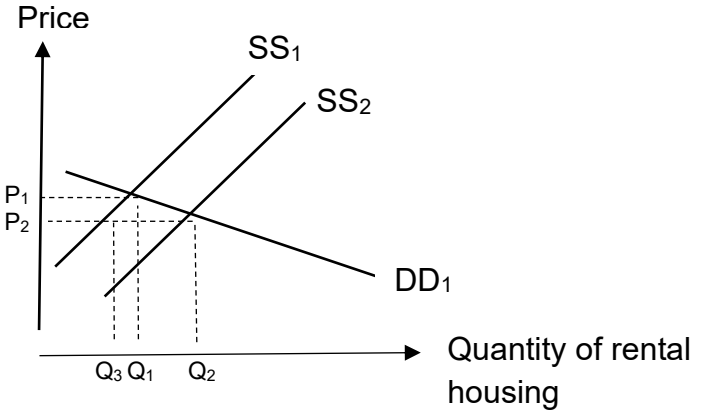
Limitations of price ceiling policy; persistent shortage and deadweight loss.

Nonetheless, the implementation of a price ceiling to ensure affordability of rental housing prices to consumers could still be advantageous. For example, in the context of New York City and California, a price ceiling is a necessary approach where housing is limited and extremely expensive. Although the price ceiling can result in a persistent shortage, this can be mitigated through rationing systems to allocate the limited rental housing units.

Intermediate EV for R1: *Contextualised advantage of price ceiling policy*

Another policy the government can consider is to use subsidies to incentivise new rental development in order to boost supply of rental housing. Such a policy would involve providing direct subsidies to producers for development with regards to rental housing production. This encourages producers as it becomes more affordable to carry out as the

Requirement 2: Explain how producer subsidies to incentivise new

government is funding for it which will lower the cost of production. They can then pass on the cost savings to consumers in the form of lower housing rental market prices. The lower cost of production would allow producers to be more willing and able to invest in new rental development projects. Subsidies can also help to promote development in underdeveloped areas, leading to urban renewal and improved infrastructure. Therefore, by providing these subsidies and also relaxing the regulation of new rental projects, it will increase supply of rental housing units.	**rental development in order to boost supply of rental housing can ensure affordability of housing rental prices to consumers.**
 **Figure 4**	
This would be seen as a shift of the supply curve from SS_1 to SS_2 as shown in Figure 4. This can possibly reduce the shortage and the price will be lowered. The government can also subsidise the housing producers to remove the shortages created by the price ceiling. If it does, then the supply can increase and this will bring down the market equilibrium price such that it coincides with the maximum price. In this case, the market clears, there will be no black market and society's welfare is maximized while maintaining a low price of rental housing for the lower income families to enhance equity. This thus addresses the affordability of rental housing prices.	*Explanation of how the increase in supply would keep housing rental prices affordable.*
However, there are some limitations with trying to use this approach. One consideration when using this policy would be the long time-lag for this policy to have a significant impact. It may take a long time from when the government provides incentives to the development of new rental projects to the time that the development is completed and ready to be rented out as it requires years to construct apartments for rent. Thus, this policy may only be effective in the long-run and does little to address higher housing rental prices immediately. In addition, there may be land constraints in these cities which have commercial or other uses in the core zones. Another	*Limitations of subsidy policy; long time before development of rental apartments is completed and opportunity cost of government spending.*

consideration would be that the direct subsidies add to government expenditure. This then results in opportunity costs as the government may have to reduce spending in other national priorities and projects such as national defence and transport infrastructure that may improve citizens' welfare. Subsidies do not only benefit the producers but the wider community and country. Subsidies can make rental housing projects more attractive to both local and international investors. This can lead to more investment in the housing sector and stimulate economic activity. The development and construction of new rental housing projects create jobs in the construction industry and related sectors, such as materials supply and real estate services, which will increase economic growth and job creation. With the right incentives, developers might incorporate sustainable practices into their projects, leading to long-term environmental and economic benefits. Looking at both approaches together, I would recommend that the best approach would be to use both policies simultaneously. In the short run, the price ceiling policy can more quickly manage rising prices of rental housing to prevent the housing prices from spiraling out of control. However, there is a need to increase the supply given that the quantity demanded outweighs quantity supplied if only the price ceiling policy is implemented. Thus, there is a need to implement subsidies to encourage investment to develop new rental development projects as a long-term strategy that allows domestic supply to increase over time. Moreover, development in these projects can lead to more macroeconomic benefits for the country.	**Intermediate EV for R2:** *Contextualised advantage of subsidy policy* **Summative Conclusion based on R1 and R2:** Overall recommendation of combining both policies, considering time taken for each policy to be effective.

Please refer to Qn 1b above for the mark scheme.

	Evaluation
E3: 5	A well-explained evaluative judgement about **both requirements** (rent control and another policy) PLUS an overall summative conclusion leading to a well-explained evaluative judgment on which is the best policy to address affordability of housing rents.
E2: 3-4	**(4m)** A well-explained evaluative judgement about both requirements. OR Well-explained evaluative judgement about **one** requirement PLUS a learned evaluative statement for the second plus a **summative conclusion.** (**3m): Well-explained** evaluative **judgement** about **one** requirement PLUS a learned evaluative **statement** for the **second.**
E1:1-2	**(2m):** A learnt evaluative **statement** for t**wo** requirements OR a **well-explained** evaluative j**udgement** about **one** requirement. **(1m)** A learnt evaluative statement for **one** requirement.

Marker's Comments

General comments:

QA	• Majority of the students were able to identify price ceiling as the price control policy and 1 other policy that might be used to ensure affordability of rental housing. • Only a couple of students misinterpreted the question and suggested policies that increase the housing rental prices.
CK	• The most common measures were price ceilings and producer subsidies. Candidates also referred to government building and/or providing subsidised public rental housing to increase affordability.
AR	• Stronger responses made good use of price ceiling diagram to analyse how it works to ensure affordability. • Supply and demand diagrams were also used to explain how producer subsidies might be suitable in reducing rental prices.

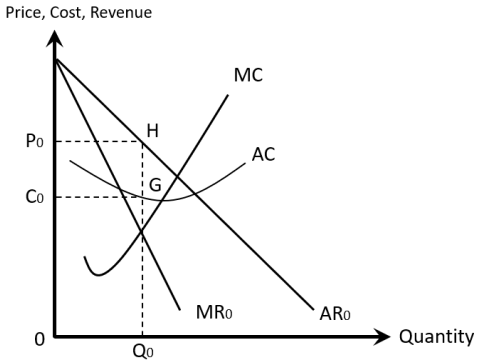
	• Weaker responses simply gave examples of potential measures without explaining <u>how</u> the policy works to decrease the housing rental prices or maintain affordability of rental prices.
EV	• Good evaluative judgements were made about the effectiveness of each potential measure in ensuring affordability of rental housing prices. • Stronger responses included a good summative conclusion often comparing which measure would be most effective in the short run and which in the long run or taking into consideration the budget constraints of the US government or limited land space in the context of building more housing for rental.

Question 3
Pricing regulations are usually used by governments in essential services such as electricity, utilities, and telecommunications to ensure that they are kept affordable.

(a) Explain one benefit and one cost of a large firm to society. [10]

(b) Discuss whether pricing regulation is the most appropriate way for a government to regulate large firms. [15]

Suggested Answer (part a)

Suggested Answer	**Comments**
Large firms exist because in some industries, the barriers to entry are high. This allows firms to grow to be large. The existence of these large firms can bring about benefits to society, such as dynamic efficiency and associated benefits to consumers. However, the existence of such firms can also be costly to society because of how they are likely to be allocatively and productively inefficient. Large firms can be beneficial to society because they can be dynamically efficient and enable consumers to enjoy lower prices and better-quality products. Large firms, like Apple or Samsung in the mobile phone industry, can enjoy supernormal profits because of their market dominance. This is seen in the diagram below.  Diagram 1 The large firm will maximise profits where MC=MR, which is at the quantity, Q_0 and charge a price, P_0. Thus, the firm can make supernormal profits of C_0P_0HG. Thus, this gives them the ability to conduct research and development (R&D). Furthermore, they are willing to do so because of the fierce competition or high contestability in the market, where there is a threat that new firms can enter to compete with existing large firms. Apple or	Introduction to set the direction of the answer. Requirement 1 Topic Sentence. Elaboration about R&D that links to both better quality products and dynamic efficiency. Elaboration about R&D that links to improved production processes.

Samsung might conduct R&D to either improve their production processes or to improve their product quality. For example, Apple has improved its camera technology for better quality photos and longer battery life in its iPhones. These improvements came about because of R&D and consumers benefit from better quality products. The innovation in better quality products is also evidence of dynamic efficiency. In addition, the improvement in production processes could result in a lower average cost of production if more efficient production methods are discovered. This could shift down the AC and MC curve. This can be translated into lower prices for consumers. OR Furthermore, large firms can enjoy economies of scale (EOS) that results in lower prices. Internal EOS are cost savings that a firm enjoys when it increases its scale of production leading to a fall in unit cost of production. An example of which is technical EOS where when an output is sufficiently large, the production process can be broken down into different tasks which allows for division of labour. It is more efficient to allow workers to specialise in their tasks as it saves time to repeat the same task rather than move from one task to another. Thus, more output can be produced in a given time due to the increase in workers' productivity. Division of labour thus increases the productivity of labour, resulting in lower average cost of production as output is increased. The industry output may be produced at a lower average cost under a monopoly or oligopoly than under perfect competition. It is likely that a single large-scale producer can reap economies of scale that is greater compared to an industry comprising numerous small-scale producers. The marginal cost curve of a monopolist or oligopolist ($MC_{monopolist/oligopolist}$) would be significantly lower than the marginal cost curve of the same industry under perfect competition (Sum of MC curves under PC = $SS_{PC\ industry}$).	Alternative Benefit: Elaboration about EOS enjoyed by large firms that make them more beneficial than small firms.

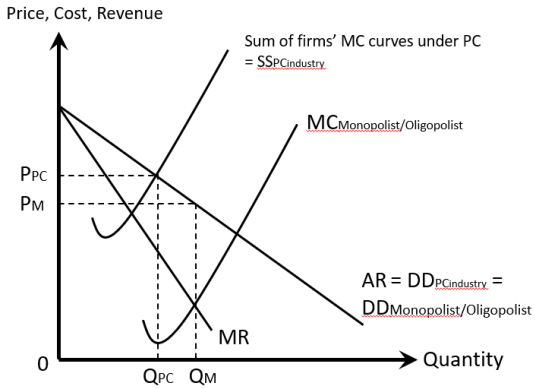


Diagram 1

Include a diagram for analysis.

Under perfect competition, the industry would produce at the price and output level at which market demand equals market supply, i.e. at output level Q_{PC} and price P_{PC}. However, a firm with larger market power like the monopoly or oligopoly will sell a higher output level ($Q_M > Q_{PC}$) at a *lower price* ($P_M < P_{PC}$). If the monopolist or oligopolist passes on the cost savings to consumers, consumers may enjoy lower prices under a monopoly or oligopoly than under perfect competition.
However, large firms may not be beneficial to society because they are not allocatively efficient.

Final links to answer the question.

Given its profit-maximising objective, a firm in imperfect competition (with market power) produces where MR = MC and MC is rising. At this output, 0Qm, the price charged by the firm (0Pm) is higher than its marginal cost of production (P>MC) as seen in the figure below. This means that society values the last unit of the good more than the alternative goods forgone (i.e. opportunity cost). The monopolist produces a lower output at a higher price at P_m compared to perfect competition at P_{PC}, assuming the same cost conditions in both industries. Thus, there is allocative inefficiency.

Requirement 2 Topic Sentence.

Elaboration on allocative inefficiency.

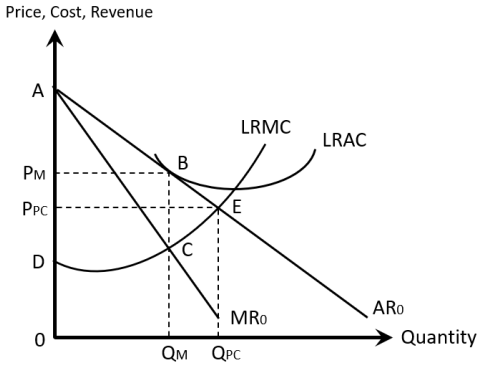


Diagram 2

This can also be explained using consumer and producer surplus. In the diagram above, the consumer surplus at profit-maximising output 0Qm is area ABPm, while producer surplus is area PmBCD. As compared to the PC industry which will produce at Qpc, consumer surplus is maximised at AEPpc, and producer surplus is maximised at PpcED. In comparison, consumer surplus and producer surplus are smaller at output OQm. There is a deadweight loss area represented by area BCE, which is a loss to society's welfare. Hence, the firm with market power is allocative inefficiency and there is under-production of the good by QpcQm. Society's welfare is not maximised. A monopolist or oligopolist with a higher degree of market power are likely to use their market power to restrict output and charge a higher price causing them to be more allocative inefficient and this is less beneficial to consumers.	

Refer to 1a above for the mark scheme.

Marker's Comments

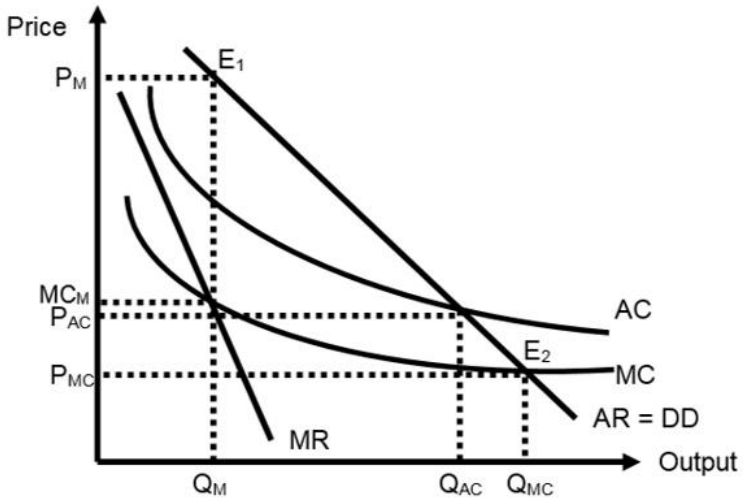
General comments:

Students who picked this question did not do well. The responses to this question indicated a weak grasp of the key issues relating to market structures and the lack of understanding of the depth of analysis required for a quality answer. Many responses gave a smattering of descriptive points and thus could not be given a quality grade.

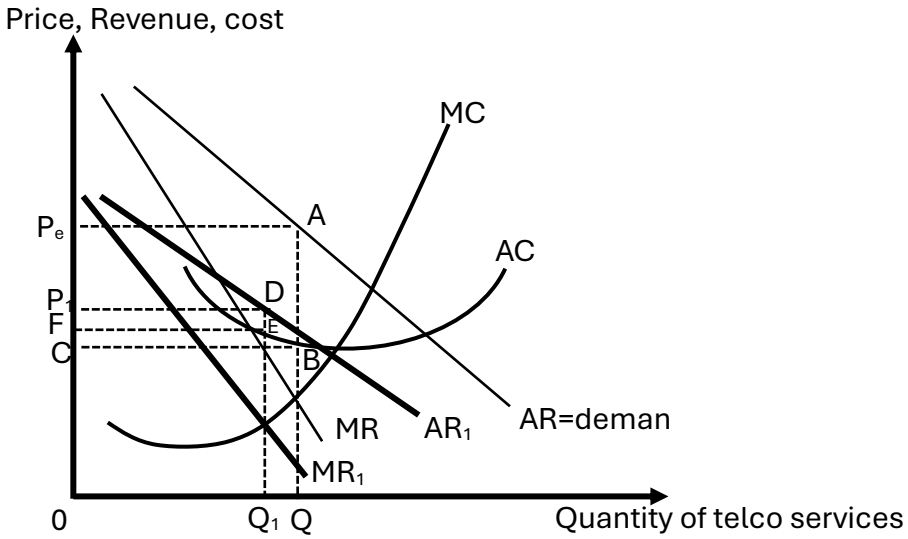
QA	• Many students did not unpack the term society well enough to understand that efficiency concepts (such as allocative, productive or dynamic efficiency) would be required.
AR	• In explaining economies of scale, students tended to just provide examples and linked to how it reduced cost of production which could help lower prices for consumers. This is incomplete as students should have compared the case against that of a perfectly competitive market to show by being large is beneficial. • In similar fashion, many students merely brought up the case that large firms can charge high prices because of their demand that tends to be price inelastic. However, the issue is not limited to that but the fact that such firms are allocatively inefficient. This was often overlooked.

	• In explaining research and development, students tended to lack details in explaining how firms could improve processes to lower cost of production or to improve product quality. This made the answer lacking in sufficient detail and example to support the demonstration of understanding of the content.
AP	• While the question is a theoretical one, students should always provide examples to support your points. This is especially the case in the explanation of research and development as mentioned in the last point of the AR section above.

Suggested Answer (part b)

Suggested Answer	Comments
As explained in (a), the existence of large firms in an industry can have both benefits and costs. To limit the negative impacts of large firms, such as allocative and dynamic inefficiencies, government intervention is sometimes necessary. This can come in the form of pricing regulation such as average cost pricing (AC-pricing), or by government effort to liberalise the market and encourage more firms to enter to increase the level of competition. Whether pricing regulation or liberalisation is more appropriate will depend on the effectiveness of the policy to limit the negative impacts of the large firms while also allowing the benefits to still be enjoyed. This is discussed in the context of Singapore's telecommunications (or telco) market.	Introduction brings in the 2 policies and I define how I will measure what is "most appropriate".
Firstly, the government can impose a pricing regulation, AC-pricing on telecommunication operators. The government sets a price that is equal to the average cost of production. Referring to the diagram below, the firm will price the good at P_{AC} and produce output Q_{AC}. This allows the firm to make normal profits (AC = AR). Compared to a case where there is no government intervention (price P_M and output Q_M), the price is lower, and the output is higher after intervention. This helps to reduce allocative inefficiency as the market equilibrium moves closer to the socially optimal level and the gap between price and marginal cost is reduced, even if the social optimal level of production is not reached.	Requirement 1: Explanation of AC-pricing. Link to the cost of large firms that the policy addresses.
 Diagram 3	
One problem with AC-pricing is that it blunts the firm's incentive to adopt cost-saving innovations because when it does innovate, the government will require the firm to cut its prices. Though the firm gets to keep its cost savings in the current period (which provides as a stronger incentive to cut costs than a state-owned natural monopoly), the incentive would be stronger if the firm could retain its cost savings indefinitely.	Limitation of AC-pricing.

Furthermore, a lack of supernormal profits means that the monopoly no longer has the ability or incentive to engage in R&D. In the long run, there is a lack of dynamic efficiency as the potential to either innovate to produce better quality products (for example, high WiFi speeds) or to reduce cost through more efficient production processes (which could have translated to lower prices for consumers) is now lost.	
Thus, while AC-pricing is good at lowering prices and increasing the quantity that consumers can enjoy, it may not overall be a preferred policy because of the loss of benefits that consumers could have enjoyed, such as better-quality products. Furthermore, it is critical that firms still have the incentive to innovate and this policy will hinder such incentive in the long run. This is especially the case for firms where innovation could be very costly as it involves specialized skills and forefront technology e.g. for pharmaceutics or technology. The gains in the short term will thus not justify the possible loss in long term benefits. It would thus be preferred if there is an alternative policy that provides such an incentive while at the same time minimising the cost of having large firms.	Evaluation of AC-pricing.
Given what was mentioned above, the government can instead consider lowering the barriers of entry, either by issuing more licenses up for bidding to operate in Singapore, or to allow for more Mobile Virtual Network Operators – companies which do not own telecommunications infrastructure such as Circles – to operate in Singapore. With the supernormal profits earned by the incumbents, this will incentivise new firms to enter the market. The entry of potentially more firms means that there is a **fall in demand for services of the incumbent firms** such as Singtel and StarHub as some consumers switch to the new firm. As shown in the diagram below, the demand curve shifts to AR_1. At the new profit maximising output, Q_1 where $MR_1 = MC$, the price has fallen from P_e to P_1, thereby allowing consumers to benefit from lower prices of the service, **protecting consumers from potentially higher prices.** Indeed, such a phenomenon has been seen over the years – five years ago, mobile phone users pay more than $5 for every gigabyte of mobile data a month. Today, the average person pays between 20 and 50 cents per gigabyte for the most basic plans. Furthermore, the gap between price and marginal cost is reduced as compared to before the introduction of greater competition. This again helps bring the industry closer to allocative efficiency.	Intervention 2: Liberalisation



Diagram

However, the introduction of competition will lead to lower supernormal profits (P_1DEF), as opposed to the supernormal profits of PeABC before competition. Together with how such increased competition can lead to firms engaging in intensive advertising of their products and services, all these in sum could reduce the amount of profits left, thus reducing the ability of the firms to spend on Research and Development (R&D), such as on reducing the frequency of phone service faults, thereby causing little to no improvements in the quality of telco services.	Limitation of liberalisation. Link to question.
Furthermore, for firms which are natural monopolies due the significant economies of scale that can be reaped because of the high fixed costs mentioned in part a, the average costs and marginal cost curves as illustrated in the diagram 1 is lower before the entry of new firms into the market. The incumbent firms is likely to be able to pass the costs savings in the form of lowered prices. However, with the increased competition leading to a fall in output and scale of production by each firm, this reduces the ability to reap economies of scale and thus results in average costs increasing relative to before the increased competition. The result might be that the new price may only be slightly lower, whilst potentially sacrificing the quality of telco services as explained in the previous paragraph.	Evaluation of liberalisation.
That said, while it may seem that the introduction of competition will significantly reduce profits for the incumbent firms, this is unlikely to be the case as there are still barriers to entry for new firms to overcome. The profit loss is unlikely to be so substantial to the point where firms no longer have the financial ability or incentive to innovate. In fact, the introduction of new firms will challenge the complacency of incumbent firms and push them to spend more on R&D and innovation to remain competitive and not lose their market share to possible new entrants. This can only be beneficial for consumers.	Evaluation overall.

Furthermore, the model of introducing mobile virtual network operators helps to challenge the notion that economies of scale cannot be reaped. This is because mobile virtual network operators tap on the existing infrastructure that the mobile network operators already set up. Thus, the fixed costs can still be spread over a sufficiently large output for cost savings. All in all, the liberalisation of the telco market in Singapore is a better policy than AC-pricing. This is because it is less intrusive in the market and allows for firms to keep their supernormal profit, which is critical in incentivising R&D that can benefit consumers. Yet, it also creates the incentive to carry out the R&D since it keeps incumbent firms on their toes and does not allow for complacency. Furthermore, the potential profit loss brought about by AC-pricing is more detrimental in that it creates a loss of the potential benefits that large firms can bring. Liberalisation will avoid these issues. Thus, liberalisation is a better approach in regulating large firms. That said, the government could further introduce policies like performance standards for firms to meet to ensure that consumer welfare is protected. For example, telcos could be required to ensure that the speed of their home broadband services meet the speeds of what is stated. If this quality standard is not met, then firms can be subjected to fines or other forms of punishment. This can then further ensure that consumers can benefit from having large firms while avoiding the potential costs that they bring.	

Refer to 1b above for the mark scheme.

	Evaluation
E3: 5	A well-explained evaluative judgement about **both requirements** PLUS an overall summative conclusion leading to a well-explained evaluative judgment on which is the best intervention.
E2: 3-4	**(4m)** A well-explained evaluative judgement about both requirements. OR Well-explained evaluative judgement about **one** requirement PLUS a learned evaluative statement for the second plus a **summative conclusion.** (**3m): Well-explained** evaluative **judgement** about **one** requirement PLUS a learned evaluative **statement** for the **second.**
E1:1-2	**(2m):** A learnt evaluative **statement** for t**wo** requirements OR a **well-explained** evaluative j**udgement** about **one** requirement. **(1m)** A learnt evaluative statement for **one** requirement.

Marker's Comments

General comments:

QA	• While students understood that policies were needed to address issues with big firms. There was a weak demonstration of precisely what issue they are trying to address and the selection of policies to address the issues. The weakest answers suggested policies that did not even address the issues associated with big firms.
CK	• Many students suggested a price ceiling or even a price floor for pricing regulations. The typical analysis from the lecture notes cannot be used in the context of large firms especially since the diagram and analysis provided is applied to a perfectly competitive market.
AR	• Students who picked policies such as ensuring performance standards tended to have answers that were rather descriptive and thus did not have sufficient rigour. • Many students, in explaining a policy, did not link to the actual issue the policy is supposed to address, whether it is allocative inefficiency, dynamic inefficiency or productive inefficiency.
AP	• Many of the answers were not applied to any context at all and were largely theoretical. • Likewise, limitations and even conclusions were rehearsed and not applied to a context.

Question 4

Singapore plans to progressively increase the retirement age to 65 by the year 2030 due to longer life expectancy, a lack of manpower and concerns over fiscal sustainability.

(a) Explain why governments want to achieve fiscal sustainability. [10]

(b) Discuss whether increasing the retirement age in a country with ageing population is the best policy measure to attain fiscal sustainability. [15]

Suggested Answer for Part (a)	**Comments**
Fiscal sustainability is the ability of a government to maintain public finances at a credible and serviceable position over the long term. Fiscal sustainability is needed to help a country improve its international competitiveness and manage possible global shocks, as well as manage domestic challenges to continue to	*The R1/R2 can be other categorization as well – such as attainment of different macro objectives or*

attain the various macroeconomic objectives of a country and improve the standard of living over time.	*SOL or ST & LT outcome*
Fiscal sustainability can help a country improve its international competitiveness and manage possible global shocks. Maintaining public finances at a credible and serviceable position would improve credit rating in the country. This would result in a better business climate and economic outlook in the country, improving investor confidence. Both domestic and foreign investment spending would increase in the country, increasing AD. In addition, in a highly globalised world, there's increased vulnerability to external shocks, affecting countries highly dependent on trade more significantly. Fiscal sustainability over time ensures there's sufficient budget reserves to boost the economy during periods of global recession. For example, with sufficient budget, the government can enact expansionary fiscal policy. By increasing government spending on infrastructure, for example and reducing taxes, it can increase AD.	*R1: Fiscal sustainability helps a country improve its international competitiveness and manage possible global shocks so as to attain various macroeconomic objectives.*
The increase in AD mentioned above would result in an unplanned inventory depletion, signalling firms to step up production. The increase in production and factor income would trigger the multiplier process. The increase in AD would thus result in a multiplied increase in real national income, i.e., actual growth. At the same time, as production increases, firms require more inputs to increase production. The derived demand for labour thus increases, reducing demand-deficient unemployment. In addition, government spending on the infrastructure can improve connectivity in the country, reducing transportation time of factor inputs as well as final goods and services, increasing productivity as more output can be generated per unit time. This increases productive capacity and LRAS, attaining potential growth. Therefore, fiscal sustainability is needed to continue to attain the macroeconomic objectives of the country.	*AD and AS-side analysis*
Maintaining fiscal sustainability can also help the country deal with internal challenges such as effects of aging population and income inequity. Fiscal sustainability could help many developed countries deal with the effects of income inequity and aging population. For example, the government could provide more healthcare facilities and enable accessibility to such services especially for the low-income group, reducing the effects of inequity. Alternatively, the government could provide transfer payments to the low-income group in the form of vouchers for groceries to cope with rising cost of living as well as subsidies for higher education. Higher ability to consume higher education would help increase the income of the low-income group in the future and increase their ability to consume goods and services, increasing material standard of living. All these would ensure standard of living improve for the majority of the population as the country experiences economic growth. With fiscal sustainability, the government could also manage the effects of aging population such as allocating more budget to healthcare services. This would	*R2: Fiscal sustainability helps a country manage domestic challenges so as to continue to improve the SOL in the country* *Analysis of both material and non-material SOL*

continue to improve the quantity and quality of healthcare services, improving life expectancy and non-material standard of living.	

Refer to 1a above for the mark scheme.

Marker's Comments

General comments:

QA	• Some students were not aware of the end point required for this question and therefore provided incomplete answers. Possible end points are macroeconomic objectives, equity or standard of living.
CK	• Some students did not know what fiscal sustainability is. Some thought fiscal sustainability refers to sustainable growth while others thought it refers to price stability.
AR	• As students need to identify their own scoping for this question, many struggled with providing sufficient analytical rigour for R1 and R2.
AP	• Many students simply talked about what governments could do with the fiscal reserves. Although this is required by the question, it is also compulsory for students to look at the direct outcome of fiscal sustainability on the country's credit rating and investments.

Suggested Answer for Part (b)	**Comments**
To attain fiscal sustainability the government needs to reduce government spending and/or increase tax revenue. Aging population would lead to higher government spending on areas such as social services, initiatives to promote active aging, as well as subsidies for healthcare. At the same time, there'll be lower tax revenue as the labour force and tax-base shrinks. This is because more people are leaving the labour force than those entering. Hence the tax base from income tax revenue decreases. Increasing retirement age is one method to keep the elderly productive and active, which could reduce the need for social services and maintain the overall size of the tax base. However, there are other policies to expand the tax base, supplement the labour force and stimulate economic growth which would help to maintain fiscal sustainability. Increasing the retirement age in a country with aging population may be a good measure to attain fiscal sustainability. Increasing retirement age would enable	

more elderly to continue working and contribute to the tax revenue of the government in terms of income tax revenue, as they need to pay income tax for as long as they're working (if they hit the minimum salary required to pay income tax) as well as GST, as they continue to spend on goods and services with less limit (Their spending may not be as high if they retired). At the same time, as the elderly are still actively engaged in their jobs, the government doesn't have to spend so much on active aging programmes in the community (to prevent the degradation of mental/physical health) as well as spending on healthcare services for the elderly. The higher tax revenue and reduced government spending would help the government attain fiscal sustainability. In addition, increasing retirement age means that more elderly are remaining in the labour force. With the same rate of entrance of graduates into the labour force, the quantity of labour will increase, increasing LRAS and potential growth. Additionally, there could be transfer of skills accumulated from the elderly's experience to the younger workers, enabling quicker increase in quality of human capital and again increasing LRAS and potential growth. If the economy operates near the full employment level, the increase in LRAS would enable the increase in production of goods, increasing real national income. This again enables the government to obtain higher tax revenue. However, increasing the retirement age in a country with aging population may not necessarily attain fiscal sustainability. In some industries, especially the labour-intensive industries, as workers get older, their productivity decreases, causing cost per unit of output to increase. This would result in a fall in SRAS and fall in real national income, reducing the tax revenue for the government, adversely affecting fiscal sustainability. In addition, elderly workers in labour-intensive industries face a higher chance of getting injury as they tend to be more physically frail. If they are on medical or hospitalisation leave, the cost has to be borne by the employer (in some cases) or the government, again adversely affecting fiscal sustainability. Countries with more old workers in the labour force may also drive the impression of lower productivity of the workforce, worsening investor confidence, resulting in a fall in investment spending and AD. The consequent fall in real national income would again reduce the tax revenue for the government, affecting fiscal sustainability. In addition, skills of older workers may also be obsolete with rapidly advancing technology. Even if they remain in the labour force, they may not be able to obtain productive employment opportunity or firms may not be willing to hire older workers. Hence the government may not necessarily attain higher tax revenue and an alternative measure is necessary. An alternative measure that may be better for governments to attain fiscal sustainability in a country with aging population is subsidies to promote retraining/upgrading of skills. While the previous measure enables the elderly to remain in the labour force, there's still a risk of unemployment as well as issues associated with the elderly being in labour-intensive industries. However, with upgrading of skills, the elderly would have a higher chance of attaining productive employment opportunity. This ensures that they get higher income than before, enabling the government to obtain higher tax revenue. Also, with better skills and hence higher productivity in the economy, LRAS	*R1: Increasing the retirement age in a country with aging population may be a good measure to attain fiscal sustainability.* Intermediate *EV of R1* *R2: Alternative measure may be better for governments to attain fiscal sustainability*

increases. As analysed above, the increase in LRAS, coupled with the economy operating near/at the full employment level would result in an increase in real national income, again contributing to a higher tax revenue. Also, as the elderly continue to be engaged mentally and physically, there's less social spending on hospice / healthcare services dealing with deterioration of mental and physical health among the elderly and hence less government spending in these areas. The higher tax revenue and lower government spending would result in a better fiscal sustainability.	
However, it may be difficult to change the mindset of the elderly towards retraining. There's a need to do active marketing to educate the community on the importance of lifelong learning. This could worsen fiscal position in the short run. There's also a need to change the mindset of employers to be more willing to hire the older workers.	Intermediate *EV of R1*
In conclusion, whether increasing retirement age is the best policy really depends on the context of the countries and the current budget situation of the country. If there is a significant proportion of the elderly in the labour force who are working in the labour-intensive industries, increasing retirement age may not be best to ensure fiscal sustainability due to the issues raised earlier. For other countries with more of a mix of elderly in both the labour-intensive and higher-value added sectors, increasing retirement age could still be a good short-term measure. However, for countries to effectively improve fiscal sustainability in the long run, more long-term measures such as improving birth rate/immigration of workers, measures to encourage investment in capital deepening and as well as upgrading of skills analysed above are better. Upgrading of skills would also make the elderly feel more competent in their work and contribute to feelings of higher self-worth, perhaps making them more willing to work for many more years themselves, even beyond the retirement age set by the government. Of all the long-term measures, what is best for a country would therefore also depend on the current budget position of the country. Measures like upskilling may put a bigger strain on the government budget compared to measures to promote higher birth rate, as these may not necessarily involve monetary incentives but also could be in the form of implementing flexible work from home arrangements for certain industries/jobs to better assist families with children. Nevertheless, although promoting upgrading of skills could indeed put a strain on the government budget in the short term, it should be noted that it has a long-lasting impact and is worth it, especially for developed countries with a continued trend of aging population.	*Overall Evaluation*

Refer to part 1b above for the mark scheme.

	Evaluation
E3: 5	A well-explained evaluative judgement about **both requirements (2 policies to attain fiscal sustainability)** PLUS an overall summative conclusion leading to a well-explained evaluative judgment on which is the best policy to attain fiscal sustainability for SG.

E2: 3-4	**(4m)** A well-explained evaluative judgement about both requirements. OR Well-explained evaluative judgement about **one** requirement PLUS a learned evaluative statement for the second plus a **summative conclusion.** (**3m): Well-explained** evaluative **judgement** about **one** requirement PLUS a learned evaluative **statement** for the **second.**
E1:1-2	**(2m):** A learnt evaluative **statement** for t**wo** requirements OR a **well-explained** evaluative j**udgement** about **one** requirement. **(1m)** A learnt evaluative statement for **one** requirement.

Marker's Comments

General comments:

QA	• Some students did not realise they needed to propose an alternative policy whereas others proposed more than one alternative policy, which is unnecessary. • Some students did not end their analysis at "fiscal sustainability".
CK	• Some students ended their analysis on impact on the economy instead of fiscal sustainability. This suggests lack of understanding of what fiscal sustainability is. • Some students were not able to make the link from "increase in retirement age" to LRAS. • There's quite a common misconception that reduction in unemployment causes LRAS to increase. However, the unemployed are also part of the labour force. Hence changes in employment should not shift LRAS. Some thought that when the elderly retire, they become unemployed. However, if they retire, they are not unemployed and not part of the labour force anymore.
AR	• Students who didn't bring in AD-AS analysis had less rigour in their answer. Even though the end point of the question is on "fiscal sustainability", students could still bring in AD-AS analysis and analyse the effect on real national income first before making the link to fiscal sustainability.

AP	• Students have to be strategic in their choice of alternative policy. It is important to choose a policy that enables more economic analysis.

Question 5

5 A variety of global events including the strong recovery in global growth, a rally in oil and gas prices and recent geopolitical tensions has led to an increase in Singapore's rate of inflation. This has spurred the Monetary Authority of Singapore (MAS) to appreciate the Singapore dollar.

Source: Channel News Asia, 03 February 2022

(a) Explain how the current global economic developments impact the domestic economy of Singapore. [10]

(b) Discuss the most appropriate policy measures the Singapore government can adopt to manage the effects of the current global events. [15]

Suggested Answer (part a)

Introduction:

- Strong recovery in global growth will increase aggregate demand.
- A rally in oil and gas prices and recent geopolitical tensions will reduce SRAS.
- The changes in AD and SRAS will impact the domestic economy of Singapore.

Requirement 1: Increase in AD

- The COVID-19 health crisis is officially over since 2023 and the global economy continues to recover from the pandemic. The U.S. economy has been bolstered by massive fiscal support and pent-up demand from consumers for face-to-face services. Growth among emerging market and developing economies has accelerated, helped by increased external demand.
- The above increase the real national income of Singapore's major trading partners such as US, China and South-East Asian countries. The households and firms will thus have higher purchasing power and will be more able and willing to buy more goods and services including exports from Singapore. The increase in exports assuming imports remaining constant will increase Singapore net exports. Since (X-M) is a component of AD, there will be a rightward shift of the AD curve from AD1 to AD2 as seen in Figure 1.
- Adjustment process: Assuming that the economy is operating near full employment, the increase in AD will cause an unplanned fall in stocks (shortage) of goods and services which leads to an increase in prices. The increase in prices creates the incentive for the producers to increase the production of goods and services but the rise in production is now affected by supply 'bottlenecks' that occur as the economy approaches full employment and resources become scarce. To increase production, firms have limited choice but to use more inefficient factors of productions, resulting in an increase in unit costs of production. This increase in costs of production results in an increase in the general price level from P_1 to P_2.
- Brief multiplier: At the same time, with the increase in prices, the firms will increase production due to higher profits. The rise in production leads to an increase in

national income which then triggers the multiplier process as households that earn more now increase their consumption (induced consumption) of goods and services. The extent of the increase in induced consumption is determined by marginal propensity to consume (MPC). The increased in induced consumption will in turn lead firms to produce more, causing another round of increased income and spending. The multiplier process continues until the initial rise in injections is equal to the total increase in withdrawals. The increase in AD eventually results in a multiplied increase in real national income/output from Y_1 to Y_2 by a factor of k where k=1/1-MPC or k=1/MPW (i.e. MPM+MPS+MPT). However, this multiplier effect is dampened due to the increase in GPL given that Singapore's economy is near full employment.

- Overall, Singapore's GPL increased from P_1 to P_2 indicating demand-pull inflation and its real GDP increased from Y_1 to Y_2, indicating actual economic growth. An increase in production will require more factors of production/resources including labour. This will lead to an increase in the derived demand for labour and reduce demand-deficient unemployment.

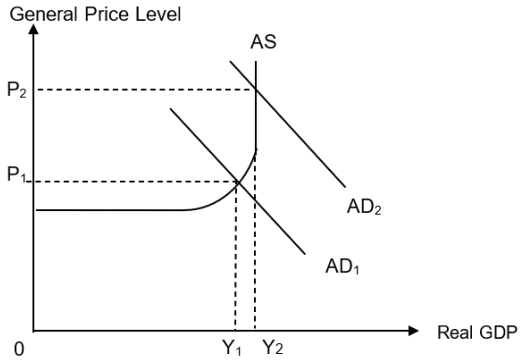


Fig 1: A rise in AD

Requirement 2: Decrease in SRAS

- Oil and gas are crucial factors of production for producing most goods and services. Oil and gas are required to produce energy such as electricity and petrol for manufacturing processes, transportation and logistics etc.
- A rally in the global oil and gas prices means that there will be an increase in the average cost of production for almost all the firms in an economy.
- Producers are less willing and able to produce due to a decrease in profitability, resulting in a decrease of $SRAS_1$ to $SRAS_2$ as seen in Figure 2.
- Adjustment process: At the original price P_1, there is an unplanned fall in stocks (shortage), resulting in an increase in the general price level from P_1 to P_2, indicating imported cost-push inflation and a decrease in real national income (output) from Y_1 to Y_2 indicating negative economic growth.
- Fall in real GDP means that workers are retrenched since there is less production of goods and services since labour is a derived demand for the production, hence unemployment rate increases.

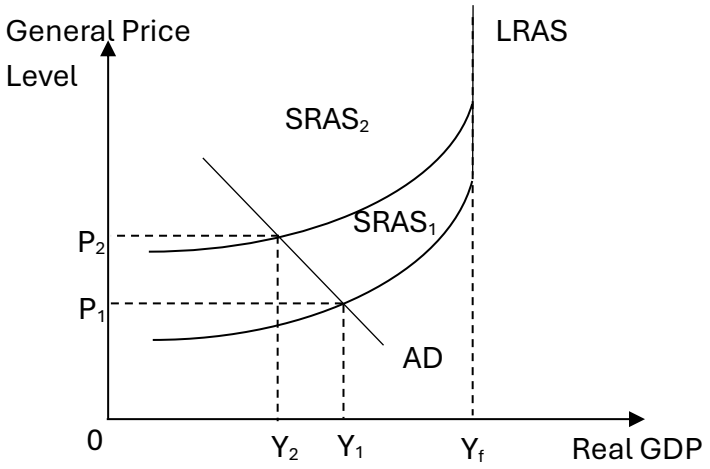


Fig 2: A fall in SRAS

Conclusion:

- In the short run, the changes in AD and SRAS will impact the domestic economy of Singapore in terms of increasing inflationary pressures. However, for economic growth and unemployment, it depends on the extent of the change in AD and AS.

Note to students:

- *An answer which explains an increase in Investment (I) and not Consumption (C) will be equally credited.*
- *An answer which explains the fall in SRAS due to recent geopolitical tensions such as Russia-Ukraine War leading to an increase in prices for many resources such as raw materials, agricultural products and oil will be equally credited.*

Refer to part 1a above for the mark scheme.

Marker's Comments

General comments:

QA	• Some students focused their explanation on the impact on inflation or economic growth with no mention of unemployment at all. Students are reminded to fulfill the question requirement which is 'domestic economy of Singapore' and consider the three macro goals part of domestic economy: low unemployment, price stability and economic growth. • Some students did not utilise the issues given in the preamble. They came up with factors affecting Singapore's AD and AS instead. Very often, the events that the students came up with on their own were not current global events and hence did not fulfill the requirement of

	the question set. They should refer to the current global events given in the preamble. • A few students explain the government policies the Singapore government had used as a current global economic development which is irrelevant for part a. Firstly, it is not a 'global' economic development. Secondly, it is a solution to solve the effects of the current global events and not the event itself.	
AR	• A brief explanation of the brief multiplier process is required for this question given that the one of the key requirements of the question is economic growth due to an increase in AD. The quality of the multiplier explanation varies widely in the cohort with some giving a clear explanation on the impact of GPL due to supply bottlenecks or near full employment and the multiplied increase in real GDP due an increase in AD. Some students did not mention the multiplier effect at all. There are a couple of overly lengthy responses which spent too much time on this question by providing numerical examples to elaborate on each stage of the multiplier process. This is not necessary as economic growth is not the only end point of interest of this question and the focus is not on the multiplier process. Please refer to the answer key above where the brief multiplier has been underlined. • Many students often miss out explaining the adjustment process when there is a shift in AD or AS. Please refer to the answer key above where the adjustment process has been underlined. • Diagrams were provided together with economic analysis for most students. These diagrams were well referred to and well labelled. However, there were a handful of students who labelled the axes inaccurately (such as Cost/benefits instead of GPL and quantity instead of real GDP). • Students will need to highlight the type of inflation caused by the global events: demand-pull or imported cost-push inflation. Please use imported cost-push inflation instead of imported inflation for greater clarity that it is caused by higher COP. • Many students did not state their assumption that the economy is producing near full employment output level, hence when AD increases, it will lead to demand-pull inflation.	
AP	• A few students link the recent geopolitical tensions to a fall in AD. This is contextually not acceptable as the preamble specifically mentioned that recent geopolitical tensions led to an increase in	

	Singapore's rate of inflation. A fall in AD would lead to a fall in GPL instead and hence such analysis would contradict with the situation given in the preamble.

Suggested Answer (part b)

Introduction:

- The effects of the current global events are varied and affects the economic growth, unemployment, price stability and standard of living of Singapore.
- Singapore being a small and open economy can adopt exchange rate and supply side policies to manage the effects of the current global events.

Requirement 1: Exchange Rate Appreciation

- State the change in Pm in domestic currency and Px in foreign currency: An appreciation of the exchange rate will result in an increase in the foreign price of exports and a decrease in the domestic price of imports. By the law of demand, quantity demanded for exports fall and quantity demanded for imports will increase.
- Apply |PEDx|: If the price elasticity of demand (PED) is assumed to be greater than one for Singapore's exports such as machines and electronics as there are many available close substitutes (i.e. many other countries export machinery and electronics too), the decrease in quantity demanded will be more than proportionate. The decrease in revenue due to the decrease in quantity demanded will be greater than the increase in revenue due to higher price of exports leading to a fall in export revenue.
- Apply |PEDm|: Given that the PED is likely to be less than one for Singapore's imports as it is resource scare and hence reliant on imported FOP, the increase in quantity demanded will be less than proportionate. The decrease in the expenditure due to the decrease in the price of imports will be greater than the increase in the expenditure due to an increase in the quantity demanded of imports leading to a decrease in expenditure of imports.
- Apply MLC: In the case of Singapore, we assume that the Marshall-Learner condition (MLC) is met where |PEDx + PEDm| >1, there will be a fall in net exports.
- This is shown in Figure 3 where AD shifts leftward from AD1 to AD2 which will reduce GPL from P1 to P2 and mitigate demand pull inflation.
- Adjustment process: At the original price P1, there is an unplanned increase in inventories (surplus), resulting in a downward pressure and decrease in the general price level from P1 to P2.
- Brief multiplier: At the same time, with the fall in prices, the firms will reduce production due to lower profits. The fall in production leads to an fall in national income which then triggers the reverse multiplier process as households that earn less now reduce their consumption (induced consumption) of goods and services. The extent of the reduction in induced consumption is determined by marginal propensity to consume (MPC). The reduction in induced consumption will in turn lead firms to produce less, causing another round of decrease in income and spending. The multiplier process continues until the initial fall in injections is equal to the total decrease in withdrawals. The decrease in AD eventually results in a multiplied decrease in real national income/output from Y_1 to Y_2 by a factor of k where k=1/1-MPC or k=1/MPW (i.e. MPM+MPS+MPT). However, this multiplier

effect is dampened due to the decrease in GPL given that Singapore's economy is near full employment.

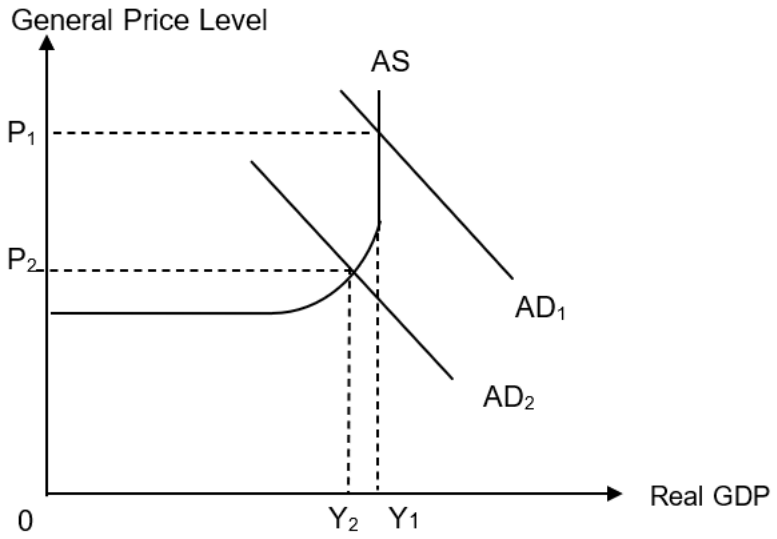


Fig 3: A fall in AD

- The fall in import prices of goods and services will result in a significant fall in cost of production in Singapore given that Singapore is import reliant on raw materials.
- This will cause the short-run aggregate supply to increase and the SRAS curve to shift to the right from $SRAS_1$ to $SRAS_2$ as shown in Figure 4.
- Adjustment process: At the original price P_1, there is an unplanned increase in inventories (surplus), resulting in a downward pressure and decrease in the general price level from P_1 to P_2 as producers try to reduce their inventories/surplus.
- It can be seen that actual growth is achieved as there is an increase in real national income from Y_1 to Y_2. This will lead to a fall in unemployment.

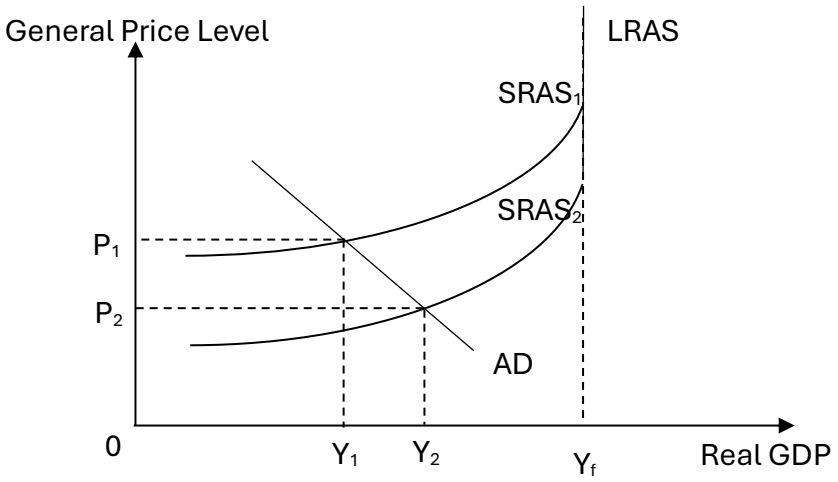


Fig 4: A rise in SRAS

(A contextual approach) Intermediate Evaluation 1:

- Even though an appreciation of Singapore dollar can mitigate demand-pull and cost-push inflation arising from the current global events, the impact on real national income and unemployment rate may not be favourable to Singapore. Although there is an increase in AD due to a strong recovery in global growth, the period of this increase in AD might not be sustained given the rising geopolitical tensions. This also reduces the extent of the increase in AD given that it affects confidence of households and firms negatively and significantly. Hence the SG government might also need to complement exchange rate appreciation with supply side policies to create a more conducive business environment to increase investors' confidence.

OR

- It is also likely that the decrease in SRAS due to the rally in oil and gas prices as well as geopolitical tensions affecting supply chains and prices of other essential resources could decrease SRAS significantly. This means that appreciation of SGD will be extremely effective in decreasing imported inflation and increase SRAS. This will be favourable to Singapore.

OR

- Geopolitical tensions might have also brought about long term inflow of foreign direct investment from the troubled countries such as Russia and China to Singapore. This could lead to a significant increase in AD, further infuriating inflation rate. Hence Singapore dollar appreciation may not be able to decrease AD significantly to mitigate demand-pull inflation.

OR

(A theoretical approach) Intermediate Evaluation 1: J-curve effect

- However, in the short-run, appreciation can increase a country's net exports. The net exports will increase if the absolute value of the sum of price elasticity of demand for exports and imports is less than one.

- This could be due to reasons such as contractual agreements by firms and their suppliers that have been made prior to the appreciation of currency, or lack of substitutes available in the short run. For example, it takes time to source for alternative suppliers, especially for raw materials such as raw earth minerals. Hence both PEDm and PEDx are both likely to be highly inelastic. Thus, the appreciation is likely to increase net exports in the short run and further amplify demand-pull inflation.

Requirement 2: Supply-side Policies

- The strong recovery in global growth coupled with the possibility of capital flight to Singapore in view of the geopolitical tensions could lead the Singapore's state of economy to be near full employment.
- Supply-side policies such as education and retraining of workers can be introduced to increase productivity capacity of Singapore's economy. This can ensure that its workers are constantly equipped with the necessary skills for a knowledge-based economy to raise productivity and reduce costs.
- This is why the Singapore government rolled out SkillsFuture which is a national movement to encourage lifelong learning and skills mastery. As part of this movement, the government has provided SkillsFuture credit that can be used for a wide range of courses to upskill and reskill.
- The Singapore government can set up new training schemes services and increase the number of educational and training institutions to enhance the training of labour to cope with the increase in demand in specific industries such as tourism, financial services and petrol-chemical.
- Through education, training and research and development to ensure high labour productivity and lower unit cost of production, this cause an increase in the productive capacity of the economy as there an increase in the maximum possible output an economy can produce at full employment level. Long run aggregate supply (LRAS) increases and the aggregate supply curve will shift to the right from $LRAS_0$ to $LRAS_1$ as shown in Figure 5.
- Adjustment process: At the original price P_0, there is an unplanned increase in inventories (surplus), resulting in a downward pressure and decrease in the general price level from P_0 to P_1 as producers try to reduce their inventories/surplus.
- As a result, the general price level falls from P_0 to P_1 while the real national output increases from Y_0 to Y_1.Thus correcting cost-push inflation. There is also an increase in the full-employment level of national output, i.e. potential growth, from Y_{F0} to Y_{F1}. There is also an increase in the real GDP i.e. actual growth, from Y_0 to Y_1 and hence a fall in unemployment.

Intermediate Evaluation 2:

Limitations of SS side policies

- However, time is needed to train workers, as some workers may not be receptive to training programmes or find it difficult to pick up new skills, especially for the older workers.
- Firms may also be unwilling to send workers for training, as there is a loss of output during training.

- Moreover, after workers have upgraded themselves, they are able to command higher pays and may demand a pay rise or leave the firm in search of higher wages.
- Such policies of education and training can also be costly, incurring an opportunity cost, as less funds are available for other areas of development of the economy.

OR

- Singapore can implement supply-side policies such as tax incentives. R&D tax credit can be given to encourage more firms to engage in R&D to fine tune their production processes or to encourage innovation and invention of more efficient machines. This can increase the quality of capital
- For example, in the Research Innovation and Enterprise (RIE) 2025 Plan that was announced in Budget 2020, the Singapore government pledged to spend S$25 billion on its next five-year plan for research, innovation and enterprise. The plan aims to enrich our scientific base and expand our innovation and enterprise, helping to increase the number of innovative firms in the country.
- Such supply-side policies can also enhance productivity growth through maintaining production costs at a competitive level, increasing productivity and process innovation, hence reducing costs of production for domestic firms and mitigating imported inflation.
- Through R&D to ensure higher productivity and lower unit cost of production, this causes an increase in the productive capacity of the economy as there an increase in the maximum possible output an economy can produce at full employment level. Long run aggregate supply (LRAS) increases and the aggregate supply curve will shift to the right from $LRAS_0$ to $LRAS_1$ as shown in Figure 5.
- As a result, the general price level falls from P_0 to P_1 while the real national output increases from Y_0 to Y_1. Thus correcting cost-push inflation. There is also an increase in the full-employment level of national output, i.e. potential growth, from Y_{F0} to Y_{F1}. There is also an increase in the real GDP i.e. actual growth, from Y_0 to Y_1 and hence a fall in unemployment.
- Additionally, its non-price competitiveness of exports will improve by creating better design and improving quality (through research and development). This helps to increase export revenue, AD and hence increase real GDP and reduce unemployment in the long run.

Intermediate Evaluation 2:
Limitations of SS side policies

- Such policies of R&D can be costly, incurring an opportunity cost, as less funds are available for other areas of development of the economy.
- The effectiveness of R&D is uncertain. Even if hefty amount of funds is invested in research projects, the outcomes depends on many other factors. An example would be the rate of technological advancement in the world and the changes in comparative advantage of the country. The R&D might not yield positive results if the progress is slow, and Singapore has lost comparative advantage in a good to other countries.

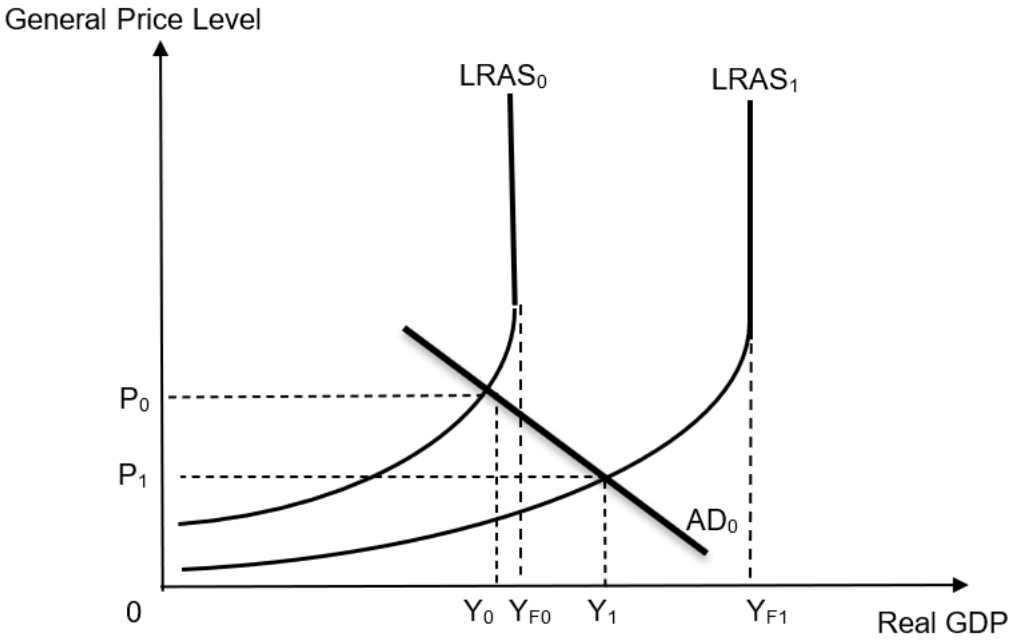


Fig 5: A rise in LRAS

Overall Evaluation:

- The effects of the current global events are multi-faceted and volatile.
- Given that the most pressing effect of the current global events is rising inflation rate, exchange rate is most appropriate to mitigate the inflationary pressures especially due to increase in imported prices to stabilize domestic prices.
- However, exchange rate appreciation has its downsides of reducing Singapore's net exports in times of geopolitical tensions. Even though there might still be increased AD in the short run due to pent up demand after COVID-19 pandemic, the increasing pessimism in the economic performances of the major trading partners of Singapore such as China and US seems to be looming. Hence Singapore should continue to source for its comparative advantage and implement supply side policies to improve its productivity to reduce imported inflation and improve its export competitiveness to bring about favourable outcomes to its domestic market in the long run.

Please refer to 1b above for the mark scheme.

For this question, 5 marks are allocated for evaluation.
Your evaluation is assessed based on this rubric:

	Evaluation
E3: 5	A well-explained evaluative judgement about **both requirements (two macroeconomic policies)** PLUS an overall summative conclusion leading to a well-explained evaluative judgment on which is the best policy for SG to manage the effects of current global events.

E2: 3-4	**(4m)** A well-explained evaluative judgement about both requirements. OR Well-explained evaluative judgement about **one** requirement PLUS a learned evaluative statement for the second plus a **summative conclusion.** (**3m): Well-explained** evaluative **judgement** about **one** requirement PLUS a learned evaluative **statement** for the **second.**
E1:1-2	**(2m):** A learnt evaluative **statement** for t**wo** requirements OR a **well-explained** evaluative j**udgement** about **one** requirement. **(1m)** A learnt evaluative statement for **one** requirement.

Marker's Comments

- General comments:

QA	• Some students did not refer to the effects of the recent global events (one key concern being inflation) from their part a answer. Instead, they focused on how fiscal stimulus by giving out more transfer payments can reduce income inequality and explanation on using policies to reduce structural unemployment did not meet the question requirements.
CK	• A handful of students provided an explanation on how SGD appreciated. Some of these students correctly explained that the Singapore government made use of foreign reserves to buy SGD from the forex market, leading to an increase in demand for SGD and hence appreciation. However, some students erroneously referred to an increase or decrease in money supply by the Singapore government to appreciate SGD. • Some students used the same factor affecting PED to explain why PEDm and PEDx for SG is greater than one. While this is true for PEDx, this is incorrect for PEDm. Singapore is import reliant and hence degree of necessity to import is high, hence giving rise to a price inelastic demand for imports. Please refer to the underline segment on how to apply PEDm above. • Some students claim that when the MLC condition holds, it implies that both |PEDx| and |PEDm| are more than 1. This is not true as MLC is |PEDx+PEDm|>1 and this is a more relaxed condition which does not require both PED to be elastic.
AR	• Likewise, the adjustment process is missed out and should be included. Please refer to the underlined segments on the adjustment process above.
AP	• Many students attempted to apply PED and/or MLC in the analysis for appreciation but often, there are many gaps or errors in the analysis. Although many students understood that Singapore is import-reliant as it is resource scarce, these students failed to contextualise PED value for Singapore's imports and stated that the PED for Singapore's imports is greater than one.

	Hence an appreciation of SGD will bring about a more than proportionate increase in quantity demanded for imports leading to an increase in import expenditure which is inaccurate. Import expenditure for Singapore is expected to fall due to an appreciation of SGD (0<PEDm<1) and together with a decrease in export revenue (PEDx>1) will lead to an ambiguous outcome on net exports. This warrants the need for Marshall-Lerner Condition to conclude that appreciation of SGD will lead to a fall in net exports. Please refer to the underline segments on how to apply PEDx, PEDm and MLC above. • Many students provided an answer with weak knowledge of Singapore, for example, students are expected to know that Singapore's fiscal policy is focused on promoting long-term economic growth, rather than at cyclical changes. Hence for the effects identified in part a which are demand-pull and cost-push inflation and most probably increase in real national income with fall in unemployment, students should not suggest the use of fiscal policy to deal with the above effects. This is because Singapore being a small and open economy is import reliant and export driven (i.e. depends on external markets for growth) instead of being driven by domestic consumption and investment.

Question 6

Globalisation will make our societies more creative and prosperous, but also more vulnerable.

a) **Explain how technological development and globalization have impacted each other. [10]**
b) **Discuss whether small economies like Singapore, have more to gain from globalization than big economies. [15]**

Suggested Answer (part a)

Introduction

Globalization refers to the increasing integration of national economies around the world, through trade in goods and services, capital flows and trade in assets (e.g., currency, stocks), the transfer of technology and ideas, and international flows of labor or migration.

R1: Explain how technological development has positively impacted globalization.

In the past, distances and the corresponding high transport costs prevented trade even when differences in comparative advantage exist among countries. With technological developments such barriers to trade were overcome giving rise to rapidly growing international trade. For example, the shipping container is an outcome of innovation. By placing items in containers rather than loading cargo in piecemeal fashion make for easier and cheaper transport. Hence, advances in technology in the field of transport leads to fall in costs which allows countries to specialize based on their comparative advantage and this has, to a very large extent, accounted for the rapid rise in trade which makes countries highly integrated as they rely on each other for exports and imports. The fall in transport costs with respect to air, sea and rail travel also make it more affordable for people to move overseas for work, leisure and business. Due to such technological advances, people move from one country to another in search of better economic opportunities.

In recent years, advances in technology such as the internet, digital trade, e-commerce platforms, etc have also rapidly reduce costs and ease of international transactions giving rise to boom in trade, foreign investments, migration, and transfer of knowledge.

Technological developments like the above have enabled increase integration of economies through flow of goods and services and capital.

R2: Explain how globalisation makes for more rapid technological developments for many countries

Globalization helps to boost technological development in a country. Globalization allows countries to gain access to foreign knowledge and foreign talents. Many countries have opened their economies not only to trade but also the movement of people and capital. For example, US technological predominance is because it actively recruits the most talented minds in the world and welcome them into a society where they have the opportunity to realize their dreams. The

founders of Intel, Google, eBay, Uber, and the many technology companies that have powered economic growth were the result of smart and ambitious immigrants.

Second, globalisation enhances international competition and this strengthens firms' incentives to innovate and adopt foreign technologies. For example, both Apple and Samsung are strong competitors, and both try to gain a larger market share by constantly coming up with new technologies to improve on the quality of their products. They spend huge amount on R&D to keep themselves ahead of their competitors and to use advance technology as a barrier to entry so that they can continue to enjoy supernormal profits. Such competition that leads to new technological improvements has intensified in fields like smart and clean energy systems, autonomous driving cars, new energy vehicles, automation and robotics, advanced medical equipment and medicines.

Conclusion

Globalisation and technological developments are intertwined. Technological developments tend to flow from the developed countries to the developing countries. But then, many developed countries like the US benefitted greatly from the flow of some of the brightest minds such as overseas students which helped in the advancement of new technologies.

Marking Guide

To achieve an A response for either one of the two requirements:

For an answer that shows a well-developed and well-balanced analysis to explain with examples

- Thorough knowledge of facts (eg globalisation and technological development)
- Excellent ability to describe and explain in a precise, logical, reasoned manner
- New illustrations and examples should be introduced as further evidence of the ability to recognise the principles of the question and their application to relevant current situations, and appropriate for the question with respect to
    - How technological developments impacted globalization OR
    - How globalization impacted technological developments

Please refer to part 1a above for the mark scheme.

Marker's Comments

General comments:

QA	• Not all students understood that the question required an explanation of how globalization affects technology and vice versa. Some only explained in one direction. • Some students did not link to globalization clearly. Students must link to either of the aspects of globalization; increase in flow of goods & services, capital flow, labour flow, or increased competition.

AR	• Since there are four characteristics to globalization, students should have at least mentioned 2 of them for each requirement to have sufficient scope. This was not always done well. • Weaker responses did not even link the 2 issues together and went in a direction that did not address the question.
AP	• A number of students did not substantiate their answer with examples.

Suggest Answer (part b)

Introduction

Countries, regardless of size, gain from globalization but the extent of the gains may not be equal and there are also costs involved.

R1: Explain how a small economy like Singapore gain from globalization.

One important aspect of globalization is trade in goods and services. It can be shown that regardless of the size of an economy, they will mutually benefit from trade. The theory of comparative advantage states that even though one country can produce more of everything compared to another country, as long as their opportunity cost differs for different products, both countries will gain from specialization and trade. An important assumption of this theory is the absence of trade barriers and globalisation makes this assumption a reality as more countries lower various protectionistic measures.

The following will explain the positive effect of specialization and trade on economies. This can be explained using a PPC. Take for example, a small economy like Sg can produce 800 machines or 400 kg rice and US can produce 1000 machines and 1000 Rice.

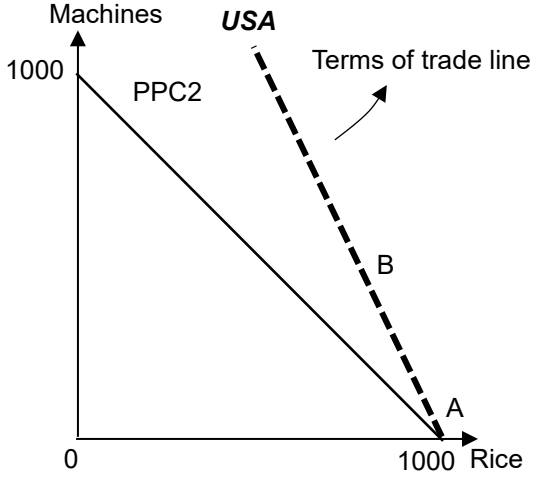


Figure 1(a): PPC of USA

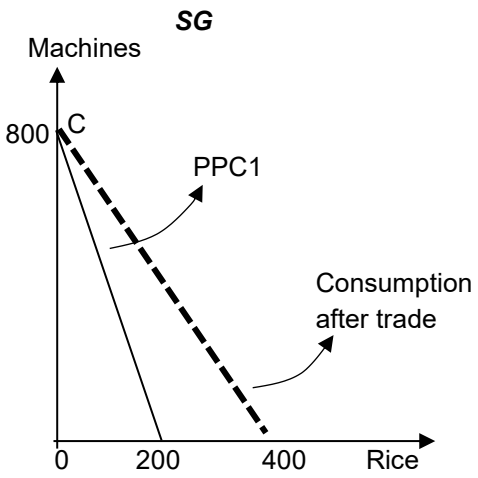


Figure 1(b) PPC of SG

The opportunity cost of rice in SG is 4 machines and for US is 1 machine. In other words, the price of rice in SG is 4 machines (or 1 machine can only get 0.25 rice). SG has CA in machines whereas US, it is rice. Each should specialize in the good that they have CA in and they export and import respectively. The acceptable terms of trade between the 2 countries should be 0.25 rice < 1 machine < 1R. It is cheaper for Sg to buy rice from US by selling machines which it has a comparative advantage in. SG can sell its machine for 0.5 rice which is half the price were she to produce rice herself. In doing so, it is able to consume more of both goods than if she were to trade within its domestic economy. This is shown by the consumption of goods after-trade curve which lies to the right of SG's PPC. Thus, it is able to enjoy more of both goods than before.

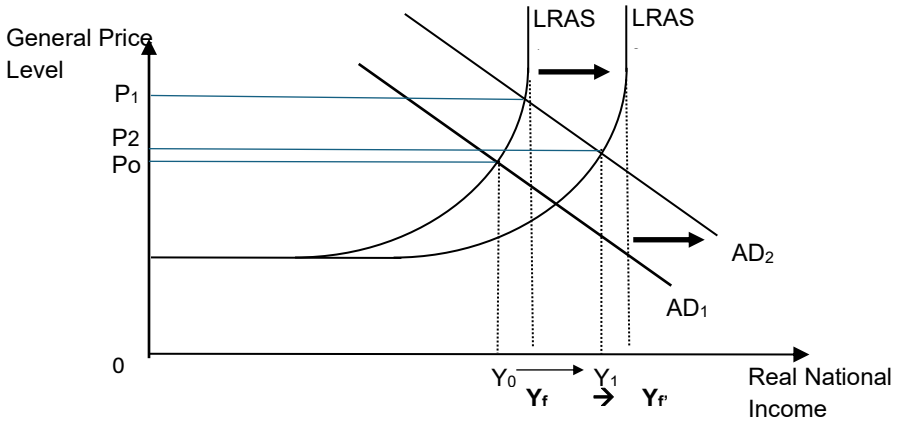
The same can be applied to US as it can exchange for more machines when it exports its rice to Singapore as long as the terms of trade lie between the 2 countries opportunity cost ratio. From fig 1 above, US is also able to consume more machines and rice after trade with SG.

Thus, big and small economies gain from trade – a major part of globalization.

But due to globalization, trade barriers are lowered and this enables SG goods to be exported to the world's major markets. Also, SG does not have natural resources and keeping trade opened, enables domestic and foreign firms to import raw materials and capital goods from all over the world which lowers costs of production. In addition, export-oriented firms enjoy huge economies of scale which lowers their unit costs of production. These cost reductions increase the export competitiveness of Sg goods. In addition, leveraging on its comparative advantage in producing capital intensive and high value goods today, further enhanced export competitiveness.

As a result, its exports increase. A combination of increase in exports and investments cause AD to increase from ADo to AD1, and through the multiplier effect, there is a much larger increase in real national output from Yo to Y1. Employment would also increase as the demand for labour is a derived demand and this contributes to SG enjoying full employment. By embracing globalisation, Singapore was able to high actual economic growth.

Further rapid growth is made possible because globalization enables the country to increase its productive capacity to prevent inflationary pressures. For example, large increase inflow of FDI and foreign workers increase the country's capital stock as well as the size and quality of the labour force. The technological transfers from the various MNC also contributes to improvement in technology and quality of the workforce. This increases SG productive capacity and shifts the LRAS curve to the right, from LRAS1 to LRAS2, increasing potential growth from Yfo to Yf1. With both increase in actual and potential growth SG enjoys sustained economic growth and high current and future standard of living. The increase in productive capacity also helps to stabilize prices.



Evaluation

However, these gains must be weighed against the costs of globalization. There are increased risks of economic instability. Being highly dependent on exports, any external shocks such as the world financial crisis in 2008/9, resulted in sharp fall in exports as trade partners purchasing power falls. The fall in net exports cause sharp fall in AD as net exports take up a big proportion of AD. SG slipped into a recession during those crisis years. This is unlike a big economy like the US where fall in net exports would have less impact on economic growth as domestic demand is the major driver of growth. It also faces greater risks of imported inflation as most of the goods and raw materials are imported from abroad.

(Alternative evaluation point/optional) There is also greater risk of rising income inequality and structural unemployment. As a small economy, its heavy reliance on FDI which tends to specialize in production of high value added, high tech goods, means that its economic activities are not as broad based as a big economy. Rapidly changing economic structure due to the need to develop new comparative advantage would mean that low skilled workers and unskilled workers faced greater risk of unemployment and falling wages causing increasing structural unemployment and widening income gap as the demand for skilled workers increased whereas the demand for unskilled labor falls.

R2: Explain how big economies (eg the US) gain from globalization

Big economies are those that are not only big in terms of geographical area and population size but in terms of income levels such as the USA.

It can also be shown that big economies much to gain too. As explained above, based on the theory of comparative advantage, big economies would also benefit from higher consumption through specialization and trade based on comparative advantage.

A country like the USA with large land size (natural endowment of resources) has comparative advantage in agricultural production. They will be able to produce it at a lower opportunity cost and export it to other countries like Singapore with a lack of land resources. This will increase net exports for the US and increase AD greatly leading to higher actual growth.

Globalization enables more domestic firms to invest abroad to take advantage of lower costs as well as bigger markets. Many US firms also took advantage of globalisation where many overseas countries, lacking in both physical and human capital, dangle incentives to attract them to invest in their countries to increase their technology level for production of goods. The US has a lot of foreign investments all over the world and in the long run, there is greater inflow of profits back to the US which helps to boosts economic growth.

Thus, in the case of the US, it also has much to gain from globalization. Globalisation gives it an edge over countries in terms of technological advantage which enables her economy to be one of the biggest in the world.

(Alternative example/Optional) Another example of a big economy is China. Unlike US, China was a poor country 50 years ago and its was a relatively closed economy with very little trade and foreign investments. But things changed in the late 70s when the Chinese government opened up its economy to trade and foreign investments. With its huge pool of unskilled workers and abundant natural resources, it has CA in producing labour intensive goods. Due to globalization, it was able to export its goods to the developed countries which have the purchasing power to consume its goods. Without globalization, its own domestic market would not be able to consume because of low per capita income. There was also huge inflow of foreign investments which together with sharp increase in exports, helped China to achieve double digit economic growth and lift millions out of poverty. Its economy has increased in size so rapidly that it overtook other developed countries in Europe as well as Japan. Thus, a poor but big economy like China has also more to gain from globalization in terms of rapid increase in real per capita income and improvements in standard of living.

Evaluation

As the US is open to labour flow, with globalization making it easier for migrants to travel to the US, it attracts huge inflow of migrants due to the availability of job opportunities. Locals may experience a fall in wages when the supply of workers increases due to migration, especially in lower-skilled roles. This can worsen income inequality in the country and lead to a lack of inclusive economic growth.

Conclusion (weigh which type of country gains more)

A small economy has the most to gain from globalization because it is not endowed with abundant resources – capital, labour, technology - which are necessary for production but globalization enables it to overcome her natural constraints. It can have access to all types of resources from the rest of the world through trade, capital flows and immigration. If not because of globalisation, SG would not have transformed from 3rd to 1st world and its people enjoy the highest possible living standards. Although there are costs to globalization, but the gains far outweigh the costs as the gains from globalization can be utilized to address some of the problems. Overall, the proof that SG has more to gain from specialization is in terms of the size of its real per capita income and the share of net exports and foreign investments to GDP.

Big economies are those that large in overall income levels such as the USA which is more dependent on domestic consumption but where exports is a smaller % of GDP, the extent of gains arising from a larger export market due to globalisation will be smaller as compared to Singapore.

As many of such large economies are also well endowed with many natural resources, they are less dependent on imported factors of production. Hence, they have less to gain from globalisation as compared to small economies.

Of course, globalization alone is insufficient to help SG achieved all these if not of well thought out policies that take advantage of what globalization has to offer. SG use of supply-side policies and exchange rate policies have also contributed to her rapid growth. Hence it is essential whether an economy implements appropriate policies to take advantage of what globalization has to offer that matters.

Marking Guide

Please refer to the mark scheme for part 1b above.

To obtain an 'A' response for either one of the two requirements:

- Application to the Singapore economy should be clearly made with use of relevant economic theory.

For this question, 5 marks are allocated for evaluation.
Your evaluation is assessed based on this rubric:

	Evaluation
E3: 5	A well-explained evaluative judgement about **both requirements** PLUS an overall summative conclusion leading to a well-explained evaluative judgment on the analysis of the gains from globalisation of small and big economies. .
E2: 3-4	**(4m)** A well-explained evaluative judgement about both requirements. OR Well-explained evaluative judgement about **one** requirement PLUS a learned evaluative statement for the second plus a **summative conclusion.** (**3m): Well-explained** evaluative **judgement** about **one** requirement PLUS a learned evaluative **statement** for the **second.**
E1:1-2	**(2m):** A learnt evaluative **statement** for t**wo** requirements OR a **well-explained** evaluative j**udgement** about **one** requirement. **(1m)** A learnt evaluative statement for **one** requirement.

Marker's Comments

General comments:

QA	• It should be understood that gains (and thus costs of) from globalization should be explained in terms of the macroeconomic/microeconomic goals and/or standard of living as the end points. Students did not always show this understanding and therefore did not have a clear end point to their answers.

	• Since this is a discussion, each requirement needed to have not only the benefit but also the costs of globalization for both big and small economies. Not all responses demonstrated an awareness of this. • While many students could somewhat explain the significance of "small" characteristic of an economy and how such economies gain from globalisation, not many were able to identify the significance of the "big" characteristic of an economy and how such economies gain from globalisation.
AR	• While students understood a need to bring up trade and a larger market for small countries like Singapore as a benefit of globalization, not enough was said about why globalization is especially beneficial for small countries. Instead, students tended to just do an AD-AS analysis of an increase in exports leading to growth. While this is a critical part of the answer, it cannot be treated as the whole answer. • There are a few benefits that small countries get from globalization, larger market access that helps to increase trade and boost real GDP, the ability to import raw materials that a country such a Singapore may not have, and that foreign firms can invest in the country and boost real GDP and subsequently also increase the productive capacity of a small country. While students demonstrated awareness of these issues, responses tended to mix these issues together rather than to explain them separately and in depth. This caused answers to lack clarity and coherence as to what exactly the benefit was.