

- 1 A severe shortage of vets has made it challenging for clinics to hire and retain talent, despite offering significantly higher salaries. It typically takes around 8 years to become a vet. To attract new blood, clinics are working towards offering better work-life balance and mentorship opportunities. Since the COVID-19 pandemic, pet ownership has risen by about 30 per cent despite calls for more responsible pet ownership.

*Adapted from CNA, 22 January 2024*

- (a) Explain why a severe shortage of vets still exists despite clinics offering significantly higher salaries. [10]
- (b) Discuss possible strategies to reduce the severe shortage of vets. [15]
- 2 GrabFood leads the online food delivery industry with a 56% market share, followed by Foodpanda (35%) and Deliveroo (8%). Rising labour and equipment costs, along with consumers opting for cheaper dine-in options offered at hawker centres and food courts, have pressured profit margins of these firms.

*Channel News Asia 17 April 2023*

- (a) Explain how barriers to entry determine the level of competition in the online food delivery industry and lead to high and stable prices for delivery services. [10]
- (b) In the light of rising costs and change in consumer behaviour, discuss the extent to which a firm can survive in the online food delivery industry in the long run. [15]
- 3 (a) Explain the economic rationale on why some countries provide subsidies while others tax the use of petroleum. [10]
- (b) In view of efficiency and equity, discuss whether government intervention in the market for petroleum does more harm than good. [15]

- 4 (a) Explain the likely macroeconomic and microeconomic consequences of high unemployment. [10]
- (b) Discuss the extent to which potential conflicts between macroeconomic objectives will influence a government's policy choice to maintain a low rate of unemployment in an economy. [15]
- 5 Countries are finding it increasingly difficult to achieve sustainable and inclusive growth in a post-pandemic world with challenges of slow global growth, climate change, supply-chain and technological disruptions.
- (a) Explain why countries find it increasingly difficult to achieve a sustainable and inclusive economic growth. [10]
- (b) In view of the challenges, discuss the extent to which the Singapore government should increase real GDP growth rates to better achieve sustainable and inclusive economic growth. [15]
- 6 In 2022, the U.S. trade deficit was US\$1.18 trillion. Further data reveals that U.S. trade deficit with China was US\$367 billion while U.S. foreign direct investment (FOI) into China was US\$126 billion. Immigrants contribute a large portion of the growth in the U.S. labour force and help to ease labour market tightness.
- (a) Explain the causes of a large and persistent balance of trade deficit. [10]
- (b) Discuss the impacts of globalisation on the standard of living in an economy. [15]



**St Andrew's Junior College**

**JC2 Preliminary Examinations**

**H2 Economics – Paper 2 (9570/02)**

**Suggested Answers**

- 1 A severe shortage of vets has made it challenging for clinics to hire and retain talent, despite offering significantly higher salaries. It typically takes around 8 years to become a vet. To attract new blood, clinics are working towards offering better work-life balance and mentorship opportunities. Since the COVID-19 pandemic, pet ownership has risen by about 30 per cent despite calls for more responsible pet ownership.

*Adapted from CNA, 22 January 2024*

- (a) Explain why a severe shortage of vets still exists despite clinics offering significantly higher salaries. [10]
- (b) Discuss possible strategies to reduce the severe shortage of vets. [15]

### Part (a) Suggested answers

#### Introduction:

- Prices are determined by the interaction of demand and supply forces. The price mechanism helps to achieve allocative efficiency by adjusting to resolve disequilibrium (either the case of shortage or surplus).
- Shortages arise when the quantity demanded for a good or service exceeds the quantity supplied for it. When faced with a shortage, the price mechanism would adjust upwards to resolve the shortage.
- However, as given in the preamble, despite clinics offering significantly higher salaries, the severe shortage of vets still exists.

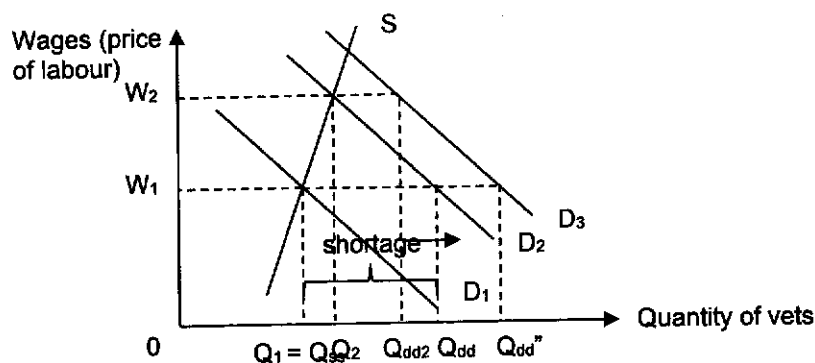
#### **R1: Explain how the above factors have caused a shortage of vets in Singapore**

One reason why a shortage may still persist in spite of a rise in salaries for vets is that the salary increase may be insufficient to attain market equilibrium when faced with an increase in demand for vets.

Due to a rise in pet ownership (change in tastes and preferences) → increase in demand for veterinary services → therefore an increase in derived demand for vets.

Due to the long gestation period + no vet courses available in Singapore + significant costs of pursuing a vet degree → low supply of vets

An increase in demand would cause the demand for vets to increase from  $D_1$  to  $D_2$ . Together with a low supply of vets, this would result in a shortage of vets at the original wage,  $W_1$ , as quantity demanded exceeds quantity supplied of vets, causing an upward pressure on wages.



**Figure 1: Impact of low supply with a rise in demand on a significant rise in wages of vets**

When faced with the upward pressure on wages, the quantity supplied of vets would increase while the quantity demanded for vets would decrease. This will carry on until the shortage is cleared (where quantity demanded = quantity supplied)- at the point where quantity now increases from  $Q_1$  to  $Q_2$  while wages increase from  $W_1$  to  $W_2$ . In theory, this is what would have happened to clear the shortage that originally exists.

However, as explained, the increase in salary may have been insufficient to clear the shortage and thus causing the shortage to still exist despite the increase in salary.

One possible explanation for this is that while salary has increased, the increase in demand for vet services due to the increase in pet ownership increased by a larger extent ( $D_1$  increased to  $D_3$  instead of  $D_2$ ). As a result of the larger than expected increase in demand, the shortage arising would also be larger ( $Q_{dd} - Q_{ss}$ ). As such, even though salary has increased to  $W_2$ , it may not have increased sufficiently to clear the shortage ( $Q_{dd2} - Q_{ss}$ ). This thus explains why the shortage still exists despite the rise in salaries.

**R2: Explain how PED & PES may also contribute to the shortage to persist despite higher salaries.**

1. Demand for vets is price inelastic  $\rightarrow$  high degree of necessity for pet-owners to maintain the health and well-being of their beloved pets.
2. Supply of vets is price inelastic  $\rightarrow$  long gestation  $\rightarrow$  lack of spare capacity of vets

Thus, when faced with the severe shortage of vets at  $W_1$ , while it will cause an upward pressure on wages of vets. As supply of vets is price inelastic, the increase in wages of vets will only cause a less than proportionate decrease in quantity demanded and a less than proportionate increase in quantity supplied of vet due to the low PED & PES values ( $PED < 1$  &  $PES < 1$ ). Hence, a significant rise in wages of vets to  $W_2$  in Singapore is required to clear the shortage of vets in the market. It is likely that due to this, despite the salary increasing, the shortage of vets still persist due to the low PED & PES values.

**Conclusion:**

Therefore, while the price mechanism seeks to resolve the shortage arising from the change in demand for vet services faced, however, due to the larger than expected increase in demand, the shortage still persisted. The low PED & PES values further exacerbate the problem leading to the shortage existing despite the increase in salaries.

**Marking scheme**

Level	Descriptors	Marks
L3	For an answer that is well-developed with the relevant rigour to demonstrate how a shortage may still exists despite the increase in salaries from the context given and how elasticity concepts impacted the extent of increase in wages of vets and the ability to clear the shortage.	8-10
L2	For an answer that show some degree of application of either demand and supply analysis to show a situation of a shortage or how elasticity concepts affected the extent of increase in wages of vets.	5-7
L1	For an answer that demonstrates superficial knowledge of demand and supply analysis, without applying to the context of a shortage or a significant increase in wages.	1-4

- 1 (b) Discuss possible strategies to reduce the severe shortage of vets. [15]

### Suggested Part (b) answers

#### Introduction:

- Given the shortage in the labour market for vets, veterinary clinics may consider some strategies that could influence the demand and/ or supply of vets, thereby eliminating or at least, relieving the extent of the shortage, and reducing the extent of the rise in wages of vets.

#### R1: Supply-related strategies

- Offer higher salaries
  - In view of the significant costs in pursuing studies in this field, better remuneration may be the nudge that potential vet students may need to increase the net benefit of becoming a vet → increase in quantity supplied of vets

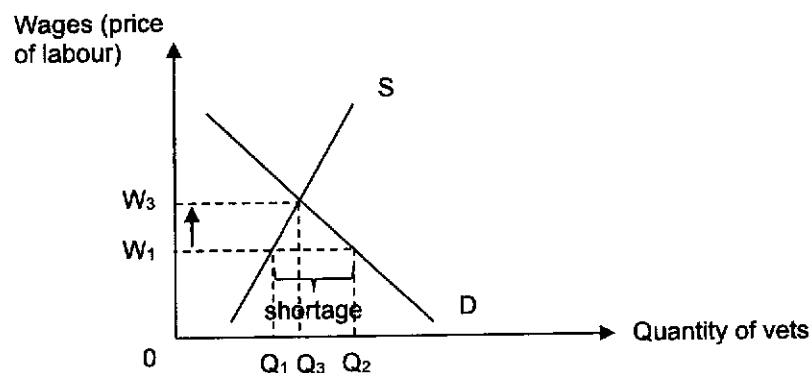


Figure 2: Impact of offering higher salaries in the market for vets

- An increase in wages from  $W_1$  to  $W_3$  would increase quantity supplied and reduce quantity demanded for vets, thus, eliminating the shortage of vets.
  - Alternatively, students may also argue that due to the severe shortage mentioned in the preamble, the increase in wages may only reduce the shortage as the extent of increase in wages was insufficient to eliminate the shortage in the market for vets.*
- Better work-life balance and mentorship opportunities
    - Better work-life balance → includes things like reducing after-hours work and providing adequate breaks during work hours → a reduced and less stressful workload may attract more talent → increase in supply of vets
    - Mentorship opportunities → letting fresh graduates shadow experienced vets in general practice first to help them gain experience in areas such as communication with clients and how to do certain types of surgeries → less daunting start to a career in veterinary services → may increase in supply of vets

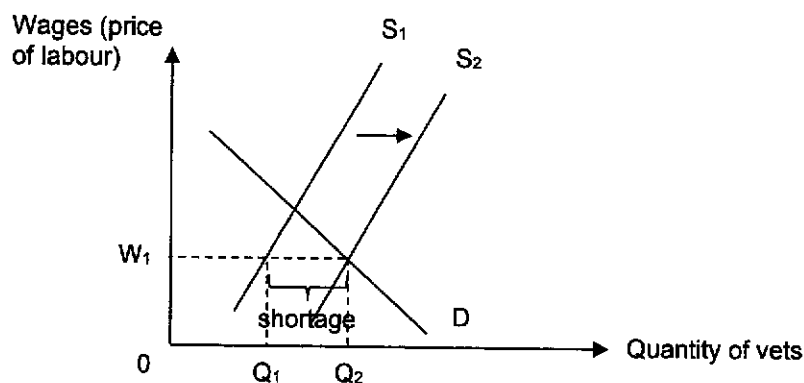


Figure 3: Impact of having better work-life balance and mentorship opportunities in the market for vets

At the original wage,  $W_1$ , there is a shortage of  $Q_1Q_2$  units of vets. The above supply-related strategies employed by veterinary clinics would increase supply of vets from  $S_1$  to  $S_2$ , thereby eliminating the shortage of vets.

*Alternatively, students may also argue that due to the severe shortage mentioned in the preamble, the increase in supply may only reduce the shortage as the extent of increase in supply was insufficient to eliminate the shortage in the market for vets.*

### 3. Increasing PES e.g., online clinics for pets

- E.g., Pawlyclinic → a one-stop digital clinic in Singapore for online vet services, from diagnostics and treatment to medicine delivery services for pets → allows vets to reach more clients → increase in PES of veterinary services → more able meet the rising demand for veterinary services and reducing the demand for vets

### R2: Demand-related strategies

4. Increased advertising on responsible pet ownership → helps to reduce demand for veterinary services → decrease in derived demand for vets

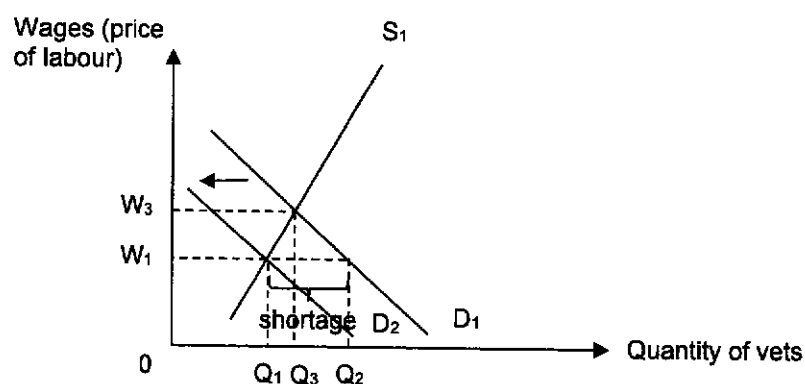


Figure 4: Impact of demand-related strategies veterinary clinics may undertake in the market for vets

- At the original wage,  $W_1$ , there is a shortage of  $Q_1 - Q_2$  units of vets. The above demand-related strategy employed by veterinary clinics would decrease demand of vets from  $D_1$  to  $D_2$ , thereby eliminating the shortage of vets.

Thus, both demand-related and supply-related strategies suggested above may help to reduce the shortage of vets in the market.

#### Evaluation

- While these strategies above are designed to reduce the shortage of vets and a significant rise in wages of vets, they may also have unintended consequences on the service market. For example, higher salaries  $\rightarrow$  higher cost of production for veterinary clinics  $\rightarrow$  decrease in supply of veterinary services  $\rightarrow$  higher equilibrium price and lower equilibrium quantity of veterinary services

#### Marking scheme

Level	Descriptors	Marks
L3	For an answer that is well-developed that demonstrates relevant strategies that can help reduce the shortage and wages of vets, together with a rigorous explanation on how it affects the service market.	8-10
L2	For a well-developed response that covers only one requirement, or an under-developed response of both requirements.	5-7
L1	For a descriptive response which contains limited application of the relevant economic concepts in addressing the question.	1-4
<b>Evaluation</b>		
E3	For a well-developed evaluative statement for two requirements.	4-5
E2	For a well-explained evaluative statement for one requirement.	2-3
E1	For an unexplained evaluative statement for one requirement.	1



- 2 GrabFood leads the online food delivery industry with a 56% market share, followed by Foodpanda (35%) and Deliveroo (8%). Rising labour and equipment costs, along with consumers opting for cheaper dine-in options offered at hawker centres and food courts, have pressured profit margins of these firms.

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- (a) Explain how barriers to entry determine the level of competition in the online food delivery industry and lead to high and stable prices for delivery services. [10]
- (b) In the light of rising costs and change in consumer behaviour, discuss the extent to which a firm can survive in the online food delivery industry in the long run. [15]

### **Part (a) Suggested answer**

#### **Introduction – Outline the key conditions for low level of competition in online food delivery industry**

Define barriers to entry – any impediment that prevents new firms from competing on an equal basis with existing firms in an industry.

Barriers to entry can be classified into structural/natural barriers to entry and artificial barriers to entry.

- o Examples structural/natural BTE includes substantial economies of scale and high overhead cost/capital outlay.
- o Examples of artificial BTE includes strategic such as advertising and limit pricing, while statutory BTE includes patents and licenses.

Barriers to entry determines the level of competition faced by firms in an industry, which influences their price setting ability in different industries. High BTE lead to monopoly and oligopolistic competition.

#### **Requirement 1: Explain how the existence of high BTE and exit result in high market concentration ratio within online food delivery industry**

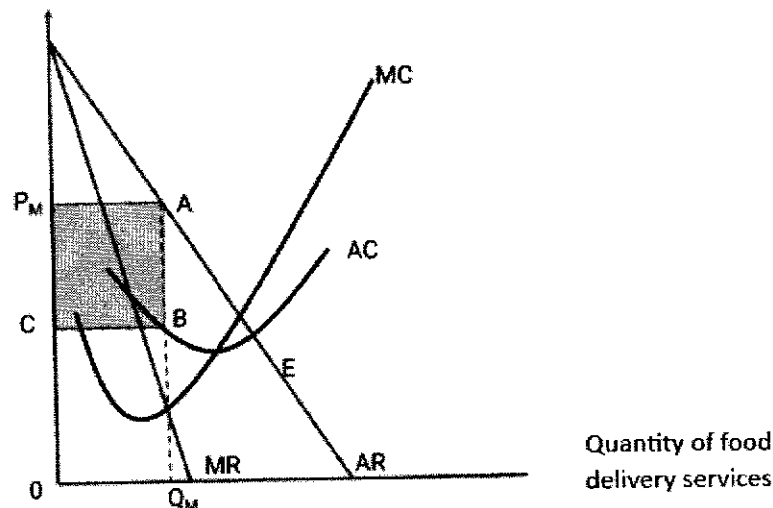
Structural/ natural BTE can arise from differences in production and costs between incumbent and the potential entrant. In the online food delivery industry, which consists of Foodpanda, Grab and Deliveroo huge initial capital outlay is required to set up the firm as these firms need to develop a delivery app and platform by investing in expensive technology. Substantial internal economies of scale enjoyed by these firms also allow their long run average cost to fall over a very large output. High structural BTE deters entry of new firms as they may not have financial resources to enter this industry. New firms are also deterred from entering as they incur a significantly higher unit cost of operation given the lack of economies of scale compared to incumbents since new firms produce on a smaller scale of production upon entry.

Strategic BTE includes intensive and large-scale marketing campaigns adopted by food delivery firms to deepen brand loyalty by creating disincentives for consumers to new ride-hailing operators. For example, customers who regularly use delivery services may sign up for subscription plans with Grab (Grab Unlimited) and Foodpanda or accumulate points for using their services that can be redeemed for rewards such as free delivery, vouchers, and other gifts. As such, many customers are less likely to switch to new operators for fear of losing out on the rewards that could be redeemed using their accumulated points. New potential entrants will thus be deterred from entering if they are unable to incentivize users to switch to their services.

In the online food delivery industry, these high BTE result in a few large firms such as GrabFood, Foodpanda and Deliveroo dominating the industry, each holding a significant share of the market. Market concentration ratio tends to be significantly high in the online food delivery industry with the top 3 firms hold 99% of the market share.

**Requirement 2: Explain how BTE affects ability to set high prices above marginal cost by firms in online food delivery industry**

Price/Revenue/Cost



This low level of competition in the online food delivery industry meant that the dominant firm has a relatively less price elastic downward sloping firm demand curve due to the lack of close substitutes. This means that these firms have the ability to restrict output to set a very high price.

A profit maximizing online delivery firm typically sets their profit maximizing quantity at  $MR=MC$ . At  $MR > MC$ , the last unit sold adds on more to revenue earned by the firm than to costs incurred by the firm. Hence, a rational profit-maximising firm continues to sell more so as to gain additional profit margin. Similarly, at  $MR < MC$ , the last unit sold adds on less to revenue earned by the firm than to costs incurred by the firm. Hence, a rational profit-maximising firm cuts back on output so as to increase profit. The firm then sets the profit maximizing price which is determined by its average revenue at the profit maximizing output.

The price setting ability of oligopolists such as Grab operating in the online food delivery industry tends to be significantly high given the less price elastic demand due to low degree of substitutability.

**Requirement 2: Explain how BTE lead to stable prices being set by firms in online food delivery industry.**

Due to mutual interdependence, online food delivery firm such as Foodpanda faces a kinked demand curve, which is explained as follows. In this model, rival firms will match each other's price reduction but not price increase. On one hand, if Foodpanda raises its price above existing market price, it will experience a fall in its revenue as quantity demanded falls more than proportionately. This results in a more price elastic demand curve above the existing market price. On the other hand, if Foodpanda lowers its price below the existing market

price, it will experience a fall in its revenue as quantity demanded rises less than proportionately. This results in a more price inelastic demand below the existing market price.

Therefore, in an oligopolistic market structure, on top of being able to set higher prices at the profit maximising output level, online food delivery firms face price rigidity due to a kinked demand curve. They are mutual interdependent and will monitor rival pricing decisions and react accordingly.

Levels	Knowledge, Application/Understanding and Analysis
L3 (8-10)	Thorough knowledge of the facts and theory with an excellent ability to describe & explain in a precise, logical and reasoned manner. <b>Two requirements</b> of the questions focusing on the level of <b>competition arising from BTEs and how this level of competition leads to high and stable prices in the online food delivery industry</b> . This is done and supported by an <b>appropriate tool of analysis</b> . Able to apply to the context with appropriate examples.
L2 (5-7)	Accurate although undeveloped explanation of the <b>two requirements</b> of the questions- <b>the level of competition arising from BTEs and how this level of competition leads to high and stable prices in the online food delivery industry</b> . There should be evidence of an ability to identify facts, some ability in applying the <b>appropriate tool of analysis</b> in explanation.
L1 (1-4)	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident. Where the answer is mostly irrelevant and only contain a few valid points made incidentally in an irrelevant context.

- 2 (b) In the light of rising costs and change in consumer behaviour, discuss the extent to which a firm can survive in the online food delivery industry in the long run. [15]

### Part (b) Suggested answers

#### Introduction:

The firms in the online food delivery industry face rising variable costs in terms of labour cost and rising fixed costs in terms of equipment cost.

At the same time, there is likely to be a decline in demand for online food delivery services as consumers prefer to dine-in budget meal options at hawker centres and food courts.

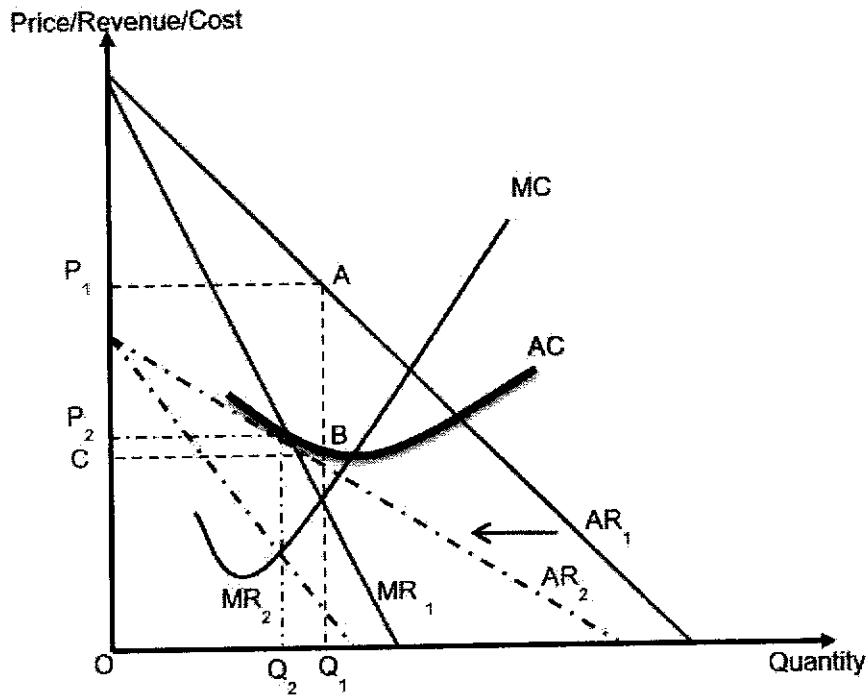
#### Requirement 1: Explanation of how a firm cannot survive due to loss incurred due to rising costs and change in consumer behavior

#### Effects of declining demand

Consumers might prefer cheaper alternatives such as dine-in meal options at hawker centres and food courts to online food delivery.

Hence demand for online food delivery services falls and becomes more price elastic due to the increase in the number of close substitutes due to there being wider choices of cheaper alternatives, AR and MR curves shift inwards from AR1 to AR2 and MR1 to MR2 respectively and become gentler. The profit-maximising equilibrium output and price of the online food

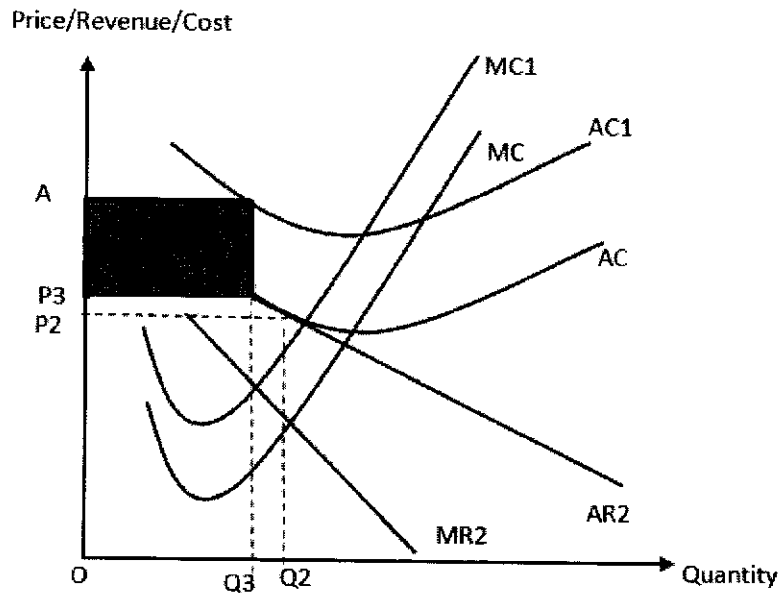
delivery firm fall from  $Q_1$  to  $Q_2$  and  $P_1$  to  $P_2$  respectively, resulting in normal profits at  $Q_2$  which is a fall in profits from initial supernormal profit of  $P_1ABC$ .



### Effects of rising costs

However, rising equipment e.g commercial cloud kitchen equipment cost lead to rising fixed costs for an online food delivery firm as these are costs which are incurred regardless of output level. Variable costs like labour costs which account for significant proportion of cost of production are also rising. As seen in the diagram below, rise in variable costs leads to rise in marginal costs for the firm, represented by upward shift from  $MC$  to  $MC_1$ . Both the rise in fixed and variable costs result in average costs increasing from  $AC$  to  $AC_1$ .

Coupled with a fall in demand from competition from cheaper alternatives and rising costs, the initial normal profit of the online food delivery firm becomes a loss indicated by the shaded area, leading to shut down in the short run if its TR cannot cover its TVC and leave the industry in the long run if its TR cannot cover its TC.



**Requirement 2: Explanation of how a firm can survive by adopting relevant revenue or cost strategies to protect profit margins.**

**Revenue-increasing strategies to increase demand and make demand less price elastic**

- Enhance promo codes and loyalty programmes  
Increase discount offered to customers. Since  $PED > 1$ , reducing price leads to more than proportionate rise in quantity demand of delivery services leading to rise in TR.  
Enhance loyalty programmes by raising incentives such as more discount vouchers and more loyalty points might lead to consumers switching to order food through online food delivery platforms more often, leading to a rise in AR and thus TR.

- Collaboration with restaurants and eateries on value meal options  
Online food delivery firms can collaborate with restaurants and eateries on their platform to create more online exclusive value for money or bundled meal options which are more cost effective for consumers.

Lower commission rates and onboarding charges can be offered to lower-end eateries offering popular budget meal options so that such meal options are now available on delivery platforms at affordable rate with small price differences from dine-in options. Consumers might find these budget options via delivery more attractive due to greater convenience but at only a slightly higher price.

This helps to reduce substitutability of food with that are directly purchased from hawker centres and food courts. Consumers are more likely to switch to these relatively affordable delivery food options at greater convenience, leading to rise in AR and thus TR.

- Advertisements/marketing targeting price conscious consumers  
Intensive marketing can be adopted to advertise the convenience and cost-saving features to price conscious consumers.

The Saver food delivery option offers consumers a lower delivery charge, in exchange for a longer delivery time. This is targeted at those who are willing to wait a little longer for their meals which might cause such consumers to switch food delivery especially if it is relatively

cheaper compared to travelling to eat a cheaper meal in hawker centres and food courts, leading to rise in AR and thus TR.

### Cost-reducing strategy

- **Automation & robotics**

Cost-reducing strategy by adopting automation to manage the rising labor costs from manpower crunch. Automation and robotics help to streamline and optimize manpower. For instance, repetitive, manual tasks such as measuring and packaging in the correct sequence can be done by automation which can dramatically reduce the amount of physical labour. Use of robots for delivery, can also help in reducing the number of delivery personnel hired. These help the online food delivery firm cope with the rising wages for service staff, leading to fall in variable and hence average costs, helping the firm earn long run normal profits.

- **Cut costs**

Firms may lay off workers, reducing employee pay, streamlining the supply chain, downsizing to a smaller office, or moving to a less expensive building or area in order to reduce costs. This enables the firms to quickly reduce total costs such that they are able to continue to earn at least normal profits.

If these revenue and cost cutting strategies are successful, they will help firms earn at least normal profits by mitigating fall in total revenue/ increasing total revenue and reduce costs in face of competition from cloud kitchens and rising costs.

### Summative Conclusion/Evaluation:

Whether an online food delivery firm can survive depends on the extent of fall in AR and rise in AC and MC as well as strategies it can employ to ensure profitability.

### Marking scheme

Levels	Knowledge, Application/Understanding and Analysis
<b>L3 (8-10)</b>	Thorough knowledge of the facts and theory with an excellent ability to describe & explain in a precise, logical and reasoned manner. <b>Two requirements</b> of the questions focusing on <b>whether a firm can survive in the online food delivery industry in the light of rising cost and change in consumer behaviour</b> . This is done and supported by an <b>appropriate tool of analysis</b> . Able to apply to the context with appropriate examples.
<b>L2 (5-7)</b>	Accurate although undeveloped explanation of the <b>two requirements</b> of the questions- <b>whether a firm can survive in the online food delivery industry in the light of rising cost and change in consumer behaviour</b> . There should be evidence of an ability to identify facts, some ability in applying the <b>appropriate tool of analysis</b> in explanation.
<b>L1 (1-4)</b>	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident. Where the answer is mostly irrelevant and only contain a few valid points made incidentally in an irrelevant context.

<b>E3</b>	For a well-reasoned judgment on the extent to which a firm can survive in the online food delivery industry in the light of rising cost and change in consumer behaviour.	<b>4 - 5</b>
<b>E2</b>	Some attempts to evaluate the extent to which a firm can survive in the online food delivery industry in the light of rising cost and change in consumer behaviour.	<b>2 - 3</b>
<b>E1</b>	For unsupported evaluative statements or judgments.	<b>1</b>

- 3 (a) Explain the economic rationale on why some countries provide subsidies while others tax the use of petroleum. [10]
- (b) In view of efficiency and equity, discuss whether government intervention in the market for petroleum does more harm than good. [15]

### Introduction

- During times of needs such as an oil crisis, the supply of petroleum (derived from refining oil) may experience a significant fall. Assuming constant demand, there will be a huge rise in price of petroleum.

### Suggested full answers

#### **Requirement #1**

##### **Households**

- The huge rise in price of petroleum may cause financial distress to low-income consumers, who see petroleum as a daily necessity (to commute to work, to send children to school, etc). This will reduce their material SOL when their expenditure on petroleum increase as they have to sacrifice consumption of other goods/services in order to continue to purchase the same amount of petroleum.
- Since  $PED < 1$  as petrol is deemed as a necessity, the rise in equilibrium price from  $P_1$  to  $P_2$  will be more than proportionate to the fall in equilibrium quantity from  $Q_1$  to  $Q_2$ . Thus, consumers expenditure on petrol will rise as the fall in expenditure due to the rise in quantity is smaller than the rise in expenditure from the rise in price.
- Since the PED for petroleum is  $PED < 1$ , the increase in price will be more than proportionate than the fall in quantity. Given an increase in petroleum prices, the poor, relative to the rich, will have to reduce their consumption of other goods and services by a larger magnitude than the rich. The rich remains unaffected as they have other sources of wealth and income and afford this increase in petrol price. The issue of inequity worsens. This will reinforce the need for government in the use of petroleum in terms of improving the level of equity.
- To reduce the fall in material SOL and widening of inequity, the government may implement subsidies so that all consumers, especially those of the lower-income group, will be able to afford petrol given a fall in pump prices when they top up their fuel tank. Assuming the government is able to fully subsidise the rise in cost of producers arising from the oil crisis, shifting supply curve rightwards, petrol prices falling back. Doing so will ensure minimal disruptions to their daily lives and standard of living.

##### **Firms**

- Likewise, firms may also experience a significant rise in cost of production due to the rise in petroleum prices. Firms focusing on export markets will face reduction in price competitiveness. Export revenue will fall, and firms will earn less profits. The country may face risks of retrenchment if many such firms start to cut costs to reduce losses or shut down altogether.



- To avoid the bigger issue of failing businesses and retrenchment, the government may want to implement subsidies on petroleum to help firms survive and reduce rise in unemployment.

### Requirement #2

Use of petroleum is prevalent in daily lives especially for transport purposes. The combustion of petroleum in vehicles generate harmful gases such as carbon monoxide. As such, the carbon monoxide will cause undesirable outcomes to others in the community, such as pedestrians.

The private benefit of using petroleum (to power their motor vehicles) include the comfort of commuting in one's private transport and the time saved. The private cost of using petroleum include the purchase price of the petroleum. As private individuals, consumers aim to maximise their satisfaction. As such, they will consume up till  $MPB=MPC$ , at quantity  $Q_p$ .

The use of petroleum generates negative externalities – costs imposed on third parties such as pedestrians, who are not compensated by the free market. They may suffer from ailments such as cough, throat irritation and need to incur additional medical consultation fees to cure them of such ailments. The presence of MEC therefore leads to  $MSC$  being higher than  $MPC$ . We assume that there is no positive externality in the consumption of petroleum, i.e.  $MPB=MSB$ .

The government wants to maximise social welfare, where  $MSB=MSC$ . This occurs at consumption level  $Q_s$ . Hence, there is overconsumption of petroleum, leading to  $DWL$ .

To remove such  $DWL$ , the government could levy a tax on petroleum consumption equivalent to the  $MEC$  at  $Q_s$ .  $MPC_1$  will rise to  $MPC_2$ . To continue to maximise their private net benefits, consumers will now internalize the negative externality and consume where  $MPB=MPC_2$  ( $Q_{p2}$ ), at the level where social welfare is also maximised ( $Q_s$ ).

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Thorough knowledge of the theory with an excellent ability to describe & explain in a precise, logical and reasoned manner.  This is done and supported by an <b>appropriate tool of analysis</b> . (Demand and Supply; Cost-Benefit analysis)	8 – 10
L2	Accurate although undeveloped explanation of the theory. Mistakes made mar the otherwise well-explained answers.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident.	1 – 4

- 3 (b) In view of efficiency and equity, discuss whether government intervention in the market for petroleum does more harm than good. [15]

### Suggested full answers

#### **Introduction**

As explained in part (a), the two microeconomic objectives are efficiency and equity. Governments may intervene in the markets to achieve these objectives. We will be looking at whether government intervention in the market for petroleum would do more harm than good.

#### **Requirement #1 – Govt Intervention may do more harm than good (less efficient and equitable than free market)**

- i. E.g. 1: Tax on petroleum  
Due to imperfect information on the amount of tax to be imposed, the government may run the risk of over-taxation of petroleum. If over-tax significantly, it may lead to even larger DWL (less efficient) and also higher petroleum prices (less equitable to low-income households)
- ii. E.g. 2: Subsidies on petroleum  
To fund the subsidies, government could tax the high-income earners to redistribute the income through targeted subsidies to help improve the affordability of petroleum for the low-income consumers. This will help to improve the level of equity.  
More equitable: If taxing the high-income to fund the subsidy given to low-income families.

#### **BUT**

##### Less efficient:

In a free market, prices signal the scarcity of a good or service. By providing subsidies, this may distort with the workings of the price mechanism and lower prices, leading to the case where consumers may perceive petroleum to be cheaper than it ought to be and thus may induce excessive consumption which generates an even bigger DWL to society.

**Policy will do more harm than good if benefits from being more equitable is less than the harm of being less efficient.**

#### **Requirement #2 – Government Intervention may NOT do more harm than good**

E.g. 1: Tax on petroleum

Similarly, due to imperfect information, there may be the case of under-taxation. Assuming that the per-unit tax amount imposed is smaller than MEC at OQs, this would lead to MPC to increase to only MPC", leading to a smaller DWL incurred (more efficient than free market) though still less equitable (higher petroleum price). **If benefits from smaller DWL outweighs the**

**harms** of being less equitable, then, the intervention may even be beneficial overall. [Diagram to illustrate smaller DWL]

- i. E.g. 2: Subsidies on petroleum  
More equitable: If subsidy is targeted and given only to low-income families and the funding comes from taxing the high-income group (e.g. make progressive vehicle tax even more progressive) group.  
 [E.g. current road tax structure in Singapore follows a progressive tax model.]

### **BUT**

Less efficient: May still induce excessive consumption which generates DWL.

**May NOT be more harm than good if benefits from being more equitable is more than the harm of being less efficient, especially if the subsidy is only given to those low-income families and not whoever pumps petroleum at the kiosk.**

### **EVALUATION**

Degree of reliability of information available to the govt

- The more reliable the dataset available to the govt, the more the govt is then able to impose accurate tax amount to avoid over-taxation on petroleum. Hence, there will be little chance of generating an even greater DWL in the petroleum market. The government could therefore endeavour to improve on its data collection methodologies to give itself more confidence in implementing the correct amount of taxes on petroleum.

- 4 (a) Explain the likely macroeconomic and microeconomic consequences of high unemployment. [10]

**Part (a) Suggested answers**

**Introduction**

- Unemployment refers to a situation where people who are actively looking for work (willing and able to work) are unable to find suitable jobs.
- High unemployment has serious macroeconomic and microeconomic consequences on an economy. High unemployment signals economic distress. An economy with high unemployment has lower output without a decline in the need for basic/ subsistence consumption among its population.

**Requirement 1: High unemployment has serious macroeconomic consequences on the economy.**

**Economic Growth**

- Unemployment represents a waste of human resources. The opportunity cost of unemployment for an economy is the output that is forgone. The higher the level of unemployment, the greater the difference between actual output and potential output, thus the greater the loss in the output of the economy.
- High unemployment is a serious issue. Not only would unemployment lead to social unrest, it would have a self-perpetuating negative impact on the overall economic health of a country. Further, it would be worsened if there is prolonged unemployment rate as it would have long and lasting negative impact on the economic outlook of the consumers and firms, deterring the economic agents to invest in developing their skills, increase in savings and investments. All of which would hinder actual and potential economic growth.
- Prolonged unemployment is undesirable. There is a danger that unemployment becomes self-perpetuating after a period of time. Those who had been unemployed for a long period of time will have low self-esteem, low morale and diminished motivation to work. Furthermore, the longer people remain unemployed, the more de-skilled they tend to become, thereby reducing potential as well as actual income. This may lead to discouraged workers leaving the labour force and hence a fall in productive capacity and potential growth of the economy (leftward shift of LRAS).
- High rates of unemployment might also affect the economic outlook of households and thus such uncertainty would discourage consumption (C). This could also lead to a fall in AD. At the same time, investor confidence might be affected due to negative consumer outlook. This would also contribute to further decreases in AD via I. These lead to a multiplied fall in real national income due to the multiplier effect, worsening unemployment.
  - o Unemployment would lead to higher spending from the governments. This could be in term of unemployment benefits, transfer payments and other assistance for the unemployed, leading to an increase in government expenditure.
  - o With less income generated, less income tax would be collected by the government. At the same time, there will be less goods and services consume, resulting in a fall in indirect tax such as sales tax / GST. Both of which would lead to a fall in tax revenue for the government.
  - o With a rise in government expenditure and a fall in tax revenue, this would lead to a reduction in government budget. With less budget available for the government disposal, they would have to cut their spending. This would mean less fund available for other projects to improve the economy, such as infrastructure.
  - o For economies with weak government budgets, governments might have to resort to borrowing to fund the budget deficit. The accumulation of debts would affect the future generation as they would have to service the debts as well. This adds strain and uncertainty on future economy growth.

**Price Stability**

- During periods of high unemployment, there is little upward pressure on wage as workers will be less inclined to ask for wage increases. Hence, the economy is unlikely to experience wage-cost push inflation, *ceteris paribus*. Especially if the unemployment is cyclical in nature, there would be a fall in general price level (deflation).

- o Demand-deficient unemployment refers to unemployment that arises from insufficient aggregate demand, which may be caused by business cycles or economic shocks.

#### Balance of Trade

- The lack of income among the unemployed during high levels of unemployment discourages consumption including that on imported goods. As a result, import expenditures fall, thus improving the balance of trade, *ceteris paribus*.

- o When unemployment becomes a pervasive problem, the country might resort to protectionism and/or a more stringent immigration law. This might lead to retaliation from other countries as well, leading to a reduction of trade among the trading partners. With less trade, there would also be less quantity and variety of goods and services in exchange.

### **Requirement 2: High unemployment has serious microeconomic consequences on the economy.**

#### Economic Inefficiency

- High unemployment will cause a huge wastage of scarce resources in the economy. An economy facing unemployment is producing within its production possibility curve (PPC). This results in inefficient resource utilisation, resulting in productive and allocative inefficiency.

- o The PPC shows all combinations of the maximum quantities of two goods that can be produced by an economy with a given amount of resources fully and efficiently employed at a given state of technology in a given time period.

- o Productive efficiency is defined as the situation when all the available resources in an economy are fully and efficiently employed to achieve the maximum output possible. If the economy is operating inside the PPC, some resources are under-employed or unemployed and the economy is said to be productively inefficient.

- o Allocative efficiency is defined as the allocation of resources to produce the combination of goods and services most wanted by society (only one point on the PPC is allocatively efficient) i.e., where society's welfare is maximised.

#### Income Inequality

- High unemployment can lead to widening of income gap between employed high-skilled and unemployed low-skilled workers.

- Low-skilled workers are at greater risk of structural unemployment, which is caused by a mismatch between workers' skills and the skills needed for available jobs. This is mainly due to occupational immobility or being displaced by cheaper foreign workers.

- Lower skilled workers find it difficult to take on new jobs therefore they remained unemployed.

- Therefore there is a widening of the income gap between high-skilled and low-skilled workers.

- o Structural unemployment arises from a mismatch of skills between the unemployed and the skills required by employers, which may be caused by technological advancements, economic restructuring or lack of efforts to facilitate retraining.

Level	Descriptor	Marks
L3	Detailed and analytic explanation of the likely macroeconomic and microeconomic consequences of high unemployment. Max 8m – Detailed and analytic explanation of the likely macroeconomic and microeconomic consequences of unemployment, did not address <u>high</u> unemployment.	8 – 10

L2	Underdeveloped explanation of the likely macroeconomic and microeconomic consequences of high unemployment. Max 6m – developed explanation of either the likely macroeconomic or microeconomic consequences of high unemployment only.	5 – 7
L1	Shows some knowledge of the likely macroeconomic and microeconomic consequence of high unemployment, but with little explanation.	1 – 4

- 4 (b) Discuss the extent to which potential conflicts between macroeconomic objectives will influence a government's policy choice to maintain a low rate of unemployment in an economy. [15]

### Part (b) Suggested answers

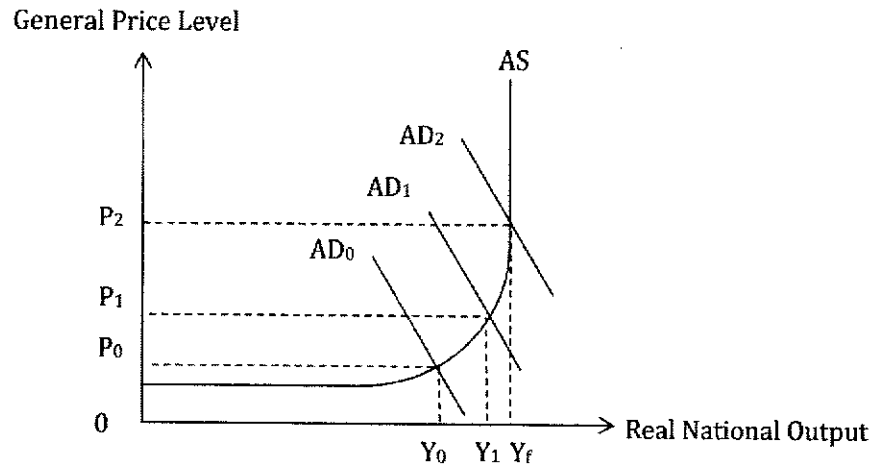
#### Introduction

- Governments aim to achieve sustained economic growth, low unemployment, price stability and a favourable balance of trade position as macroeconomic objectives.
- In the choice of policies to maintain a low rate of unemployment, the government will consider potential conflicts between macroeconomic objectives that may arise. However, there are other factors that will influence the government's policy choice as well.
- Types of unemployment – demand-deficient unemployment; structural unemployment

#### Requirement 1: Potential conflicts between macroeconomic objectives affect policy choice to maintain a low rate of unemployment in an economy.

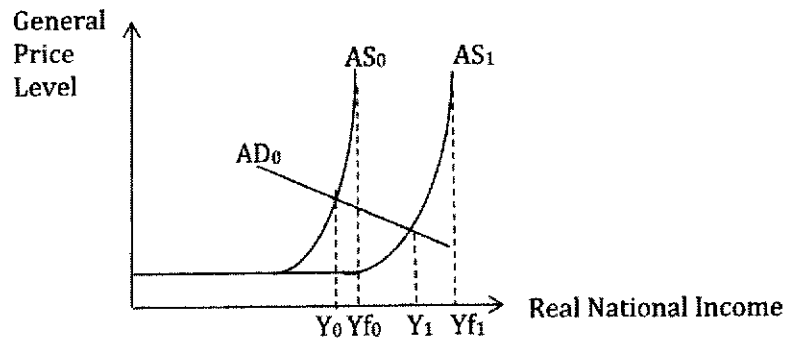
#### Actual Economic Growth and Low Unemployment (Demand-Deficient Unemployment) versus Low and Stable Inflation

- Eg, Use of expansionary demand management policy to maintain a low rate of unemployment in an economy (such as lowering interest rates in the US) stimulates AD via C & I, strengthens actual growth and decreases demand-deficient unemployment, but conflicts with the macroeconomic aim of low and stable inflation.
  - Consider if demand-deficient unemployment is a more pressing concern.
- Conflict arises when the economy achieves both the macro goals of actual economic growth and low unemployment in a situation where the economy is at or close to full employment. Achieving economic growth and low unemployment through expansionary policies may result in an upward pressure on the General Price Level (GPL). When AD increases in a situation where the economy is close to full employment, firms compete for limited available resources, driving up the prices of factor inputs. Facing higher costs of production, firms would expect higher prices to produce each level of output and thus there is a sharp rise in the GPL ( $P_0$  to  $P_2$ ). The increase in AD without an increase in AS would lead to demand-pull inflation.



### Economic Growth versus Low Unemployment (Structural Unemployment)

- Eg, Use of supply-side policy to increase SRAS (such as promoting R&D for more efficient methods of production in Singapore) can maintain price stability by lower unit cost of production and boost actual growth, export competitiveness/ BOT, increase productive capacity and LRAS, but may worsen structural unemployment with the use of new technologies.
  - Consider if structural unemployment is a more pressing concern.
- Conflict occurs when we consider sustained economic growth and structural unemployment. Economic growth can be a result of an underlying shift in the structure of the economy, e.g: shift away from the development of labour intensive industries to capital intensive industries – where more advanced technology, machines and more skilled labour are required. An example of structural unemployment happens in manufacturing industries, where sophisticated machinery has been replacing unskilled workers. With this shift to the use of sophisticated machinery, the productivity increases and the industry can produce more goods and services. This will increase the productive capacity and LRAS of the economy, shifting it to the right and thus bring about both actual and potential growth ( $AS_0$  to  $AS_1$ ). Unless the replaced workers are retrained and are equipped with the relevant knowledge, skills and expertise to be absorbed into the newly developed sector, a mismatch of skills between the unemployed and the skills required by producers seeking factors of production causes structural unemployment.
- Even without a corresponding increase in AD, when there is an increase in aggregate supply, the economy experiences actual growth. If firms increase their output through capital intensive methods, there will be an increase in demand for factors of production such as land, capital and entrepreneurship but not necessarily labour. This is so particularly when there is a mismatch of skills as workers do not have the skills required by producers. While automation reduces labour needed, new technologies allow producers to produce more real output.



**Requirement 2: Other factor(s) affect policy choice to maintain a low rate of unemployment in an economy.**

- Eg, Root cause of the problem – Use of expansionary demand management policy to maintain low rate of unemployment (such as decreasing interest rates in the US) tackles demand-deficient unemployment but cannot resolve structural unemployment.
  - Consider which type of unemployment is a more pressing concern.
- Eg, Nature of the economy – A large economy like the US (domestic consumption and investments as key drivers of growth) vs a small and open economy like Singapore (trade and FDI as key drivers of growth)
  - Explain why demand management policies work better for the US to maintain a low rate of unemployment, while exchange rate policy/ supply-side policy works better for Singapore.

**Evaluation:**

- Overall, potential conflicts between macroeconomic objectives will influence a government's policy choice to maintain price stability in an economy to a small extent. A government is more likely to make policy choices considering the root cause of the problem, then implement a mix of policies to tackle any unintended negative consequences resulting from a conflict of macroeconomic objectives.
- Furthermore, the nature/ state of the economy will more likely influence the government's policy choice. The way a government prioritises could depend on the current state of the economy.

**Marking Scheme**

Level	Descriptor	Marks
L3	For an answer that shows a well-developed and well-balanced analysis discussing how conflicts between macroeconomic objectives, as well as other factors, will affect government's policy choice to maintain a low rate of unemployment in an economy.  Answer is well-contextualised with examples.	8 - 10
L2	Answer lacks depth of analysis (i.e. incomplete or limited use of concepts) <u>OR</u> lacks breadth (i.e. one-sided but well-developed answer on how either conflict between macroeconomic objectives, or one other factor, will influence government's policy choice to maintain a low rate of unemployment in an economy).	5 - 7



	There is limited contextualisation with examples.	
L1	For an answer that shows some knowledge of conflict between macroeconomic objectives. Answer is sometimes irrelevant to the question, descriptive or a mere listing of points. Answer may contain major conceptual errors.	1 - 4
E3	Provides a stand with clear and well-elaborated justification using criteria and/or question assumptions.	5
E2	A conclusion that addresses the question, though explanation of judgement may not be complete or weak points were chosen.	3-4
E1	Superficial evaluative statement(s) without supporting analysis and elaboration.	1-2

- 5 Countries are finding it increasingly difficult to achieve sustainable and inclusive growth in a post-pandemic world with challenges of slow global growth, climate change, supply-chain and technological disruptions.
- (a) Explain why countries find it increasingly difficult to achieve a sustainable and inclusive economic growth. [10]
- (b) In view of the challenges, discuss the extent to which the Singapore government should increase real GDP growth rates to better achieve sustainable and inclusive economic growth. [15]

### Part (a) Suggested answers

#### Introduction:

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. It is economic growth with benefits incurred by every section of society.

Sustainable economic growth refers to a sustained rate of growth that can be achieved without causing other significant economic problems, such as depleted resources and environmental problems, high inflationary pressure or debt burden for future generations.

The essay below will explain why economies find it increasingly difficult to achieve sustained growth as well as fulfilling their inclusive and environmental goals.

#### Body:

Economies find it hard to achieve sustained growth due to post-pandemic world with challenges of slow global growth, climate change, supply-chain and technological disruptions and as a result are also faced with widening income gap and worsening environment degradation, making it difficult to achieve sustainable and inclusive growth.

### **Requirement 1: Explain why countries find it increasingly difficult to achieve sustained growth**

#### Effect on AD

In the post-pandemic world, countries face the issues of slow global growth.

- Slower growth leads to a pessimistic outlook, At the same time, coupled with supply-chain disruptions, this has resulted in greater uncertainty. This leads to a fall in consumer and investor confidence, reducing both consumption and investment.
- With the slower growth in trading partners, foreign income falls, affecting the export demand of trade-oriented economies like Singapore as it resulted in a fall in demand for imports. [accept reasonable reasons for fall in C, I and X]

With a fall or smaller rise in C, I and X, this led to a fall or smaller rise in AD.

Assuming a smaller rise in AD, producers will respond by increasing output. The rise in output leads to a further rise in factor incomes as more factors of production are employed. This will cause households to increase induced consumption leading to a further rise in AD and hence national income and subsequent rounds of spending. This process stops when the initial increase in AD (injections) equals the total increase in savings, taxes and spending on

imports (withdrawals). Therefore, there is a more than proportionate rise in NY via the multiplier effect.

[Student can explain fall in AD and the reverse multiplier effect on NY]

However the small rise in AD imply that output will be produced at a slower rate, thus there is **slower economic growth**.

### Effect on AS

- Cost-push inflation

Supply-chain disruption implies that there is likely to be fall in the supply of raw materials and oil leading to increase in prices of factors of production. This leads to increase in cost of production, **reducing SRAS**, further worsening **cost-push inflation and actual economic growth**.

Climate change leads to drastic weather conditions, affecting harvests and the supply of primary products. This may lead to increase in prices of commodities such as food and minerals. This leads to increase in cost of production, **reducing SRAS**, further worsening **cost-push inflation and actual economic growth**.

- Productive capacity

Supply-chain disruption also led to the shortages of essential factors of production such as semiconductor chips. This could have led to downsizing or closure of domestic firms as well as foreign firms pulling out investments. The fall in I will lead to fall in quantity of capital, reducing the productive capacity of the economy. This leads to a **fall in LRAS**, full employment output falls and there is **negative potential growth**.

**Therefore, it is harder for countries to achieve sustained economic growth**

### Requirement 2: Explain why countries find it increasingly difficult to fulfil inclusive and environmental goals.

#### Inclusive goals are harder to be achieved

- Unemployment

The slow economic growth environment results in factors of production be employed at a slower rate and there will be slower job creation to reduce existing **demand-deficient unemployment**.

Furthermore, there was a rise in technology disruptions such as digitalisation and automation, which displaces lower-skilled workers. Such a structural change leads to a shift in job demands from low-skilled, manual jobs in retail and services sector to jobs that require skills in operating advanced machinery or digital skills. As their skills is a mismatch to what is required in the sunrise industries, it led to **higher structural unemployment**.

With climate change, livelihoods of farmers and fishermen are at stake. This is especially so for small-scale farmers in developing countries where they are not equipped with technology to increase their output. This will worsen income inequality and inclusive growth.

It is thus harder for economies to achieve inclusive economic growth due to the widening income gap between the employed and unemployed, high-skilled and low-wage, informal sector workers who are less likely to have job security, health benefits, or the ability to work from home.

Therefore this resulted in increased income inequality, less productive job opportunities, hindering inclusive growth.

### Sustainability goals are harder to be achieved

Supply-chain disruptions resulted in prices of FOP including energy prices to rise. Some economies switch to cheaper forms of energy such as coal. With greater reliance on cheaper but more pollutive fuels, many countries had to shelve their decarbonisation efforts thus **worsening sustainable growth**.

**Rising government debt** that requires future generations to bear through higher income and corporate taxes or the use austerity measures such as lowering government expenditure on amenities and welfare goods will lower real income and purchasing power of the future generations, leading to a lower standard of living, **worsening sustainable growth**

### **Conclusion:**

Therefore economies find it increasingly difficult to achieve inclusive and sustainable growth in the post-pandemic world.

### **Marking scheme**

<b>Levels</b>	<b>Knowledge, Understanding, Application, Analysis</b>	<b>Marks</b>
<b>L3</b>	Well-developed analysis on the difficulties in achieving 1. Sustained economic growth 2. Inclusive goal and sustainable goals  Answers should have contextualised, detailed and clear explanation with relevant application of concepts such as AD/AS on how the challenges lead to inclusive and sustainable economic growth	<b>8-10</b>
<b>L2</b>	Under-developed analysis or insufficient coverage such as not explicitly addressing sustained growth using AD/AS analysis.  Some contextualisation based on the context of the challenges in the preamble but is limited in relevance.  An incomplete answer with question requirement partially addressed (e.g. did not link to inclusive or sustainable growth).	<b>5-7</b>
<b>L1</b>	Smattering of points that show weak understanding of question requirements. Poor application of content knowledge with several conceptual errors.	<b>1-4</b>

- 5 (b) In view of the challenges, discuss the extent to which the Singapore government should increase real GDP growth rates to better achieve sustainable and inclusive economic growth. [15]

### Part (b) Suggested answers

#### Introduction:

To increase in real GDP growth rates imply pursuit of growth to a larger extent, achieving stronger economic growth. With stronger growth, it brings about more opportunities and benefits to improve inclusive and sustainable growth. With the challenges of slow global growth, climate change, supply-chain and technological disruptions making it difficult to achieve sustainable and inclusive economic growth, this essay will discuss to what extent should government pursue economic growth to improve sustainable and inclusive economic growth.

#### Requirement 1: Singapore government should increase real GDP growth

#### Benefits of achieving strong growth → link to improvement in inclusive and sustainable economic growth

- **Actual growth leads to higher income leading to fall in poverty**

*With the backdrop of slow growth, it suggests that the government should try to increase real GDP growth to help support the incomes of its people, generate more jobs for higher employment and avoid a recession.*

Economic growth implies an increase in real income. Assuming population unchanged, this results in an increase in real income per capita. With higher purchasing power, each individual can consume more goods and services. Assuming economic growth is broad-based (growth that includes major income groups, ethnic groups, and women, and that significantly reduces poverty), this leads to more inclusive growth.

Furthermore, actual economic growth implies an increase in output thus many jobs are created. This leads to an increase in derived demand for labour, decreasing demand-deficient unemployment and generating opportunities for the unemployed; those who are willing and able to work are more likely to find employment in such an economy and more able to support themselves and their dependants. Thus poverty can be reduced. With higher income, more households can move out of poverty, lowering income inequality and leading to improvement in inclusive growth.

*With stronger rates of growth, it improves economic outlook and help investor and consumers gain confidence, raising I and C, leading to increase in AD, furthering spurring future actual growth. Increase in I can increase capital accumulation and thus lead to potential growth helping the economy achieve sustained growth.*

- **Actual economic growth leads to higher government revenue**

With economic growth, government can enjoy higher tax revenue even without raising tax rates. Higher employment means more taxpayers. Higher income implies more taxpayers falling into higher tax brackets thus increases the income tax collected. This increase in government revenue could then be spent on improvement in infrastructure, education, promoting research and development and other merit and public goods which could result in actual and potential economic growth as well as improving literacy rates, housing and sanitation standards for the lower income groups. With better access to essential goods and more equal job opportunities, there is more inclusive growth.

- **Redistribution of incremental incomes**

With rise in incomes and tax collected, the government can redistribute incomes from the rich to the poor through the use of a progressive tax system where a larger proportion of income is taxed from high-income earners to targeted low-income families. This reduces income inequality and thus lead to more inclusive growth

- **Actual economic growth allows society to pay attention to environmental issues**

*In view of the challenges brought about by climate change, there is a greater urgency for governments to deal with it by investing in green technology and adopting cleaner and renewable sources of energy such as moving from natural gas to even less pollutive sources such as solar and geothermal energy. This movement can be expedited with economic growth.*

An increase in real GDP growth rates will imply that the government has more funding and incentives to reduce pollution for improvement in non-material SOL. Government in the poorer countries may not have the funds or the time to care for the environment as making their ends meet takes priority over most other aims. Hence, with stronger economic growth, governments like Singapore gains more urgency and willingness to address environmental issues which will improve sustainable economic growth.

- **Actual economic growth improves fiscal position**

*With widening income gap brought about by the challenges of slow growth and technology disruptions, more unemployment benefits are paid out. Pursuing higher growth rates (not solely led by increase in government spending) can improve the fiscal balance/sustainability of government due to higher tax revenue collected and less expenditure on unemployment benefits or subsidies to lower-income group. This leads to more sustainable growth as future generations are not burdened by a large fiscal debt to service.*

Accept other relevant explanation on how growth can lead to improvement in inclusive and sustainable growth.

### **Requirement 2: Singapore government should not increase/ should slow down Singapore's growth rates**

Ironically, although economic growth allows the above benefits to translate to improvements in sustainable and inclusive growth, it could very well result in potential trade-offs between economic growth and sustainability/inclusivity.

### **Costs of economic growth → Link to worsening of inclusive and sustainable economic growth**

#### **Widening income gap**

Economic growth may not be broad-based hence it is likely to worsen income inequality [note the explanation here involve income disparity due to economic growth and not pandemic hence while some repetition is expected but it stems from a different reason]

- Rapid economic growth may result in widening income disparities between the rich and poor. *Very often, benefits of economic growth are not enjoyed evenly and especially with technological disruptions, enabling automation or digitalisation, the growth skewed towards sectors heavy on innovations and technology, creating jobs mainly for the higher income group thus reducing demand-deficient unemployment only for the higher-income group.*
- Higher income/skilled groups are likely to have higher education levels which allows them to be more occupationally mobile, picking up relevant skills more easily and thus are less prone to structural unemployment.

- At the same time, since they possess more wealth, economic growth creates more opportunities for this group of people to earn higher incomes or investments, widening the income disparities between the haves and have-nots.

### **Worsens Structural Unemployment**

Rapid economic growth is often accompanied by structural changes associated with a dynamic economy. A dynamic economy is often characterized by rapid innovation and technological changes as the economy moves up the value chain. If governments continue to have rapid growth and accelerate such changes under the backdrop of an economy facing significant structural unemployment due to the rapid digitalisation brought by Covid-19, it will further aggravate structural unemployment and worsens inclusive growth.

### **Trade-offs with Sustainable growth – environmental degradation**

Economic growth is often accompanied by environmental degradation. Rapid economic growth can lead to rapid industrialisation. To produce more capital and consumer goods, construction and production activities generate emissions and use up non-renewable resources. This results in climate change, air, noise and water pollution, worsening sustainable economic growth.

### **Trade-offs with Sustainable growth – inflation**

Strong economic growth may lead to demand-pull inflation if increase in AD outpaces the increase in AS. When economy is near and at full employment especially in the rapid increase in AD following the post-pandemic recovery, this might lead to demand-pull inflation. Coupled with cost-push inflation due to the Ukraine War, if not well-managed, it will increase cost of living and reduce export competitiveness and growth for the future generations.

### **Evaluation**

In conclusion, economic growth should be pursued to a large extent due to its positive impact on employment and tax revenue.

- The costs of economic growth can be mitigated ensuring that the rise in AD is also contributed by increases in investments especially in green initiatives that will increase productive capacity ensuring non-inflationary sustained growth as well as sustainable growth. By ensuring potential growth, this can prevent the economy from overheating, dampening demand-pull inflation. This prevents future generations from uncertainties due to unhealthy rates of inflation leading to more sustainable growth.

### **Marking scheme**

Level	Descriptors	Marks
L3	<ul style="list-style-type: none"> <li>• Well-developed analysis on the benefits and costs of pursuing growth on achieving inclusive and sustainable growth.</li> <li>• Good contextualization on how economic growth is of importance or lesser importance in the backdrop of the challenges.</li> </ul>	8 – 10
L2	<ul style="list-style-type: none"> <li>• Under-developed analysis of both requirements</li> <li>• One-sided analysis of benefits/ costs of economic growth OR inclusive/sustainable economic growth.</li> </ul>	5 – 7
L1	<ul style="list-style-type: none"> <li>• Smattering of points that lacks relevance to the requirements.</li> <li>• Misinterpretation of the requirements and ended up focusing on how to achieve increases in AD and AS instead of costs/benefits of economic growth.</li> </ul>	1 – 4
<b>Evaluation</b>		
E3	<ul style="list-style-type: none"> <li>• Takes a clear overall stand that is comprehensively justified by providing convincing evaluative comments on the relative importance</li> </ul>	4 – 5

	of costs/ benefits of economic growth on inclusive and sustainable economic growth	
E2	<ul style="list-style-type: none"> <li>Stand is provided and justified. Economic analysis that accompanies such justification could be further developed and sound more convincing.</li> </ul>	2 – 3
E1	<ul style="list-style-type: none"> <li>One unsupported evaluative statement.</li> </ul>	+1



- 6 In 2022, the U.S. trade deficit was US\$1.18 trillion. Further data reveals that U.S. trade deficit with China was US\$367 billion while U.S. foreign direct investment (FDI) into China was US\$126 billion. Immigrants contribute a large portion of the growth in the U.S. labour force and help to ease labour market tightness.
- (a) Explain the causes of a large and persistent balance of trade deficit. [10]
- (b) Discuss the impacts of globalisation on the standard of living in an economy. [15]

### Part (a) Suggested answers

#### Introduction

A balance of trade deficit occurs when the total international receipts from the export of goods and services are less than its total international payments for the import of goods and services in a given year.

#### R1: Factors explaining a large deficit in the BOT.

Assuming a country's BOT is in equilibrium initially, a BOT deficit typically occurs when there is a decrease in export revenue or an increase in import expenditure. A large deficit on the balance of trade account is also indicative of the relative importance of the trade sector to an economy.

Large BOT deficits can result from **shocks to the economic system** such as the Global Financial Crisis 2008 or the COVID-19 pandemic. When such global downturns happen, the demand for exports may fall due to lower national incomes in foreign countries. For a country such as Singapore that is highly dependent on trade, i.e. (X+M) component is 300% of GDP, the large decrease in export revenue will lead to a large BOT deficit, assuming the country was initially at BOT equilibrium, ceteris paribus. Moreover, Singapore being a small and resource scarce country, the import expenditure is unlikely to be reduced.

A large BOT deficit may also be due to **consumer preferences** where domestic consumers have a strong preference for foreign goods over domestically produced goods. Therefore, it is likely that the country will import more foreign goods and increase its import expenditure, hence increasing the trade deficit, ceteris paribus. A large BOT deficit can also be indicative of a country's **rising national income** and due to strong economic performance – such as the rapid economic growth that China enjoyed in the past two decades. Rising national income would increase Chinese households' purchasing power. Coupled with the preference for foreign goods, the demand for imports, and hence import expenditure by China would also rise. Assuming China's balance of trade is in equilibrium initially, a large rise in import expenditure will bring about a large balance of trade deficit.

Finally, a large deficit could be due to the **nature of an economy** where it is in the early stages of industrialisation and may need to import more capital goods to sustain their industries since these cannot be sourced domestically. For example, Vietnam's economy was mostly concentrated in the agricultural sector in its early stages of development, and it needed to import many manufactured goods. Because of the difference in the global value chain between agricultural goods and manufactured goods, i.e. manufactured goods usually commanding a higher value than agriculture good, it is likely that Vietnam may experience a large BOT deficit.

Thus, economic shocks to the country which lower export revenue and a preference for foreign goods over domestic goods which will increase import expenditure will cause a large BOT deficit, i.e. ( $\downarrow X - \uparrow M$ ) $\downarrow$ .

**R2: Factors explaining a persistent deficit in the BOT.**

However, a persistent deficit, in particular, a structural deficit, could show that the country is "living beyond its means". It might be a symptom of a weakening domestic economy and a lack of international competitiveness. A long-term balance of trade deficit indicates a more fundamental problem inherent within the economy, e.g. a severe/permanent loss of competitiveness of its goods and services. A loss in export competitiveness in both **price and non-price factors** can result in persistent deficits.

**Price factors such as a persistently higher domestic inflation rate** as compared to its trading partners could be one cause of a persistent BOT deficit. For example, when there is persistently higher inflation in Singapore relative to its trading partners, the price of its exports will increase. Assuming that the demand for Singapore's exports is price elastic ( $PED_x > 1$ ) due to its high substitutability with exports from other countries, an increase in the price of exports will lead to a more than proportionate fall in quantity demanded for exports, and this will lead to a fall in export revenue. At the same time, imports will be relatively cheaper than domestically produced goods. Assuming  $PED_M > 1$ , the relatively lower price imports will lead to a more than proportionate increase in quantity demanded for imports which results in a higher import expenditure. In addition, the larger the cross elasticity of demand for imports with respect to the price of domestic goods, i.e. more substitutable, the larger the increase in demand for imports will be when price of domestic goods relatively increases, and hence import expenditure increases. Thus, this leads to lower export revenue and higher import expenditure which causes a BOT deficit. This deficit is expected to persist so long as relative inflation rate remains higher in Singapore as compared to its trading partners.

**Non-price factors such as a lower rate of innovation in the domestic economy** might produce less attractive products of lower quality. This would lead to a decrease in demand for its exports, thus leading to a decrease in export revenue. At the same time, domestic consumers would consume more imports which are of higher quality and increase their import expenditure. For example, large innovations in solar panel production in China relative to the US has led to a decline in US' exports of solar panels. China now accounts for more than 80% of the world's solar panel production. China's lead in the global solar power sector is not incidental but the result of deliberate government policy, substantial investment in technology, and a strong manufacturing base. The US' **loss of comparative advantage** in solar panel manufacturing, and perhaps in many other industries, is another plausible reason why US suffers from a persistent BOT deficit. The BOT deficit likely to be persistent namely because of two reasons – recognition lag (that they have loss CA in a particular industry), and long time needed to reallocate resources to an industry where the US might find a new CA in.

**Conclusion**

In conclusion, when all these factors intertwine, it will lead to a country experiencing a large and persistent BOT deficit.

**Marking scheme**

<b>Knowledge, application, understanding and analysis</b>		
<b>L3</b>	<ul style="list-style-type: none"> <li>Well-developed explanation of how the trade deficit arises. Scope of answer should consider both exports and imports perspectives.</li> <li>Good application of real world examples and use of economic framework to support the analysis</li> </ul>	<b>8 – 10</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>Under-developed descriptive explanation of how the factors causes the trade deficit, with appropriate but incomplete economic analysis.</li> </ul>	<b>5 – 7</b>

L1	<ul style="list-style-type: none"> <li>• Answer that is mostly irrelevant in explaining the causes of balance of trade deficit, with basic concept errors and inaccurate economic analysis</li> <li>• Mere listing of points relating to balance of trade deficit, statements are mostly unexplained.</li> </ul>	1 - 4
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6 (b) Discuss the impacts of globalisation on the standard of living in an economy. [15]

### **Part (b) Suggested answers**

#### **Introduction**

Globalisation refers to the increasing integration of world economies leading to greater interdependence arising from freer flow of goods and services, labour, capital and technology. There are benefits and costs arising from globalisation affecting material and non-material SOL. Material SOL refers to the amount of goods and services available for consumption to each person in the country while non-material SOL refers to the quality of life in terms of health, literacy, social aspects etc.

#### **R1: Explanation on the positive impacts of globalisation on SOL on an economy.**

##### **a) Benefits of free trade arising from globalisation leading to higher material SOL**

- Globalisation facilitates free trade which according to the Theory of Comparative Advantage (CA) can benefit all countries if each country specialises in producing the goods in which they have a CA in.
- A country enjoys CA when it is able to produce a good with a lower opportunity cost in terms of other goods foregone. Difference in opportunity cost arises from differences in factor endowments. For example, India has abundance of low-cost labour → CA in labour-intensive goods such as shoes and clothing. U.S. has abundance of skilled labour and high-end capital → CA in knowledge-based or capital-intensive industries such as technological products or AI technology.
- Specialisation and trade leads to increased world output and allows economies to consume outside their PPC.
- Due to the greater trade volume and hence greater quantity of goods and services produced and consumed, material SOL rises.
- Consumers also benefit from a wider variety of goods and services from other countries and better product quality due to globalisation, of all which further raises material SOL.

##### **b) Inflow of FDI generates larger tax base for governments to improve non-material SOL**

- Globalisation also brings about greater international investments leading to a rise in FDI and increasing AD. Assuming the economy is below full employment, the rise in AD will lead to a multiplied increase in RNY and an increase in employment. This allows the government to collect more income tax revenue.
- The establishment of multi-national corporations (MNCs) will also help to generate more corporate tax revenue for the government.
- Tax revenue can be spent on infrastructure development, increased access and quality of education and healthcare etc. For example, better healthcare can lead to longer life expectancies and lower infant mortality rates which shows an improvement in the non-material SOL.

#### **R2: Explanation on the negative impacts of globalisation on SOL in an economy**

**a) Increase flow of migrant workers may lead to increased job competition and a fall in material SOL**

- With globalisation, there is greater international flow of labour not only for the less-skilled workers but also for the high-skilled workers. This can lead to greater job competition between foreign workers and domestic workers.
- The large influx of low-skilled foreign workers into a country can depress wages. For example, in Singapore, low skilled foreign workers are increasingly seen doing more labour-intensive jobs like parcel delivery and cleaning which directly compete with older Singaporean workers who may have received little education in their early years. Lower wages mean that these workers are able to consume less goods and services and hence experience a lower material SOL.
- On the other hand, the influx of high-skilled foreign workers who are willing to accept a relative lower wage (due to lower cost of living in their home countries) can add to the stress of well-educated Singaporeans. To differentiate themselves, the local population will need to spend more years in education and even go for additional training/courses which takes away their leisure time and lead to a lower non-material SOL.
- The negative impact of globalisation falls disproportionately more on the lower-skilled workers in a **developed economy** such as Singapore because they have lesser resources and time available to upgrade themselves. Higher educated workers have the means and ability to upskill themselves and find employment in new sectors like AI technology; a luxury that lower-skilled workers who work long hours in lowly paid jobs cannot afford.

**b) Increased production causes environmental damage leading to a fall in non-material SOL**

- While globalisation enables a firm to not only be able to sell to the domestic market but to international markets, i.e. increased international flow of goods and services, the increased in production of goods is often linked to greater pollution. The increased use of resources to produce for the world can lead to faster resource depletion and negatively impact the future productive capacity of an economy and thus the SOL of its citizens.
- For example, the rapid economic rise of China resulted in a drastic increase in coal-powered industrial production and electricity demand, as well as an exponential rise in ownership of private vehicles (as a result of increased incomes), is estimated to cause an average of 1.2 million premature deaths every year as a result of poor air quality. This causes a fall in the non-material SOL of Chinese citizens. However, because of greater income inequality in China, the higher-skilled workers, who can command a higher wage, will still have more options available to mitigate the negative effects of air pollution, e.g. buying an air-purifier, or seeking early medical treatment for respiratory illness. This suggests that non-material SOL may decrease disproportionately between the high-income and low-income groups.

**Overall Evaluation**

- **Nature of economies.** Economies with small domestic markets and limited resources gain substantially from globalisation, e.g. Singapore. Export-led growth driven by access to world markets and imported raw materials would significantly raise material SOL of the economy. **Less developed economies** like India will likely experience greater employment gains leading to improved living standards because of their excess spare capacity in the economy. Furthermore, the inflow of FDI can greatly boost job creation and help developing economies accumulate capital and technological transfer and increase potential growth. Globalisation can be especially beneficial to rural areas in less developed economies that lack basic infrastructure

and amenities because the initial gains on life expectancy are typically greater when basic healthcare improves.

- **Government policies.** The impact of globalisation on SOL in different economies can be affected by government policies. Income redistributive policies such as a progressive tax system can lower the income inequality experienced by different segments in a country and improve overall SOL in a country. Well considered labour policies like those implemented in Singapore such as a foreign worker quota and levy help ensure that firms do not excessively rely on cheap foreign labour at the expense of depressed wages for the local population. Another example is the Workfare Income Supplement, targeted at Singaporean workers whose earnings are in the bottom 20%, which help ensures that lower paid workers are adequately compensated in cash and CPF, even with the increased competition from the inflow of low-skilled foreign labour.
- In conclusion, the benefits of globalisation arising from increased international trade generally outweigh the costs, bringing about an overall improvement in SOL to world economies.

### Marking scheme

Level	Descriptors	Marks
L3	<ul style="list-style-type: none"> <li>• Well-developed analysis on the positive and negative impacts of globalisation on material and non-material SOL.</li> <li>• Good contextualisation on how globalisation affects SOL in different economies/segments of population.</li> </ul>	8 – 10
L2	<ul style="list-style-type: none"> <li>• Under-developed analysis of both requirements</li> <li>• Well-developed one-sided analysis of negative or positive impacts of globalisation on material and non-material SOL.</li> <li>• Cursory explanations on the positive and negative impacts of globalisation on material and non-material SOL.</li> </ul>	5 – 7
L1	<ul style="list-style-type: none"> <li>• Smattering of points that lacks relevance to the requirements.</li> <li>• Misinterpretation of the requirements and ended up focusing on how to globalisation leads to increases in AD and AS and SOL.</li> <li>• Typically lacks the context of the different international flows of goods and services, labour, and capital.</li> </ul>	1 – 4
Evaluation		
E3	<ul style="list-style-type: none"> <li>• Takes a clear overall stand that is comprehensively justified by providing convincing evaluative comments on the positives and negatives of globalisation.</li> </ul>	5
E2	<ul style="list-style-type: none"> <li>• Stand is provided and justified. Economic analysis that accompanies such justification are sufficiently developed.</li> </ul>	3 - 4
E1	<ul style="list-style-type: none"> <li>• One unsupported evaluative statement.</li> </ul>	1 - 2

