

# **ECONOMICS**

## **Higher 2**

### **Syllabus 9570**

Examiner's Report

Year 6  
PRELIMINARY EXAMINATION  
2024



# ECONOMICS

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Y6 H2 Preliminary Examination 2024

**Paper 9570/02**  
**Paper 1 & 2**

## Case Study 1: Oral Health Situation in Indonesia and Brazil

- (a) With reference to Tables 1 and 2 and using a relevant elasticity of demand concept, explain the change in sugar consumption in Indonesia between 2013 and 2017. [2]

### Correct identification of trend:

- There has been an increased consumption of sugar [per capita] along with an increase in GDP per capita. [1m]

### Explanation of trend using YED concept:

- It may be inferred that YED for sugar is positive and sugar is a normal good. As income increases as inferred from the increase in GDP per capita, the demand for sugar increases, ceteris paribus, the quantity of sugar consumed increases [1m]

### Examiners' comments:

- Generally, well done. Some candidates have identified that sugar is a necessity. This is awarded full credit as it is supported by the data.
- However, some candidates incorrectly stated that sugar is a luxury good which is not supported by the data in Tables 1 and 2.

- (b) Using a demand and supply diagram, explain how growing awareness towards oral care has led to the sharp increase in price of private dental care. [4]

- Accurate diagram: Rightward shift of DD curve, price inelastic SS curve [1m]
- Correct explanation that DD increases [1m]
- Brief explanation of price adjustment process [1m]
- Use of PES concept to explain the sharp increase in price [1m]

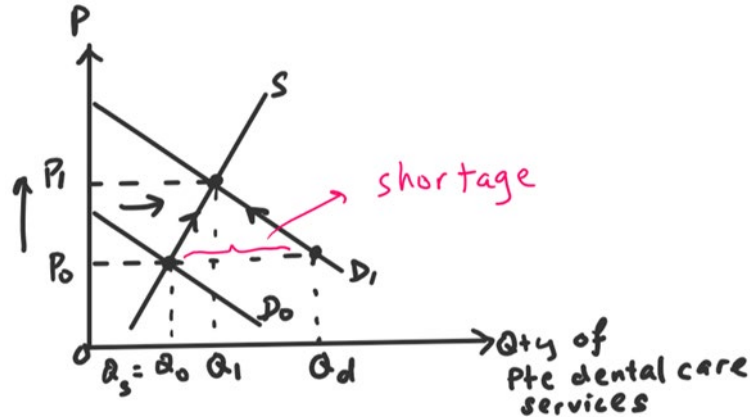
### Explain demand factor:

- As awareness regarding oral care has grown, more people are seeking routine check-ups and preventive care.
- Change of taste and preferences towards seeking preventive oral care, this increases the demand for dental services.

### Briefly explain the price adjustment process:

- Given the increase in DD, shifting DD curve from  $DD_0$  to  $DD_1$  at the prevailing price level,  $P_0$ , a shortage is created as  $Q_d$  less than  $Q_s \rightarrow$  upward pressure on price to clear the shortage and restore equilibrium at price  $P_1$

**DD/SS diagram to illustrate:**



**Apply PES concept:**

- However, SS is likely to be price inelastic, due to the long-time period needed to train dental staff in the provision of dental care services.
- Evidence: [Ext 1, para 2] “specialised dental procedures that require additional training for dental staff often take a longer time” OR [Ext 2, para 2] “This is challenging given that the process of becoming a dentist involves extensive education and training”
- Suggests that quantity supplied of oral health services less responsive to price increases  $\rightarrow$  sharp increase in price needed to eliminate the shortage

**Examiners' Comments:**

- Generally, well attempted. Best responses were able to use taste and preferences as a demand factor to explain the increase in demand because of the growing awareness towards oral care.
- Weaker responses included a leftward shift of the SS curve which was unnecessary. Often the use of relevant PES or PED concept was omitted, and the explanation of sharp price increase was thus missing.
- A significant number of responses wrongly explained that the rise in price of factors of production such as dental materials would result in a low PES.
- For the demand and supply diagram, candidates are reminded to draw a relatively steep SS curve that cuts the x-axis when illustrating supply that is price inelastic. For the price adjustment process, for completeness, shortage should be referenced to the prevailing price level. Most importantly, the diagram should clearly illustrate a sharp increase in price.
- In terms of expression, when  $PES < 1$ , it should be worded as “supply is price inelastic” OR the PES value is low. It is incorrect to word it as “PES is price inelastic” or simply inelastic.

- (c) Explain one opportunity cost that a dental service provider may incur when upgrading to a new dental imaging technology. [2]

- Explanation of opportunity cost that shows application to context of dental service provider [2m]
- Opportunity cost refers to the value/benefits of the next best alternative that is forgone when a decision is made. In this context, the dental service provider must consider what it is giving up by allocating resources (time, money, and effort) to the new technology.
- Possible opportunity costs in upgrading to new dental imaging technology [Any 1 reason]
  - The money spent on new technology could have been used for other purposes, such as expanding the dental practice, hiring additional staff, or upgrading other existing dental equipment. This will allow the dental service provider to better serve existing and new customers. Evidence: [Ext 1] “specialised dental procedures ... equipment often come with a higher price tag”.
  - OR
  - Upgrading to new technology often requires training staff to use the new equipment, which takes time and effort. The time and effort spent on training could have been used to serve more patients, improve other aspects of the practice, or enhance other skills. The provider must consider the potential revenue lost or other opportunities missed during this training period. Evidence: [Ext 1] “specialised dental procedures that require additional training which takes a longer time and equipment often come with a higher price tag,”

#### **Examiners' Comments:**

- Responses were quite varied. Strong responses were able to frame their application of opportunity cost to the context of a dental service provider in terms of the value/benefits of the next best alternative forgone. These responses showed good understanding that when a choice is made, trade-off arises due to resource constraints.
- It is important to make clear the value/benefits of the best alternative forgone. For example, it is incomplete to state that the opportunity cost is to expand the dental practice. Candidates must go on to clarify the benefits of expanding the dental practice which is to serve more customers which increases revenue.
- Weaker responses on the other hand were confused between the direct negative consequences vs the issue of trade-offs. Explaining that the purchase of new dental technology raises cost of production, hence cost is passed on to the consumer is not a trade-off, but a negative consequence of the action taken to purchase the new dental technology.

- (d) Explain two possible conditions that may enable a dental service provider to engage in price discrimination. [4]

#### **Any 2 conditions explained: 2m each**

##### **1. Ability to set prices**

Dental service provider can set prices as it can product differentiate. In Ext 1, dental service provider can product differentiate by “quality of care, specialised services, location” and “patient experience”. This helps to cultivate unique value proposition to the consumer that other competitors are less able to match, hence allowing it to charge premium prices.

##### **2. Ability to segment the market**

A dental practice may be able to segment the market according to different profiles of patients, e.g. patients in rural vs urban areas with different in PED

- Urban patients have significantly higher income levels relative to rural patients. Dental services take up a relatively smaller proportion of income of urban patients. As such, they are relatively less price sensitive, possessing relatively lower PED for dental services. Hence, firms set higher prices for urban patients as an increase in price is likely to result in a less than proportionate increase in quantity demanded → increase TR, ceteris paribus rise in profits for the firm

### 3. Ability to prevent resale

Dental service is provided directly to patient. For urban patients to enjoy relatively lower prices, they have to take the time, effort and incur the transportation cost to travel to rural dental service providers. It may not be worth while to undertake such a journey just to enjoy the lower price. Patients who experience pain and discomfort from their dental health issues are even less likely to do so. Hence, arbitrage is unlikely.

### Examiners' comments:

- All responses must be constructed in the context of dental service providers. Explaining the price discrimination conditions without application to dental service providers will not gain full credit.
- The quality of responses to this section was generally disappointing. A significant number of candidates explained market segmentation that the dental service provider can segment the market by differentiating based on the type of dental services offered to different groups of consumers. E.g. Elderly patients would have poorer oral health or more severe oral issues relative to younger consumers. This is problematic as it suggests that the type of dental treatment would differ which goes against the definition of price discrimination.
- Even when PED differences were correctly explained, many did not go on to explain how this would result in the difference in prices – specifically which group of consumers would pay higher prices
- Others cited the need to prevent resale so that arbitrage is not possible but did not go on to explain how this can be done by the dental service provider.

- (e) With reference to the case material, discuss the factors that a new dental service provider needs to consider when deciding to enter the oral healthcare market in Indonesia. [8]

### Introduction

- Clarify objective of the dental service provider: Profit max. Given that  $\text{Profits} = \text{TR} - \text{TC}$ , new dental service provider should consider revenue and cost factors.

### Revenue factors: [Any 1 factor]

1) Understanding the demand for oral healthcare services is important. Factors such as increasing awareness of oral health, rising incidences of dental issues (like tooth cavities and gum diseases), influences firm's demand [Ext 1]

- In Indonesia, for instance, there is a high incidence of dental problems due to low awareness and poor dental care habits, indicating a potentially underserved market with growing demand for dental services if government is successful in raising awareness of good oral health in LR --> increase AR, MR, cet par, increase TR and profits.

- [Ext 2] The low awareness coupled with the lack of access to dental care translates into unrealized revenue for dental practices, as many individuals either delay seeking care or fail to visit altogether due to a lack of awareness and access --> low AR, MR, cet par, low ability to achieve high enough TR and profits

2) Assessing the competitive environment and the degree of BTE is essential.

- [Ext 1] The dental care industry is fragmented with various providers offering different levels of service quality, specialization, pricing strategies, and patient experiences → suggests low BTE, higher degree of competition → scope for differing pricing and non-price strategies to raise TR and profits.
- However, competition may vary between urban and rural areas, with urban centers typically having more concentrated dental service providers and potentially higher competition as compared to rural areas --> more price elastic demand in urban areas --> implication for different pricing strategies to raise TR and limited ability to earn excessive supernormal profits.

### Cost factors: [Any 1 factor]

1) Higher costs for labor, including salaries for dental professionals and support staff

- [Ext 2] "Rural and remote areas where there are fewer dental professionals, the scarcity of providers can lead to higher operating costs. Rural practices may have to invest more in attracting and retaining staff, including offering higher salaries or incentives to compensate for the lower availability of skilled dental professionals"

2) Rental costs [FC]

- Higher rental costs for dental practices in urban areas → higher costs  
[Ext 2] "In contrast, while dental practices located in urban areas may face higher overhead costs like higher rent, the higher patient volumes help to lower per unit costs"

**Evaluation:** Students should comment on the relative importance of the factors and/or explain how the factors interact and influence each other in the context thus helping the firm to decide entering the market in Indonesia, e.g.:

- There are multiple factors that the firm should consider:
  - **Demand and Competition:** The presence of high demand is a crucial factor. While high demand is crucial, the level of competition will determine how much of that demand can be captured profitably.
  - **Costs and Revenue:** While lower rental costs in remote regions of Indonesia can offset the challenges of lower equipment availability, the ability to tap on underserved demand is important to sustain profits.
  - **Market Entry Strategy:** For a new entrant, entering a less competitive market with growing demand (like rural areas in Indonesia) might offer better initial profitability. However, long-term growth could be more sustainable in urban areas. Although there is higher competition, but the demand is likely higher with a larger urban population and hence larger revenue potential and profitability, cet par
- Hence, the decision to enter the oral healthcare market should prioritize understanding market demand and competition dynamics. Given the government's push for more oral healthcare

across the country, it is likely that firms will see a rise in demand across both rural and urban areas.

- High demand areas with manageable competition levels, coupled with cost-effective operations, provide the best opportunities for profitability – this could well be the urban areas.
- As for the rural areas, while it may seem like there are lower costs such as rental in more remote regions within Indonesia, which may offer initial advantages, there is the issue of transport costs for equipment, staff, and other materials used (medical disposables). Hence, it is likely to heavily depend on the government's investment in technology and infrastructure in the long run to ensure long run profitability.
- Therefore, a balanced approach that weighs market demand and competitive landscape against operational costs is essential for a new dental service provider aiming to maximize profits in the oral healthcare market.

**Mark Scheme:**

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ No theoretical framework / Descriptive and journalistic writing</li> <li>▪ Meaning of question not properly grasped</li> <li>▪ Did not use correct theoretical framework i.e. AR-MR, AC-MC analysis</li> <li>▪ Major conceptual errors</li> <li>▪ Answer mostly irrelevant or inaccurate               <ul style="list-style-type: none"> <li>○ did not address the cost and/or revenue factors</li> <li>○ E.g. used DD-SS framework instead of AR-MC, AC-MC</li> </ul> </li> <li>▪ No reference to case material</li> </ul>	<b>1 - 3</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Scope of analysis               <ul style="list-style-type: none"> <li>○ Ability to address cost and/or revenue factors</li> </ul> </li> <li>▪ Depth of analysis               <ul style="list-style-type: none"> <li>○ Ability to use firm analysis framework to explain firm's decision to enter the market</li> <li>○ Ability to provide a well-developed analysis with clear links to cost, revenue and profits</li> <li>○ Ability to demonstrate understanding of the Indonesian oral healthcare market and apply economic theory to context</li> </ul> </li> </ul>	<b>4 - 6</b>
<b>Evaluation</b>		
<b>E1</b>	A judgement with some attempt to weigh up the revenue and cost factors with some substantiation but not well supported with economic analysis/case context	<b>1</b>
<b>E2</b>	A judgement that clearly weighs up the revenue and cost factors with good substantiation that is well supported with economic analysis/case context	<b>2</b>

**Examiner's comments:****Analysis**

- Strong responses were able to make use of the firm analysis framework to explain the revenue and cost factors. Such responses were thoughtful in also considering the oral healthcare market in Indonesia, with good use of case evidence to substantiate the points made drawing a clear link to long-run profits.
- Weaker responses on the other hand largely attempted to lift case material without making a meaningful revenue and/or cost analysis. Others erroneously used the market analysis framework (i.e. DD/SS framework).
- A significant number of weak responses attempted a short-run analysis of the shut-down condition. A short-run analysis focusing on the shut-down condition is inappropriate because it only considers the immediate costs and revenues, neglecting the long-term implications and potential for growth of the new dental service provider. The decision to enter an industry is a long run decision since at the point of making the decision, fixed factors of production are yet to be committed, meaning all factors of production are deemed variable. As such, a long-run normal profits condition approach is more suitable, as it:
  - Considers all costs, including sunk costs and opportunity costs.
  - Considers the potential for reaping sufficient economies of scale
  - Accounts for market dynamics, competition, and potential market share growth.
  - Provides a more comprehensive understanding of firm's viability and potential for sustained profitability.
- Other common concept errors include:
  - Explaining increases in fixed cost, but shifting the MC curve
  - Explaining increases in variable cost but shifting only the AC curve
  - Drawing upward sloping segment of MC curve but not intersecting the minimum point of AC curve

**Evaluation**

- Evaluation points were in general less well done. Many were contented to provide a cursory mention that a firm needs to consider both revenue and cost factors. Strong responses were able to go further by weighing up the relative importance of revenue vs cost factors that showed a more nuanced understanding of the Indonesian oral health market context

- (f) Discuss whether joint provision used in Brazil would be the most appropriate way to achieve allocative efficiency in the oral health market in Indonesia. [10]

**Introduction**

- Define allocative efficiency
- Clarify that there is allocative inefficiency in the oral health market in Indonesia due to 2 primary sources of market failure below:
  - Positive externality in the consumption of oral health
  - Imperfect information
- Clarify the meaning of joint provision
- Identify alternative policy: Other than adopting joint provision used in Brazil to address allocative inefficiency, Indonesia should also consider using education as a policy measure



*Note to students: In view of joint provision addressing positive externality in consumption, indirect subsidy is not preferred over education as an alternative policy measure as it does not directly tackle imperfect information as a source of market failure.*

Thesis: Explain why joint provision used in Brazil is an appropriate policy to use in Indonesia to address allocative inefficiency in the oral health market

Step 1: Explain the source of market failure

- There is positive externality in consumption for oral health. With better oral health, workers take less work leave and become more productive (from Extract 2). This confers benefits on 3<sup>rd</sup> parties sch as firms, with increased productivity and less work stoppages, lowers COP → contributing to higher profits for firms and/or more economic growth for Indonesia.
- However, self-interested workers do not consider such external benefits on 3<sup>rd</sup> parties → divergence between MPB and MSB with MSB greater than MPB
- $MPB = MPC$  yields  $Q_p$  and  $MSB = MSC$  yields  $Q_s$ ,  $Q_p$  less than  $Q_s$ , thus underconsumption of oral health by  $Q_p Q_s$  units and allocative inefficiency (and results in mkt failure)

Step 2: Explain how joint provision works to address allocative inefficiency due to positive consumption externalities

- The Indonesian govt can coordinate and work with private firms such as Colgate and Unilever (Extract 3) as in the case of Brazil. For example, by sponsoring dental kits to children in schools on various islands. Furthermore, through both private and public funding, dentists can be funded to undergo further professional training to be equipped with the latest skills and knowledge, thus increasing the supply of oral health services.
- This is represented by the rightward shift of MPC curve such that the new  $MPC_1$  curve intersects with the MPB curve at  $Q_s$  instead of  $Q_p$ , thus correcting the underconsumption of oral health services and attaining allocative efficiency.

Cost/Benefit (\$)

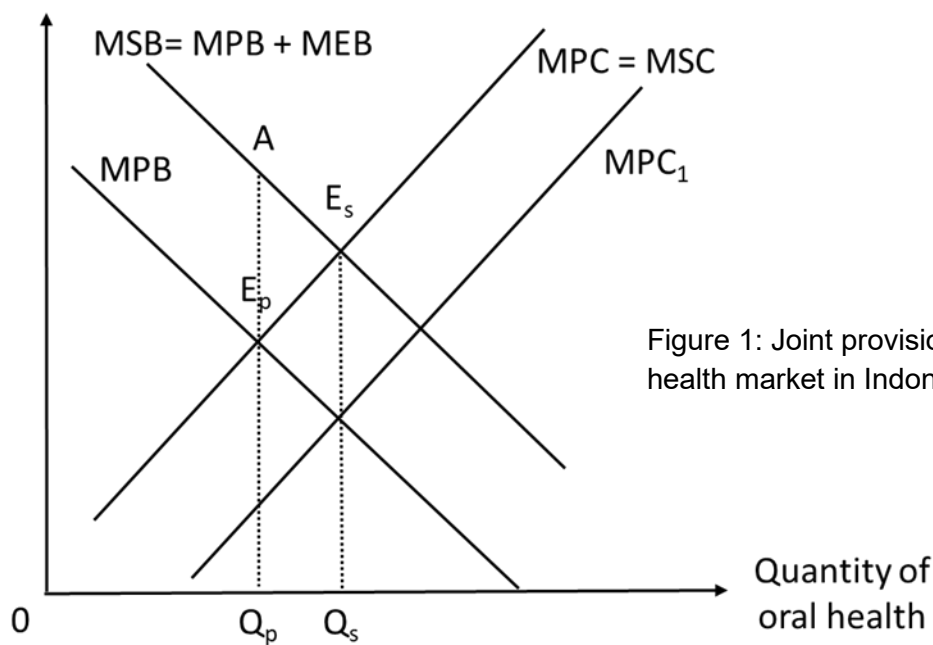


Figure 1: Joint provision in oral health market in Indonesia

Step 3:

Antithesis: Explain the limitations of following Brazil and adopting joint provision in Indonesia

#### 1. Geographic Disparities

- Access challenges: The widespread distribution of Indonesia's population across numerous islands creates significant logistical challenges for private sector providers.
  - Ext 2: "Unlike Brazil, Indonesia is a sprawling archipelago made up of over 17,000 islands, with about 6,000 of them inhabited. This dispersed geography makes it difficult to ensure consistent delivery of oral healthcare services and educational campaigns across the entire country."
- The cost and complexity of establishing and maintaining dental clinics in remote and underserved areas may be prohibitive for private companies. This limits their willingness to engage in joint provision initiatives, which typically require consistent and widespread service delivery.

OR

- Infrastructure requirements: Private sector involvement often requires robust infrastructure to ensure efficient service delivery.
- In areas with poor transportation and communication networks, setting up and operating dental services can be costly and inefficient, potentially deterring private investment.
  - Ext 2: "dispersed geography makes it difficult to ensure consistent delivery of oral healthcare services and educational campaigns across the entire country"

#### 2. Difficulty in estimating MEB and thus the level of underconsumption

- The Indonesian government is unable to accurately correct the underconsumption of oral health products. This is because in practice, it is difficult to measure the size of external benefits due to imperfect information which includes challenges in predicting future oral health outcomes and a possible lack of comprehensive and reliable data collection, especially in remote regions of Indonesia. Hence, the joint provision may not attain Qs.

#### 3. Low awareness → low demand

- Possibly limited market size: With only 2.8% of the population practicing correct oral hygiene (Ext 2: "Only 2.8% of the population have brushed their teeth correctly, doing so at least twice a day before bedtime and after breakfast."), the demand for dental services is relatively low. Private sector companies may view this low demand as insufficient to justify investment in new dental services, particularly if the potential for profit is limited.
- Ext 2: "This low awareness coupled with the lack of access to dental care translates into unrealised revenue for dental service providers, as many individuals either delay seeking dental care or fail to visit altogether."

#### 4. Cost implications

- High operational costs: Establishing dental clinics across such a geographically dispersed population entails high operational costs. Lack of IEOS and cost savings due to a lack of scale.
- Private sector partners especially in rural and remote regions in Indonesia may find it challenging to absorb these costs, especially if they are expected to provide services in low-demand or low-income areas without guaranteed revenue.

- Ext 2: “while dental service providers located in urban areas may face higher overhead costs like higher rent, the higher patient volumes help to lower per unit cost”

Step 4: Discuss one alternative measure (E.g. education)

Thesis: Explain the use of education campaigns to tackle imperfect information in oral health market

- Extract 2 mentions that only 2.8% of Indonesians brushed their teeth twice a day correctly, this low awareness of the importance of good oral care practices suggests that Indonesians are not fully aware of all the benefits of consuming oral health products/services on themselves, which may include better self-confidence and feeling socially accepted.
- Perceived  $MPB_p$  with imperfect information is less than actual  $MPB_a$  with perfect information. Thus, private optimal level of consumption of oral health care  $Q_p$  is attained when  $MPB_p$  equals  $MPC$  whereas socially optimal level of oral health care consumed is at  $Q_s$  where  $MPB_a$  equals  $MPC$ .  $Q_p$  is less than  $Q_s$  and there is allocative inefficiency and market failure due to underconsumption.
- The Indonesian government can intervene by implementing a comprehensive and far-reaching educational campaign regarding the importance of cultivating good oral healthcare practices by setting up community-based dental clinics for better outreach to the local communities
  - Ext 3: “Apart from joint provision, community healthcare workers engage in grassroots-level outreach, education to raise the awareness of good oral health practices, and oral healthcare service delivery, ensuring that even the most isolated communities receive care.”
- This helps to address imperfect information, increasing demand for oral health products/services, shifting  $MPB_p$  rightwards to  $MPB_a$ . Underconsumption is removed since  $Q_p$  increases to  $Q_s$  and allocative efficiency is attained.

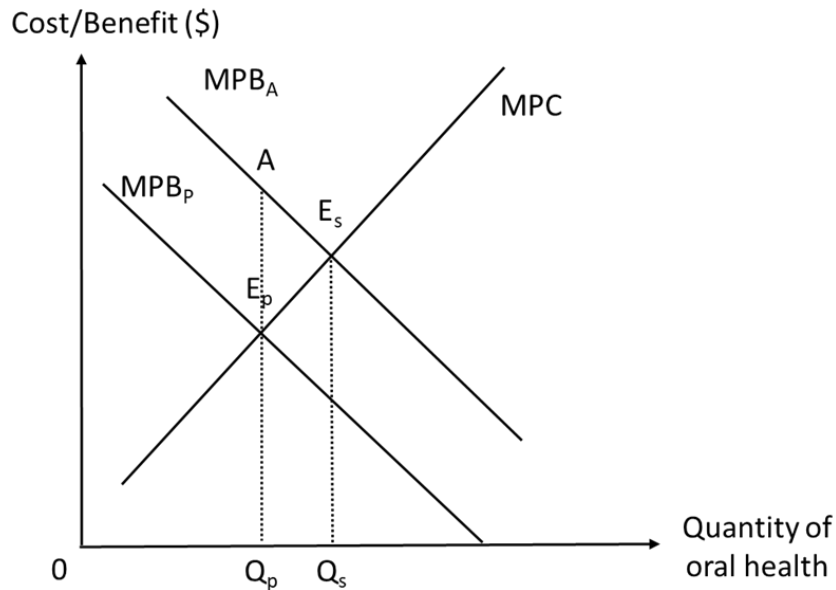


Figure 2: Effect of education campaign in Indonesia

Antithesis: Explain the limitation of education campaigns [Any 1 point]

1. Limited effectiveness in reducing imperfect information

- Takes time to change mindset and oral health care habits  
Poor oral health behaviours are often formed early in life and can be deeply ingrained. Getting Indonesians to brush their teeth twice daily through education campaign alone may be challenging as they may fail to do this on a consistent basis to make it a habit, especially if the effects of the education campaign wear off, thus limited ability to increase DD and consumption to  $Q_s$  level

2. High strain on government budget and opportunity cost incurred

- Given the need to reach a large majority of the population, the education campaign is likely to be done on a massive scale through various media platforms and in-person outreach efforts to different rural areas.
- The cumulative costs can add up to be significant and pose a heavy strain on the Indonesian government budget. [Fiscal sustainability and feasibility issue]
- Ext 2: "According to the World Bank, Brazil's per capita healthcare expenditure is around US\$900, compared to US\$100 for Indonesia." This may suggest that Indonesia has limited ability to spend on oral health
- Additionally, there is an opportunity cost incurred as the fiscal resources could have been spent to improve the infrastructure of the economy which generates economic growth. [Undesirable: trade-offs issue]

**Evaluation & Reasoned Conclusion (Typically, points 1, 2 or 3, coupled with point 4 will make up a strong evaluative conclusion for this question)**

Weigh-up the differing perspectives by considering the relevant factors to arrive at a summative judgement

1. Degree of government budget constraint

Given that GDP per capita in Indonesia is consistently lower than that of Brazil from 2013 to 2017, less than 50% of Brazil, the Indonesian government faces more budget constraints to spend on oral healthcare programmes directly. Thus, it is likely more appropriate to do joint provision with the private oral healthcare sector to supplement the government efforts to attain allocative efficiency.

2. Severity of the causes of allocative inefficiency in the oral health market

Given that only 2.8% of Indonesians know the importance of brushing their teeth daily, the degree of imperfect information is highly significant. Hence, it may be more vital to focus on educational campaigns in a cost-effective manner to reach out to all Indonesians living in dispersed areas as compared to the use of joint provision.

3. Effectiveness of Indonesian govt using joint provision like Brazil also needs to consider the cultural factor.

In Brazil, the success of the Smiling Brazil Programme was partly attributed to the government leveraging on the value of social acceptance which good oral health helps to bring about. Hence,

it is also important to consider the degree to which people in Indonesia value social acceptance as much as people in Brazil.

#### 4. Need for a multi-pronged approach

Given the various sources of market failure that contribute to allocative inefficiency, it is very unlikely that following Brazil's approach to using joint provision alone can address the two sources of market failure given its own limitations.

Education campaigns regarding good oral health practices are just as crucial to convince the public to brush their teeth twice daily. This highly supplements the effectiveness of joint provision as Indonesians learn the importance of using the provided dental kits on a regular basis and willingly utilise the mobile dental services.

#### **Mark scheme**

<b><i>Knowledge, application / understanding and analysis</i></b>		
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ Smattering of points that are largely irrelevant and/or not directly linked to question</li> <li>▪ Descriptive response without the use of a clear analytical framework. For this question, it should be market failure framework.</li> <li>▪ Gross conceptual inaccuracies</li> <li>▪ One-sided response with only thesis or antithesis covered</li> <li>▪ No use of case material</li> </ul>	<b>1-3</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Scope of analysis               <ul style="list-style-type: none"> <li>○ Ability to provide a nuanced response that demonstrates different perspectives in considering the use of joint provision used in Brazil and the appropriateness when applied for use in the Indonesia context</li> <li>○ Ability to discuss one other appropriate policy that Indonesia could use.</li> </ul> </li> <li>▪ Depth of analysis               <ul style="list-style-type: none"> <li>○ Ability to use the MSB-MSC framework to address the allocative inefficiency issue due to positive consumption externalities</li> <li>○ Ability to use the DD/SS imperfect information framework to address the allocative inefficiency issue due to imperfect information</li> <li>○ Ability to provide a well-developed analysis</li> <li>○ Ability to demonstrate understanding of the Brazilian and Indonesian oral healthcare context and apply economic theory to context supported by case evidence.</li> </ul> </li> </ul>	<b>4-7</b>
<b><i>Evaluation</i></b>		
<b>E1</b>	<ul style="list-style-type: none"> <li>▪ A judgement with some attempt to weigh-up the different perspectives on the appropriateness of joint-provision as used in Brazil and applied to Indonesia. Some substantiation but not well supported with economic analysis/case context</li> </ul>	<b>1</b>

<b>E2</b>	<ul style="list-style-type: none"> <li>▪ A judgement with clear attempt to weigh-up different perspectives on the appropriateness of joint-provision as used in Brazil and applied to Indonesia. Good substantiation that is well supported with economic analysis/case context.</li> <li>▪ Expect to demonstrate a well-reasoned recommendation for the policy approach towards addressing allocative inefficiency in the oral health market Indonesia</li> </ul>	<b>2-3</b>
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**Examiners' Comments:**

*This question was a good discriminator between the stronger and weaker responses.*

**Analysis**

- A significant number of weak responses went straight into explaining the use of the joint provision policy measure and/or an alternative policy such as education/campaign before explicitly identifying and briefly explaining the source(s) of market failure. As such the policy analysis were less well directed to addressing allocative inefficiency in the given context of the market failure.
- However, do note that in in-depth analysis of the sources of market failure is not required. This question focuses on the policies to address market failure. Identifying and briefly explaining the sources of market failure set the stage to analyse and discuss the effectiveness of policies.
- Others had a flawed understanding of joint provision and shifted the demand or MPB curve or explained that the government provides an indirect subsidy to encourage private firms to increase production.
- The focus of joint provision lies in the increase of market supply through collaboration of the private and public sectors, where both parties work to complement each other in delivering a good or service. Typically, the government enters the market to increase supply of the good.
- An indirect subsidy, on the other hand, is a government intervention where the government provides financial support to a private firm. The government provides financial assistance, but the private firm maintains control over production and delivery of the good or service.
- Poor reading and understanding of the question context. A significant number of candidates were careless in the reading and processing of the question and wrote entirely on the Brazil context when the question required a discussion of the joint provision policy measure used in Brazil and to assess the appropriateness when applied to the Indonesia market context.
- Weak responses were again contented with lifting case evidence and used that as their answer. These were given little credit due to the lack of ability to process the case evidence and to demonstrate how it can be used to substantiate the analysis points. Candidates are expected to examine the case evidence, pick up points for analysis using a theoretical framework and draw useful implications to form an informed policy approach. Where possible, candidates are also encouraged to consider multiple pieces of case evidence to form a comprehensive argument.
- Stronger responses demonstrated rigour with the use of well-drawn diagram(s) that was/were well-integrated into the analysis
- Stronger responses demonstrated a firm grasp of the similarities and differences of the Brazilian context and that of the Indonesian context. This then helped to provide a more nuanced response to the appropriateness of the policy approaches for Indonesia.

**Evaluation**

- This was generally less well attempted with many contented with providing a summary of the points made in the analysis or at best a rehearsed evaluation, e.g. short run vs long-run approach, ability to address root causes, policy mix with little substantiation etc.

- *Instead, candidates are encouraged to demonstrate clear ability to weigh-up the appropriateness of the joint provision policy and one alternative policy measure using sound criterion that is well anchored on the case evidence context, before reaching a sound summative judgement on the recommended policy approach for Indonesia*

### CSQ 2 Suggested Answers:

**a (i) With reference to Figure 1, describe the relationship between real food price index and global food insecurity between 2014 to 2022.** [1]

Both variables share a **positive or direct relationship** between 2014 and 2022, as shown in Figure 1, **as real food price index rises, global food insecurity rises** as well. [1m]

*Examiner's comments:*

*Many candidates gave incomplete answers - either failing to **identify/state** the direct or positive relationship between the 2 variables OR failing to **describe** the rising trend observed in both variables. A handful gave vague descriptions of the relationship using terms like "proportional", which does not clearly distinguish the nature of the relationship being one that is direct.*

**a (ii) Explain a possible reason for the relationship observed in a (i).** [2]

A possible reason could be that **food prices rose at a faster pace than increases in nominal incomes**, resulting in a **fall in real purchasing power**. This reduction in consumption of food leads to a **rise in the number of undernourished people**, hence the positive relationship between the 2 variables.

*Examiner's Comments:*

*Many candidates did not get the full credit because they did not explicitly relate to a possible assumption about wages or incomes either being constant or rising slower than the rise in food prices. This thus lead to increasing inability to afford food, hence rising global food insecurity experienced alongside rising food prices.*

**(b) Explain whether the theory of Comparative Advantage accounts for Bangladesh being a net importer of wheat.** [5]

Theory of CA states that countries should specialize in the production of goods/services that they incur a relatively lower opportunity cost in producing (possess comparative advantage in) and then export these goods/services in exchange for goods/services that they incur a relatively higher opportunity cost in producing (ie. Possess a comparative disadvantage in).

**Thesis:** Agree that the Theory of CA accounts for Bangladesh's comparative disadvantage in wheat production, hence she is a net importer of wheat

Theory of CA explains that Bangladesh is a net importer of wheat since **Bangladesh possesses a comparative disadvantage in production of wheat**. In reference to extract 4, it states that climate change and changes in weather patterns have negatively affected crop production. On top of that, Bangladesh is one of the most vulnerable countries affected by climate change,

causing heavy damage to its crops production. Thus, these **supply shocks** like changing weather patterns have **negatively affected Bangladesh's factor endowments such as land and soil. With the loss of arable land and ideal soil conditions for growing wheat, Bangladesh has to incur a higher opportunity in its production of wheat (since the land could be used to grow alternative crops, given the climatic changes) → further intensifying the comparative disadvantage in production of wheat**, such that "Bangladesh's imports of wheat rose from 24% of its total wheat consumption in the early 2000s to 82% in 2016-2017."

**Anti-Thesis:** Disagree that Theory of CA is responsible for Bangladesh being a net importer of wheat. There are other reasons that account for the trend.

There are **other reasons (demand-side)** that can account for why Bangladesh is a net importer of wheat. (Any **ONE** reason)

### 1. Population growth

From Extract 4, it states that demand for wheat is growing every year due to rising population growth → rise in **demand for wheat as food for survival** since it is an important staple in the diet → the rise in demand for wheat contributed to rising imports of wheat.

### 2. Changes in taste and preference towards wheat

From Extract 4, it was stated that the rise in Bangladesh's wheat imports could be attributed to consumers' **changes in taste and preferences towards wheat** since there is **increasing awareness of the health benefits of wheat consumption** → perception of health benefits from consuming wheat → rise in demand for wheat leading to rising imports of wheat.

### **Synthesis/Judgement:**

Judgement provided on whether the theory of CA or other demand side reasons or both have led to Bangladesh's status as a net importer of wheat.

### *Examiner's Comments:*

*Several candidates failed to score well due to a lack of balance in their answers – one-sided answers expounding on the negative effect of climatic changes on Bangladesh's factor endowments, raising the opportunity costs of producing wheat but failed to balance their answers with demand-side reasons seen in Extract 4. Scripts with balanced answers tend to be lifted directly from Extract 4 without good explanation referencing factors that affect demand such as change in taste and preference towards wheat etc. Another common mistake was the failure to conclude the answer with a judgment made as to whether the theory of CA could account for Bangladesh's status as a net importer of wheat. Candidates are to note that a judgment is typically expected for such question types.*

**c) With reference to Extract 4, explain how a country might seek to ban or restrict exports of commodities to bring down domestic prices and why this would be "a misguided attempt to put a lid on soaring domestic prices".** [4]

*Students should recognize that restricting exports is meant to protect domestic households from rising prices and not domestic firms from competition.*



To lower domestic inflation, a country may impose a **ban on exports** or any form of **export restrictions** on its agricultural products, such as wheat or other food commodities → **rise in domestic supply** of such commodities **since less of what it produces will be exported out** → ceteris paribus, a rise in domestic SS → at prevailing price levels, the **surplus created** results in a **downward pressure on prices of such commodities domestically**. [2m]

- However, this is a “misguided attempt” as in extract 4, it was stated that other food costs have also risen in tandem, mainly because many other countries had also imposed restrictions on food and fertilizers. This meant that when **other food-exporting countries impose restrictions on their own food exports** → reduction in SS of food exported to the rest of the world → ceteris paribus **driving global prices of food/commodities even higher**. For example, a country may ban wheat exports and keep wheat prices low for its citizens, but other countries implementing similar restrictions on their rice exports will cause imported rice prices to rise – thus counterproductive in reducing overall inflation. [2m]

*Examiner's Comments:*

*Some candidates had misinterpreted the purpose of the export ban in Extract 4, reflecting poor grasp of the context of the case material. Common errors include: an explanation that the export ban would reduce net exports, ceteris paribus reduce AD and prevent demand-pull inflation, when this was not set out as the objective of the export ban. This reflects poor application of the case evidence. Other erroneous answers include a misinterpretation of “misguided attempt” as a potential conflict in the attainment of macroeconomic aims of economic growth and full employment and expounded on the adverse effects of a fall in net X and AD on RNY and employment levels.*

**d) In view of the problem of food insecurity, discuss whether tariff reduction is an effective measure in helping the Philippines achieve inclusive growth.** [8]

**Introduction:**

- Clarify what is meant by the problem of food insecurity – rise in price of food → reduction in affordability → rising food insecurity especially amongst low-income consumers.

- Definition of inclusive growth – a rate of economic growth that is sustained over a period of time, is broad-based across economic sectors, and creates productive employment opportunities for majority of the country's population.

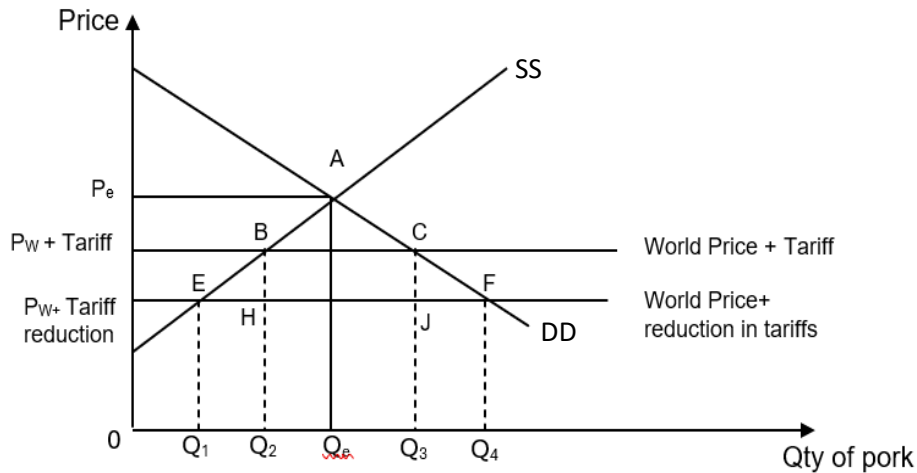
**Body:**

**Thesis:** Agree that tariff reduction is an effective measure to address the problem of food insecurity and to attain inclusive growth

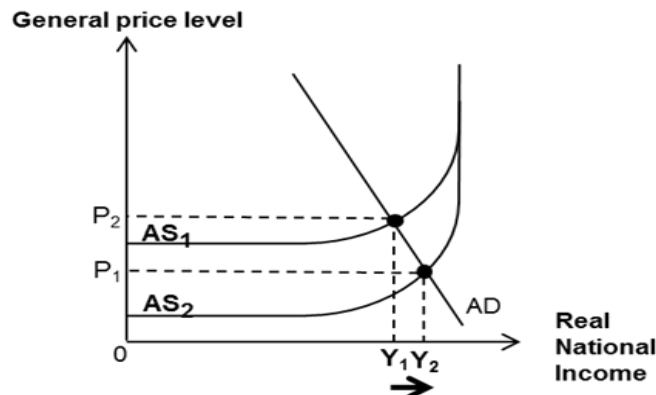
- Tariffs are taxes imposed on imported goods with the purpose of protecting the domestic firms. A reduction of tariffs will result in less taxes imposed on imported goods and services.

Reduction in tariffs on key agricultural commodity imports eg. Rice, pork and corn (Extract 5) → **a reduction in price of imports** as world supply shifts down from  $P_w + \text{tariff}$  to  $P_w + \text{tariff reduction}$  → increased importation of these goods from regions where production is more

efficient → rise in volume of imports from  $Q_2Q_3$  to  $Q_1Q_4$  and → increase affordability (lowers price) and increase accessibility (increase qty consumed) of agricultural goods → addresses the problem of food insecurity especially for the low-income families.



With a **fall in price of factor inputs** i.e. imported rice, corn and pork that is used in production processes in industries e.g. F&B → **fall in COP** → ceteris paribus, firms inclined to produce more → **rise in AS** (AS shift downwards) → **rise in production reduces cost-push inflationary pressures from  $P_2$  to  $P_1$**  and a rise in RNY from  $Y_1$  to  $Y_2$  (actual growth experienced) and a **rise in employment levels** → **increase employment opportunities** generated in food production related industries which usually employ low-skilled workers → **inclusive growth attained**. Since **other essential goods** are now made **more affordable with reduced inflationary pressures** → contributes to **inclusive growth** as low-income households can better afford such goods and services.



**Anti-Thesis:** Disagree that tariff reduction is an effective measure in attaining inclusive growth (Any one point)

Tariff reduction is ineffective at attaining inclusive growth since more agricultural jobs may be lost with increased foreign competition faced by domestic firms → shutting down of relatively inefficient farms i.e. those that are not cost-competitive enough to compete against cheaper imports. An example would be that of rice farmers in extract 5, where it stated that the reduction

of tariffs has led to rice farmers' inability to compete with cheaper rice imports, driving them into poverty. → So, for farmers and workers in affected agricultural industries without alternative employment opportunities, **incomes may decline or stay stagnant → exacerbating income inequality within the Philippines → failure to achieve inclusive growth.**

Alternatively, tariff reduction → rise in import volumes → fall in net exports, ceteris paribus. Corroborated from Extract 5 where the increase in importation of key agricultural commodities has negatively affected the country's trade balance → fall in net X → fall in AD, ceteris paribus → more than proportionate fall in RNY via the reverse multiplier → adverse effect on actual economic growth and employment levels → negative impact on inclusive growth.

### **Overall reasoned conclusion:**

Tariff reduction on key agricultural commodities may be largely effective in addressing short-term food insecurity and inflation challenges in the Philippines as access to these lower cost imports can reduce the shortage and dampen price increments immediately– ensuring cost of living concerns are tackled.

However, tariff reduction **alone is likely to be ineffective** in achieving inclusive growth, even as a short-term measure. As stated in Extract 5, these interventions need to work together to **protect the income of local producers which are likely to be more negatively impacted by the tariff reduction**. Thus, long term policies that boost productivity levels of farmers through **investments in technology related to agriculture** such as **in irrigation, flood control, supply chain logistics, and climate change adaptation** are needed to complement with tariffs reduction. Only through the improvement in the productivity and incomes of farmers can Philippines achieve inclusive growth.

### **Mark Scheme:**

<b>Knowledge, application / understanding and analysis</b>		
L1	<ul style="list-style-type: none"> <li>• Smattering of points not directly linked to question. Descriptive answer without the use of an analytical framework</li> <li>• Conceptual inaccuracies, no use of case material</li> <li>• 1 sided response with only thesis or antithesis covered</li> </ul>	<b>1-3</b>
L2	<ul style="list-style-type: none"> <li>• Good scope and balanced argument in explaining the effectiveness of tariff reductions on attaining inclusive growth in the context of the Philippines.</li> <li>• Good application of case evidence with well-developed explanation supported by diagrammatic analysis</li> </ul>	<b>4-6</b>
<b>Evaluation</b>		
E1	<ul style="list-style-type: none"> <li>• One evaluative point explained</li> </ul>	<b>1</b>
E2	<ul style="list-style-type: none"> <li>• One evaluative point explained, AND a recommendation or insight explained</li> </ul>	<b>2</b>

*Examiner's Comments:*

*A poorly attempted question with several candidates misreading/misinterpreting the question as an imposition of tariffs rather than a reduction in tariffs.*

- When the question starts off with 'In view of the problem of food insecurity...', candidates should identify what food insecurity is and link tariff reduction to the problem.*
- In explaining how inclusive growth can be attained, many relied solely on the tariff diagram in explaining how lower prices of imported rice, pork and corn will increase affordability and access to such food products and thus the attainment of inclusive growth. This approach is insufficient to explain inclusive growth which requires growth that is broad based and creates productive employment opportunities for the majority.*
- Some candidates did not bring out the key aspect of how a particular group, for example, the local farmers or low-income earners, are impacted by the tariff reduction more significantly, thereby leading to or hindering the attainment of inclusive growth.*
- Weaker scripter tends to make erroneous links between reduction in tariffs and increases in C component of AD, increase in RNY and thus actual growth. Such scripts failed to understand that the amount of imports actually increase with a reduction in tariffs, ceteris paribus AD should fall instead. Other candidates focused on secondary impacts on how the tariff reduction will lead to lower prices of factor inputs and thus attracting FDI, I of AD in Philippines increase leading to economic growth as their main economic analysis instead of the immediate impact of the tariff reduction on the cost of production for local firms and how that can lead to growth in the country.*
- Candidates are to note that a clear economic framework ie. AD/AS analysis must be utilized when referencing tariff reduction to inclusive growth, which includes the attainment of actual economic growth with the creation of employment opportunities across various sectors.*
- Evaluative comments tend to lack contextualisation to arguments relating to inclusive growth.*

**e) With reference to the data provided, discuss the appropriateness of the policy measures undertaken by the Singapore government to address the challenges faced in view of the Russian-Ukraine war. [10]**

**Approach:** *Identify 2 challenges brought about by the Russian-Ukraine war in relation to of the macroeconomic aims. Explain and evaluate 2 different policies used to address the challenges identified. As the key word is 'appropriate', students should assess the policies using these (at least 2) yardsticks - Effectiveness, desirability, feasibility and sustainability.*

**Introduction:**

**Identify and briefly explain the challenges faced by Sg in view of the Russian-Ukraine war**

- 1) From Extract 6, disruptions to regional supply chains due to Russian-Ukraine war → prices of energy, imported goods and FOP increases → **M induced inflation (cost-push inflation)**

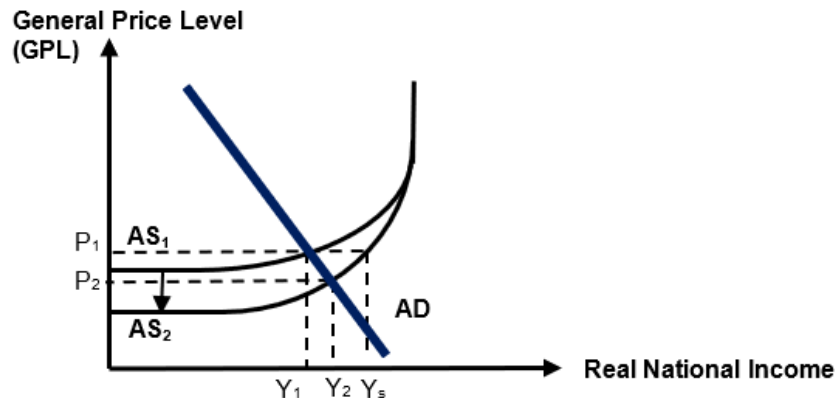
- 2) Russia-Ukraine war → loss in business confidence and fall in RNY of trading partners → reduction in I & X (and thus AD) → RNY falls → **rise in cyclical unemployment and adverse impact on actual economic growth.**

**Body:**

**Thesis:** Explain the policies that Sg can implement to resolve challenges posed by Russian-Ukraine war (Any 2)

**1) Diversify sources of imports through trade policies**

From Extract 6, it identified that **diversification of sources of imports** as well as **procuring from alternative destinations** can address **cost-push inflation** caused by disruptions to regional supply chains. Diversification allows SG producers to gain access to potentially cheaper imports from alternative destinations. For eg, **Singapore diversifies and imports metals such as iron ore from Brazil and copper from Chile** → reduces dependency on any single country or region → prevents sudden surge in COP → **lower and more stable input costs** (lowers COP) → ceteris paribus, **increase AS (shift AS downwards)** → at the initial  $P_1$ , the surplus created leads to a downward pressure on prices → partially mitigating the fall in AS due to Russian-Ukraine war → **reduction in inflationary pressures** from  $P_1$  to  $P_2$  and an **increase in RNY** → **effectively addressing the challenges of import-induced inflationary pressures** and mitigating negative growth.

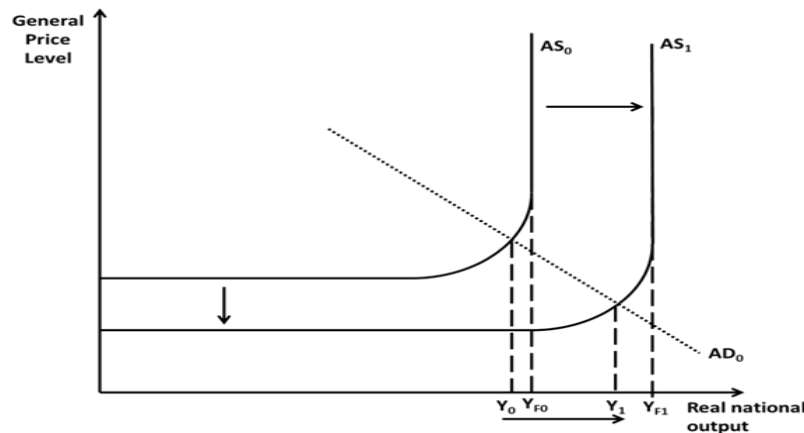


**Anti-thesis: Limitations of policies in resolving the challenges faced**

- **Ineffective in the SR:** Time is needed to find suitable alternative import partners that meet the same quality standards, otherwise there may be potential disruptions in production or compromises to quality of goods/services produced.
- **Ineffective in reducing inflationary pressures:** Alternative suppliers may be located farther away → increasing transportation costs and potentially offsetting some of the benefits from greater price stability. Alternative supplied may likewise be affected by global events and see rise in their cost of production.

## 2) Producing goods domestically where viable through SSPs (eg. via grants to R&D)

Implied in Extract 6, to **address Sg's susceptibility to cost-push inflation (import-induced)**, SG government can provide subsidies to encourage R&D to improve/develop technologies for SG producers to **increase domestic production of intermediate goods to reduce reliance on foreign imports**. For instance, R&D on process innovation incorporating the use of robots in production processes streamline workflow → increase the speed and precision of production will raises productivity in electronics manufacturing → ceteris paribus, lowers unit COP and helps increase productive capacity → increase AS (outwards and downwards shift of entire AS) → RNY increase from  $Y_0$  to  $Y_1$  → **rise in employment levels with rise in RNY coupled with dampening of inflationary pressures with less reliance on M raw materials or intermediate goods**. Thus, by increasing domestic capability to produce goods domestically using SSP → **effective at reducing cost-push inflation (import-induced)** and also **mitigate the fall in actual economic growth and employment levels**.



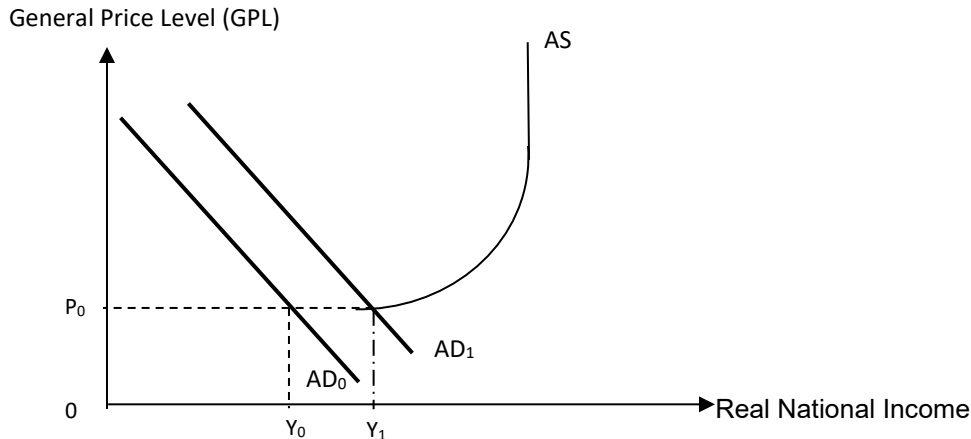
### Anti-Thesis: Limitations of SSP in addressing the challenges faced

- **Ineffective in the SR:** Effects are not seen in the SR due to the long time-lags of R&D projects, thus it is ineffective in providing immediate alleviation to the import-induced inflationary pressures and is also ineffective in cushioning the fall in RNY.
- **Undesirable:** High cost of R&D projects (may constitute a significant portion of the SG government budget) → **high opportunity costs** involved since the funds could have been spent on education and training to improve the quality of the labour force instead.

## 3) Government - CDC vouchers (Expansionary FP)

It was mentioned in Extract 6 that transfer payments in the form of CDC (Community Development Council) vouchers will reduce the out-of-pocket expenses for nearly all households → helps households cope with the rising food prices and higher cost of living by supplementing their purchasing power → enabling them to afford essential household necessities such as groceries and food → **alleviate effects of rise in inflationary pressures on cost of living** → effective and desirable in addressing effects of cost-push inflation on households.

Additionally, the use of **CDC vouchers increase the purchasing power of the household** and increases their willingness and ability to purchase domestically produced goods and services → **C increases → AD increase** from  $AD_0$  to  $AD_1$  → triggering the **multiplier effect which works on the principle that one man's spending is another man's income**. Eventually, leading to a more than proportionate increase in RNY from  $Y_0$  to  $Y_1$  and a rise in derived demand for labour → mitigating the fall in actual growth and rise in demand deficient unemployment. Hence, effective at addressing challenges faced.



### **Anti-Thesis: Limitations of CDC vouchers (expansionary FP) in addressing the challenges faced**

#### **Limited in effectiveness:**

- Since inflation is largely import-induced inflation, CDC vouchers which focus on domestic expenditures, do not directly influence the prices of imported goods → hence, ineffective at addressing the root cause of price instability (import-induced inflation).

#### **Limited in desirability:**

- While CDC vouchers bring about rise in AD and generate increases in RNY and lower cyclical unemployment, the rise in AD may worsen the inflationary pressures faced in SG. Implied in Extract 6, Sg is facing import-induced inflation from SS chain disruptions due to the Russian-Ukraine war, a further rise in AD → move economy closer to  $Y_f$  → worsening the inflation problem faced in Sg → undesirable
- Equity concerns - CDC voucher is a fixed amount: Households vary significantly in size, composition, and income levels. Uniform distribution of CDC vouchers means that households with more members (larger households) may not receive sufficient support relative to their needs compared to smaller households. Hence, fixed amount of CDC vouchers may not adequately alleviate financial burdens for these households, leading to inequitable outcomes in terms of cost-of-living relief.

### **Reasoned Conclusion/Synthesis:**

#### **For Policy Choice of CDC and SSP (R&Ds, using technology to produce domestically)**

- **Short-Run vs. Long-Run Impact:** CDC vouchers provide immediate relief to the rising food prices but may not fully mitigate the long-term impacts of inflation and economic uncertainty.

SSPs (subsidies for R&D) while crucial for long-term resilience, require time to yield results and may not provide immediate relief to households facing financial stress and the increase in economic growth. Hence, the **integration of both policies is best** to effectively address the challenges → ensures a balanced approach that stabilizes the economy in the short term while building resilience for sustained growth in the long term without high inflationary pressures.

**For Policy Choice of SSP (R&Ds, using technology to produce domestically) and diversifying imports.**

- **Short-Term vs Long-term Strategy:** Diversifying import sources is more effective in the short term for stabilizing prices and ensuring supply chain continuity as R&D will take some time to materialize. Encouraging domestic production is a more sustainable long-term strategy, as it builds a more resilient and self-sufficient economy and reduces Singapore's susceptibility to external shocks in the future. **Therefore, combined usage of both policies is optimal.** This dual strategy allows Singapore to benefit from immediate relief while laying the foundation for long-term stability and growth.

**Mark Scheme:**

<b>Knowledge, application / understanding and analysis</b>		
L1	<ul style="list-style-type: none"> <li>• Smattering of points not directly linked to question, without use of case material</li> <li>• Descriptive without the use of an analytical framework or conceptual inaccuracies</li> <li>• 1 sided response with only thesis or antithesis covered</li> </ul>	<b>1-3</b>
L2	<ul style="list-style-type: none"> <li>• Good application of case evidence in the identification of challenges faced by SG due to Russian-Ukraine war, and in the explanation and evaluation of possible policies to address the challenges listed.</li> <li>• Good scope and balanced argument in explaining how each policy (at least 2 policies) works to address the challenge/s listed and the appropriateness of each policy (in terms of yardsticks chosen ie. Effectiveness, desirability, feasibility etc)</li> <li>• Well-developed explanation supported by diagrammatic analysis</li> </ul>	<b>4-7</b>
<b>Evaluation</b>		
E1	<ul style="list-style-type: none"> <li>• One evaluative point explained</li> </ul>	<b>1</b>
E2	<ul style="list-style-type: none"> <li>• Two evaluative points explained, AND a recommendation explained</li> </ul>	<b>2-3</b>



**Examiner's Comments:**

- Several candidates failed to set the context for their responses ie. identify the challenges posed by Russian-Ukraine war before zooming into the policies. Such responses tend to be weaker at establishing how the policies can address/resolve the challenges posed.
- Some candidates had overly focused on explaining the macroeconomic challenges posed by the Russian-Ukraine war and compromised on providing a detailed analysis of the workings of the policies in resolving the challenges identified. Many candidates also scored poorly due to a misdirected focus on secondary effects of the policies. For example, when explaining the policy of diversification of import sources, instead of relating the benefits of diversification to a reduction in cost of production (increase in AS) and thus reducing cost-push inflationary pressures and increasing RNY (primary effect of the policy of diversification), many candidates instead focused on how this policy would improve Sg's export price competitiveness or increase in business confidence, leading to a rise in AD and subsequent increase in RNY through the multiplier analysis.
- Many candidates combined the diversification of imports together with increase domestic production as was seen in the case material. These scripts fail to realize that these are different policy measures to address the challenges and hence should be discussed separately.
- Weaker answers also tend to gloss over the limitations without detailed explanation of how and why a policy might be ineffective or undesirable in resolving the challenges surfaced.

**Paper 2: Essays**

- 1 (a) Explain how possible demand and supply factors might contribute to widening income inequality in Singapore. [10]
- (b) Discuss the extent to which a minimum wage law is more appropriate than a tightening foreign worker quota policy to reduce income inequality in Singapore. [15]

**Suggested answer (a)****Introduction**

In the market for labour, households become sellers (supplying the labour) while firms become buyers (demand for services provided by the labour). The determination of wages (price of labour) in the labour market is determined by demand and supply of labour.

Income inequality is the difference in how income is distributed among the population. Differences in wages across different labour markets (high vs low skilled labour) exist in the free market because of differences in the levels of demand and supply of labour and changes in these factors contribute to widening income inequality in Singapore.

**R1: Demand factor(s)**

*Important for students to highlight derived demand concept and indicate the different reasons for changes in demand between the 2 sub-groups.*

Demand for labour is derived from the demand as well as the price for the final goods and services. Hence, a rise in demand (and price) for final goods and services will increase the demand for labour in this market. The price of labour is wages.

Main idea: There has been an increase in the demand for high-skilled labour, and a decrease (or slower increase) in the demand for low-skilled labour. The 2 main reasons are globalization and technological changes.

**High skilled labour:** For example, Singapore has a comparative advantage in the production of semiconductors, which they export to the rest of the world. With increasing emphasis on high value-added services and products globally, the demand for IT products and services have increased significantly. This will in turn lead to increasing demand for high-skilled labour in the market from  $D_1$  to  $D_2$  as seen in Figure 1.

**Wage adjustment mechanism:** *Students should describe the wage adjustment mechanism once in part (a)*

With the rise in demand for high-skilled labour, there is a shortage ( $Q_d > Q_s$ ) at the prevailing wage rate  $W_1$ . Firms would bid for the limited quantity of labour, thus pushing up wages. As wages rise, firms would reduce the quantity demanded for labour, while more workers would be willing to offer their labour, thereby increasing the quantity supplied of labour. This adjustment process continues until the market reaches the new equilibrium of  $W_2, Q_2$ .

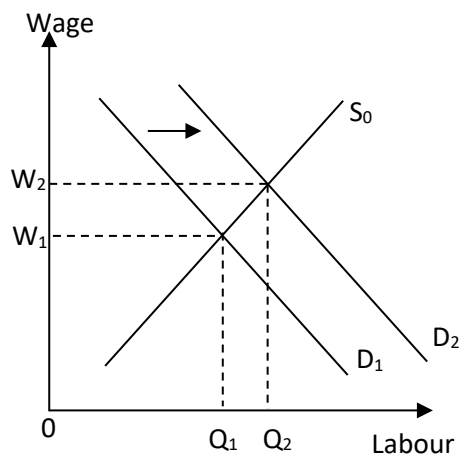


Fig1: Market for High- Skilled Labour

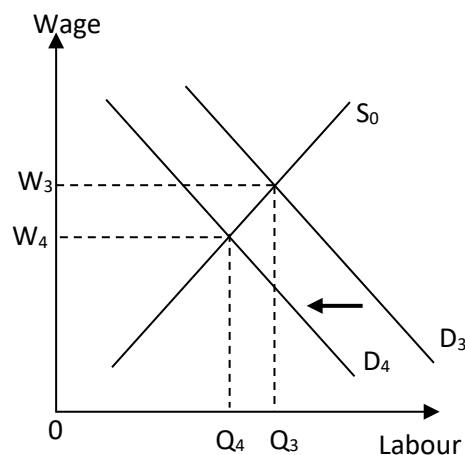


Fig 2: Market for Low Skilled Labour

**Low-skilled labour:** In comparison, entry level jobs in service sector in Singapore such as janitors and cleaners, retail assistants, kitchen helpers, dishwashers are seeing falling demand (or slower rise in demand). This is partly due to automation and machinery replacing labour in routine tasks in various industries. Additionally, sunset industries such as electronics assembly factories have started shifting out of the country. The workers in these industries are typically low-skilled. Hence, there is a large fall in demand for low skilled labour, as shown by a shift from  $D_3$  to  $D_4$  in Figure 2.

At the prevailing wage,  $W_3$ , surpluses put downward pressure on wages of low skilled workers until the new equilibrium wage of  $W_4$  is reached.

**Widening income inequality:** The rise in demand for high skilled workers pushes wages of the highest income group up coupled with falling (or stagnant) wages for low skilled workers explains the widening income inequality in Singapore.

**Other demand factors: PED.** Some students correctly brought in PED of labour to explain rising income inequality.

High skilled Labour:  $PED < 1$  – lack of substitutes for labour with certain skill sets. Surgeons have a unique skill set which is difficult to be replaced by the current labour force or other forms of factors of production. Thus, when there is a rise in demand, a much larger rise in wage will be required to remove the shortage in the market for high skilled workers like medical professionals – thus explaining a sharp increase in wages for high skilled labour.

Low skilled Labour:  $PED > 1$ : On the other hand, low skilled workers are easily replaced (substitutable) - for instance by machinery or other forms of production methods. That means should demand for these workers increase, there will be a much smaller rise in wage to clear the shortages.

Thus, the faster rise in wages of high skilled workers compared to the slower rise in wages of low skilled workers explain the widening income inequality in Singapore.

Note: Not necessary to explain both rise in demand and different PED values for R1.

## **R2: Supply factor(s)**

Students should always consider if elasticity concepts can be used to explain the widening income inequality in Singapore.

### **High skilled Labour: $PES < 1$**

The wage elasticity of supply of labour is the degree of responsiveness of the quantity supplied of labour to a change in the wage rate, ceteris paribus. High skilled labour has a  $PES < 1$  because it takes a long time to train the workers for such industries due to the high skill levels required. Professionals in these sectors usually need specialized education (e.g., finance degrees, science research PhDs etc.) as well as years of training and experience.

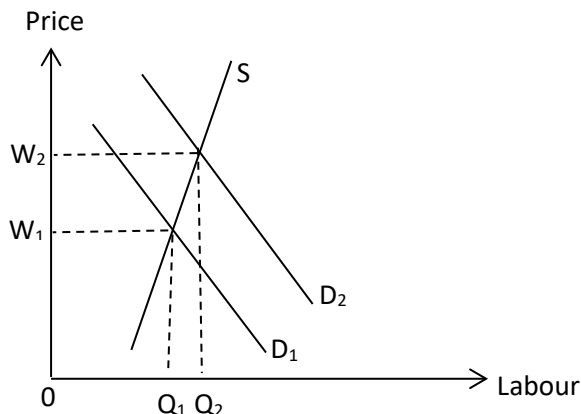


Fig3: Mkt for high skilled

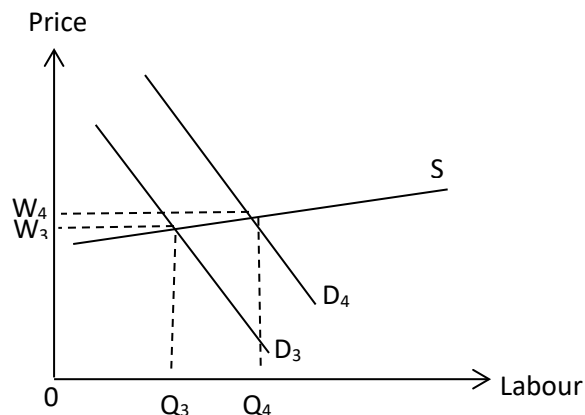


Fig4: Mkt for low skilled

In Fig 3, when demand for high skilled labour increase, at prevailing wages  $W_1$ , a shortage occurs that will put upward pressure on wages. However, due to the wage inelastic supply of labour of

high skilled workers, the wage increase will lead to a less than proportionate rise in qty supplied of high skilled workers, thus explaining the sharp rise in wage from  $W_1$  to  $W_2$ .

### Low Skilled:

However, in Fig 4, the wage elasticity of supply of labour for low skilled workers is more elastic ( $PES > 1$ ). As the specific skills and educational requirements are lower, it is easier for untrained workers to enter the labour market and acquire the relatively simple skills required – thus explaining the more elastic supply. When demand for labour in the low skilled workers market increase, the shortage pushing up wages will be met by a large increase in quantity supplied of low skilled workers – explaining the small increase in wage from  $W_3$  to  $W_4$ .

The extent of increase in wages between high and low skilled workers due to the different wage elasticity of supply (PES) explains the widening income inequality in Singapore.

### Other Supply factors: Shift of Supply

As transportation technology improves, there are greater labour flows from globalization, and Singapore has also seen a change in our labour supply. While there have been inflows of both higher skilled and lower skilled workers, the inflow of lower skilled workers has been more significant. Hence, the supply of low skilled workers has risen more significantly, creating downward pressure on wages of low skilled workers in Singapore and thus a fall in their wages (assuming demand is unchanged).

In comparison, high skilled workers see a smaller increase due to the competition for high skilled workers on a global basis (or even a fall due to labour mobility and talented local individuals attracted to work overseas). Hence the smaller increase in supply will result in smaller reduction in wages of high skilled workers (assuming demand is unchanged).

*Additional information for students: Employment Pass (EP) and S-Pass are for higher skilled workers in Singapore, while Work Permit (WP) is given to lower skilled workers. There are fewer EP and S-Pass workers in Singapore (approx. 340,000), while there are close to a million WP workers in Singapore. The inflow for WP workers has been more significant over the years, in the absence of any government restrictions.*

### Conclusion

Hence, both demand and supply factors contribute to the widening wage gap and income inequality in Singapore.

### Mark scheme

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L1</b>	<ul style="list-style-type: none"> <li>• Lack of economic framework in explanation</li> <li>• Irrelevancies in explanation.</li> <li>• Substantial and glaring conceptual errors.</li> <li>• Listing of points.</li> </ul>	<b>1– 4</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>• Evidence of use of economic analysis in the explanation of the rise in the income gap.</li> <li>• Lapses in analysis evident, lacks depth in analysis</li> </ul>	<b>5 - 7</b>
<b>L3</b>	<ul style="list-style-type: none"> <li>• A well-developed answer with good application of elasticity concepts in explaining how it contributes to the rise in the income gap.</li> </ul>	<b>8 - 10</b>

	<ul style="list-style-type: none"> <li>• Good use of examples.</li> <li>• Presence of clear economic analysis (with diagrams) in explaining the reasons for the rise in the income gap.</li> </ul>	
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*Examiners' comments:*

- *There were quite a few students who mistakenly addressed the issuing of income inequality by looking at demand and supply factors affecting the product market rather than the labour market. These students wrote at length about how essential goods and services prices have risen and how the low-income groups are disproportionately more adversely affected. These answers failed to address why income in Singapore are distributed more unequally.*
- *The better scripts looked at common demand factors across both high and low skilled labour. The weaker scripts simply argued why demand has risen for high skilled workers while supply has risen for lower skilled workers.*
- *There were a few misconceptions regarding wage elasticity of demand and supply (PED/PES) of the workers. Some students in their attempt to argue a sharp fall in wages (low skilled) when supply rises states that PED for low skilled workers is inelastic. This is flawed as PED for low skilled workers is usually elastic as it is more likely for firms to find alternative forms of production such as automation.*

b) Discuss the extent to which a minimum wage law is more appropriate than a tightening foreign worker quota policy to reduce income inequality in Singapore. [15]

Introduction

- Clarify that both policies aim to raise the incomes of the low-skilled labour in Singapore.
- Clarify what is the tightening of foreign worker quota: a regulation / restriction on the number of foreign workers holding WP (i.e. lower skilled workers) that can work in Singapore

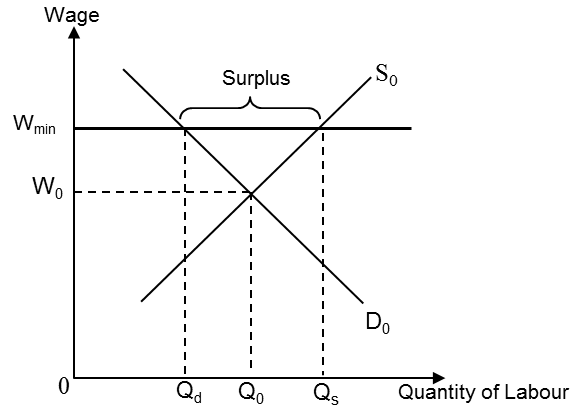
R1: Discuss the minimum wage policy

Thesis: How the policy works and its advantages

*It's important for students to elaborate on the working of the policy. If it is straight forward, elaborating further with examples and apply to Singapore context as to the benefits of the policy.*

**Definition:** A minimum wage is a legally established wage floor mandated by the government whereby firms must pay at least those wages to their employees. For it to be effective, it must be set above the market equilibrium wage rate

With reference to the figure below,  $W_0$  is the wages currently earned by low skilled workers such as security officers and cleaners. It has been depressed due to demand and supply factors. The Singapore government may feel that this wage is too low, below what is deemed a living wage. By implementing the minimum wage  $W_{min}$  to be above the free-market equilibrium wage  $W_0$ , the workers (who retain their employment) will see a rise in their wages from  $W_0$  to  $W_{min}$ . High skilled workers will not be affected by this law as they are paid significantly more than the minimum wage. Thus, assuming the high skilled workers wages remain unchanged, the rise in wages of the low skilled workers will reduce the income gap in Singapore. This is certainly seen in many European countries whereby such a law was implemented to protect the livelihood of these groups of low skilled workers.



Anti-thesis: Limitations and negative unintended consequences of the policy

*Students should know that 'appropriate' implies more than effectiveness, and can include desirability, feasibility and sustainability.*

1. Undesirable - Increase unemployment: this policy may increase the level of unemployment in Singapore. Since the wage rate has risen, quantity demanded by firms decreases from  $Q_0$  to  $Q_d$  due to the higher cost of hiring these workers. This represents the workers who lost their jobs as a result of the implementation of a minimum wage. At the same time, quantity supplied by households increases from  $Q_0$  to  $Q_s$  as the higher wages entice more people to join the labour force, and also increases the willingness of workers to supply their labour hours. As a result, a surplus of labour arises, given by  $Q_s - Q_d$ . This also indicates the level of unemployment created by the imposition of the minimum wage.
2. Undesirability: Rise in COP - inflation. With higher wage rate imposed, firms would face higher labour costs. This may result in cost push inflation as firms pass on higher cost to consumers. Society may be worse off due to the rise in cost of living. On top of that, when faced with higher labour cost, firms might switch to labor-saving techniques of production that are more productive which helps lower costs per unit of output. Thus, unemployment might arise more quickly as high-tech production methods displace labour. This worsens income inequality, as the lower skilled workers are more likely to be replaced via automation, while higher skilled workers such as workers involved in R&D are not.

Evaluation: Overall judgment of the policy's (min. wage) appropriateness (provide 2 insightful points) – comparison with foreign worker quota

Extent of negative impact: The extent of the unemployment generated depends on the level at which  $W_{\min}$  is set at. The government may choose to set a higher  $W_{\min}$  to address the income gap more quickly, however the greater the deviation between the market equilibrium wage,  $W_0$  and the minimum wage,  $W_{\min}$ , the higher the level of unemployment. This is further exacerbated by the high PED of lower skilled workers, thereby creating a significant amount of unemployment.

A minimum wage may be able to help address income inequality in Singapore, however given our small, open economy, this policy should be used in highly selected industries (likely in non-tradable services), and to a small extent only. This should only be used in the short run, to buy time for workers to upskill and switch to higher value-added jobs.

Comparison: Minimum wages ensure fair wages across foreign and domestic low skilled workers and thus lead to better integration within Singapore as compared to foreign workers quota reduction which aim to reduce their numbers.

## R2: Discuss tightening of foreign worker quota

### Thesis: How the policy works and its advantages

The tightening of the foreign worker quota refers to the Singapore Ministry of Manpower's regulation of reducing the dependency ratio ceiling. FYI: This specifies the maximum ratio of foreign workers to local employees in a firm. This ratio is set to be reduced to 1:3, from 1:3.5 (i.e., firms now are allowed to hire 1 foreign worker for every 3 Singaporeans that it hires). As this applies to lower skilled workers with the Work Permit, it actually reduces the inflow of lower skilled foreign workers into Singapore.

The increased difficulty in acquiring lower skilled foreign workers in Singapore will force local firms to reduce its reliance on foreign manpower (which has so far been a source of low skilled workers) and shift towards developing a strong local core of skilled workers as well as spur productivity within the industries. This can be captured as a rightward shift of the demand curve for the low skilled local labour market, pushing up wages of low skilled workers in from  $W_1$  to  $W_2$  and thus reduced income inequality. For instance, the difficulty in hiring foreign staff in our shops and restaurants will lead to higher wages offered and these positions may be filled by the local residents.

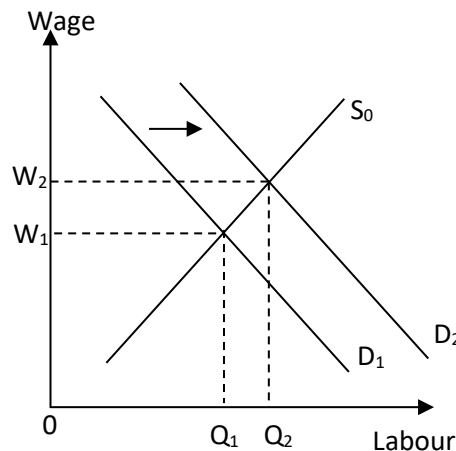


Fig1: Market for Low - Skilled Domestic Workers

### Anti-thesis: Limitations and negative unintended consequences of the policy

Undesirable: The Ministry of Manpower has highlighted that several sectors will especially feel the reduction of foreign worker quota. Construction and service sector like food and beverages (F&B) will have to source for local workers to make up the lack of foreign workers. Apart from the rise in wages and thus cost to firms, the difficulty in hiring local workers for Singapore companies can be a significant obstacle. Despite offering higher wages, there are some jobs (e.g. construction, garbage collection) in Singapore whereby higher salaries are still insufficient to entice the local residents to take up the job offers. These constraints may cause Singapore

companies to shut down (or reduce service) due to manpower shortages and thus affect the provision of services in the country.

Undesirable: Foreign workers do contribute to Singapore's economy via spending a large part of their wages on accommodation, entertainment as well as food. The reduction (or slow down) of foreign workers can have a negative impact in reducing aggregate demand and thus economic growth in the country.

Evaluation: Overall judgment of the policy's (foreign worker quota) appropriateness (provide 2 insightful points) – comparison with min. wage

*Considering that the question clearly stated a comparison of 2 policies, students should compare the appropriateness of both policies against each other.*

Overall, this policy is appropriate in reducing the extent of wage inequality by targeting the supply of labour in the lower skilled labour market. Reduction in foreign worker quota is not across the board (like min. wage) but can be calibrated to suit the industry such that labour shortages will not affect operation of the service. For instance, essential services like healthcare did not see a cut in foreign worker quota when changes were made in 2021.

Desirable: it has the additional effect of incentivizing firms in specific industries to automate and reduce their reliance on lower skilled foreign labour. For instance, construction sector has innovated and continue to embrace prefabrication (building off-site has improved efficiency) to reduce reliance on cheap low skilled foreign workers.

Comparison: The ability to fine tune the changes specifically for different industries and sectors in Singapore makes it a better tool to reduce income inequality in Singapore without suffering the effects of disruptions to services. It is also more impactful than a blunt instrument like minimum wage which raises wages indiscriminately across the board and suffer from increasing unemployment.

### **Final Evaluation & Conclusion (just 1 recommendation)**

Comparing the two policies, it is likely that the tightening of the foreign worker quota is slightly more appropriate due to fewer negative effects. This can be seen through it being used as key lever for many years, while the minimum wage, while used in other countries, has not been implemented on its own in Singapore.

Both policies have been implemented to some extent in Singapore (Progressive Wage Model works similarly to a minimum wage policy with certain prerequisites). However, they do not address the root cause of the income gap, which is the difference in skills and education levels. Hence, Singapore has always used supply-side policies in education and training to upskill the low skilled workers so as to raise the demand for those workers.

Advocates for minimum wage argues that cutting foreign workers can lead to labor shortages in certain sectors, especially where there are not enough local workers to fill the gaps. Minimum wage laws can help improve wages across the board without eliminating essential labor sources.



**Mark scheme**

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L1</b>	<ul style="list-style-type: none"> <li>• Mere smattering of points of the policies without clear economic analysis.</li> <li>• No linkages made between the outcomes of measures to the causes of income inequality</li> <li>• Presence of conceptual errors.</li> </ul>	<b>1 – 4</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>• Clear linkages are made between the policies and how they are effective in managing income inequality.</li> <li>• Answer has also considered the limitations of the policies, but lacks scope and depth (economic framework)</li> </ul>	<b>5 - 7</b>
<b>L3</b>	<ul style="list-style-type: none"> <li>• Well-balanced answer with clear theoretical analysis of both policies to tackle the causes of income inequality in Singapore.</li> </ul>	<b>8 - 10</b>
<b>Evaluation</b>		
<b>E1</b>	An attempt at judgement but not explained.	<b>1-2</b>
<b>E2</b>	Judgement that answers the question with some attempt at justification. Justification is incomplete or weak.	<b>3-4</b>
<b>E3</b>	Judgement that answers the question with well-elaborated and insightful justification.	<b>5</b>

*Examiners' comments:*

- *Students generally were able to explain the minimum wage and cut of foreign worker quota in a clear systematic manner with diagrams. These answers tend to explain clearly how the policies will raise the wages of the low income/skilled workers in Singapore and narrow the income gap.*
- *Students should note that if the question specifically compares between two policies, there should be a greater extent of analysis dedicated to comparing them rather than evaluating them individually. The stronger scripts recognize that both policies will lead to higher cost of production for local firms and highlight the different impact on society between them.*
- *There were a handful of scripts who were mistaken in their understanding of minimum wage as well as foreign worker quota. One error regarding minimum wage was that if implemented, it applies only to the local workforce and not to foreign workers in the country. That is not the case as minimum wage is enforced for local and foreign workers in the country. Likewise, some students mistakenly argued that the cut in foreign worker quota applies to high skilled workers and thus raise the high skilled labour force's wages even higher. Students should be aware that the foreign worker quota only applies for Work permit holders (unskilled or semi-skilled migrant workers).*

- 2 The search for cheaper medicine, like Panadol, has driven some Singaporeans to seek options across the Causeway.

Source: Channel News Asia

- (a) Explain why differences in the price of Panadol between Singapore and Malaysia may be due to price discrimination and why it may not. [10]
- (b) Discuss whether it is in the best interest of society when pharmaceutical companies change its objective from profit maximising to other objectives. [15]

## Suggested answer (a)

### Introduction

- Explain price discrimination: Price discrimination occurs when a producer sells the same good at different prices whereby the price difference does not reflect differences in the cost of supplying the customer

### R1: Why it may be a case of price discrimination

This may be a case of third-degree price discrimination, whereby the firm charges a different price to different groups of customers buying the same product by segmenting the market according to differences in price elasticities of demand between these groups.

For this to occur, the seller must have market power to have the ability to price discriminate because without market power, a firm cannot choose its price at all, much less choose to charge different prices to different consumers.

In the case of Panadol, it does have significant market power, as it has strong brand recognition. With many years of marketing and branding, Panadol is one of the most recognizable names for over-the-counter pain relief products in many countries, including Singapore and Malaysia. This brand recognition gives Panadol market power because many consumers may prefer it over generic alternatives due to perceived reliability and quality.

Furthermore, the firm must be able to identify and segment the market according to differences in price elasticity of demand (PED), in this case, by location. For Singapore, the price of Panadol is likely to be higher, since Singaporeans generally earn higher incomes compared to Malaysia (shown by a much higher GDP per capita of close to US\$100,000 for Singapore, compared to less than US\$20,000 for Malaysia). Hence, the proportion of income spent on such painkillers is much smaller in Singapore, therefore the PED is much lower in Singapore compared to Malaysia, as shown as a steeper  $MR_{SG}$  and  $AR_{SG}$ .

Hence, Panadol in Singapore has a higher price of  $P_{SG}$ , compared to  $P_{MY}$ , as the increase in price is likely to result in a less than proportionate fall in quantity demanded, resulting in a rise in TR, ceteris paribus, profits for the firm. In contrast, due to the much more price elastic demand in Malaysia, a decrease in prices is likely to result in a more than proportionate rise in quantity demanded, resulting in a rise in TR and hence profits for the firm.

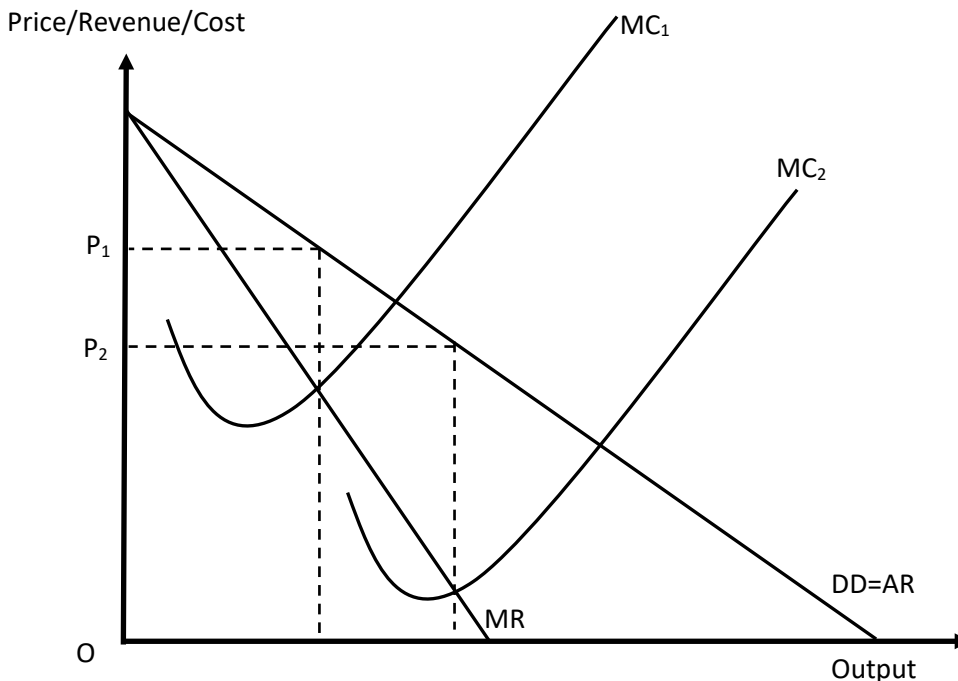
### R2: Why it may not be a case of price discrimination

However, it may not be a case of price discrimination as it is difficult for firms to prevent resale, and there may be some cost differences between Singapore and Malaysia.

There are likely to be significant cost differences in selling Panadol in Singapore versus Malaysia. For example, the regulations are a lot more stringent in Singapore, resulting in higher cost (such as legal fees, administrative cost etc.) in selling the drug in Singapore. The cost of packaging, transporting and selling Panadol in Singapore is also likely to be much higher due to significantly higher wage rates in Singapore compared to Malaysia. This results in a higher marginal cost of  $MC_1$  in Singapore, compared to  $MC_2$  in Malaysia. Ceteris paribus, this results in a higher profit-maximising price of  $P_1$  in Singapore, compared to  $P_2$  in Malaysia in the diagram below.

OR

As Malaysia has a larger population compared to Singapore, which results in a larger consumer base in Malaysia. As such, the firm can increase their scale of production in Malaysia, thereby reaping more internal economies of scale, moving downward along the LRAC, and enjoy lower average costs in the long run. This can include marketing economies of scale, where the firm through bulk buying of raw materials, can negotiate for lower prices, and better dictate the requirements. This translates into lower short run marginal cost of  $MC_2$  in Malaysia, compared to  $MC_1$  in Singapore. Ceteris paribus, this results in a higher profit-maximising price of  $P_1$  in Singapore, compared to  $P_2$  in Malaysia in the diagram below.



It could also be difficult to prevent resale of Panadol between Singapore and Malaysia. While there may be regulations preventing unlicensed selling of such medication in Singapore, it is difficult to prevent consumers from purchasing Panadol from Malaysia at a lower price, and reselling some of the Panadol to consumers at a higher price in Singapore via personal / unofficial channels.

*[Note: Students who argue that the resale of Panadol is difficult because of the costs and hassle of making trips to Malaysia as well as laws which regulate the export of prescription drugs out of Malaysia are also fully credited. In such instances, this point will be made under R1 which supports the case that price discrimination explains the price difference of Panadol in both countries.]*

### Conclusion

Overall, more information is required to be able to ascertain whether price discrimination is existent. However, it is likely that the difference in cost for Panadol between Singapore and

Malaysia does not fully account for the difference in the price sold, thus it is likely that there is still some element of price discrimination.

### Mark scheme

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L1</b>	<ul style="list-style-type: none"> <li>Lack of economic framework in explanation</li> <li>Irrelevancies in explanation.</li> <li>Substantial and glaring conceptual errors.</li> <li>Listing of points.</li> </ul>	<b>1– 4</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>Evidence of use of economic analysis in the explanation of price discrimination</li> <li>Lapses in analysis evident, lacks depth in analysis</li> </ul>	<b>5 - 7</b>
<b>L3</b>	<ul style="list-style-type: none"> <li>A well-developed answer with good application of economic concepts in explaining how it may or may not be price discrimination.</li> <li>Good use of examples.</li> </ul>	<b>8 - 10</b>

### Examiner's comments

- This question part was not as well done as expected. While many students were able to identify the key arguments required in the question, details were often missing.*
- One key detail that was missing for weaker scripts was the explanation of how charging different prices resulted in higher TR for the firm, due to a more or less than proportionate change in quantity demanded when prices were lowered in Malaysia / increased in Singapore.*
- Some weaker responses were still unable to differentiate between demand and quantity demanded. Demand refers to the whole curve, while quantity demanded refers to a point on the curve. This is an important conceptual difference.*
- Some weaker responses identified a range of demand factors (such as difference in taste and preferences) as R2. This is incorrect, as these inherently contribute the different PED values, and should be viewed as arguments supporting price discrimination.*
- Many scripts were not able to obtain the full range of marks as they lacked a brief explanation of how the firm had price setting ability in the context of Panadol, and how it was able / not able to prevent resale.*
- Cost differences were also not well explained, as most responses lacked the detailed explanation using firm analysis. Most simply stated that the higher costs were passed on to consumers, without explaining how the higher costs resulted in higher MC, therefore resulting in higher prices. The best responses were able to use a firm diagram to explain this.*

### Suggested answer (b)

#### Introduction

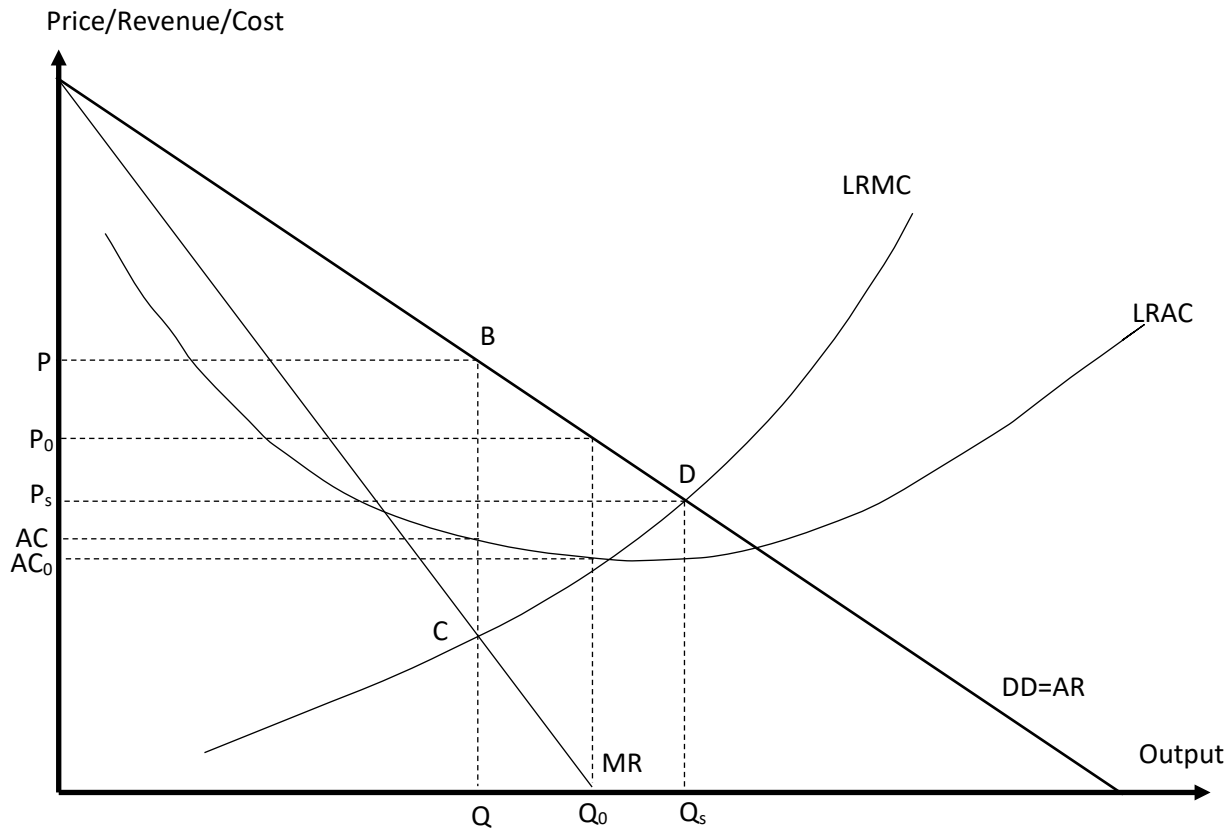
- Identify best interest of society: allocative efficiency (AE), productive efficiency (PE), dynamic efficiency (DE), equity, consumer surplus
  - AE: when the society produces and consumes a combination of goods and services that maximises its welfare; achieved when the firm prices at  $P=MC$
  - PE: when all resources are fully and efficiently utilized. From society's POV, it is producing at MES; From firm's POV, so long as it is producing on the LRAC
  - DE: when the firms are technologically progressive through R&D
  - Consumer surplus improves when consumers enjoy lower prices or greater quantity

- Other objectives of firms: Revenue maximisation

R1: Discuss impact on society when pharma companies aim to profit-max

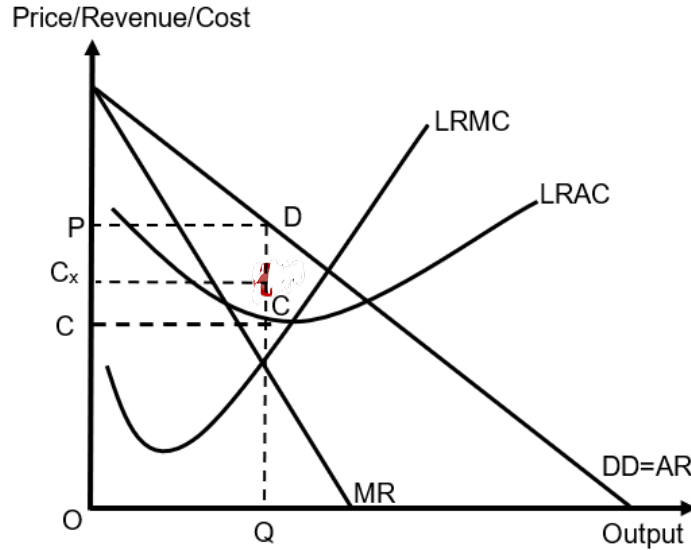
Thesis: Profit-maximising behaviour may not be beneficial to society

Pharmaceutical companies globally can be considered an oligopoly, with a few dominant firms such as Pfizer and Moderna. Hence, each firm has significant market share, and hence faces a downward-sloping demand curve (AR curve) as it is a price-setter. This means that it has to lower the price of every single unit of good that it was previously selling at a higher price, in order to sell one additional unit of good. Hence its AR or price is greater than its MR.



When the firm profit maximises, it will produce at Q where  $MC=MR$ , as any output level before that brings more revenue than it costs to produce, hence the firm would continue producing. However, any output beyond that point will result in  $MC > MR$ , thus the firm would not produce that unit, and hence profit maximise at  $MC=MR$ .

For pharmaceutical companies, at the profit-maximising output level Q where  $MR=MC$ , the price P is greater than the marginal cost ( $P > MC$ ), thus the firm is allocatively inefficient. There is underproduction of the good, as the benefit to society from consuming an additional unit of the good (represented by P) is greater than the opportunity cost of producing it (represented by MC). Society will be better off if additional units of the good were produced. The amount of deadweight loss to society is represented by area BCD. Consumers are worse off as they enjoy a lower quantity of Q, rather than Qs, at higher price of P, rather than Ps.



In terms of equity, the price setting ability of the pharmaceutical firms tend to exacerbate inequity in the economy as supernormal profits are concentrated at the hands of the select few large firms at the expense of consumers who pay higher prices for a limited quantity of goods. There is also a sustained redistribution of income from households to firms because of the presence of supernormal profits.

#### Anti-thesis: Profit-maximising behaviour can be beneficial to society

However, as the pharmaceutical firms tend to have long-run supernormal profits (in this case of area  $Q \times (P - AC)$ ), this gives them the ability to engage in R&D. In addition, the presence of barriers to entry allows such firms to retain supernormal profits derived from innovation, giving them the willingness to do so.

With R&D and innovation, there can be an improvement in the level of technology resulting in more and better-quality output (product innovation). For example, new drugs may be developed to tackle previously untreatable diseases.

Through process innovation, new, more efficient production methods may be developed to reduce average costs. Thus, it can lead to a fall in unit cost at every level of output as well as expand the product range of the firm. This results in a fall in marginal costs, which shifts MC downwards, thereby lowering prices of the drugs sold by the firm. Hence, society's welfare can be increased with a wider range of better-quality products, as well as increased quantities consumed coupled with lower prices.

Furthermore, the strong profit-maximising incentive can incentivize firms to be productively efficient and produce on the LRAC curve to minimize long run average costs from the firm perspective.

#### R1 Evaluation:

Overall, it is likely that profit-maximising behaviour of pharmaceutical firms today have been generally beneficial to society. It has incentivized firms to come up with new drugs to treat new diseases, yet with the competition amongst the firms, the level of complacency that results in

allocative and productivity inefficiency is likely to be kept low. However, the extent of this may differ from country to country, depending on the specific level of competition amongst firms, and the presence of government regulations to deter anti-competitive behaviour which blocks the entry of firms and stifle competition.

R2: Discuss impact on society when pharma companies choose other objectives

*Any 1 alternative objective, well explained, is required*

Thesis: Revenue maximization may not be beneficial to society

Often, large corporations such as pharma companies suffer from the principal-agent problem where the objectives of shareholders and managers of the companies are not aligned. The income of sales managers and commission-based employees are often dependent on the firm's total revenue. The higher the total revenue generated, the greater the commission. Thus, firms with a "self-interested" sales department may choose to maximise revenue rather than profits. Hence, a manager may aim to maximize revenue than profits as his job performance may be measured by the former. Total revenue (TR) is maximized at the output where no additional revenue can be reaped from producing and selling an extra unit of output i.e. where  $MR = 0$ . Hence, the firm produces at point  $Q_0$  in the diagram above, charging a price of  $P_0$ .

However, at this output level, the firm is earning less profit, as it is producing at a point where  $MC > MR$  and forgoing supernormal profits. Previously, when the firm was earning  $Q \times (P - AC)$ , but with revenue maximization, the firm only earns  $Q_0 \times (P_0 - AC_0)$ . This negatively impacts their ability to conduct R&D, which may in turn result in fewer new drugs being developed, and costs falling more slowly, hence consumers do not enjoy lower prices.

Anti-thesis: Revenue maximization may be beneficial to society

However, when the firm chooses to maximise revenue, the output is now higher, and consumers enjoy lower prices, making it is less inequitable to society. While the output level is larger than the allocative efficient level of  $Q_s$ , it is closer to  $Q_s$ , and hence there is less allocative inefficiency.

Furthermore, the firm can expand its output and hence enjoy internal economies of scale, such as marketing economies of scale, where the firm can purchase its raw materials in bulk, thereby being better able to dictate the specifications, and enjoy lower input prices, thereby enjoying lower LRAC of  $AC_0$ , compared to  $AC$ . The firm is hence producing closer to the minimum efficient scale (MES), and hence is less productive inefficient from society's perspective.

R2 Evaluation:

Overall, revenue maximization seems to be more beneficial to society, but this is only in the short run, as consumers do not enjoy the benefits of R&D in the long run. The extent of the benefits from revenue maximization also depends on the extent to which firms increase their output. In reality, firms can only pursue revenue maximization to the point of maintaining a level of profit deemed acceptable by its shareholders. Hence the loss of profits may not be so severe, providing sufficient financial resources for R&D to be undertaken.

**Final Evaluation & Conclusion**

Overall, both profit-maximisation and revenue maximization are beneficial to society in different ways. Regardless of the objective undertaken by pharmaceutical firms, it is important for the

government to monitor the level of competition in the industry and enforce rules to guard against possible anti-competitive behaviour of firms in the industry.

### Mark scheme

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L1</b>	<ul style="list-style-type: none"> <li>• Mere smattering of points of the policies without clear economic analysis.</li> <li>• No linkages made to the outcomes for society</li> <li>• Presence of conceptual errors.</li> </ul>	<b>1 – 4</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>• Some linkages are made between the firm behaviour and how they affect societal outcome</li> <li>• Answer lacks scope and depth (economic framework)</li> </ul>	<b>5 - 7</b>
<b>L3</b>	Well-balanced answer with clear theoretical analysis of firm behaviour to the outcomes on society.	<b>8 - 10</b>
<b>Evaluation</b>		
<b>E1</b>	An attempt at judgement but not explained.	<b>1-2</b>
<b>E2</b>	Judgement that answers the question with some attempt at justification. Justification is incomplete or weak.	<b>3-4</b>
<b>E3</b>	Judgement that answers the question with well-elaborated and insightful justification.	<b>5</b>

### Examiner's comments

- *This question was not as well done as expected.*
- *Many candidates chose to explain multiple alternative objectives, without realising that the question asks for profit-maximizing as the R1, and one alternative objective as R2. This often meant that the responses were very superficial, with many details and technical analysis for both R1 and R2 missing.*
- *Some of the common details that were omitted / poorly explained include:*
  - *Explanation of allocative efficiency / inefficiency – why it is achieved at  $P=MC$  OR why it is allocative inefficient when  $P > MC$*
  - *Identification of the deadweight loss on the firm diagram*
  - *Explanation of both types of R&D – product, and process innovation, with examples, and how it results in better outcomes for consumers*
  - *Explanation of the reason why firms choose revenue maximisation or profit-satisficing*
  - *Technical analysis of the alternative objective using a diagram – identifying a specific output and price of the firm, and the corresponding profit level. For revenue maximisation, it should be where  $MR=0$ .*
  - *For profit-satisficing, candidates should go on to clarify that firms are likely to be sacrificing profits for a different objective. For example, this objective could be to increase revenue. Hence, the decision to lower price to somewhere between the profit-maximising price and revenue-maximising price.*
- *There were also multiple conceptual errors across multiple candidates. These include:*
  - *Confusion of multiple concepts such as the quantity where a firm profit-maximizes, versus the normal profit quantity, versus revenue max quantity etc.*
  - *Confusion between PE from the firm's perspective vs. society's perspective. X-inefficiency is when the firm produces at a point above its LRAC, thereby not minimising its cost at its current level of output. This is different from increasing its scale and thereby moving towards MES and reaping more internal EOS.*



- Following from the previous point, it is incorrect to explain that profit-maximising firm would want to raise its output beyond the point where  $MR=MC$  to reap more iEOS. This is incorrect, as profit-maximising firm produces at  $Q$  is where  $MC=MR$  where profits are maximized. Profit maximizing firms do not produce beyond  $Q$  where  $MR=MC$  just to reap iEOS because such an outcome is not profit-maximising. In summary, a firm chooses the output level which maximises profits, not  $Q_{mes}$  to reap all iEOS.
- Identifying predatory / limit pricing as the alternative objective. While this may be true in the very short run, in the long run, the firm returns to profit-maximisation. Candidates who chose this as their R2 did not realise that their explanation was highly similar to their R1. Hence candidates who chose this as their only alternative objective saw their marks capped.
- Many candidates do not seem to understand the difference between a firm's alternative objectives, versus a charity, with some responses even going so far to say that firms may have "altruistic objectives". Firms switch to alternative objectives due to the constraints that they face in attempting to aim for profit-max. Firms do not aim to achieve allocative efficiency (especially when it results in subnormal profits), neither do they aim to internalise negative externalities in absence of government intervention. There are many candidates who identified such approaches as their alternative objective, which is incorrect.
- Some candidates identified R&D as their alternative objective, while some others gave a range of firm strategies. This is incorrect, as it shows a clear misunderstanding of the difference between an objective versus a strategy. Furthermore, under whatever objective a firm may choose, it still can do R&D if it can and wants to.
- Related to the above point, many candidates do not seem to understand the difference between the incentive versus the financial ability to conduct R&D. The incentive stems from competition from other firms, hence firms would want to do R&D to improve their product and better differentiate themselves, thereby gaining market share. The financial ability stems from supernormal profits that the firm has.
- Lastly, there were too many responses that had the following presentation issues:
  - Too many had very poor handwriting for this question. Illegible handwriting means that examiners are unable to read and hence are unable to credit marks.
  - Furthermore, there were a significant number that did not write in full sentences. This is not acceptable as this is an essay.
  - There were a small number that chose to use unexplained abbreviations and symbols – this is once again unacceptable as this is an essay. You are likely to face even heavier penalisation at the A Levels.
  - Diagrams, especially for firms analysis, have to be drawn bigger. Too many candidates draw very small, messy diagrams. Some were not fully labelled, while some were not accurate. Please note that the MC curve cuts the AC curve at the minimum point of the AC curve. Please note that the AR, MR curves should not be parallel – please check the above diagrams for clarification.
  - Paragraphing was very poor in many responses. Paragraphs tended to be too long – this is unacceptable. There should be 1 paragraph per point that you are trying to bring across. Please see the suggested answer above for clarity.

3. Venice is at significant risk of being submerged due to rising sea levels. In response to frequent flooding, the Italian government has constructed the MOSE barrier, a tidal floodgate system, which can be considered a public good. Additionally, the city faces major challenges from excessive tourism, which contributes to overcrowding and environmental damage.

Adapted from various sources

- a) Explain why the tidal floodgate system can be considered a public good and why the government intervenes in the tourism market in Venice. [10]
- b) Discuss how the Italian government can intervene to overcome both sources of market failure. [15]

**Suggested answer for (a)**

**R1: Explain why tidal floodgate system can be considered a public good**

**R2: Explain why government intervenes in tourism market in Venice**

**Introduction:**

Tidal floodgate system can be considered because the good exhibits characteristics of a public good including non-excludability, non-rivalrous and non-rejectability. The government intervenes in the tourism market because of negative consumption externalities / negative production externalities.

**R1: Explain why tidal floodgate system can be considered a public good**

- (Non-excludable) Tidal floodgate system is non-excludable when it is impossible or very costly to exclude non-payers from consuming and benefitting from the good once it is provided. Since those who do not pay cannot be excluded from benefiting, no one has much incentive to pay for such goods. (*Implication*) This is called the 'free rider' problem. Profit-maximising private firms will find it difficult, if not impossible, to collect revenue for the goods they provide. When a large number of consumers become free riders, the free market will usually not provide public goods, resulting in a missing market for tidal floodgate system.
- (Non-rivalrous) Tidal floodgate system is non-rivalrous in consumption when the consumption of the good by one person does not reduce the amount or benefits available to others.

For instance, once tidal floodgate system services are provided, it can be consumed by everyone especially households living in flood prone areas. If an additional person lives in the flood prone area, this person's consumption of the tidal floodgate services does not reduce the amount of flood protection available to other residents. In other words, the supply of a public good, once provided, is not depleted by an additional user. (*Implication*) Thus, the marginal cost of providing for and allowing an additional user to share in the usage of the tidal floodgate system services is zero.

- (Non-rejectability) Public goods also exhibit the characteristic of non-rejectability. Non-rejectability is defined as the inability of consumers to refuse the consumption of a good once it has been produced. The collective supply of a tidal floodgate system services for all

means that it cannot be rejected by beneficiaries once the good is provided even if he/she does not want tidal floodgate system services.

## **R2: Explain why government intervenes in tourism market in Venice**

*Accept Negative Consumption Externality (depending on the market)*

*Accept Negative Production Externality (depending on the market)*

*[Explain the determination of  $Q_e$  and  $Q_s$ , explain who the 3rd parties are with contextualising the negative MEB or MEC]*

**Negative consumption externality** occurs when external costs are imposed on third parties from the consumption of a good or service by consumers, but they are not compensated by the consumers.

The supply curve is the MPC of producing tourism services. (*Assumptions*) Assume that there are no externalities generated in the production of tourism services, the MPC of tourism services is equal to the MSC of producing tourism services ( $MPC = MSC$ ). The demand curve is the MPB derived from consuming tourism services. MPB includes the satisfaction derived from consuming the tourism services (e.g. learning about culture/history).

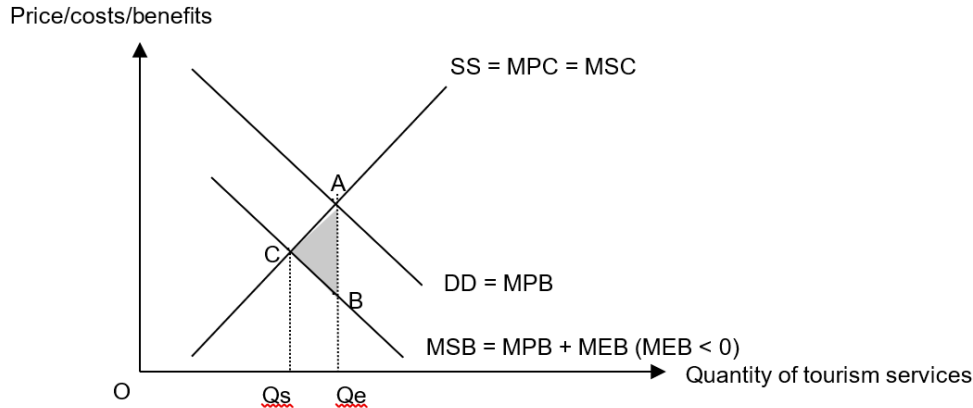
Tourist (Consumers), in the pursuit of their self-interests, would only consider their own private benefits of consumption (e.g. satisfaction from the enjoyment of tourist sites) and private costs from consuming tourism services (e.g. price of entrance tickets). Self-interested consumers will ignore the negative external costs imposed on the third parties.

Third parties include residents living near tourist sites who are negatively affected due to increase strain on local resources / increase noise levels / increase prices of goods and services due to higher demand of services. The higher cost of living and fall in quality of life for residents living near tourist sites are not compensated by tourists, thus causing external costs where  $MEC > 0$ , **OR** negative external benefits where  $MEB < 0$ .

The negative externalities arising from consuming tourism services creates a divergence between MPB and MSB where the MPB enjoyed by the tourist is higher than the MSB to the society.

If left to free market forces, self-interested, utility-maximising consumers will consume  $OQ_e$  units of tourism services where  $MPB = MPC$ . On the other hand, the socially optimal level of consumption of tourism services is lower at  $OQ_s$  units where  $MSB = MSC$ . Thus, too many tourism services are consumed and produced in the free market, relative to the socially optimal output, resulting in allocative inefficiency. Market failure arises due to the over-consumption of tourism services and too many scarce resources are allocated to the production and consumption of tourism services.

A deadweight loss of area ABC is incurred in the over-consumption of tourism services. This is because the sum of opportunity costs incurred by society for resources used to produce  $Q_s Q_e$  units of tourism services (area  $CAQ_e Q_s$ ) is higher than the total societal benefits gained from consuming these units (area  $CBQ_e Q_s$ ). Hence, the government needs to intervene to reduce allocative inefficiency in the market.



**Negative Consumption Externality**

**Mark Scheme:**

<b><i>Knowledge, Application, Understanding and Analysis</i></b>		
L1	<ul style="list-style-type: none"> <li>For an answer that shows vague knowledge of the characteristics of public good or source of market failure for the tourism market</li> <li>Significant conceptual gaps in explanation</li> <li>No use of relevant economic framework applied.</li> <li>Descriptive explanation of answers</li> </ul>	1-4
L2	<ul style="list-style-type: none"> <li>For an answer that explain characteristics of public good and 1 source of market failure in the tourism market but with some gaps in explanation.</li> <li>Scope of analysis lacking</li> <li>Reference to relevant economic framework is developed</li> <li>Use of relevant examples pertaining to both markets lacking</li> </ul>	5-7
L3	<p>A well-developed answer that demonstrates:</p> <ul style="list-style-type: none"> <li>Well-developed and rigorous analysis of public good market failure in the tourism market</li> <li>Implication of each characteristics is important in the analysis but not essential to link to missing market (or non-provision of public good)</li> <li>Good application of examples in both markets</li> <li>Good use of relevant economic framework applied [include determining <math>Q_e</math> and <math>Q_s</math>, explain who are the 3<sup>rd</sup> parties with contextualising the negative MEB or MEC]</li> </ul>	8-10

**Examiners Comments:**

**Public good explanation:**

- There were significant number of responses who left out the non-rejectability characteristic.
- Weaker responses did not explain the implications of each characteristic of public good nor did they contextualise the explanation of the characteristics of public good to the case of flood control system.
- Many students were confused between non-rejectability and non-excludability in consumption. These are two different concepts: Non-rejectability is the fact that consumers cannot refuse or opt out consuming the public good once it is produced. While non-

*excludability is the impossibility or difficulty to exclude non-payers from consuming and benefitting from the good once it is provided.*

- *Students were not accurate with the explanation of the non-rivalrous characteristic. The correct implication should be “The marginal cost of providing for an additional user in the usage of the tidal floodgate system services is 0” and not “The marginal cost of producing the floodgate system is 0”.*
- *Weaker scripts combined public good explanation with that of positive externalities. While some public goods can have positive externalities, the presence of positive externalities is not the main source of market failure since there is a missing market.*

**Tourism market explanation:**

- *Externalities explanation was generally done well with the correct application of the MSB-MSC economic framework. Either negative consumption or production externalities are acceptable approaches.*
- *Weaker scripts did not explain clearly if the type of externalities was on the consumption or production side. When it comes to negative production externality, the MEC was not well contextualised to overproduction but often sounded more due to overconsumption (e.g. “excessive tourism leading to overcrowding and environmental damage”). Instead, students can explain the pollution or oil spills that can be generated from the production of tourism services such as boat tours.*
- *Weaker scripts tend to miss contextualisation of the MPB and lack clarity as to who the 3<sup>rd</sup> party is. Many gave very brief description of the external cost (such as overcrowding and environmental damage) and did not explain how this arises from overconsumption or overproduction in the given context. Similarly, how socially optimal and free market levels are achieved were not explained. Quite a number did not explain how the DWL area in the diagram came about, and how it therefore leads to allocative inefficiency.*
- *Many concluded their explanation when they explain that there is market failure but did not take one more step to state that hence the government intervenes in the tourism market to correct the market failure. Students must bear in mind to always link back to the question.*
- *Some students confused externalities with imperfect information. These students explained that tourists are unaware of the environmental damage of their consumption. First and foremost, externalities refer to the **ignoring** of the 3<sup>rd</sup> party effects when economic agents make their own rational decisions. In the case of externalities, consumers are **aware** of the 3<sup>rd</sup> party effects but **chooses to ignore them because of self-interest**. For imperfect information, being unaware of the environmental damage or the 3<sup>rd</sup> party effect is not imperfect information. Imperfect information in the tourism market refers to being **unaware** of the **full private benefit** of the consumption of tourism, which is not the case as given in the preamble.*

b) Discuss how the Italian government can intervene to overcome both sources of market failure. [15]

**R1: Discuss 1 government intervention to overcome the market failure arising from the non-provision of public good**

**R2: Discuss 1 government intervention to overcome the market failure arising from negative consumption externality**

**Introduction:**

Due to the non-rivalrous and non-excludable nature of public good, no producers will be willing to produce the good at a zero price. The non-provision of the public good results in market failure as there is societal benefit to the provision of the good. The government can intervene by providing the tidal floodgate system for free. To overcome the negative consumption externalities of tourism, the government can implement an indirect tax.

**R1: Discuss 1 government intervention to overcome the market failure arising from the non-provision of public good**

Thesis – Explain how the government's free direct provision helps to overcome the non-provision of public good

*(Explain what and how to intervene)* The government would have to directly provide the tidal floodgate system because public goods are non-excludable and non-rivalrous, which would result in a missing market. Due to the characteristic of non-excludable, this would also have to be free as it would be difficult to charge non-payers for the provision of the good. The funding for such a good will have to come from the government budget which is funded through taxes on the people. Once provided for, public goods are non-rejectable. The provision may be outsourced or directly provided by the government. Market failure is corrected when a price equals to marginal cost is charged, zero in this case, and allocative efficiency is achieved

- *[Not for the Qn since Italian's context (FYI): In the Singapore context, the Marina Barrage acts as a tidal barrier to keep out high tides from the low-lying city areas in the central catchment area. Public Utilities Board overseas the Marina Barrage and cost the government SGD\$226 million to build]*

*(Explain how much to produce)* To decide how much of the extent of the tidal floodgate system to provide, the government needs to weigh the expected MSB against the expected MSC of undertaking the provision of the tidal floodgate system. Efficient allocation of resources requires that the MSB from providing the public good to be equal to the MSC of doing so.

**Anti-thesis – Explain the limitations of free direct provision (ineffectiveness / undesirable)**

- Ineffective: The benefits from and costs of providing public goods are often highly uncertain. For instance, it is in practice difficult to measure the size of the marginal private benefits generated from the provision of tidal floodgate system because there is no effective demand or price signals for public goods due to the free rider problem. On top of that, putting a monetary value on benefits like safety and security is also difficult. Herein lies the major difficulty in calculating expected benefits, i.e. ascertaining the market price of the good as such a good has no price (which is a gauge of its value to consumers). Demand for tidal floodgate system is thus estimated through surveys or votes, and this information is used in cost-benefit analysis. The efficient provision of tidal floodgate system, however, depends on the ability to get people to reveal their true preferences. Yet the free rider problem incentivises consumers to conceal their willingness to pay. Hence allocative inefficiency tends not to be achieved for public goods.
- Undesirable: Direct provision of public goods is financed through the taxes that the government collects. This means that there will be opportunity costs associated with acquiring these taxes, and society's welfare could be reduced. The government may have to increase personal income or corporate tax to finance the cost of the project should a government lack

the funding to do so. Raising income and corporate taxes will hurt consumer's disposable income and firms' after-tax profits respectively.

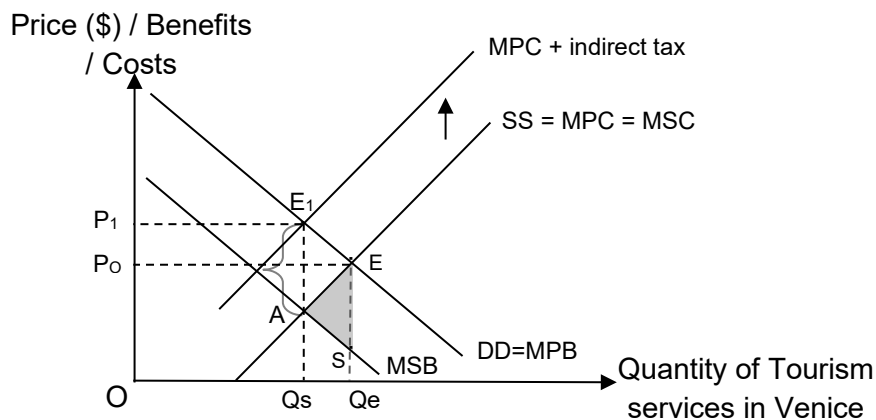
### R1/ Evaluation:

- To decide whether it should go ahead with the direct provision of a particular public good, the government needs to weigh the total social benefits against the total social costs of providing a public good. Given the severity and urgency of the flood problem due to the fact that Venice is a low-lying city, the social benefits of the tidal floodgate system in preventing flooding in the city can arguably be very significant and extensive.
- The government may also want to consider constructing the floodgate system only in areas where they will be more prone to flooding so that the provision of the public good can be more financially feasible and sustainable for the government.
- Overall, while the government may not be able to achieve allocative efficiency due to the lack of demand information, the government's free provision of the tidal floodgate system is still better as it reduces the extent of allocative inefficiency arising from the non-provision of the public good.

### R2: Discuss 1 government intervention to overcome the market failure arising from negative consumption externality

**Thesis** – Explain how indirect tax helps to overcome the market failure arising from negative consumption externality

In the case of negative consumption externalities tourism services, governments can correct for negative consumption externalities by imposing an indirect tax to reduce consumption. For example, the government can impose high taxes on tourism services producers (for instance gondola cruise providers) with a specific tax of  $E_1A$ , which is equal to the MEC at  $OQ_s$ . This leads to an increase in the marginal private cost of production. This is reflected by an upward shift of the MPC curve from MPC to  $MPC + \text{indirect tax}$ . This will cause a rise in the market price of the good which will lead to a reduction in the quantity demanded from the free-market output level,  $OQ_e$  where  $MPB = MPC$ , to the socially optimal level,  $OQ_s$  where  $MSB = MSC$ . Hence efficient allocation of resources is achieved and the deadweight loss (AES) arising from overconsumption prior to the imposition of the tax is eliminated.



**Figure 1: Correcting overconsumption from negative consumption externality**

### Anti-thesis – Explain the limitations of indirect tax (ineffectiveness / undesirable)

- Ineffective: To achieve allocative efficiency, the government needs accurate and complete information on the size of the external costs, but it is difficult to measure and place an accurate monetary value on the externalities, especially when some of the effects of the externalities can be difficult to quantify (e.g. the impact on noise levels to Venice residents). An over-valuation of external cost means that output is reduced to a level that is below social optimum. An under-valuation of external cost implies that although output is lowered by the tax, it is not enough to bring output down to the socially optimal level. With the lack of precision, society's welfare cannot be maximized.
- Undesirable: The increase price of tourism services could increase the price for locals who could potentially be consumers of the tourism services too such as museums, historical sites in Venice. This may unintendedly fuel higher cost of living for locals and reduce their purchasing power in consuming tourism services. This would discourage locals to visit the historical sites. This could worsen inequity as the poor are priced out of such services.
- Undesirable: The fall in tourism services could lead to a fall in overall tourism in Italy. This could potentially lead to a fall in consumption and aggregate demand leading to lower levels of economic growth and employment opportunities.

### R2/ Evaluation:

- In order to prevent the worsening of inequity, the Italian government may consider sheltering locals from the hike in prices of tourism services arising from the indirect tax by mandating all tourism services producers to charge a lower price for locals. Locals especially the low-income, would hence be able to afford such tourism services which provide a rich educational value to enhance national identity and heritage for locals. This is occasionally practised in many tourism sites around the world.
- The government may consider trying to upgrade and expand current tourism services and facilities to better cope with higher tourism volume so as to increase the capacity for such services.

**Overall Evaluation:** The government in deciding on what and how to intervene in the respective markets do need to consider the feasibility of the measures both in terms of financial and logistics. For example, should the government lack the logistical expertise in building the tidal floodgate system, the government may need to seek the expertise from private firms or universities.

### Mark Scheme:

Level	Knowledge, Application/Understanding and Analysis	
L1	<ul style="list-style-type: none"> <li>• Vague knowledge of government interventions for non-provision of public good and the source of market failure</li> <li>• No use of relevant economic framework or analysis applied</li> <li>• Unexplained interventions or listing of points</li> <li>• Critical errors in analyses of intervention</li> <li>• Descriptive explanation of answers</li> </ul>	1 – 4
L2	<ul style="list-style-type: none"> <li>• Some economic analysis of government intervention for the non-provision of public good and the source of market failure</li> <li>• Some use of relevant framework in the analyses of government interventions to information failures</li> <li>• Some use of examples</li> <li>• Some gaps or lapses in analyses of interventions</li> <li>• Some discussion of effectiveness of interventions</li> </ul>	5 – 7



L3	<ul style="list-style-type: none"> <li>▪ Good scope of coverage of interventions.</li> <li>▪ Detailed analysis and discussion of the respective government interventions for each market (including the policy limitations)</li> <li>▪ Good use of examples applied throughout essay where possible</li> </ul>	8 – 10
<b>Evaluation</b>		
E1	<ul style="list-style-type: none"> <li>▪ Unsupported judgment about the desirability/effectiveness of government interventions.</li> <li>▪ Unsupported suggestion of alternative policies or refinement to mentioned policies.</li> <li>▪ Superficial conclusion/ assertion</li> </ul>	1
E2	<ul style="list-style-type: none"> <li>▪ Substantiated judgment, recommendation supported by reasons/ economic analysis</li> </ul>	2 – 3
E3	<ul style="list-style-type: none"> <li>▪ Insightful and perceptive evaluation and recommendation well discussed and evaluated using economic analysis and good application to the context</li> <li>▪ 2 well explained insights</li> </ul>	4 – 5

**Examiners' Comments:**

The question is generally lacking in several areas as students provided a cursory explanation of the direct provision or neglected the intervention needed for the public good market and only discussed the intervention for the tourism market. Students must realise that the two sources of market failure were identified in two different markets in total and hence both sources of market failure need to be addressed.

**Government intervention for the public good's market**

- Many students correctly identified the method of intervention – direct provision of the good (free-provision). However, some students did not explain that the price that the government should charge for the good must be 0 and that is finance via government tax revenue.
- The weaker answers failed to use the MSB/MSB framework (marginalist principle) to explain how much of the good the government should produce to maximise society's welfare. On top of that, given the absence of effective demand in public goods, students should not be using the DD/SS framework in determining how much to produce.
- In the anti-thesis, many students discussed about the huge strain on the government's budget and high opportunity cost that of financing the provision of the floodgate system. While this is not wrong, students should prioritise providing points that adds more value to the nuancing of the discussion over less generic AT points such as the lack of demand information to determine the socially optimal output level of producing the public good that will maximise society's welfare.

**Government intervention for the tourism market**

- While this question allows room to discuss other policies, not all policies are appropriate in this context. Some policies that are not appropriate include marketing, education and campaigns to address imperfect information. Education and campaigns do not help to address externalities as the externalities is not about awareness but about ignoring the 3<sup>rd</sup> party effects.
- Direct tax (not applicable in this context). Many students who wrote about direct tax did not correctly understand and explain direct tax. These scripts mixed up direct and indirect taxes. Direct tax is paid directly by the taxpayer to the government and the burden of a direct tax cannot be passed on, like income tax. In contrast, indirect tax, such as GST / VAT, can be passed on to others.

- *Direct tax is not an appropriate approach in this context because it does not directly target specific goods and services. Weaker scripts used tourism taxes very loosely without reference to whether the tax is direct or indirect.*
- *Students who wrote about how improving tourism infrastructure will ease overcrowding and reduce the MEC or -MEB miss the point that this is not the best approach because it does not directly address the negative externalities in consumption. Consumers are still ignoring the 3<sup>rd</sup> party cost.*
- *Students who explained indirect tax as the form of government intervention tend to lack explanation of the size of the tax. Size of the indirect tax must be equal to the value of the MEC or -MEB at the social optimal output level,  $Q_s$ .*
- *Restricting the number of tourists entering Venice – Quota. Many students who wrote about quota did not explain how the quota would be implemented. This restriction in the number of tourists can be implemented using restricting the issuing of visa or travel permits to Venice. Many students illustrated the quota incorrectly by using a market for tourist. There is no such market as it would mean demand and supply for tourists!*

### **Evaluation**

- *This was generally less well attempted. In the overall conclusion or summative judgement, weaker responses provided a summary of the intervention discussed in the analysis or at best a rehearsed evaluation, eg. Short run vs long-run approach, ability to address root causes, policy mix etc with little substantiation. Students can consider weighing up the urgency or priority of the issues or weighing up the free direct provision approach against that of the intervention for overtourism to demonstrate ability to understand nuances when it comes to policy consideration.*
- 4 The United Kingdom (UK) formally entered a recession at the end of 2023. Several factors can explain this poor performance. Russia has cut its exports of natural gas due to the ongoing Russia-Ukraine war. COVID-19 has also hurt consumers and exporters and has deterred investors.

Adapted from various sources

- (a) Explain how the above-mentioned events have resulted in inflation and a recession in the UK. [10]
- (b) In response to the crisis, UK's central bank is considering whether to increase interest rates. Discuss whether the UK should prioritise reducing inflation over promoting economic growth and whether increasing interest rate is an appropriate policy to deal with stagflation in the UK. [15]

### **Part a:**

#### **Short introductory paragraph: Define key words in the question**

Define inflation: sustained increase in general price level over time

Define recession: falling real national income

#### **Body paragraphs:**

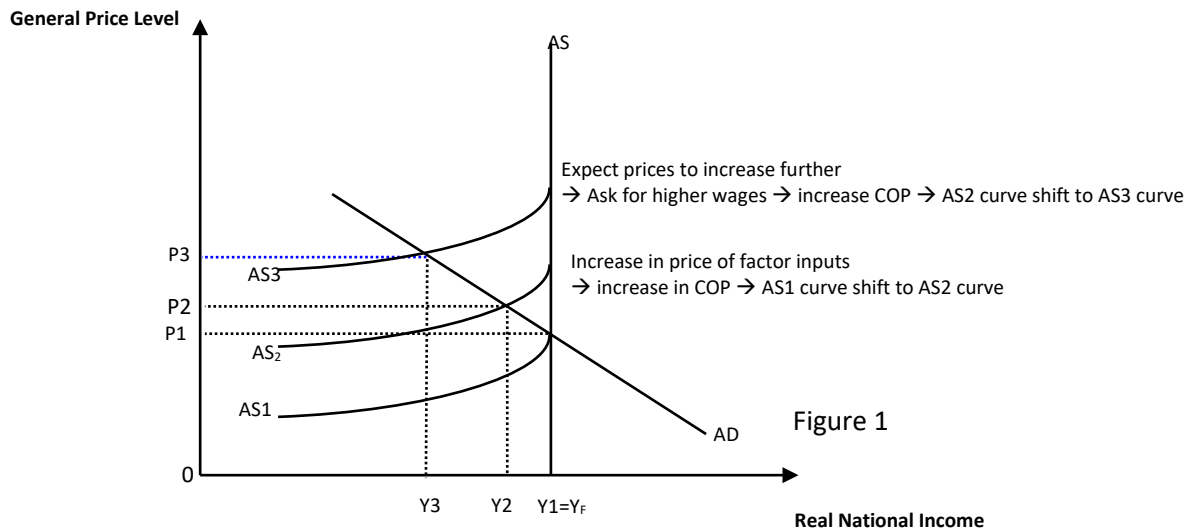
#### **Requirement 1: Explain why events resulted in inflation in the UK (due to fall in AS)**

a. Supply-Side Shock from Russia's Gas Export Cuts

- When Russia cut its exports of natural gas, the world supply of natural gas fell and caused a shortage of natural gas which led to a sharp increase in natural gas prices globally because Russia is a major exporter of natural gas.
- Natural gas is an important factor input in the production of electricity. An increase in the price of natural gas will lead to an increase in the cost of producing electricity which will in turn lead to a fall in profitability and in turn ability to produce electricity, hence the price of electricity will increase.
- Given that energy is a critical input in many industries, the surge in natural gas prices led to higher production costs, particularly in energy-intensive sectors like manufacturing (e.g. steel, aluminum), construction, and transport in the UK.

b. COVID-19 Supply Chain Disruptions (Optional)

- The COVID-19 pandemic severely disrupted global supply chains, affecting the availability and cost of imported raw materials for the UK.
- For instance, many countries, including key suppliers of raw materials like China and Southeast Asian nations, implemented strict lockdowns. This led to factory closures and significantly reduced production capacity in major exporting countries. As a result, global supply of essential raw materials such as electronics components, metals, chemicals, and textiles were disrupted which led to an increase in the prices of these essential raw materials.
- The increase in prices of essential factor inputs increased the cost of producing final goods and services in the UK economy.



- An increase in production costs leads to cost-push inflation by directly increasing the cost of producing goods and services which reduces profitability and profit-maximising firms pass these costs on to consumers by raising prices to maintain profitability. This causes the aggregate supply (AS) curve to shift upwards from AS1 to AS2.
- With aggregate demand (AD) unchanged, the fall in AS creates a shortage of final goods and services in the economy. Consumers compete and bid up prices of final goods and services

which have become scarcer. Hence, GPL increases from P1 to P2 and stops increasing when the shortage is eliminated.

- The increase in GPL led households to expect further increases in GPL in the future, leading to higher wage demands, causing COP to increase further and AS to shift upwards further from AS2 to AS3. Hence, the GPL increases further from P2 to P3 and is sustained.
- (Optional) As GPL increases from P1 to P2, real NY falls from Y1 to Y2 due to the real income effect (purchasing power falls causing fall in consumption), interest rate effect (higher money demand pushing up interest rates which causes a fall in investment and consumption) and international substitution effect (exports become relatively more expensive than other countries' goods and services leading to a fall in quantity demanded for exports, while imports become relatively cheaper than domestically produced substitutes leading to an increase in quantity demanded for imports away from consumption on domestically produced goods). The fall in AD (C, I and X) is reflected by a movement along the AD curve.

**Requirement 2: Explain why events resulted in recession in the UK (due to fall in AD & AS): Decreased Aggregate Demand (AD) due to fall in C, I and X**

Fall in C:

- Autonomous consumption refers to the level of consumption that occurs irrespective of changes in income, often driven by psychological and economic factors. The heightened uncertainty led to a decline in autonomous consumption as consumers became more cautious about their spending habits. Faced with the possibility of future retrenchment or reduced income, households prioritized saving over spending. This precautionary behavior meant that consumers cut back on expenditures, especially on non-essential goods and services, like spending on luxury items, dining out, and travel.

Fall in I:

- The Marginal Efficiency of Investment (MEI) refers to the expected rate of return on an additional unit of investment, compared to its cost. During times of high uncertainty, such as the COVID-19 pandemic, the MEI becomes harder to assess accurately. The unpredictability of future consumer demand and potential supply-chain disruptions increases the perceived risk of new investments. As a result, businesses may delay or scale back capital spending, as the uncertain returns on investment make it less attractive compared to holding onto cash or investing in safer, short-term options.

Fall in X:

- As part of efforts to contain the spread of COVID-19, many countries, including the UK, imposed strict travel bans, quarantines, and testing requirements. These restrictions deterred international tourists from visiting the UK, leading to a sharp drop in inbound tourism. Since tourism is considered an export (as it brings foreign money into the country), the fall in international tourist arrivals directly resulted in a decline in export revenue.

Fall in autonomous C, I and X led to a fall in autonomous aggregate demand as C, I and X are components of AD.

### **Multiplier effect**

- Fall in autonomous AD from AD1 to AD2 leads to a more than proportionate fall in real NY from RNY1 to RNYfinal, ceteris paribus.
- The fall in autonomous AD leads to an increase in inventories which causes producers to reduce production in the next time period.
- Since the demand for labour is a derived demand, the fall in production means that producers hire fewer factors of production from households and pay them less factor income.
- Less factor income leads to less ability to consume which leads to a fall in induced consumption, hence AD falls further from AD2 to AD3.
- This process repeats itself and is based on the principle that one person's loss in spending is another persons' loss in income and less income generates less spending.
- Hence there will be many rounds of fall in induced consumption.
- The fall in induced consumption becomes smaller and smaller due to the presence of leakages.
- The multiplier process eventually stops when the cumulative fall in induced withdrawals equal the initial fall in autonomous AD.

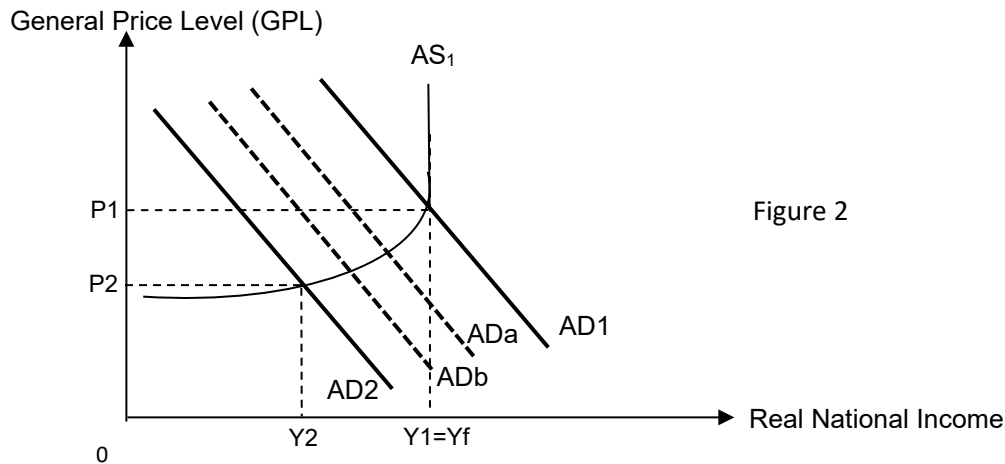


Figure 2

### **Optional details (combined effects)**

- Hence the recession in the UK was caused by both a decrease in aggregate demand and aggregate supply. The multiplier effect amplified the initial shocks, further deepening the economic downturn.
- Inflation was primarily driven by cost-push factors while the fall in AD has a dampening impact on inflationary pressures.
- The interplay between rising prices and contracting economic activity created stagflationary conditions, making the UK's economic recovery particularly challenging.

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L3</b>	<ul style="list-style-type: none"> <li>▪ Clear use of theoretical framework and examples</li> <li>▪ Good scope, accuracy and rigour in explanation (rigour: step-by-step explanation)</li> <li>▪ Good organisation of ideas including ability to discriminate between what's relevant and what's not</li> </ul>	<b>8-10</b>

	<b>Essential content to get letter A for each R include:</b> <ul style="list-style-type: none"> <li>- R1 on inflation (analyses why price of natural gas increases and analyses its impact on the general price level using AD/AS analysis, including GPL-adjustment process)</li> <li>- R2 on recession (AD/AS analysis and short but complete multiplier process)</li> </ul>	
<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Evidence of economic application and analysis - but a bit of lapses. This can include: <ul style="list-style-type: none"> <li>○ Lapses in theory and use of examples</li> <li>○ Lapses in scope, accuracy and/or rigour in explanation</li> <li>○ Lapses in organisation</li> </ul> </li> </ul>	<b>5-7</b>
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ No economics framework, journalistic approach throughout,</li> <li>▪ Glaring conceptual errors throughout</li> <li>▪ Big gaps in explanation throughout</li> </ul>	<b>1-4</b>

*Examiners' comments:*

1. *Students who provided separate diagrams for R1 and R2 tended to provide greater clarity in analysis than those who provided one diagram for both R1 and R2.*
2. *Inflation refers to sustained increase in general price level of final goods and services, and not sustained increase in price of natural gas. Hence, AD/AS diagrammatic analysis is required to analyse the impact on inflation.*
3. *For Requirement 1, students should not simply state that a fall in AS results in an increase in GPL. An explanation of it happens should be undertaken. Specifically, that there will be a shortage at original GPL, causing households to outbid each other for limited amounts of goods and services.*

**Part b:**

**Short introductory paragraph: Define key words in the question**

Define stagflation: Stagflation refers to a combination of stagnant (slow or negative) economic growth, rising unemployment and high and rising inflation.

Define interest rate: Cost of borrowing to the borrower and rate of return to the saver OR price of money (monetary policy)

Clarify that increasing interest rate is a contractionary monetary policy

**Body paragraphs:**

**Requirement 1: Discuss whether UK should prioritise reducing inflation over promoting economic growth**

R1/T: Explain the costs of high and/or rising inflation or benefits of low inflation on SOL &/or other economic goals (choose 2 points and develop them well)

- Immediate impact on standard of living (material and non-material standard of living):

- High inflation significantly impacts the cost of living, especially for vulnerable groups such as the unemployed, fixed-wage earners, and those whose nominal incomes rise more slowly than the rate of inflation. For example, for fixed-wage earners (like those on long-term contracts or minimum wage) their real income will fall and the higher the inflation, the greater the extent of fall in their real income. High inflation thus significantly reduces their ability to afford essentials like food, energy, and housing falls, hence their material standard of living will fall significantly.
- As fixed nominal wage earners struggle to maintain their standard of living amidst rapidly rising prices, stress and anxiety about financial security increase. The daily stress of being unable to meet basic needs, pay bills, or afford necessities can significantly reduce their quality of life, leading to a rapid deterioration in their non-material standard of living.
- High inflation tends to exacerbate income inequality, leading to greater social and economic inequity. Those with variable incomes—such as business owners, investors, and professionals with performance-based pay—often see their incomes rise faster than inflation. These groups may even benefit from inflation if they can pass higher costs onto consumers, raise their own prices, or take advantage of rising asset values. On the other hand, fixed-wage earners, such as public sector employees, minimum wage workers, and pensioners, experience a significant erosion in the real value of their incomes. As inflation drives up the cost of living, their purchasing power declines, leaving them worse off in real terms. The widening income gap creates a sense of unfairness and deepens social tensions, as those who cannot keep up with rising prices find themselves struggling to afford basic necessities like food, housing, and healthcare. This growing disparity can lead to increased frustration and social unrest, as the majority of the population feels left behind while a smaller, wealthier segment continues to thrive. Over time, this unequal distribution of wealth can undermine social cohesion, leading to heightened political instability and challenges to the existing economic and political order.
- Long run impact on sustained economic growth:
  - High inflation creates uncertainty in the economy, making it difficult for businesses to plan. This uncertainty discourages investment, as firms are less likely to commit to long-term projects when they cannot accurately predict costs or returns. By prioritizing inflation reduction, the central bank could help restore business confidence. A stable price environment allows businesses to make more informed investment decisions, which is essential for increasing productive capacity and in turn potential economic growth in the long run. As investment is a component of AD, aggregate demand also increases over the long run. Reducing inflation thus lay the foundation for low-inflationary sustained economic growth over the long run.
- Impact on balance of trade:
  - Higher inflation in the UK relative to other countries' inflation can also have adverse impact on UK's balance of trade. When domestic prices in the UK rise and assuming other countries' prices do not change, the country's exports become less competitive in global markets, hence quantity demanded for UK's exports fall as foreign buyers turn to relatively cheaper alternatives. At the same time, imports become relatively cheaper, leading to an increase in import volumes. If demand for exports is price elastic, the increase in prices of UK's exports will cause a more than proportionate fall in the

quantity demanded for UK's exports. As a result, the total revenue from UK's exports will fall. As imports become relatively cheaper, demand for imports increase, hence the total expenditure on imports increase. Overall, the fall in TRx and increase in TEm will improve UK's balance of trade.

R1/AT: Explain the costs of recession for simplicity or benefits of higher actual economic growth on SOL &/or other economic goals (choose 2 points and develop them well)

- Impact on material and non-material SOL
  - A recession refers to falling real NY. Assuming population size unchanged, real NY per capita falls. Hence the average person's ability to consume goods and services fall. Hence, most businesses face reduced demand for their products and services. Since the demand for labour is a derived demand, the fall in aggregate demand for goods and services leads them to cut back on production and lay off workers. This results in higher cyclical unemployment, which has significant impacts on both the material and non-material standards of living for individuals and families. Cyclical unemployment directly impacts household incomes. With more individuals losing their jobs, families experience a substantial decrease in their income. This reduction in income affects their ability to afford essential goods and services, including food, housing, and healthcare, resulting in a fall in material standard of living.
  - Unemployment and financial insecurity can lead to significant psychological stress. The uncertainty of job prospects and financial stability can cause anxiety, depression, and a sense of hopelessness, leading to a fall non-material standard of living. This stress affects overall well-being and quality of life, contributing to a decline in the non-material standard of living.
- Impact on sustained economic growth in the long run (this needs to be paired with one of the above points because the crux is why is economic growth important)
  - A recession can significantly reduce business confidence, as firms face declining demand, rising uncertainty, and tighter financial conditions. During economic downturns, companies are less likely to invest in new projects, expand operations, or hire additional workers, fearing that the weak economic environment will persist. This reluctance to invest reduces capital formation, which is critical for potential growth. As firms cut back on investment in technology, infrastructure, and workforce training, the economy's productive capacity diminishes, making it harder to sustain long-term growth. A prolonged lack of investment not only reduces current output but also hampers future productivity, innovation, and competitiveness, weakening the foundation for sustained economic growth.

### **Evaluation to R1 based on T and AT: Possible evaluative points**

- In the context of stagflation driven by supply-side shocks as well as demand-side shocks, promoting economic growth should be the immediate priority for the UK. This is because the fall in AS and AD and the moderately large multiplier size of UK amplifies the fall in real NY but the fall in AD mitigates the rise in inflation due to fall in AS. Hence the recession problem is more severe than the inflation problem.
- OR With the Russia-Ukraine war persisting and its disruptions to energy prices and supply chains continuing to drive inflation, the UK faces an ongoing threat to price stability. As the COVID-19 pandemic has become less severe, the energy crisis now presents a more pressing



challenge. Therefore, the UK government should prioritize controlling inflation to curb rising living costs and protect households' purchasing power, while also restoring business confidence for a more stable economic recovery.

- OR Consumption (C) and investment (I) are the largest components of the UK's aggregate demand, making them more influential than exports (X) in driving the economy. Prioritizing the reduction of recession is crucial because stimulating consumer spending and business investment can directly boost economic activity. Addressing the recession would help restore demand, encourage job creation, and improve household incomes, all of which are essential for long-term recovery. While inflation control is important, reducing the recession would have a more immediate and significant impact on overall economic growth, especially given the relative importance of C and I in the UK's economy.

**Requirement 2: Discuss whether increasing interest rate is an appropriate policy to deal with stagflation in the UK**

R2/T: Increasing Interest Rates can be effective and desirable in reducing inflation in the UK

- Raising interest rates would reduce consumption because costs of borrowing has increased, hence spending on big-ticket items like cars will fall. Opportunity costs of current consumption has also increased because the rate of returns on savings has increased.
- A rise in interest rates from  $r_1$  to  $r_2$  will also lead to a fall in investments from  $I_1$  to  $I_2$  (Figure 3) because according to the Marginal Efficiency of Investment (MEI) theory, there will be fewer investment projects that yield a rate of return that is at least equal to or more than the cost of borrowing. This means that there will be fewer projects that remain profitable, hence profit-maximising firms are less able and willing to invest in new machines and new factories.

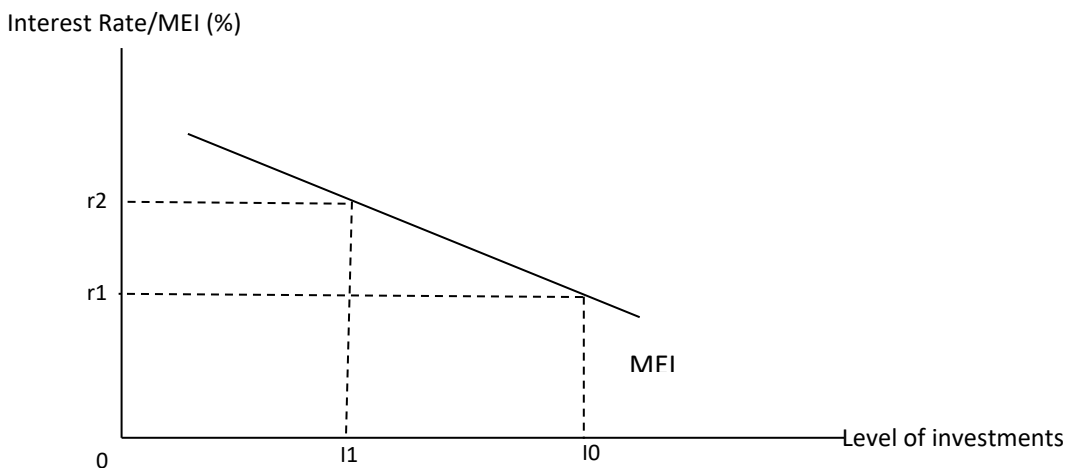


Figure 3

- An increase in interest rates reduces aggregate demand (AD), as consumption (C) and investment (I), both key components of AD, decrease. This causes the AD curve to shift multiple times leftward due to the multiplier process (explained and illustrated in figure 2 in part a). As the AD curve moves further away from the full employment level of real national income along the intermediate range of the AS curve, a surplus of final goods and services is

created at the initial general price level (GPL) which causes a downward pressure on the GPL. With reduced competition from consumers, firms reduce prices to eliminate the surplus. As a result, the GPL falls from GPL1 to GPL2, assuming all else remains equal (*ceteris paribus*). In the context of the UK's stagflation, this reduction in AD helps lower inflation, thereby addressing one key issue of stagflation—rising prices.

R2/AT: Increasing Interest Rates, however, may not be desirable because the recession will deepen (tradeoffs/conflicts between macro goals)

- Raising interest rates would further reduce consumer spending and investment, which are key components of AD. With AD already weakened by uncertainty and low confidence due to COVID-19 pandemic, a tighter monetary policy could exacerbate the recession by shifting AD left, leading to a more severe contraction in output. If the central bank raises interest rates too aggressively, it risks further weakening demand. A sharp fall in AD could push the UK economy into a deflationary trap, where prices start falling, further reducing spending and investment. This would make it more difficult for the economy to recover, especially when businesses and consumers delay spending in anticipation of lower prices in the future.
- The root cause of stagflation in the UK is largely supply-side (e.g., energy shortages, COVID-19 disruptions). Raising interest rates affects the demand side but does little to directly address supply chain issues or energy prices, which have shifted AS upwards.

### **Evaluation to R2 based on T and AT**

- Upon evaluation, despite the trade-offs between reducing inflation and promoting economic growth, raising interest rates remains an appropriate short-term solution to curb inflation. However, it should not be used in isolation, especially given the adverse effects of energy prices on fixed-income earners and the unemployed. A combination of policies is necessary. Interest rate hikes should be accompanied by targeted fiscal measures, such as welfare programs and financial support for low-income households, to mitigate the impact of rising prices and unemployment on consumption. Furthermore, supply-side policies are crucial for addressing the root cause of inflation. These could include negotiating Free Trade Agreements to diversify energy imports and investing in R&D to develop alternative energy sources, which would reduce production costs and increase aggregate supply (AS). This comprehensive approach would tackle both inflation and stagnation while promoting sustainable growth.
- OR After weighing the pros and cons of increasing interest rates, it is more likely that increasing interest rates may not be appropriate given that the UK's economic priority should be to boost actual economic growth rather than reducing inflation, especially since consumption (C) and investment (I) form the largest components of the UK's aggregate demand (AD), compared to exports and imports. Raising interest rates would likely reduce C and I, further depressing AD and exacerbating the recession. Instead, the central bank should consider lowering interest rates to stimulate spending and investment, which would drive growth. However, reducing interest rates alone won't address supply-side issues like rising energy prices and production constraints. To mitigate inflationary pressures and support sustainable growth, it would be necessary to complement lower interest rates with supply-side policies, such as investing in renewable energy sources and improving productivity (which increases output per worker and in turn reduces costs of production and increase productive

capacity over the long run). These measures would help address the structural issues behind stagflation, fostering long-term economic stability.

### Concluding paragraph: Reasoned Judgement and Recommendation Forward (Based on R1 & R2)

- If R1/EV is on prioritising reducing inflation over promoting actual economic growth and R2/EV is increasing interest rate is overall an appropriate policy, the following can be a possible concluding EV:
  - In conclusion, the UK, with its significant welfare benefits and strong social safety nets, can afford to use a mixture of policies. By balancing monetary tightening with fiscal and structural interventions, the government can stabilize inflation without sacrificing long-term growth, especially given the importance of consumption (C) and investment (I) in the UK's aggregate demand. This approach ensures a more sustainable recovery, aligning with the Tinbergen principle of using multiple policy tools for multiple goals.
- If R1/EV is on prioritising promoting actual economic growth over reducing inflation and R2/EV is increasing interest rate is overall not an appropriate policy, the following can be a possible concluding EV:
  - In conclusion, with the ongoing Russia-Ukraine war continuing to drive inflation and the COVID-19 situation easing, reducing interest rates, instead of increasing interest rates would better support the UK's consumption (C) and investment (I), critical components of aggregate demand. This would foster actual economic growth without deepening the recession. Pairing lower interest rates with supply-side measures like energy diversification and productivity improvements would address inflation's root causes, ensuring long-term growth. Such an approach, consistent with the Tinbergen principle of using multiple tools to achieve multiple objectives, ensures that the UK can pursue a balanced recovery, addressing both inflation and growth challenges simultaneously.

Knowledge, Application, Understanding, Analysis		
<b>L3</b>	<ul style="list-style-type: none"> <li>▪ Clear use of theoretical framework and examples</li> <li>▪ Good scope, accuracy and rigour in explanation (rigour: step-by-step explanation)</li> <li>▪ Good organisation of ideas including ability to discriminate between what's relevant and what's not</li> </ul> <p><b>Essential content to get letter A for each R include:</b></p> <ul style="list-style-type: none"> <li>- For R1: Use AD/AS analysis, discuss why (TAS) the UK should prioritise reducing inflation over promoting actual economic growth.</li> <li>- For R2: Use AD/AS analysis, discuss whether (TAS) increasing interest rate is an appropriate (effectiveness AND desirability) policy to deal with stagflation in the UK.</li> </ul>	<b>8-10</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Evidence of economic application and analysis - but a bit of lapses. This can include:               <ul style="list-style-type: none"> <li>○ Lapses in theory and use of examples</li> <li>○ Lapses in scope, accuracy and/or rigour in explanation</li> </ul> </li> </ul>	<b>5-7</b>

	○ Lapses in organisation	
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ No economics framework, journalistic approach throughout,</li> <li>▪ Glaring conceptual errors throughout</li> <li>▪ Big gaps in explanation throughout</li> </ul>	<b>1-4</b>

<b>Evaluation (based on T &amp; AT)</b>		
<b>E3</b>	<ul style="list-style-type: none"> <li>▪ Judgements provided for 2 requirements with explanation and contextualisation <b>PLUS</b> a summative judgement in the concluding paragraph (Note that a conclusion is not a summary or a repetition of earlier points, but one that gives additional evaluation/new insight based on R1 and R2.)</li> </ul>	<b>5</b>
<b>E2</b>	<ul style="list-style-type: none"> <li>• Judgement provided for 1 requirement with explanation but no contextualisation <b>PLUS</b> judgement provided for 2<sup>nd</sup> requirement with explanation &amp; contextualisation</li> <li>• Judgements provided for 2 requirements with explanation and contextualisation, max 4</li> </ul>	<b>3-4</b>
<b>E1</b>	<ul style="list-style-type: none"> <li>• Judgement explained but lack contextualisation for 1R, max 1</li> <li>• <b>OR</b> judgement provided for only 1 requirement with explanation and contextualisation, max 2</li> </ul>	<b>1-2</b>
	<ul style="list-style-type: none"> <li>• Judgement not explained; Pure summary; Repetition; Sitting on the fence; Judgement is not set in the correct context</li> </ul>	<b>0</b>

*Examiners' comments:*

- *Students are advised to plan before they write so that their points will not end up being repetitive. Repetition gains no credit. Students should be very clear what is the R1 and R2 for their response. The lack of clarity of R1 and R2 contributed to repetitive and structurally unclear responses.*
- *R1 on whether to prioritise reducing inflation over promoting growth should be interpreted in the context given in the preamble. Given the context, R1 is about costs of high inflation and recession (or benefits of low inflation and actual economic growth).*
- *Quite a number of students mis-interpreted R1 to be a policy question on how to achieve lower inflation and promote growth. Please read the question carefully, and re-reading it is recommended to make sure that your R1 directly addresses the question.*
- *Reducing inflation does not mean a fall in general price level. Reducing inflation means inflation is still positive but lower which means that general price level is rising but at a slower rate. Students need to use qualifiers to demonstrate understanding that it is high inflation that is undesirable while low inflation is desirable.*
- *R2 is about the appropriateness of using interest rates to address stagflation. Most students were able to explain why increasing interest rates can address the inflation aspects of stagflation. Answer will, however, not be complete without addressing the recession aspect of*

*stagflation. Students need to include in their explanation the key AT point that recession will be worsened when interest rates are increased.*

- *Interest rate policy seeks to tackle C and I, hence the explanation of why C and I falls when interest rate is increased must be well-developed. Explanation of secondary effect on hot money flows, exchange rates and net exports should not be longer than primary effects.*
- *Interest rate policy is a demand-side policy. Do not bring in supply-side effects in the thesis and anti-thesis. Save it for the evaluation.*
- *A few students explained the impact of a fall in interest rates, rather than increase in interest rates. Students are advised to read the question carefully.*
- *Students need to remember to elaborate on each point rather than provide a laundry list of many points for each R.*

- 5 (a) Explain the impact on standard of living when a country achieves sustainable and inclusive growth. [10]
- (b) Sustainable economic growth hinges on government infrastructure spending in renewable energy, such as solar and wind power, as well as transport infrastructure, like electric vehicle networks and high-speed rail systems. Implementing carbon taxes further drives eco-friendly practices.

Source: Bloomberg

Discuss whether government spending on the infrastructure such as the above or carbon taxes is the more appropriate policy to achieve sustainable economic growth. [15]

### **a) Introduction**

Define standard of living (SOL): material SOL (consumption by average person) and non-material SOL (qualitative aspects of welfare like stress levels)

Definition: Sustainable growth involves a rate of growth that can be maintained without creating other significant economic problems such as depleted resources and environmental problems, particularly for future generations

Definition: Inclusive growth indicates a rate of growth that is sustained over a period of time, is broad-based across economic sectors, and creates productive employment opportunities for the majority of the country's population.

### **Body paragraphs:**

#### **R1: Impact on Material Standard of Living**

- Sustainable Growth:
  - Sustainable growth entails the attainment of sustained growth which comprises of both actual and potential growth. This is reflected by an increase in aggregate demand (AD) and increase in aggregate supply (AS) respectively. Sustainable growth is often achieved by adopting sustainable practices, such as investing in renewable energy

and efficient resource management, a country can maintain or even enhance its production capabilities without depleting natural resources. This ensures that economic growth is not only robust but also enduring. With the increase in real gross domestic product (GDP) from sustained growth, assuming actual growth outpaces population growth, real GDP per capita increases, households have more disposable income to consume greater quantity of goods and services, for example food and IT gadgets like handphones. This translates to an increase in material SOL.

- Example: Germany has invested heavily in renewable energy sources through its "Energiewende" policy, which has led to stable economic growth while reducing reliance on fossil fuels.

- Inclusive Growth:

- Inclusive growth broadens aggregate demand by increasing the purchasing power of lower-income groups. When income distribution is more equitable, Gini coefficient becomes smaller which represents small income inequality. Hence, a larger portion of the population can afford to consume goods and services, leading to increased overall demand. This, in turn, stimulates production, contributing to economic growth.
  - Example: Brazil's "Bolsa Família" program, which provides financial aid to low-income families, has helped reduce poverty and increase consumer spending, thereby boosting AD and improving material living standards.
- Inclusive growth enhances aggregate supply by investing in human capital (e.g., education and healthcare) and infrastructure, enabling a broader segment of the population to participate in economic production. With higher education and skill levels, low-income individuals or structurally unemployed individuals can access higher paying jobs in new growth industries since they are more productive than before. As more people contribute to the economy, productive capacity increases, leading to higher economic output and improved material living standards.
  - Example: South Korea's investment in education and technological infrastructure has significantly increased its skilled workforce, contributing to the country's rapid economic growth and high material standard of living.

## R2: Impact on Non-Material Standard of Living

- Sustainable Growth:

- Sustainable growth contributes to a stable increase in aggregate supply by promoting practices that protect and preserve environmental resources. This focus on sustainability leads to improved environmental quality, which has a direct impact on non-material aspects of life, such as health and well-being, thus increasing life expectancy and reducing infant mortality rates. This can also be represented by an improvement in the Quality of Life Index which includes factors like environmental quality, access to clean water, and pollution levels. A higher score reflects a better non-material standard of living, often correlated with sustainable practices.
  - Example: Costa Rica's commitment to environmental sustainability, including reforestation and the use of renewable energy, has led to a high quality of life, with citizens enjoying clean air and water, contributing to better health outcomes.

- Inclusive Growth:
  - Inclusive growth increases aggregate demand by enabling a larger portion of the population to access education, healthcare, and other essential services. This improved access leads to better life satisfaction, social cohesion, and mental well-being, all of which are key aspects of the non-material standard of living. The improvements in health and education levels can be captured by an improvement in the Human Development Index (HDI), ceteris paribus. A higher HDI index reflects improvements in non-material aspects of living, such as education and health, resulting from inclusive growth that raises both AD and AS.
    - Example: Finland's comprehensive welfare system ensures that all citizens have access to high-quality education, healthcare, and social services, contributing to high levels of life satisfaction and social stability.
  - Inclusive growth also enhances aggregate supply by creating a more educated, healthier, and more productive workforce. This not only boosts economic output as explained earlier but also reduces economic stress and fosters a more cohesive society, improving non-material living standards.
    - Example: Norway's investment in education and healthcare has led to a well-educated and healthy population, contributing to both high economic output and strong social cohesion.

Knowledge, Application, Understanding, Analysis		
<b>L3</b>	<ul style="list-style-type: none"> <li>▪ Clear use of theoretical framework and examples</li> <li>▪ Good scope, accuracy and rigour in explanation (rigour: step-by-step explanation)</li> <li>▪ Good organisation of ideas including ability to discriminate between what's relevant and what's not</li> </ul>	<b>8-10</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Some lapses in economic application and analysis. This can include:               <ul style="list-style-type: none"> <li>▪ Lapses in theory and use of examples</li> <li>▪ Lapses in scope, accuracy and/or rigour in explanation</li> <li>▪ Lapses in organisation</li> </ul> </li> </ul>	<b>5-7</b>
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ No economics framework, journalistic approach throughout,</li> <li>▪ Glaring conceptual errors throughout</li> <li>▪ Big gaps in explanation throughout</li> </ul>	<b>1-4</b>

### **Examiners' comments**

- *Almost all responses understood the question requirement and could divide their responses into material and non-material standard of living (SOL) for both inclusive and sustainable growth. However, there was a noticeable number of responses that explained the negative impact of attaining sustainable and inclusive growth. It is not necessary to explain the negative impact on SOL for this question as the question was phrased positively since both inclusive and sustainable growth are highly desirable for a country.*
- *Most of the responses were in the L2 band due to a lack of critical depth to enter L3 band. Common areas to refine are as seen below*

- *Firstly, definitions of sustainable, inclusive growth and SOL must be memorised and written precisely. Far too often, there were responses that included vague definitions, and a common example was forgetting that SOL measured the quantitative and qualitative aspects of well-being for **an average citizen** in a country. Another example was stating that fiscal sustainability is part of the definition for sustainable growth when this is clearly not the case.*
  - *For analysis to link to an increase in material SOL, it is essential to link from an increase in real GDP per capita. Most responses did not link to real GDP per capita which reflected a weaker understanding of the definition of SOL.*
  - *Explaining that a fall in general price level (GPL) led to an increase in material SOL is not as preferred to an increase in real GDP per capita given that real GDP already accounts for changes in GPL.*
  - *For inclusive growth, it is important to give various examples where inclusive growth is attained to gain analytical depth. Good examples included skills retraining, transfer payments and progressive tax system.*
  - *Some responses were confused and linked an increase in real national income (RNI) to non-material SOL instead of material SOL without explaining why.*
  - *For more analytical depth when linking to non-material SOL, it is necessary to explain using examples and link to the various indicators of non-material SOL such as life expectancy, PSI index, literacy rates, crime rates, HDI etc. There were many responses which did not link to the various indicators although the examples given were good.*
  - *Lastly, there were far too many unconventional shortforms used which should be avoided as these negatively affects comprehension. Examples include govt, gov, nmSOL, mSOL, g&s, g/s, UE, ppl, COP, AEG, PEG, AG, PG, SG, IG, EG, MTP, FOP, rGDP.*
- (b) Sustainable economic growth hinges on government infrastructure spending in renewable energy, such as solar and wind power, as well as transport infrastructure, like electric vehicle networks and high-speed rail systems. Implementing carbon taxes further drives eco-friendly practices.

Source: Bloomberg

Discuss whether government spending on the infrastructure such as the above or carbon taxes is the more appropriate policy to achieve sustainable economic growth.

[15]

### **Introduction:**

Recap that sustainable growth involves a rate of growth that can be maintained without creating other significant economic problems such as depleted resources and environmental problems, particularly for future generations.

### **Body:**

**Requirement 1: Discuss whether government spending on infrastructure such as the above is an appropriate policy to achieve sustainable economic growth.**



R1/Thesis: Explain how government spending on infrastructure can lead to sustainable economic growth

- Objective: actual economic growth and lower cyclical unemployment. Government spending on renewable energy and transport infrastructure increases AD through large-scale investments. This creates jobs and boosts incomes, leading to higher consumer spending and economic activity.
  - Multiplier Effect: Infrastructure projects have a multiplier effect, where initial spending leads to further rounds of spending throughout the economy, further increasing AD.
- In the long run, infrastructure investments improve productivity, reduce costs, and enhance efficiency, leading to a rightward shift in the AS curve, indicating an increase in the economy's productive capacity. This is because investments in renewable energy and modern transport systems reduce long-term energy costs and improve logistics, leading to higher productivity (higher output per worker).
- Investments in renewable energy conserve natural resources by reducing reliance on finite fossil fuels, ensuring future generations have access to essential resources. This also prevents the productive capacity (AS) from declining rapidly over the long run.
- Transport infrastructure like electric vehicle networks and high-speed rail systems reduce the long-term environmental impact, conserving natural resources for future use which prevents productive capacity from falling rapidly over the long run.
- Investments in renewable energy and clean transport infrastructure directly reduce greenhouse gas emissions and pollution. Reduced pollution leads to better air quality and public health, resulting in higher productivity (higher output per worker) which increases productive capacity over the long run.

#### R1/Anti Thesis:

- **Limited effectiveness in the SR:** Building green infrastructure like solar and wind plants or high-speed rail systems takes a long time (usually years) to complete given the complex construction and highly technical process. Hence, the improvement to sustainable growth cannot be observed in the short run.
- **Undesirable effect on government budget due to high initial costs:** Infrastructure projects require significant upfront investment, which can strain government budgets, especially in developing countries.
- **Undesirable impact on price stability in the SR:** If the economy is near full capacity in the short run, increased demand from infrastructure spending could lead to inflationary pressures in the short term, compromising the macroeconomic goal of price stability.

#### Evaluation to R1:

- EV to R1/AT on ineffectiveness in the SR: Despite the limited effectiveness in attaining sustainable growth in the short run as building infrastructure takes a long time, the long run benefits are highly significant. This is because solar and wind energy do not create carbon emissions at all as compared to traditional energy sources like coal and natural gas, thus investing in such infrastructure is critical to make this transition for a country and remains an appropriate policy.

- EV to R1/AT on undesirable effect on government budget: Upon evaluation, government spending on green infrastructure is an appropriate policy for achieving sustainable economic growth, especially for economies with large national reserves that can leverage renewable energy and transport projects. (Comparison): However, in economies with limited ability to collect tax revenue, the extent of infrastructure spending may be limited and the government may need to rely more on policies like carbon taxes.

**Requirement 2: Discuss whether carbon taxes is an appropriate policy to achieve sustainable economic growth.**

R2/Thesis: Explain how carbon taxes can help achieve sustainable economic growth

- Carbon taxes increase the cost of producing carbon-intensive goods and services like electricity which lead to a fall in supply of these goods, and in turn a fall in pollution.
- Carbon taxes encourage the conservation of resources by making carbon-intensive activities more expensive, ensuring future generations have access to essential resources.
- Carbon taxes make it more expensive to pollute, leading to significant reductions in greenhouse gas emissions and contributing to a cleaner environment.
- Over time, the tax incentivizes consumers and businesses to shift toward more efficient and sustainable practices, potentially leading to a more stable and environmentally sustainable economy. Incentivizing Innovation: Carbon taxes encourage businesses to innovate and adopt cleaner technologies, which can lead to long-term productivity gains and a rightward shift in the AS curve.

**R2/Anti Thesis:**

- **Effectiveness:** The extent to which firms undergo R&D to fund more efficient and clean methods of production depends on the level of carbon tax. If the tax is set too low, the abatement costs (cost borne by firms when they reduce pollution levels through R&D for example) may be greater than the cost incurred from paying the carbon tax, hence firms are unwilling to invest in such R&D, limiting the rise in AS and the effectiveness in reducing carbon pollutions in the long run.
- **Desirability:** In the short run, carbon taxes raise production costs, which can shift the AS curve upwards, leading to cost-push inflation and slower economic growth. The immediate impact on industries heavily reliant on fossil fuels could lead to job losses or economic disruptions, particularly in the short term.
- **Desirability:** Carbon taxes are regressive as they disproportionately impact lower-income households, as they spend a higher percentage of their income on energy-related expenses – for instance when electricity prices rise. Without compensatory measures, this could exacerbate income inequality.

**Possible evaluation to R2:**

- EV to R2/AT on effectiveness of carbon tax: In evaluation, the carbon tax can be progressively increased over time so that firms' abatement costs become greater than the carbon taxes incurred from production, thus effectively forcing them to switch to greener methods of

production. In Singapore, the carbon tax was raised to S\$25 per tonne of carbon dioxide (CO<sub>2</sub>) emission with effect from 2024 and will be raised to S\$45 per tonne of CO<sub>2</sub> emissions in 2026 and 2027, with a view to reaching S\$50 per tonne of CO<sub>2</sub> emissions by 2030.

- EV to R2/AT on desirability of carbon tax: Upon evaluation, revenue generated from carbon taxes can be used to reduce other taxes or fund green investments, which can help offset any potential reduction in real NY due to upward shift of AS curve in the short run. In the long run, with a healthier and in turn more productive workforce, productive capacity can increase, hence sustaining economic growth in the long term. Thus, carbon taxes are still an appropriate policy to implement given the current global warming situation.
- (Comparison) For certain developed economies:
  - Carbon taxes are often more appropriate due to their relative ease of enforcing and monitoring the carbon tax collection process. Developed economies tend to have a higher level of technology and a more robust taxation system with competent government officials, hence the chances of firms under-declaring or underpaying their carbon taxes are minimised. This is necessary as some developed economies may have high level of national debts due to a lack of fiscal prudence and choose not to further aggravate the debt from such infrastructure spending. Thus, carbon taxation may be a more appropriate tool to attain sustainable growth since it generates the tax revenue which can be used for such green investments, assuming revenue collected far outweighs the administrative and enforcement costs.

For certain developing and emerging economies:

- Government spending on infrastructure is generally more appropriate, assuming the government has sufficient fiscal budget to invest in this. These economies stand to benefit more from the job creation, economic stimulation, and infrastructure development that come with direct investments. Such spending directly addresses likely existing infrastructure deficits and promotes sustainable growth unlike carbon taxation, which also reduces unsustainable practices but conflicts with the attainment of actual growth and price stability in the short run.

### **Concluding paragraph: Reasoned judgement and recommendation forward**

- A combination of both approaches is often ideal. Government spending on green infrastructure lays the foundation for sustainable economic growth, reducing pollution and conserving resources. Carbon taxes complement this by providing ongoing incentives for businesses and consumers to adopt cleaner technologies and sustainable practices, ensuring that economic growth does not come at the expense of future generations' well-being. This balanced strategy ensures both immediate and long-term benefits, contributing to sustainable economic growth while preserving resources and the environment for future generations.

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L3</b>	<ul style="list-style-type: none"> <li>▪ Clear use of theoretical framework and examples</li> <li>▪ Good scope, accuracy and rigour in explanation (rigour: step-by-step explanation)</li> <li>▪ Good organisation of ideas including ability to discriminate between what's relevant and what's not</li> </ul>	<b>8-10</b>

<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Some lapses in economic application and analysis. This can include:               <ul style="list-style-type: none"> <li>▪ Lapses in theory and use of examples</li> <li>▪ Lapses in scope, accuracy and/or rigour in explanation</li> <li>▪ Lapses in organisation</li> </ul> </li> </ul>	<b>5-7</b>
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ No economics framework, journalistic approach throughout,</li> <li>▪ Glaring conceptual errors throughout</li> <li>▪ Big gaps in explanation throughout</li> </ul>	<b>1-4</b>

<b>Evaluation (based on T &amp; AT)</b>		
<b>E3</b>	<ul style="list-style-type: none"> <li>▪ Judgements provided for 2 requirements with explanation and contextualisation <b>PLUS</b> a summative judgement in the concluding paragraph</li> </ul>	<b>5</b>
<b>E2</b>	<ul style="list-style-type: none"> <li>• Judgement provided for 1 requirement with explanation but no contextualisation <b>PLUS</b> judgement provided for 2<sup>nd</sup> requirement with explanation &amp; contextualisation</li> <li>• Comparison between policies</li> </ul>	<b>3-4</b>
<b>E1</b>	<ul style="list-style-type: none"> <li>• Judgement explained but lack contextualisation</li> <li>• <b>OR</b> judgement provided for only 1 requirement with explanation and contextualisation.</li> </ul>	<b>1-2</b>
	<ul style="list-style-type: none"> <li>• Judgement not explained; Pure summary; Repetition; Sitting on the fence; Judgement is not set in the correct context</li> </ul>	<b>0</b>

### *Examiners' comments*

- Majority of the responses were in the L2 band for various reasons such as weaker question interpretation skills and/or content issues.
- Stronger responses analysed the question requirement well. They recognised that sustainable growth comprised of both sustained economic growth without causing harm to future generations in the form of resource depletion or environmental degradation, thus they discussed how both policies affected this goal before evaluating. Weaker responses tended to omit either one aspect when analysing.
  - One prevalent example includes forgetting impact on actual growth/potential growth when analysing how spending on green energy infrastructure affected sustainable growth. Another common example is forgetting that a carbon tax has both short run (SR) and long run (LR) impacts on sustainable growth and only explained either one.
- Another issue with regards to question analysis was observed whereby some responses overanalysed their part (a) response and under analysed their part (b) response. This is because they heavily explained how actual and potential growth could be attained in part (a) without realising that this is needed for part (b) instead. Thus, it is important to read both part questions carefully to plan a better response overall.
- There are some common interpretation and content issues explained below.
  - Since the question's focus is on attaining sustainable growth, both the government spending and carbon tax are in fact supply side policies, the first being interventionist

*in nature and the latter being market oriented. Many responses inaccurately stated that the policies were expansionary/contractionary fiscal policies.*

- *Some responses mistakenly thought that the government spending was on R&D when in fact, the question stated clearly that the spending was on green infrastructure as stated in the preamble.*
- *When a government borrows from banks to finance its infrastructure building, assuming it is running a budget deficit and has no national reserves, the debt it incurs should be defined as an internal debt and not an external debt.*
- *Some responses analysed a small multiplier value as a limitation towards attaining sustainable growth, while this limits the extent of actual growth experienced, this is a relatively weaker point as compared to other points that focused on why sustainability outcomes may be limited.*
- *Some responses mistook a carbon tax as a corporate income tax instead of an indirect tax on carbon emissions that raises the cost of production for firms. It is important to note that a carbon tax does not affect post-tax profits directly. Other responses mistook carbon as a good instead of a by-product from the production of goods and services.*
- *One of the common limitations for carbon tax was explaining how investment levels may fall since firms now have less profits to engage in R&D after paying carbon taxes. The responses then linked to how AD falls and shift left, leading to a fall in actual growth. This is inaccurate as the reason for this is due to the rise in COP which led to a fall in AS and hence an upward movement along AD which resulted in higher GPL and a fall in RNY.*
- *For evaluation, given that this question was phrased as an explicit comparative policy question since it asked for which policy is more appropriate in attaining sustainable growth, it is imperative to compare the policies by using the same criterion(s) before justifying why a combination of these two policies is still needed. One good example was how a carbon tax may generate tax revenue to spend on sustainability measures whereas government spending drains fiscal budget/national reserves. Another good example was given the urgency of combating climate change, carbon tax which works more immediately in the short run is preferred over government spending on green infrastructure which requires more time to construct fully.*

6 (a) Explain why there is a trend towards deglobalisation in recent years. [10]

- (b) Singapore has an open economy which is driven by trade in goods and services. Over the years, it has forged an extensive network of 27 free trade agreements (FTA). With the FTAs, a myriad of benefits can be enjoyed, including the removal of tariffs and non-tariff barriers, as well as making investment between countries easier,

Source: Ministry of Trade and Industry

Discuss whether Singapore's approach to sign more FTAs or increase labour productivity is the better approach to deal with the negative effects arising from deglobalisation.

[15]

**(a) Explain why there is a trend towards deglobalisation in recent years. [10]**

*Thinking process to answering question:*

- Question is asking for reasons leading to deglobalisation
  - What is deglobalisation?
  - What causes deglobalisation?
    - costs of globalisation with regards to economic outcomes?
    - benefits of deglobalisation with regards to economic outcomes?
    - What if globalisation results in costs? how would that justify deglobalisation?
      - Need to link reasons back to why deglobalisation is necessary to answer question well.
- Should R1 & R2 cover different types of flows for diversity in scope under context of deglobalisation?

**Introduction:**

Deglobalisation is the decrease economic interconnectedness between countries in terms of a reduction in volume and variety of cross-border transactions, in goods and services, in flows of capital, and in labour migration.

**R1: Explain 1 reason why there is a trend towards deglobalisation in recent years**

Costs of globalisation:

1. Vulnerability/susceptibility to global supply chains shocks
2. Vulnerability to changes in economic conditions of trade partners

1. COVID-19 exposed vulnerabilities in global supply chains, leading firms and governments to rethink the efficiency of relying on distant suppliers. The pandemic caused disruptions, shortages, and delays in shipment of raw materials and final goods and services.

- Such disruptions meant that supplies of raw materials may become unstable, and prices of factor inputs hence can become unpredictable. Increase cost of production significantly, leading to high imported-push inflation → *link to how cost push inflation may be undesirable to country*
  - may lead to higher cost of living, reduction in real incomes and lower purchasing power, especially for the low-income households.

2. Increased exposure to trade with other countries meant that economic recessions of trade partners can have a large impact on the domestic economy, especially if the demand for exports are highly income elastic.

For example, when China's economy slows down and income of Chinese consumers fall,

- demand for exports of advanced manufactured products which are income elastic in demand will fall by more than proportionate. Leading to a significant fall in economic growth of an export-reliant country, assuming China is an important/major export market → *link to how this may be undesirable to country*
  - lower material standard of living, given fall in purchasing power to consume goods and services.

Implication of deglobalisation: *Some examples for consideration (no need to write all)*

- to cushion the impact of supply-side disruptions and improve production resilience, countries would be encouraged to shift production closer towards home

- countries with a larger domestic market are also more inclined to cater their goods and services to the domestic market and sell more goods and services domestically rather than relying on foreign markets.
  - Make a point to show intent of this part of the analysis:*
  - Hence, countries are inclined to reduce their amount of cross border trade in goods and services

**R2: Explain another reason why there is a trend towards deglobalisation in recent years**  
 (Note: if R1 is on trade flow, then R2 should capture some aspect of capital or labour flow)

Explain how Technological Advancements may encourage deglobalisation

- Spread of technological advancements around the world reduces the need for trade as technology can potentially equalise comparative advantage in each country
- The theory of comparative advantage states that when there are differences in the opportunity costs of producing specific goods among countries, all countries will benefit from specialising and exporting products in which they are relatively more efficient in producing, and importing products in which they are relatively less efficient in producing.
  - incentive to trade decreases if the country can gain comparative advantage and produce the good cheaper domestically via adoption of robotics or advanced manufacturing technologies (*trade flow*)
  - automation/ new technologies allow for smaller factories and thus reduces the reliance on foreign labour needed for production
    - making localised production possible in place of offshoring production to low-wage countries (*capital flow*). e.g. Adidas's high-tech factory uses automation and 3D printing to bring production of customised sneakers back home rather than locating abroad

Implication of deglobalisation:

- Countries are now more able and inclined to producing goods and services locally which increases their resilience to supply-side disruptions.
  - greater localised production/ adoption of labour-saving technology has led to reduction in the volume of cross border trade in goods and services, reducing their dependence on foreign labour for production of goods and services.

**Mark Scheme:**

<b><i>Knowledge, Application, Understanding and Analysis</i></b>		
L1	<ul style="list-style-type: none"> <li><i>For an answer that shows vague knowledge of the reasons for deglobalisation</i></li> <li><i>Significant conceptual gaps in explanation</i></li> <li><i>Descriptive explanation of answers</i></li> </ul>	1-4
L2	<ul style="list-style-type: none"> <li><i>For an answer with 1 well-explained reason or 2 reasons for deglobalisation but with some gaps in explanation.</i></li> <li><i>Scope of analysis lacking</i></li> <li><i>Use of relevant examples pertaining to both reasons</i></li> </ul>	5-7
L3	<i>A well-developed answer that demonstrates:</i> <ul style="list-style-type: none"> <li><i>Well-developed and rigorous analysis for 2 reasons for deglobalisation</i></li> <li><i>Use of relevant examples pertaining to both reasons with scope in types of flow</i></li> </ul>	8-10

*Examiners' Comments:*

- Many students wrote extensively on how tariffs cause deglobalisation. This is not answering the question as the question is about **why** deglobalisation occurs, **not how** deglobalisation happens.
- Majority of answers focused only on trade flows which resulted in a lack of scope in terms of coverage for this question.
- Many students wrote more than 2 reasons which resulted in under-developed analysis for each reason. In cases where 2 reasons are sufficient, students should spend time developing each reason well. Hence it is important that the choice for each reason should be such that there is enough scope for elaboration. This is a better strategy than attempting to write many under-developed arguments.
- Many answers showed a lack of planning and thinking about the question requirements which led to spamming of irrelevant content, poor quality answers and messy organisation of ideas. These coupled with illegible handwriting affected the flow of essay, making reading and marking extremely difficult. This in turn affected the marks awarded to this group of students. Students **MUST** start cultivating good habit in spending time to think and plan for the question before they start writing. It is such a waste of all the content learnt.

b) Singapore has an open economy which is driven by trade in goods and services. Over the years, it has forged an extensive network of 27 free trade agreements (FTA). With the FTAs, a myriad of benefits can be enjoyed, including the removal of tariffs and non-tariff barriers, as well as making investment between countries easier,

Source: Ministry of Trade and Industry

Discuss whether Singapore's approach to sign more FTAs or increase labour productivity is the better approach to deal with the negative effects arising from deglobalisation. [15]

Thinking process to answering question:

- Need to briefly explain the negative effects with respect to economic goals/ outcomes from deglobalisation
  - Discussion of policies should link back to how the negative effects from deglobalisation may be addressed or may not be addressed.
- "Better" implies the need to show explicit comparison between the 2 policies. This comparison must be given more weightage in evaluation given the question requirement.
  - i.e. weigh the merits and demerits of FTA against that of increasing labour productivity in dealing with the negative effects from deglobalisation
    - Comparison should be done based on yardsticks: Effectiveness, Desirability, Feasibility, Sustainability?

**Introduction: Briefly explain the negative effects arising from deglobalisation**

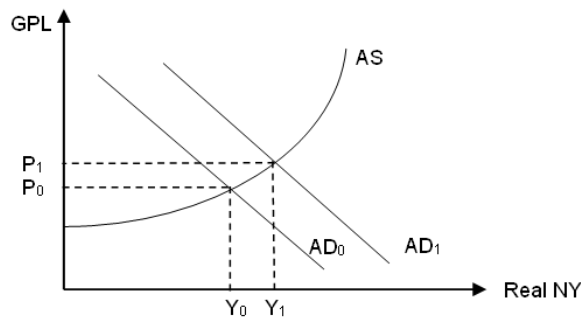
Deglobalisation could lead to a fall in exports, FDI and foreign labour flows between countries. This could potentially lead to fall in AD (via fall in I and X) and hence a fall in actual growth and increase cyclical unemployment. Moreover, there could be an increase in cost of production due to more expensive imported raw materials (fall in global supply) as well as fall in foreign labour inflow. This can lead to cost-push inflation and fall in actual economic growth.

**R1: Discuss whether signing more FTAs helps to deal with the negative effects arising from deglobalisation**



### Thesis: Signing more FTAs & its link to reduce negative effects

- By signing more Free Trade Agreements (FTAs) with more countries, Singapore can diversify her export partners and sell her exports with minimal trade barriers. This expansion of firms' export markets leads to increases of the net exports component of AD. When AD increases ( $AD_0$  to  $AD_1$ ), an increase in exports will lead to a more than proportionate increase (k process) in the equilibrium level of real national income from  $Y_0$  to  $Y_1$ .
- Explanation of k process:
  - *Principle of k*: one man's spending is another man's income and more income leads to more spending and the cycle repeats.
  - *Explain the rounds of induced consumption*: Firms step up production by hiring more FOPs and the derived demand for labour hence increase. When households' income increase, they will increase induced consumption on goods and services like food and clothing. This process of increase in income and induced consumption will repeat over many rounds.
  - *End of k*: The presence of withdrawals (savings, taxes and imports) causes subsequent rounds of additional rise in spending and income to be smaller than the previous rounds. Eventually the process ends when the cumulative withdrawals equal the initial increase in AD.



Link back to answer the question on how signing FTAs addresses the negative deglobalisation effects:

- FTAs help to stimulate actual economic growth in the economy. As output increases for these firms, jobs are created. This leads to lower cyclical unemployment, given rise in derived demand for labour.
- Signing more FTAs help to cushion the negative impact of the fall in economic growth and higher cyclical unemployment. (*making explicit link to how negative effects are addressed*)
- In addition, by signing more FTAs with other countries supplying imported raw materials to Singapore, Singapore can cushion the impact of rising raw material cost from its existing suppliers through greater diversification of import sources
  - helps to lower the rise in cost of production and dampen the fall in AS, thus reducing the impact of imported inflation from deglobalisation

### Anti-thesis: Limitations of signing more FTAs

Limitations should show explicit link to outcomes - in terms of limited effectiveness of policy in addressing the negative effects from deglobalization. Desirability of policy may also be considered.

- Ineffective: While FTAs with other countries can help domestic firms to export more to overseas market, demand for Singapore exports is ultimately determined by various factors such as economic performance and taste and preference of trade partners.
  - If the economic performance of trade partners is weak, assuming Singapore's exports are normal goods, demand for Singapore's exports will fall.
  - Moreover, if foreign consumers prefer domestic goods or goods produced by other importing countries, Singapore's exports might be deemed as a weaker substitute compared to theirs.
  - Thus, signing more FTAs does not necessarily guarantee a higher demand of Singapore exports. Limited in reducing the cost of deglobalisation (*show explicit link to outcome in terms of limited effectiveness of policy*).

### EV1: Evaluation of signing more FTAs

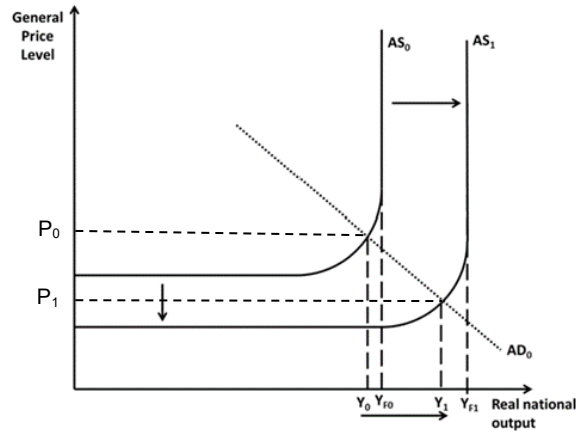
*Strategy: Weighing of T & AT arguments with contextualisation*

- In the backdrop of an inward-looking attitude of the major trading partners of Singapore such as the USA and Europe, the direction of America's foreign and trade policies towards greater protectionism will be problematic for Singapore, given that our economy relies heavily on global trade. Singapore instead has to look towards tapping the immense market potential of her trading partners within the region such as India and China, while managing the negative aspects of faltering trade from her more traditional partners.
- Signing more FTAs with other countries would overall be a good approach in view of this to mitigate the negative effects of deglobalisation sentiments amongst some of our traditional trade partners. (*taking a stand in your evaluation*)

### R2: Discuss whether increase labour productivity helps to deal with the negative effects arising from deglobalisation

**Thesis: Increase labour productivity via interventionist supply-side policies (Education and Training) – Link to reduce costs of deglobalisation**

- Education and training can help to improve the skills and quality of the work force, benefitting society as a whole. Subsidies are provided to encourage workers to attend courses to upgrade or pick up new skills under the SkillsFuture programme.
- For example, workers can attend heavily subsidised IT training programmes to help them pick up basic IT and computing skills.
  - This allows each worker to increase his output level when they are able to harness technology, leading to increase in labour productivity.
  - With the ability to work with machines, workers **become more skilled and efficient in their assigned tasks**. As such, **output per unit of input** increases, leading to higher labour productivity.
  - **As quality of workforce improves, the productive capacity of the economy will expand**, increasing AS, shifting the **AS curve to the right**. This leads to potential growth ( $Y_{F0}$  to  $Y_{F1}$ ) as the **maximum output that the economy can produce** has increased.
  - If **labour productivity growth outpaces wage growth**, **unit labour cost is lowered** as well, leading to downward shift of AS curve. Couple with the above, **AS curve shifts downward and outward to AS1**.



#### Link explanation to how costs of deglobalisation can be reduced

- The excess supply from the increase in AS leads to a downward pressure and hence fall in GPL from  $P_0$  to  $P_1$ .
  - This cushions the cost-push inflation arising from higher prices of factor inputs from deglobalisation. *(making the link back to answering the question)*
- The fall in GPL leads to rise in quantity of goods & services demanded given the wealth, interest rate and international substitution effect, leading to an increase in RNY from  $Y_0$  to  $Y_1$ .
  - helps to dampen the fall in actual growth from deglobalisation. *(making the link back to answering the question)*

#### **Anti-thesis: Limitations of increasing labour productivity via Education and Training**

##### *Making explicit link to effectiveness of policy*

- Effectiveness of skills upgrading largely depends on receptivity of workers which is dependent on a combination of factors.
  - For instance, the lack of receptivity and motivation may affect learning of workers and hence deter them from actively participating in retraining and skills upgrading programmes.
  - Older workers might also have less incentive to retrain because they have fewer working years left.
  - Retraining entails an opportunity cost - low skilled employees may not see the need for training if they deem that their jobs do not require higher skills and if they perceive that there is little opportunity for progression.
    - such schemes may not necessarily achieve the intended effects of increasing the skills levels of such workers
    - limited effectiveness in mitigating the increase in cost of production and fall in AS from deglobalisation.

#### **EV2: Comparison between signing FTA & increasing labour productivity**

- *Providing context:* Given Singapore's small and open economy with an ageing population and lack of natural resources, it is paramount for Singapore to continue to push for increase signing of FTAs so that Singapore can continue to diversify its import sources and export markets.

- *Comparison by Time Period:* Given the lack of factor endowments, it is critical to seek like-minded countries of shared interest to sign FTAs so as to broaden our sources to be less susceptible to shocks by any one source.
  - In the short run, signing more FTA is a better approach as it can deal with the cost of deglobalisation in fall in economic growth & cost-push inflation compared to increasing labour productivity.
    - Skills training and upgrading is long term in nature as it takes time to acquire new skills and to be adept at them. Hence not as effective in reducing costs of deglobalisation in short run compared to signing FTAs.
  - In the long run, increasing labour productivity may be a better approach in dealing with the negative effects arising from deglobalisation, especially in terms of ensuring competitiveness of Singapore's exports and also to attract FDIs.
    - Without the increase in labour productivity, signing more FTAs will not necessarily guarantee an increase in economic growth.
- *Consideration of which policy is a better approach can be considered in terms of fiscal sustainability:*
  - Should the Singapore government lack the financial ability to provide substantial subsidies for training and retraining, signing more FTAs may be financially more viable and hence the better approach in the short run.
    - Given Singapore government's fiscal prudence all this while and that labour is our precious resource, government will ensure that substantial fundings in training and retraining are budgeted for.

**EV3: Taking an overall stand and making suggestion based on EV1 & EV2**

Overall, it is necessary for Singapore government to adopt both policies to deal with the negative effects of deglobalisation as both policies have their merits and demerits and can complement each other well in both short run and long run.

**Mark Scheme:**

<b>Level</b>	<b>Knowledge, Application/Understanding and Analysis</b>	
<b>L1</b>	<ul style="list-style-type: none"> <li>• Vague knowledge of how signing more FTAs and or increase labour productivity works to deal with negative effects of deglobalisation</li> <li>• No use of relevant economic framework or analysis applied</li> <li>• No reference to the negative effects of deglobalisation</li> <li>• Critical errors in analyses of intervention</li> <li>• Descriptive explanation of answers</li> </ul>	<b>1 – 4</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>• Some economic analysis of how signing more FTAs and or increase labour productivity works to deal with negative effects of deglobalisation</li> <li>• Some use of relevant framework &amp; examples in the analyses of government interventions to information failures</li> <li>• Some gaps or lapses in analyses of interventions</li> </ul>	<b>5 – 7</b>

	<ul style="list-style-type: none"> <li>Some discussion of effectiveness of interventions in linking to reducing the negative effects of deglobalisation</li> </ul>	
L3	<ul style="list-style-type: none"> <li>Well explained analysis of how signing more FTAs and or increase labour productivity works to deal with negative effects of deglobalisation</li> <li>Detailed analysis and discussion of the respective government policies, including policy limitations</li> <li>Strong and clear links to reducing the negative effects of deglobalisation</li> <li>Good use of examples applied throughout essay where possible</li> <li>Reference and unpack the negative effects of deglobalisation</li> </ul>	8 – 10
<b>Evaluation</b>		
E1	<ul style="list-style-type: none"> <li>Unsupported judgment about which policy approach is better to deal with negative effects of deglobalisation</li> <li>Superficial conclusion/ assertion</li> </ul>	1
E2	<ul style="list-style-type: none"> <li>Substantiated judgment, recommendation supported by reasons/ economic analysis</li> <li>Supported judgement about which policy approach is better showing some awareness of criteria of comparison</li> <li>Some contextualisation shown</li> </ul>	2 – 3
E3	<ul style="list-style-type: none"> <li>Insightful and perceptive evaluation and recommendation well discussed and evaluated using economic analysis and good application to the context</li> <li>Supported judgement about which policy approach is better using clear criteria of comparison</li> </ul>	4 – 5

**Examiners' Comments:**

- There were students whose organisation of ideas was poorly done. Students who failed to plan were regurgitating content that were usually not relevant nor focused in answering the questions.
- Student who did well displayed the ability in organising ideas, in discriminating between relevant and irrelevant content. These answers were well focused on the question with clear written analysis supported by use of diagrams.
- Many students wrote extensively (almost 1 full page) on how the negative effects of deglobalisation came about. This took away time from the elaboration of policies which should be the focus of this question. Many students thus ended up with incomplete or descriptive analysis without economics rigor for the elaboration of policies.
- There were also many who did not identify the negative effects of deglobalisation and went straight to explanation of policies. Such answers were weak as they were not able to link back to answering the question with regards to intent of the policies.
- There were many students who wrote overlapping analysis for both policies. These students wrote extensively about the AS effects from signing FTAs and found themselves needing to repeat the AS effects from increasing labour productivity. The lack of time led to under-developed AS analysis on increasing labour productivity which is where the focus should be.
- The elaboration of increasing labour productivity was often lacking in rigour.

- *Lack of use of examples on how SG govt can increase labour productivity*
- *Poor explanation on how the rise in labour productivity in turn affects productive capacity and cost of production with reference to ADAS diagram*
- *Many students make sweeping and offensive statements about how the limited effectiveness of training and retraining is a result of old people suffering from brain plasticity and that they are not receptive to learning. It is the attitude towards learning rather than age that affects receptiveness. This can be present in different segments of society regardless of age.*
- *Many also wrote about how increasing labour productivity addresses structural unemployment without explaining how structural unemployment arises due to deglobalisation. This results in an analysis that is not focused on answering the question.*
- *Many students did not compare between the 2 policies in their evaluation and for those who did, many just gave generic and rehearsed comparisons which lack awareness of the global and Singapore context.*

\*\*\*\*\*END\*\*\*\*\*

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