Question 1: The Future of Food in Singapore
Suggested answers

(a)	**Using the marginalist principle, explain why a rational working adult would choose to purchase food via UberEats.**	**[3]**

- The marginalist principle involves the weighing of the marginal benefit (MB) and marginal cost (MC) in the pursuit of self-interest, which is to maximise utility in the case of a consumer.
- The MB is the utility such as the convenience gained from consuming an additional unit of food delivery services. **[1]**
- The MC is the additional cost such as platform fees incurred from the consumption of an additional unit of food delivery services. **[1]**
- In the scenario where the MB is greater than MC, a rational working adult would choose to purchase food via UberEats in order to maximize his utility. **[1]**

(b)	**Given how "customers are just used to the convenience now" (Extract 2), explain how the price elasticity of demand for food delivery services has changed during the pandemic.**	**[3]**

Linking extract evidence and PED [2m]

- "Customers are just used to the convenience now" suggests that the **degree of necessity [1]** is increasing as customers grow accustomed to ordering catalysed by the pandemic as well.
- Hence, consumers will be less responsive to price changes and quantity demanded will fall less than proportionately to a price increase. **[1]**

Change in PED [1m]

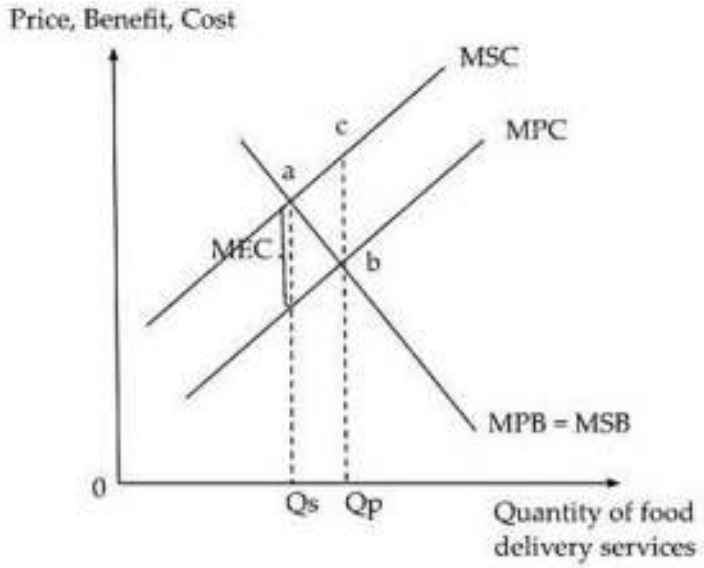
- Demand becomes more price inelastic OR |PED| becomes less than 1. **[1]**

(c)	**(i)**	**Explain why there is allocative inefficiency in the market for food delivery services.**	**[4]**

- In the consumption of food delivery services, consumers only consider their private costs, such as the cost of the delivery and the private benefits, such as the convenience provided by the delivery services. **[1]**

OR

- In the production of food delivery services, producers only consider their private costs, such as the marginal cost of production which includes the cost of labour and their private benefits which is the additional revenue a producer earns from producing one more unit of food delivery service. **[1]**
- They ignore external costs such as the healthcare costs borne by pedestrians who inhale the transport emissions leading to health issues. **[1]**
- The presence of marginal external costs creates a divergence between the marginal social cost (MSC) and marginal private cost (MPC) where MSC > MPC.
- Left to the free market, producers produce their private optimal quantity, Qp where marginal private benefit (MPB) = MPC. However, the social optimal level of production is at Qs where MSb=MSC. Since Qp>Qs, there is overproduction of food delivery services. **[1]**
- From Qp to Qs units, the total social costs (area QsacQp) exceeds the total social benefits (area QsabQp) leading to a deadweight loss of area abc. Hence, there is allocative inefficiency in the market for food delivery services. [1]



	(ii)	**With reference to Extract 3, explain how the establishment of cloud kitchen addresses allocative inefficiency in food delivery services. [2]**

Identifying the relevant case material or showing the understanding that cloud kitchen reduces delivery distance [1m]

- In Extract 3, it was stated that the "more kitchens that share a location, the greater the chances of a rider consolidating several orders to the same area, which would reduce the delivery miles per meal". **[1]**

Analysis [1m]

- This means that the establishment of cloud kitchens help to reduce greenhouse emissions and reduce MEC, which will reduce the overconsumption/overproduction and hence allocative inefficiency in food delivery services. **[1]**

(d)	**With reference to Extract 4, discuss the effectiveness of the policies implemented by the Singapore government to improve food security. [8]**	

Question Interpretation

Command word/phrase	*Discuss*	This question requires students to present a balanced analysis by analysing how policies implemented by the Singapore government may or may not be effective in improving food security using the O-W-L framework before coming to a well-reasoned judgement by comparing the benefits and costs of both policies.
Content	*Effectiveness of the policies* *Food Security*	Through increasing the supply of food through subsidies or by decreasing food waste by reducing the demand for food through education policies. Food security – access to safe and nutritious food. This would require a descriptive link after the economic analysis above.

Context	*Singapore (Extract 4)*	Make reference to the case (Extract 4) and apply analysis to the context of Singapore.

Students are required to consider two different policies implemented by the government to improve food security and their limitations. A demand-side and a supply-side policy should be explained for greater scope. The evaluation entails a judgement on the extent to which these policies would be effective for Singapore.

Introduction

- **[Outline approach]** As mentioned in Extract 4, food security can be defined as the access to safe and nutritious food. In an attempt to improve food security, the Singapore government has implemented both supply-side policies such as subsidies for local produce as well as demand-side policies such as education campaigns on food waste. This essay will seek to discuss the effectiveness of the above-mentioned policies.

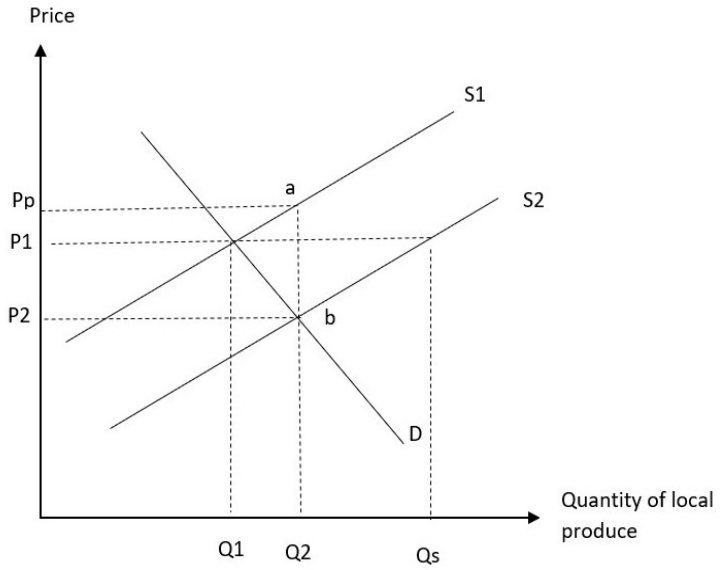
Body

Thesis 1a: Explain how subsidies for local produce can improve food security and its limitations.

- **Subsidising local produce can help Singapore to improve food security.**
- As mentioned in Extract 4, the Singapore government has provided a grant to support local farmers to ramp up local production of eggs, vegetables and fish.
- This will lower the cost of production of local farmers and increase profitability, leading to an increase in their willingness and ability to produce food. Supply increases and supply curve shifts rightwards from S1 to S2.
- At the original price P1, there is a surplus of Qs-Q1. This leads to a downward pressure on price. As prices fall, quantity demanded increases and quantity supplied increases until the new equilibrium where Qd=Qs is reached. Equilibrium quantity has increased from Q1 to Q2.
- Since the quantity of domestic produce has increased, this will provide an alternative source of food and allow Singaporeans to continue enjoying access to safe and nutritious food, improving food security.

Limitations

- However, these subsidies are costly and would strain the government budget as seen in Extract 4 where the grant will cost a hefty 30 million dollars. In addition, opportunity costs such as welfare gains from spending on other areas such as education would also be incurred. As such, the government may be unable to sustain the policy for a prolonged period of time and food security may worsen again when these subsidies are removed.
- Considering Singapore's limited land size, local produce may not increase substantially even with the subsidies due to the constraint of space. As such, this is unlikely to impact Singapore's food security significantly.



Thesis 1b: Explain how education campaigns to reduce food wastage can improve food security and its limitations.

- **Education campaigns can help to reduce food waste and improve Singapore's food security.**
- As mentioned in Extract 4, the Singapore government has introduced Food Waste Reduction outreach programme to educate consumers on reducing food wastage.
- This will lead to a reduction in the occurrence over-ordering, over-buying and over-cooking (Extract 4) and demand for food should fall which should lead to a reduction in food waste.
- This results in a surplus of Q1-Qd at original equilibrium price P1. This leads to a downward pressure on price. As prices fall, quantity demanded increases and quantity supplied decreases until the new equilibrium where Qd=Qs is reached. Equilibrium quantity has decreased from Q1 to Q2.
- With the reduction of food waste, there would be less need to source for more food to meet the food demand and help Singapore to improve food security. This ensures that local production of food can take up a larger proportion of the entire food consumed in Singapore, increasing self-sufficiency and hence food security.

Limitations

- However, education may take a long time to come to fruition. It would also depend on the receptivity of the consumers as in the Asian culture, over-ordering and leftover food are often a symbol of affluence and generosity. Hence, it may take some time for consumers to overcome this cultural practice/ belief.
- However, these education campaigns may potentially put a strain on the government budget In addition, opportunity costs such as welfare gains from spending on other areas such as education would also be incurred. As such, the government may be unable to sustain the policy for a prolonged period of time and food security may worsen again when these subsidies are removed.

Evaluative Conclusion *(a reasoned stand plus 1 well-substantiated ATMS would suffice)*

- **[Stand]** The policies implemented by the Singapore government is likely to have limited effectiveness in improving food security, especially in the short run.

- **[Time + Alternative]** The policies implemented by the Singapore government have a significant time lag and would not be able to address the immediate issues that arose from COVID-19. As such, Singapore may benefit from alternative policies such as sourcing for alternative food supply and diversifying food sources in the short run to address the food security needs. The subsidies and educational campaign policies would be more impactful in the long run where there will be a gradual mindset shift among Singaporeans towards food waste and also where local produce has grown sufficiently to be one of the key pillars of Singapore's food security.

Mark scheme

Level	Knowledge, Application/Understanding, and Analysis	Marks
L2	For a well-developed answer that has: ● Good scope – explains at least one demand-side and one supply-side policy to improve food security; and ● Good balance – explains both the workings and limitations of the policies, and ● Good rigour – utilises appropriate DD/SS analysis, and ● Good application to context – explains using the context of case study extracts	4 – 6
L1	For an underdeveloped answer that: ● Lacks scope – only explains one of the policy to improve food security, or explains only either demand-side or supply-side policies and/or; ● Lacks balance – only explains the workings OR limitations of the policies; and/or ● Lacks rigour – provides a descriptive explanation of the usefulness and limitations of the policies, with limited application to the case material.	1 – 3
Level	**Evaluation**	**Marks**
E	● For a well-reasoned comment that uses economic analysis to consider and weigh the workings and limitations of the policies to arrive at the overall effectiveness in allowing Singapore to achieve food security.	1 – 2

(e) **With reference to the case material, discuss whether food delivery firms such as GrabFood can continue to remain profitable.** **[10]**

Question Interpretation

Command word/phrase	*Discuss*	This question requires students to present a balanced analysis by analysing how food delivery firms can continue to remain profitable, before coming to a well-reasoned judgement.

Content	*Continue to remain profitable*	Remain profitable i.e., make long run normal profits where TR = TC
Context	*Food delivery firms such as GrabFood*	Make reference to the case

Students are required to first show how food delivery services can continue to remain profitable and consider the counter argument on how this can be challenging. The evaluation entails an overall judgement on the likelihood of firms continuing to remain profitable.

Introduction

- **[Define key terms]** For firms to remain profitable, they should at least make long run normal profits where revenue equals to costs.
- **[Outline approach]** Food delivery firms like GrabFood can continue to be profitable if they can implement successful strategies to increase revenue and/or keep a lid on rising costs.

- **KA1: Food delivery firms need to implement non-price strategies to ensure they continue to stay profitable.**
- Food delivery firms can implement strategies to increase demand so that they stay profitable. In Extract 5, technology can help firms such as GrabFood better cater to consumers' preferences via attractive app displays, recommendations for alternative options and personlised application.
- This will help to increase demand and make demand more price inelastic. With reference to Figure 1 below, there will be a rightward shift and slight pivot of AR from AR1 to AR2. MR will also follow, changing from MR1 to MR2. Revenue thus increases from 0P0aQ0 to 0P1fQ1. **Ceteris paribus**, this will lead to a rise in profits as seen from normal profits to **supernormal profits P1fbC1**.

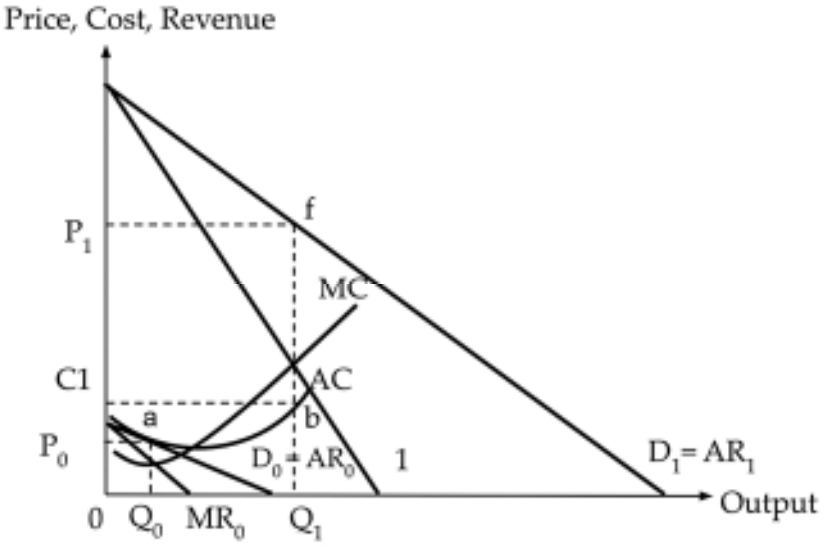
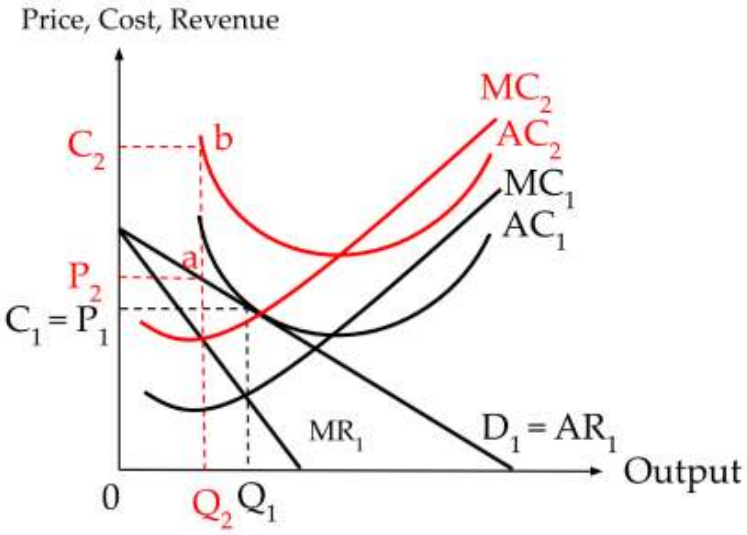


Figure 1: Changes in profits

- **KA2: Food delivery firms may face challenges in terms of rising wage costs.**

- Costs will be higher for food delivery firms as new regulations will require platform companies to contribute 17% of the wages to CPF accounts of the gig workers. This will result in a higher cost of production for firms, increasing the MC and AC, shifting it upwards from MC1 to MC2 and AC1 to AC2 in the diagram. Profit maximizing output changes from Q1 to Q2 and this will result in firms being less profitable. In this diagram (Fig 2), the firm's profits changes from normal profit to subnormal profit P2C2ba.

Figure 2: Impact of an increase in CPF contribution by firms



- **[Assumption/ Magnitude]** However, if firms can innovate and find different ways to lower other costs of production, the extent of the rise in MC and AC can be mitigated. For example, the use of cloud kitchens can help firms reduce costs of operations.

Evaluative Conclusion *(a reasoned stand plus 1 well-substantiated ATMS would suffice)*

- **[Stand + Magnitude]** All in all, whether firms can remain profitable will depend on how much they can tap on strategies to increase AR to cope with the rise in costs arising from higher wages incurred due to new CPF regulations.
- **[Situation]** Given that Grab Holdings revenue from delivery services has grown by leaps and bounds from US$5m to $663m from 2020 to 2022, it is likely that Grab has a bulk of the market share and is able to copy with the rising wage costs as long as it can continue to entice consumers to stay on its platform.

Mark scheme

Level	Knowledge, Application/Understanding, and Analysis	Marks
L2	For a well-developed answer that has: ● Good scope – explains at least two arguments for food delivery firms to continue to remain profitable; and ● Good balance – explains whether the scenarios will necessarily hold through, and ● Good rigour – utilises appropriate MC/MR analysis, and	4 – 7

		● Good application to context – explains using the context of case material		
	L1	For an underdeveloped answer that: ● Lacks scope – only explains one scenario of firm remaining profitable or otherwise, and/or; ● Lacks balance – only explains the workings without considering limitations or other possibilities; and/or ● Lacks rigour – provides a descriptive explanation, with limited application to the case material.	1 – 3	
	Level	**Evaluation**	**Marks**	
	E	● For a well-reasoned comment that uses economic analysis to consider and weigh the workings and limitations of the measures for firms to remain profitable.	1 – 3	

Question 2: A more inward-looking China and the Russian-Ukraine Conflict
Suggested answers

(a)	**Using Table 2, summarise the main features of Singapore's growth rates compared to other countries.**	**[2]**

Similarity:
- Overall, the growth rates of Singapore, China and the US have fallen from 2017 to 2022. **[1] OR**
- Growth rates of both Singapore and the US were generally positive except for 2020. **[1]**

Difference:
- Singapore's growth rates are higher than the US' growth rates, except in 2019 and 2020. **[1] OR**
- Singapore's growth rates are lower than China's growth rates except in 2021 and 2022. **[1]**

OR
- Singapore's growth rate was generally positive except for 2020 whereas China's growth rate remained positive throughout. **[1]**

Any two of the above, but there must be at least 1 similarity and 1 of the 2 points must compare across all three countries.

Marker's comments:
- *Students are to avoid year on year or period by period tracking. For example, from 2017 to 2019 and from 2020 to 2022, etc. Students should be looking at the overall trend.*
- *Students are not to calculate the percentage change of a change (presented in %). Data is already in the correct form, no further conversion required. If you want to consider the difference between such data, you can calculate the difference and present as follows:*
  - *From 2017 to 2022, Singapore's GDP growth rate has decreased by 0.9 % points.*
  - *Students are to note that the question is asking for GDP growth rate and NOT GDP.*
  - *Students can split comparisons across countries but there must be at least one comparison that addresses all 3 countries.*

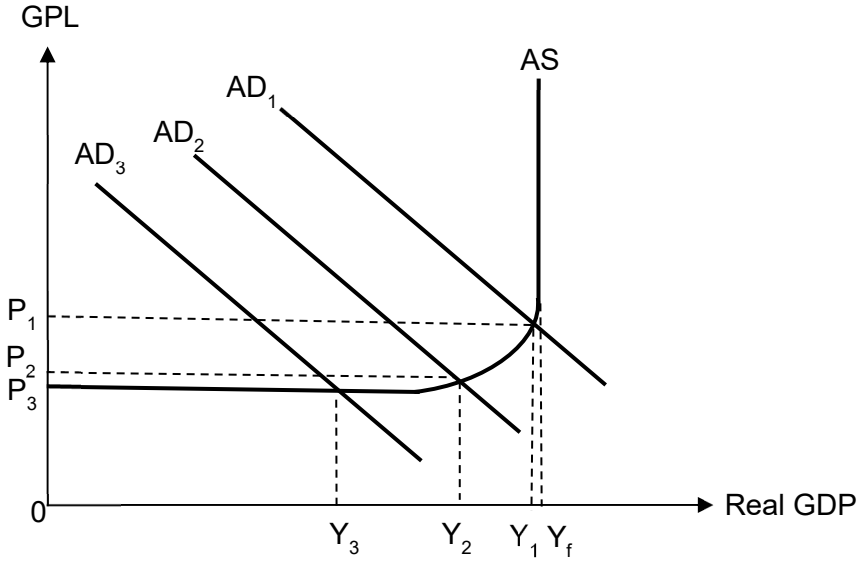
(b)	**Explain how inflation rates and real GDP growth rates are related.**	**[2]**

- Inflation rates and real GDP growth rates are **inversely/negatively related**. **[1]** *The higher the inflation rates, the lower the real GDP growth rates.*
- This is because real GDP growth rates = nominal GDP growth rates - inflation rates. **[1]**

(c)	**Using an aggregate demand and aggregate supply diagram, explain how China "that is more inclined to buy its own stuff" (Extract 7) might affect economic growth in Singapore.**	**[4]**

- When China is "more inclined to buy its own stuff", it will demand for less imports from the rest of the world, including Singapore. This will lead to a fall in demand for Singapore's exports from China, causing a fall in Singapore's net exports and hence AD. **[1]**
- As the AD of Singapore falls from AD_1 to AD_2, this triggers the reverse multiplier effect where there are multiple rounds of decreases in income-induced consumption, leading to further falls in AD to AD_3. **[1]**
- This leads to a multiplied fall in real output from Y_1 to Y_3 and hence negative economic growth in Singapore. **[1]**

Figure 1: Negative economic growth in Singapore



(d)	**Account for the climb in soybean prices as seen in Extract 8.**	**[4]**

- From Extract 8, the "shortage of sunflower oil" in Ukraine will lead to an upward pressure on its price, causing the price of sunflower oil to rise. **[1]**
- Given that sunflower oil and soybean oil are substitutes which satisfy the same need, **[1]** the demand for soybean oil, a type of vegetable oil, will increase. *This is supported by the "boost [in] demand for other vegetable oils." (Ext 8)*
- This will cause an increase in the derived demand for soybean, **[1]** a factor input to produce soybean oil.
- In the market for soybean, at the initial equilibrium price, a shortage occurs, and this will create an upward pressure on the price of soybean. **[1]** Hence, the climb in soybean prices as seen in Extract 8.

(e)	**Discuss whether China should rely more on domestic or external factors to boost its growth rates further.**	**[8]**

Question Interpretation

Command word/phrase	*Discuss whether*	To provide a balanced analysis of how reliance on domestic factors and external factors may be possible ways for China to boost its growth rates, before coming to a well-reasoned judgment on whether China should rely more on domestic or external factors to boost its growth.
Content	*Rely more on domestic or external factors to boost its growth rates further*	Domestic factors refer to components of C, domestic investment, and G. External factors refer to FDI and X. In this context, boost growth rates refer to both actual and potential economic growth.
Context	*China*	China, specifically Extracts 7 and 8 should be utilised to support analysis.

This question requires students to explain how reliance on domestic factors and external factors may be possible ways for China to boost its growth rates, before coming to a well-reasoned judgment on whether China should rely more on domestic or external factors to boost its growth.

Introduction:

- **[Set context]** The case mentions that China has become more "inward-looking', shifting "away from a reliance on external demand as a stimulus to growth towards increased dependence on domestic factors" (Extract 7).
- **[Outline approach]** This answer will explore the benefits and costs associated with a more inward-looking China, before evaluating whether China should rely more on domestic or external factors to boost its growth rates further.

Thesis: Explain how reliance on domestic factors can be beneficial to help China boost its growth rates further

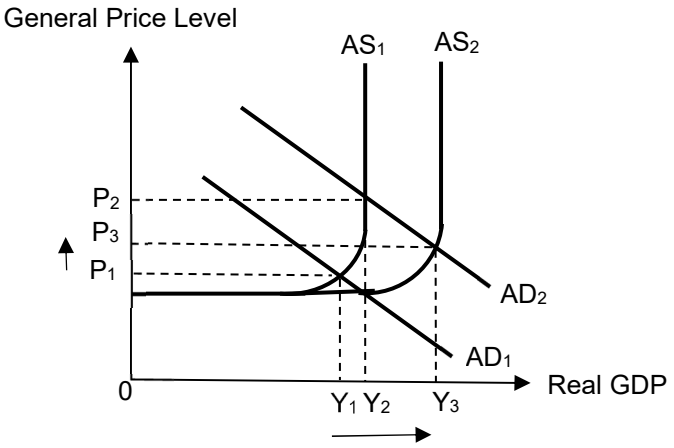
- **Reliance on domestic factors like consumption, government expenditure, and domestic investment like "state-owned enterprises (SOEs)" (Ext 7) may be beneficial to help China boost its growth rates further.**
- This is because greater reliance on domestic factors can help China become more self-reliant and buffer against negative external shocks in the global economy, reducing the negative impact on China's economic growth.

Choose 1 external factor from the following:

- From Extract 7, the "post-crisis global recession, belt-tightening in the West, the eurozone crisis, and a general softening of global trade growth in the post-crisis years" will lead to a fall in global incomes. Assuming that China exports are normal goods, the fall in national incomes of China's trading partners will lead to a fall in the demand for China's exports, leading to a fall in its AD.
- In addition, the "aggressive tariffs and export controls introduced by the Trump administration in the US" (Ext 7) would reduce China's net exports, reducing its AD.The tariffs would increase the prices of China's exports, reducing its price competitiveness and hence the quantity demanded of Chinese exports would fall.
    - Assuming that the price elasticity of demand for Chinese exports is greater than one (demand for Chinese exports is price elastic) due to the availability of substitutes in the world markets, the higher export prices of China will lead to a more than proportionate fall in its quantity demanded, leading to a fall in China's export revenue and hence net exports.
- The export controls on the US on Chinese exports will reduce the quantity of China's to the US, reducing China's export revenue. The combined effect is a fall in the net exports of China.
- As China's AD falls, coupled with the reverse multiplier effect, this triggers multiple successive rounds of decreases in income-induced consumption, leading to a multiplied fall in China's real GDP, resulting in negative economic growth, which will reduce the SOL of China.
- By reducing reliance on external factors like net exports, which "no longer make any meaningful contribution to Chinese GDP growth" (Ext 7), this can reduce the adverse impacts of a fall in China's net exports on its growth given the external shocks.

- Extract 8 also mentioned that greater reliance on domestic consumption, as seen from the boost in "agriculture production at home" and "emphasis on its own production and security can help mitigate the impact of the Russia-Ukraine conflict on domestic food prices. This can reduce the extent to which the higher imported food prices can lead to a rise in cost-push inflation, reducing China's real GDP growth rates.
- By increasing its reliance on domestic factors, China can continue to push for more SOEs to boost its growth rates further even in the face of external challenges.
- A rise in domestic investment will increase China's I, boosting its AD since I is a component of AD. Assuming spare capacity is present, this will trigger the multiplier effect, leading to successive rounds of increases in income-induced consumption, eventually leading to a multiplied increase in China's real GDP from Y_1 to Y_2, and actual economic growth as seen in Figure 2. This will help to mitigate the negative economic growth that China may experience due to the negative external shocks.
- Furthermore, an increase in I will increase the quantity of capital stock in China, leading to an increase in its productive capacity and hence (LR)AS will increase, allowing for greater potential growth.
- As AD and AS increases in tandem, China can experience sustained economic growth, where real GDP increases from Y_1 to Y_3, but GPL rises only slightly from P_1 to P_3.

Figure 2: Sustained growth from China's greater push for SOEs



Anti-thesis: Explain how reliance on external factors can be beneficial to help China boost its growth rates further

- However, greater reliance on domestic factors may not be as beneficial in boosting China's growth rates. In fact, "growth is likely to suffer", since "the efficiency of SOE-led investments is lower than that of foreign direct investments (FDI)" (Ext 7). This suggests that the increase in AD and (LR)AS in allowing China to experience sustained growth rates in the future may not be as high as compared to reliance on external factors like private foreign investment (investment from external sources).
- Compared to FDI, greater reliance on SOEs may lead to slower actual growth due to the slower than expected growth in I and hence AD. Over time, this can lead to pessimism in the outlook of the economy and negatively affect consumer and business confidence. As C

and I fall because consumers are pessimistic about their future expected incomes, and firms are pessimistic about their future expected profits, this will reduce the benefits associated with greater reliance on domestic factors to boost China's growth rates.

- Moreover, with slower growth, the government will collect less tax revenue, which can in turn limit its ability to enact redistributive policies to reduce income inequality to promote more inclusive growth which will boost China's SOL over time.
- In addition, greater reliance on external factors like X can allow China to tap on its comparative advantage to engage in trade with other countries to boost its growth rates. Given China's endowment of a large population size, it has a comparative advantage in the production of labor-intensive goods and services, which allows it to sell goods like apparel and footwear at a lower price due to its lower opportunity cost of production. This can boost China's export demand and increase it net exports, boosting its actual growth rates via an increase in AD, coupled with the multiplier effect.

Evaluative Conclusion *(a reasoned stand plus 1 well-substantiated ATMS would suffice)*

- **[Stand]** Both domestic factors and external factors can help to contribute towards China's growth rates, but in the long run, China should rely more on domestic factors to boost its growth rates further.
- **[Magnitude/Situation]** Over time, as China improves its efficiency of SOE-led investments with greater R&D efforts, this can help reduce the extent to which growth rates will fall with its greater reliance on internal factors to boost growth. This will also help to reduce its vulnerability to external shocks, allowing China to sustain its growth rates in the long run.
    - China is also shifting away from manufacturing labour-intensive goods for exports and increasing its focus on more high-tech exports like robotics, semiconductors. Time is needed for China to successfully redevelop its new areas of comparative advantage. This will mean that the benefits of relying on external factors like trade to boost China's actual growth would be reduced.

Mark scheme

Level	Knowledge, Application/Understanding, and Analysis	Marks
L2	For a well-developed answer that has: ● **good scope and balance** – explains the benefits of relying on domestic factors AND external factors to boost sustained growth rates; and ● **good rigour** – explains using AD/AS analysis and relevant diagram(s); and ● **good application to context** – uses the case material where appropriate, to support analysis	4 – 6
L1	For an under-developed answer that: ● lacks scope and balance – only explains the benefits associated with greater reliance on domestic factors OR external factors in boosting both actual and potential economic growth; and/or ● lacks rigour – descriptive explanation with little use of AD/AS analysis or diagram	1 – 3

		● lacks application to context – limited use of case material to support analysis	
	Level	**Evaluation**	**Marks**
	E	● A well-reasoned judgement on whether China should rely more on domestic or external factors to boost its growth rates further.	1 – 2

(f) In the light of the Russian-Ukraine conflict, and China turning inwards, discuss how Singapore can boost its economic performance. [10]

Question Interpretation

Command word/phrase	*Discuss how*	Give a balanced analysis (O-W-L framework) of at least two different policies, comprising both demand-management and supply-side, in boosting Singapore's economic performance, before coming to a well-reasoned judgment on the best policy to adopt.
Content	*…boost its economic performance*	The AD/AS analysis and diagram(s) should be used to explain the workings and limitations of the policies to allow Singapore to achieve its macroeconomic goals.
Context	*In the light of the Russian-Ukraine conflict and China turning inwards, Singapore*	The Russian-Ukraine conflict has disrupted global supply chains, contributing to "rising living costs (Extract 9). China turning inwards will mean "bad news for the world economy" as "other countries will receive less of a boost to their economic activity per unit of China's GDP." (Extract 7) The analysis should be applied to the case context, specifically extracts 7 and 9.

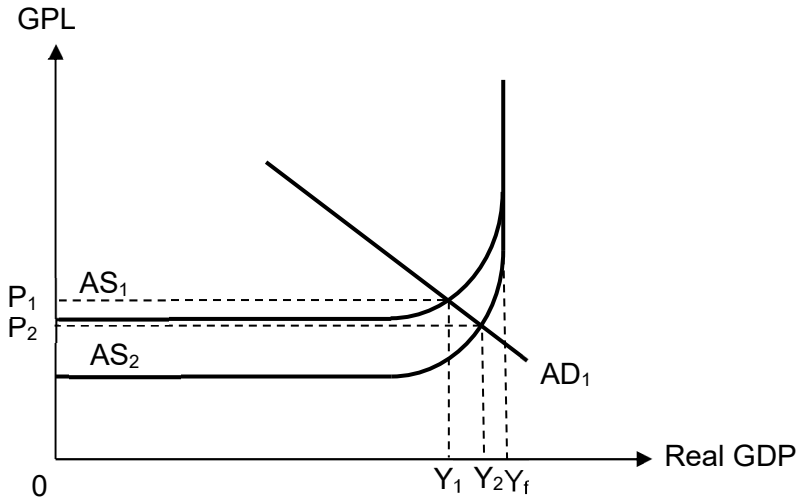
This question requires students to explain at least two different policies, comprising both demand-management and supply-side (using O-W-L framework), in boosting Singapore's economic performance, bearing in mind the context of Russian-Ukraine conflict & inward looking China, before coming to a well-reasoned judgment on the best policy to adopt.

Introduction

- **[Set context]** From Extract 9, the Russian-Ukraine conflict has disrupted global supply chains, which have driven the prices of "oil and gas" and led to "prices of food staples such as wheat and corn skyrocketing." As oil and gas are used in the production of many goods and services economy-wide, and wheat and corn constitute essential raw materials, the increase in prices of these commodities will increase the unit cost of production for Singapore, leading to a fall in its (SR)AS, and result in cost-push inflation.
- **[Outline approach]** Coupled with China turning inwards, which will negatively affect Singapore's economic growth, as earlier explained in part (d), Singapore may choose to implement contractionary exchange rate monetary policy and supply-side measures to boost its economic performance to improve its trade balance (BOT), raise economic growth and promote price stability.

- **Key Argument 1: One measure that Singapore may implement to reduce cost-push inflation and boost its economic performance is contractionary exchange rate monetary policy, but it is not without costs.**
- An appreciation of the Sing dollar via the selling of foreign reserves to purchase more SGD will reduce the prices of imports in SGD. Given that Singapore lacks natural resources and is heavily reliant on imported raw materials for the production of many goods and services, the fall in prices of imported raw materials will reduce the unit cost of production for the economy, leading to a rise in AS.
- Diagrammatically, this is illustrated as a downward shift of the AS curve from AS_1 to AS_2. As AS increases from AS_1 to AS_2 as seen in Figure 3, this will reduce GPL from P_1 to P_2, reducing the cost-push inflation due to the Russian-Ukraine conflict, hence boosting Singapore's economic performance by promoting greater price stability.
- In addition, the increase in AS would also increase the real GDP of Singapore from Y_1 to Y_2, boosting actual economic growth.

Figure 3: Greater price stability from an appreciation of SGD



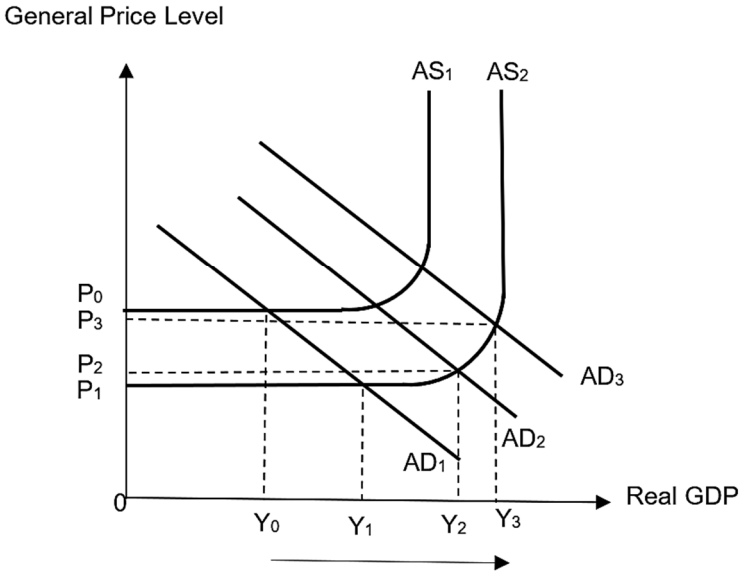
Limitations

- However, an appreciation of the SGD also increases the price of exports in foreign currencies, reducing the quantity demanded for exports. The lower prices of imports in SGD will lead to an increase in the quantity demanded for imported goods and services.
- Assuming that the Marshall-Lerner condition holds, where the absolute sum of the price elasticities of demand and supply for exports and imports is greater than one, an appreciation will lead to a fall in Singapore's net exports (X-M), reducing its AD. Coupled with the reverse multiplier effect (as explained earlier), there would be a multiplied fall in Singapore's real output, leading to the unintended consequence of decreased economic growth. This will mitigate the increase in actual growth from the increase in AS, and possibly, aggravate the fall in economic growth experienced by Singapore from the decrease in (X-M) from the Chinese economy turning inwards.

- **Key Argument 2: The Singapore government may implement supply-side policies to achieve sustained growth, but it is not without limitations.**

- To address the worsening BOT and fall in economic growth, supply-side policies such as subsidising exporting firms in the training of workers and R&D efforts for innovation could be used by Singapore to boost its economic performance.
- These subsidies would reduce the marginal cost of production for firms, incentivising them to increase the training of workers, and engage in greater R&D efforts. As workers' skills improve, this may lead to an increase in labour productivity, allowing the workers to produce more output per man-hour, hence reducing the marginal production costs. At the same time, as the quality of labour increases, this will also increase the productive capacity of the economy. The result is an increase in AS, where the AS curve shifts downwards and rightwards from AS_1 to AS_2. There will hence be higher real output where real GDP rises from Y_0 to Y_1 and lower general price levels (GPL) from P_0 to P_1 as seen in Figure 4.

Figure 4: Sustained economic growth for Singapore



- The lower production costs could be passed on to consumers in the form of lower export prices, allowing Singapore to retain its comparative advantage in exports.
- The greater R&D efforts to innovate, such as in the area of product development, may also raise the quality of Singapore's exports, increasing the attractiveness of Singapore's exports to foreign trading partners. This could lead to a favourable change in taste and preferences towards Singapore's exports, increasing the demand for exports and hence export revenue.
- Hence, there could be an increase in Singapore's (X-M) and hence AD. Assuming spare capacity, the increase in AD from AD_1 to AD_2 will trigger the multiplier effect, where there will be multiplied increases in income-induced consumption, leading to a further increase in AD to AD_3. This results in a multiplied increase in real GDP from Y_1 to Y_3.
- As both AD and AS increases in tandem, there is both actual economic growth as seen in the increase in real GDP from Y_1 to Y_3 and potential growth where the full employment output level Yf rises to the new vertical range of AS_2. Singapore's economic performance is boosted via higher sustained economic growth, allowing it to achieve there is positive and stable actual growth with insignificant increase in GPL.

Limitations

- However, the success of such supply-side policies are uncertain and there are likely long time-lags before these policies bear fruit. The boost in AS and AD would hence tend to be limited in the short run. Moreover, these measures pose a strain on the government's budget, and incur relatively high opportunity costs. The high funding required could be allocated to other sectors like healthcare, which is equally crucial given Singapore's ageing population.

Notes:

- *Alternatively, students may choose to bring in diversification or trade policies e.g. signinf of Free Trade Agreements (FTAs) to improve Singapore's BOT as well. These alternative policies were also accepted.*
- *To ensure sufficient rigour, AD/AS analysis and diagram(s), where appropriate, should also be employed for these alternative arguments.*

Evaluative Conclusion *(a reasoned stand plus 1 well-substantiated ATMS would suffice)*

- **[Magnitude/Situation]** While contractionary exchange rate monetary policy can address cost-push inflation stemming from the Russia-Ukraine conflict and promote price stability, it is not a good measure on its own to boost Singapore's economic performance as it will worsen its BOT and economic growth. Likewise, the long time lags for supply-side policies will mean that they have limited effectiveness in the short run.
- **[Stand]** Therefore, a combination of both contractionary exchange rate monetary policy and supply-side policies is needed to boost Singapore's economic growth. The supply-side policies will help to boost Singapore's economic growth and mitigate the fall in growth from the fall in (X-M) from an appreciation, whereas the appreciation can help to reduce GPL in the short run because of the shorter time lags.

Mark scheme

Level	Knowledge, Application/Understanding, and Analysis	Marks
L2	For a well-developed answer that has: ● **good scope** – analyses two policies, comprising demand-management and supply-side; and ● **good balance** – explains both the workings and limitations of the policies; and ● **good rigour** – uses AD/AS analysis and diagram(s) where appropriate; and ● **good application to context** – uses the case material where appropriate, to support analysis	4 – 7
L1	For an under-developed answer that: ● lacks scope – analyses only one macroeconomic policy, or lacking either AD or AS effects, or only one macroeconomic impact on the economy (e.g. growth); and/or ● lacks balance – analyses only the workings or limitations of the policies; and/or	1 – 3

		● lacks rigour – descriptive explanation little use of AD/AS analysis or diagram; and/or ● lacks application to context – limited use of case material to support analysis or policies chosen are not fully applied to the Singapore context	
	Level	**Evaluation**	**Marks**
	E	● A well-reasoned judgement on the relative effectiveness/appropriateness of the measures Singapore can undertake to address cost-push inflation and falling (X-M) from China turning inwards in order to boost its economic performance.	1 – 3

1 The 2021 global semiconductor shortage was triggered by increased electronic device purchases during the pandemic and supply disruptions caused by Covid-19 shutdowns. As the manufacturing of semiconductors takes time, there are fears of persistent shortages and surging prices. Encouraging recycling of semiconductor component parts from old electronic devices may help mitigate the shortage by dampening the need for new semiconductors.

(a) Explain why there was a persistent shortage in semiconductors and how this may lead to a surge in their prices. [10]

(b) Discuss the possible policies that governments could adopt to address the persistent shortage of semiconductors. [15]

Part (a) Question interpretation

Command word/ phrase	*Explain why…and how*	Give clear reasons and elaborate on the cause-process-effect clearly in the case of both the persistent shortage and the surge in prices.
Content	*Persistent shortage* *Surge in prices*	Quantity demanded > Quantity supplied, coupled with a price inelastic supply. Sharp increase in price due to a price inelastic supply.
Context	*semiconductors*	Analysis must be applied to the market for semiconductors, with relevant examples. Students should tap on the preamble given as well.

This question requires an analysis of the increase in demand and fall in supply of semiconductors. To explain why the shortage was persistent, answers should recognise that the supply of semiconductors is price inelastic, which meant that the quantity supplied could not increase readily enough to mitigate the shortage. Finally, the surge in prices should be attributed to the price inelastic supply as well.

Introduction

- Due to an increase in the demand and fall in supply of semiconductors, there was a shortage of semiconductors.
- Coupled with a price inelastic supply of semiconductors, it led to a persistent shortage which can cause a sharp rise in price.

Key argument 1a: Explain how a shortage arises in the semiconductor market

- **The shortage in the semiconductor market was due to an increase in demand and fall in supply.**
- As a result of the pandemic, many governments issued lockdowns in their countries to curb the spread of the virus. With more people staying at home and switching to remote work arrangements, there was a favourable shift in tastes and preferences towards work-from-home equipment and accessories, such as monitors, webcams and computer speakers.
    - As semiconductors are an essential factor input in the production of these electronic devices, the increase in demand for such products led to an increase in the derived demand for semiconductors.

- At the same time, the shutdown of production plants due to the pandemic led to supply disruptions as production of semiconductors ceased, leading to a fall in supply.
- The increase in derived demand for semiconductors is shown as a rightward shift of the demand curve from D0 to D1 in Figure 1. On the other hand, the fall in supply is shown as a leftward shift of the supply curve from S0 to S1.
- At the original market equilibrium price P0, the quantity demanded Qd exceeds the quantity supplied Qs, leading to a shortage of Qd-Qs.

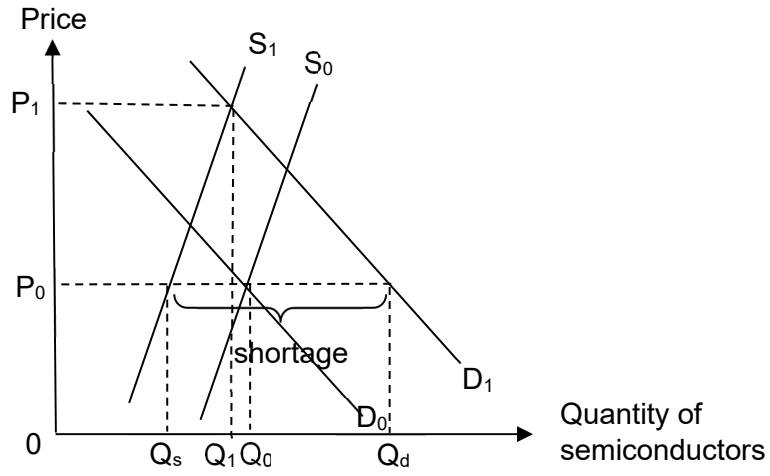
Key argument 1b: Explain why there is a persistent shortage in the semiconductor market

- **The persistent shortage in the semiconductor market is due to the price inelastic supply of semiconductors.**
  - Although the shortage exerts an upward pressure on the price, the quantity supplied of semiconductors does not increase readily to eliminate the shortage due to supply being price inelastic.
  - The supply of semiconductors is price inelastic as the production process of semiconductors can be lengthy and complex. For instance, there can be up to over a thousand steps involved in the manufacturing of semiconductors and hundreds of different types of materials are used during the process itself.
  - In addition, many of the plants are likely to be operating at full capacity. Attempts to build new plants or acquire new equipment will take time.
  - Hence, existing semiconductor manufacturers may find it difficult to increase their quantity supplied of semiconductors in response to the higher prices, making the supply highly price inelastic.
- While the price would have increased because of the shortage, the increase in quantity supplied is less than proportionate to the increase in price, making it very likely that the increase in quantity supplied is insufficient to eliminate the shortage. Hence the shortage is expected to persist.

Key argument 2: Explain how the persistent shortage may lead to a surge in the prices of semiconductors

- **To clear the persistent shortage, a very large increase in price is needed to increase the quantity supplied sufficiently.**
- As price increases from P0 to P1, the quantity demanded for semiconductors falls while the quantity supplied increases. This market adjustment process continues until the market reaches a new equilibrium where price increases sharply to P1 and quantity falls to Q1. At this new equilibrium, the shortage is eliminated as quantity supplied equals quantity demanded.

Figure 1: Market for Semiconductors



Conclusion

- In conclusion, the persistent shortage and surge in prices of semiconductors are due to the increase in demand and fall in supply of semiconductors, coupled with its price inelastic supply.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: ● **good scope** – analyses how increase in demand and fall in supply lead to both a persistent shortage and surging prices; and ● **good rigour** – utilises DD/SS analysis and diagram together with price elasticity of supply concept; and • **good application to context** – explains with examples related the market for semiconductors.	8 – 10
L2	For an under-developed answer that: ● **lacks scope** – analyses how increase in demand and/or fall in supply lead to a persistent shortage and/or surging prices; and/or ● **lacks rigour** – gives a descriptive explanation of how a persistent shortage and surging prices arise; and/or • **lacks application to context** – explains without application to context of the semiconductors market.	5 – 7
L1	For an answer that is largely descriptive, shows little or no application of economics, and contains conceptual errors. Answer lacks diagrammatic analysis.	1 – 4

(b) Discuss the possible policies that governments could adopt to address the persistent shortage of semiconductors. [15]

Part (b) Question interpretation

Command word/phrase	*Discuss*	Explain the workings and limitations/ unintended consequences of at least 2 policies to address the shortage.
Content	*Policies … Address the persistent shortage*	Policies to increase supply, lower demand and/or increase the price elasticity of supply of semiconductors are valid.
Context	*semiconductors*	Analysis must be applied to the market for semiconductors, with relevant examples. Students should tap on the preamble given as well.

A relevant answer requires a balanced analysis (both the workings and limitations or unintended consequences) of policies to address the persistent shortage. These policies should be a mix of policies to increase supply, lower demand and/or increase the price elasticity of supply of semiconductors. A coverage of two policies will suffice. In the evaluative conclusion, there should be comparison across the policies to determine which is the most effective or appropriate policy.

Introduction

- To address the shortage of semiconductors, governments may adopt policies to increase the supply of semiconductors, reduce the demand or make the supply more price elastic.
- Such policies may include subsidies to lower cost of production, grants to encourage recycling and reuse of semiconductors, or the accumulation of a stockpile of semiconductors.
- The limitations and unintended consequences of these policies would also be analysed to evaluate their appropriateness.

Key argument 1: Explain how governments may provide grants to the producers of electronic products to reduce their derived demand for semiconductors

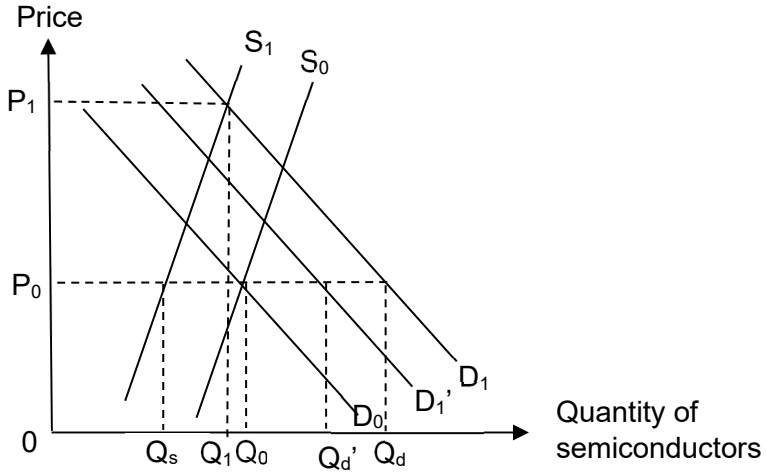
- **Governments may provide grants to the producers of electronic products to reduce their derived demand for semiconductors.**
- For instance, to mitigate the shortage, governments may provide grants to encourage manufacturers of electronic products to recycle or reuse semiconductors from products that are obsolete.
- Government grants may be provided to incentivise manufacturers of smartphones and laptops to set up collection points for the collection of old electronic devices, so as to salvage components to be recycled or reused.
- This reduces the demand for new semiconductors to produce electronic devices.

OR

- For instance, to mitigate the shortage, governments may provide grants to encourage manufacturers of electronic products (e.g. smartphones, smart LED lightbulbs) to innovate and provide virtual “product” upgrades via over-the-air software updates.
- With such software updates that lengthen the product lifetime, consumers may need fewer replacements, thus reducing their demand for new electronic devices. This would in turn reduce the derived demand for semiconductors, which are used in the production of these electronic devices.

- The fall in demand for semiconductors is shown as a leftward shift of the demand curve from D1 to D1' in Figure 1, thus reducing the shortage from Qd-Qs to Qd'-Qs.

Figure 1: Effect of a decrease in demand

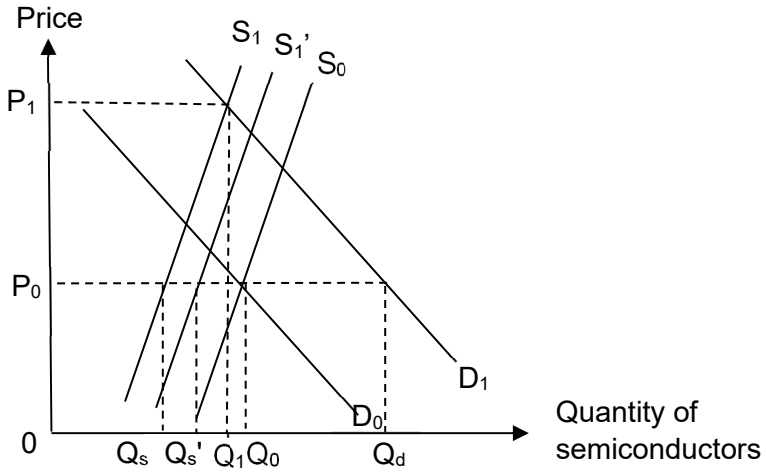


- **However, such a policy to reduce the derived demand for semiconductors has its limitations.**
- Recycling may not be effective if consumers lack the effort and habit to recycle unwanted electronic devices. Manufacturers of electronic products may also lack the expertise or infrastructure necessary to salvage the components from the electronic devices and to recycle or reuse them.
- Despite product software updates, demand for new electronic products may not fall significantly if consumers are constantly chasing after the newest innovations in the market. Time is needed for consumers to change their wasteful consumption habits.
- With these limitations, the derived demand for semiconductors may not fall significantly, thus limiting the effectiveness of the government grants.

Key argument 2: Explain how governments may subsidise the production of semiconductors to increase its supply

- **Governments may provide a subsidy for each unit of semiconductor sold by manufacturers in order to increase the supply and hence reduce the shortage.**
- This reduces the costs of producing semiconductors, increasing producers' profit margins. As such, it incentivises producers of semiconductors to increase the supply by investing in process innovation or by expanding their production capacity.
    - In addition, because setting up semiconductors production plants may be costly, government may provide subsidies to lower the set-up costs and barriers to entry, hence encouraging new entrants to enter the market. This increases the number of firms producing semiconductors, which increases supply in the market.
    - As supply increases, the supply curve for semiconductors shifts rightwards from S1 to S1' in Figure 2, reducing the shortage from Qd-Qs to Qd-Qs'.

Figure 2: Effect of an increase in supply



- **However, there are limitations and unintended consequences to subsidies.**
- Subsidies tend to be politically hard to retract from these stakeholders once they are given. The government expenditure on semiconductors may be high, placing a strain on the government's budget. Over time, the government may even end up with a budget deficit where its expenditure exceeds its revenue, making the policy unsustainable. This limits the effectiveness of the policy to reduce the shortage in the long run.
- Given the limited government funds for spending, there could be an unintended consequence as a subsidy would incur an opportunity cost to society as funds will be diverted away from other uses such as education – thus forgoing the potential improvements in equity in that market.

Optional Key argument 3: Explain how governments may increase the availability of factor inputs / increase the stock levels of semiconductors to increase the price elasticity of supply

- **As the persistent shortage is contributed by a price inelastic supply, governments can mitigate the shortage by making the supply of semiconductors more price elastic.**
- For instance, governments can diversify the sources from which factor inputs (e.g. silicon wafers) to manufacture semiconductors are obtained. This helps to increase the availability of factor inputs used to produce semiconductors, thus making its supply more price elastic.
- Alternatively, governments may also build a national stockpile of semiconductors. They may do so by directly purchasing from manufacturers and suppliers, or by supporting R&D initiatives in the semiconductor industry to stimulate innovations and enhance domestic production capabilities, thus leading to a more robust stockpile. Having an emergency stockpile of semiconductors enables the governments to release these stocks readily in times of shortage, thus making the supply more price elastic.

- With a more price elastic supply, the increase in price of semiconductors due to the shortage will lead to a more than proportionate increase in quantity supplied, enabling the shortage to be eliminated more quickly.

- **However, measures to increase the price elasticity of supply have their limitations.**
- Geopolitical factors and trade relations between countries can influence the ease of diversifying the supply chain. Trade policies and tariffs may impact the movement of factor inputs across borders.
- Efforts to accumulate a stockpile of semiconductors can be a challenging task for governments, as it involves complex logistics, costs, and considerations. Furthermore, it is a short-term measure as releasing the stocks can only address shortages in the short run before the stocks are depleted.

Evaluative conclusion *(a reasoned stand that follows from the above analysis + 1 well-developed ATMS evaluative angle would suffice)*

- **[Stand]** In my opinion, the most effective policy to mitigate the persistent shortage of semiconductors would be the subsidies to increase supply.
- **[Magnitude]** It can be an uphill task to reduce the derived demand for semiconductors given that they are so widely used in all electronic products. Furthermore, with the use of electronic devices ingrained in the lifestyle of people, the demand for semiconductors may not fall significantly despite the best efforts of the government. In fact, with the increasing use of technology and electronic devices, the demand is likely to continue to increase. Hence, efforts to dampen demand may be fairly ineffective. As such, governments should focus more on increasing the supply of semiconductors. Subsidies to increase the production capacity of existing manufacturers and to attract new firms to the industry is probably more effective in mitigating both current and future shortages.

Part (b) Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: ● **Good scope and balance** – analyses the effectiveness and limitations/unintended consequences of at least two policies (increase supply / lower demand / increase PES) to address the persistent shortage; and ● **Good rigour** – explains how the policies work to address the persistent shortage using DD/SS analysis and diagram(s); and ● **Good application to context** – explains policies with reference to the global semiconductor shortage.	8 – 10
L2	For an underdeveloped answer that: ● **lacks scope and balance** - analyses the effectiveness and/or limitations/unintended consequences of only one policy (increase supply / lower demand / increase PES) to address the persistent shortage; or ● **lacks rigour** – gives a descriptive explanation of the policies without diagrammatic analysis; or	5 – 7

	● **lacks application to context** – explains without reference to the global semiconductor shortage.	
L1	For a well-developed answer that has: ● **Good scope and balance** – analyses the effectiveness and limitations/unintended consequences of at least two policies (increase supply / lower demand / increase PES) to address the persistent shortage; and ● **Good rigour** – explains how the policies work to address the persistent shortage using DD/SS analysis and diagram(s); and **Good application to context** – explains policies with reference to the global semiconductor shortage.	1 – 4
Level	**Evaluation Synthesis**	**Marks**
E3	For a well-substantiated evaluation that uses economic analysis to arrive at a **well-reasoned** judgement on the most effective/appropriate policy to address the semiconductor shortage.	5
E2	For an answer that makes some attempt at a judgement about the most effective/appropriate policy to address the semiconductor shortage. However, there may be some logical flaws in the judgement and/or inaccuracies in the synthesising process.	3 – 4
E1	For a largely unexplained judgement that addresses the question of which is the most effective/appropriate policy but is not supported by economic analysis.	1 – 2

2 Many businesses engage in a variety of price and non-price strategies in a bid to gain market share. Recognising that environmental concerns have become important considerations for consumers' buying decisions, some firms now look into more eco-friendly product development to differentiate themselves from their rivals.

(a) Explain how the degree of market competition in an industry affects the price and output decisions of a firm. [10]

(b) Discuss whether product differentiation is the best strategy for a firm aiming to increase its market share. [15]

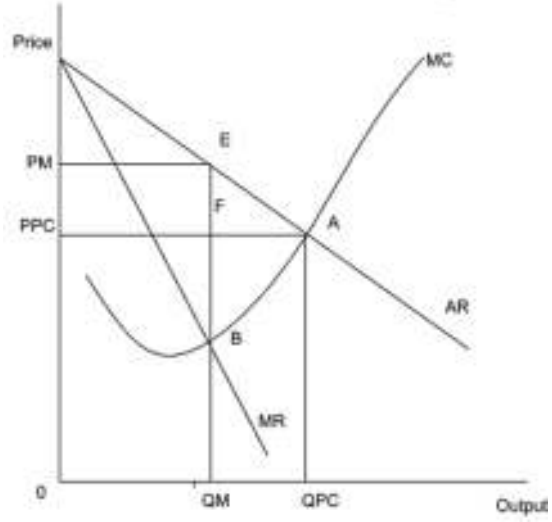
Part (a) Question interpretation

Command word/phrase	*Explain how*	Give economic reasons and details of the process
Content	*Degree of market competition*	Different spectrum of competition in the market – Perfectly Competitive market and Monopolistic competitive market, vs highly imperfect competitive markets such as Oligopoly & Monopoly
	Price & output decisions	Profit max price and output; MC= MR!
Context	*Firm*	*No specified context*

Students are required to explain that the price and output decisions differ under different industries operating under different degrees of market competition.

- **KA1: More market competition leads to lower prices and higher output / Less market competition leads to higher prices and lower output.**
- In a perfectly competitive (PC) market, there are **no barriers to entry**, with many small firms selling homogenous products resulting in very high levels of competition. Each firm has negligible market share and is a **price taker**. With reference to Figure 1, the firm must **accept the market price, Ppc, determined by market demand and supply**. Any attempt to set prices above the Ppc results in the firm losing all its market share as customers flock to their rivals. There is no incentive to cut prices as the firm **can sell all it wants at Ppc**.

Figure 2a: Price and output decisions under Perfect Competition and Monopoly



- A monopoly, on the other hand, faces **less market competition due to high barriers to entry**. It faces a relatively price-inelastic demand curve (AR), enabling it to restrict output to keep prices high. **To maximise profits, a firm in a less competitive market will produce at the point Qm where MC= MR, where MC is rising and cuts MR from below** as shown in Figure 1. Any production level less than Qm means that the firm can increase profits by producing more, since MC is lower than MR (additional revenue from producing an extra unit exceeds additional cost). Any production level to the right of this point means that the firm can increase profits by producing less, since MC is more than MR (additional cost of producing an extra unit exceeds additional revenue). The very low level of market competition allows the monopolist to **charge high prices of Pm**, which is higher than Ppc, by restricting output.

KA2: Explain how mutual interdependence results in price rigidity

- In some cases, oligopolies may exhibit **price rigidity due to mutual interdependence** between firms. As an oligopolistic market is dominated by a small number of large firms, each firm makes its price and output decisions by taking into account the possible reactions from its rivals.
- Rival firms in an oligopolistic market tend to match price decreases but not price increases. As a result, a rise in price may lead to a firm experiencing a more than proportionate fall in quantity demanded (price-elastic demand), while a price cut results in a less than proportionate increase in quantity demanded (price-inelastic demand). In both cases, total revenue falls for the firm. Hence, in terms of pricing behavior, there is a limited tendency for a firm to deviate from the equilibrium price, even in the presence of small changes in marginal costs.
- For example, if the raw material cost rises for an oligopolistic firm, the firm may absorb the rise in cost rather than pass them on to the consumers in the form of higher prices, for fear of losing a disproportionate number of consumers to rivals.
- In contrast, price rigidity is not observed in monopolistic competition, since each firm only has a small market share and makes independent price and output decisions.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: • **Good scope** – explains price and output decisions under different market competition; and • **Good rigour** – analyses using relevant economic concepts or theories (MC=MR) and supports analysis with fully-labelled and accurate diagram(s); and • **Good contextual application** – uses appropriate examples applied to the context of firms	8 – 10
L2	For an underdeveloped answer that: • Lacks scope – explains only the price and output of one type of market failure; and/or	5 – 7

	• Lacks rigour – descriptive answer without application to any context or any diagrammatic explanations.	
L1	For a largely irrelevant response that contains serious and pervasive errors, with non-existent or minimal application of economic concepts or theories.	1 – 4

(b) Discuss whether product differentiation is the best strategy for a firm aiming to increase its market share. [15]

Part (b) Question interpretation

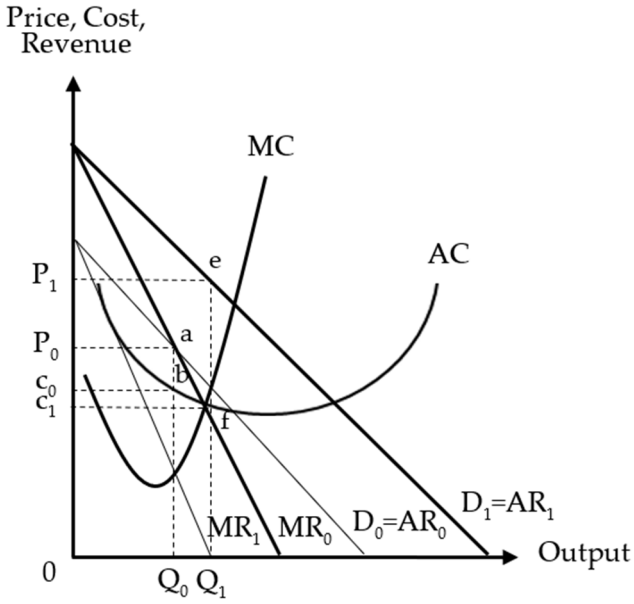
Command word/phrase	*Discuss*	This question requires students to present a balanced analysis before coming to a well-reasoned judgement.
Content	*Product differentiation* *Best strategy to increase market share*	Product innovation to add more features Need to compare to another strategy to assess which is better for increasing market share by producing more output
Context	*Firm*	Open context — use any appropriate real-life examples to support your arguments

Introduction

- A firm's market share can be defined as the percentage of industry output produced by a firm.
- Given an industry demand, a firm can maximise its market share by either increasing its output to increase its market share, or maintaining its output to maintain its maximised market share.
- Product differentiation or product innovation is just one strategy to do so, and it may not always be effective. There exists other strategies such as lowering prices to increase market share.

- **KA1: product differentiation is the best strategy for a firm that aims to maximise its market share.**
- Product differentiation can be in the form of product development or product promotion. Product development will focus on creating a real difference between the firm's products and its competitors'. This is done by enhancing the quality or variety of products offered, via investments in R&D.
- When product differentiation is successful, it would increase the preference for the firm's product and increase demand for its product.
- As seen in Figure 2 b, demand after product differentiation increased from AR0 to AR1. Since the firm aims to maximise profits at MC= MR1, the firm's output increased to Q1. Assuming industry demand remains unchanged, the firm has increased its market share.

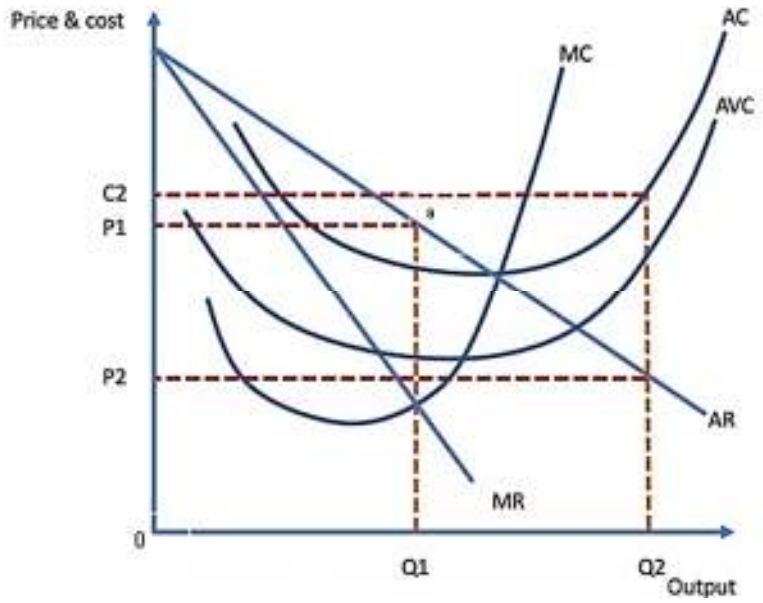
Figure 2b: Effects of product differentiation



- **Limitation: Product differentiation is not the best strategy for a firm that aims to maximise its market share.**
- A lot hinges on whether the product differentiation is successful, which is key to increasing demand. It is possible that the new product feature may not be as popular as anticipated and result in a smaller than expected rise in AR, which means output for the firm and its market share did not increase as much.
- It can be extremely costly for firms to engage in R&D to look into creating real differences of its products as compared to rivals. The rise in costs may need to be passed on to consumers. For products in highly competitive markets where there is high substitutability i.e. higher price elasticity of demand , the higher prices may even result in a fall in equilibrium output if the product turns out to be less popular.

- **KA2: Lowering prices is the better strategy for a firm that aims to maximise its market share.**
- Predatory pricing is the strategy of charging lower prices to drive out rival firms. The price set is so low that the firm may suffer a loss in profits temporarily, until the rival firms are driven out. Suppose the firm is initially producing at its profit-maximising price and output at P1 and Q1 in Figure 2c below.

Figure 2c: Effects of predatory pricing



- To drive rival firms out, the firm lowers its price to a predatory price, P_2 that is below its profit maximising price P1. When the firm lowers its price to P_2, this constitutes a fall in price of substitute for the rival firms' product. Subsequently, rival firms' products will face a fall in demand. Ideally, this fall in demand would be significant such that the rival firms end up earning subnormal profits, where average cost exceeds average revenue at their profit-maximising output. Rival firms may end up producing at a small output and incur a higher average cost that exceeds the price they charge in the long run. Since rival firms earn subnormal profits in the long run, they will exit the market.
- When rival firms exit the market, demand for the firm's product increases, and becomes more price inelastic due to the lower number of substitutes for its product. The firm will now produce a higher output (compared to before the adoption of predatory pricing). Assuming industry demand remains unchanged, the firm's market share will increase in the long run.
- Predatory pricing is viable for the firm to carry out if the nature of the industry allows for extensive IEOS to be reaped. Therefore, the firm would incur an average cost that is lower than what new entrants or existing rivals would incur. This allows the firm to lower prices below the cost of small firms and still earn normal profit i.e. avoid operating at a loss.

- **Limitation: Lowering prices is not the best strategy for a firm that aims to maximize its market share.**
- If the firm is a competitive oligopoly, the firms are mutually interdependent. And if the assumption of the kinked demand curve theory holds true, it faces a demand that is kinked at the current price. As such, they are rival conscious. Therefore, when the firm lowers its price, its competitors would follow suit. This results in a less than proportionate increase in quantity demanded for the firm. Therefore, the increase in output, and hence, market share, would be insignificant.

Optional KA3: non-price strategies e.g. advertising or other valid strategies e.g. merger)

- Firms may spend heavily on marketing of their products by creating ads to create an impression of reliability and trustworthiness among consumers. This helps to increase AR and make demand more price inelastic due to more brand loyalty. For instance, FedEx has spent millions of dollars on advertising in digital, print and national TV to advertise the brand and

popularise its services. This helps the firm to increase market share, assuming total demand stays the same.
- **Limitation:** However, this strategy **may be costly or not successful.**

Evaluative conclusion *(a reasoned stand that follows from the above analysis + 1 well-developed ATMS evaluative angle would suffice):*

- **[Stand]** Price strategies may be more effective to gain market share **as compared to** product differentiation due to the speed at which it can be implemented.
- **[Time + Situation]** Based on the time required to increase market share, lowering prices is a more effective strategy. Product differentiation, especially product development, may only take effect in the long run. It is a complex and time-consuming process, as multiple attempts at research and development may be undertaken before product differentiation is successful.
- **[Magnitude]** The success of product differentiation strategy is also very much dependent on how well consumers take to the improved product features, while pricing strategies hit consumers directly in the pocket which is more likely to induce higher consumption and help firms gain market share.
- **[Assumption]** Our analysis thus far is based on the assumption that industry demand remains unchanged. However, it is likely that over time, industry demand may in fact change. For example, if it increases over time, the growing market can accommodate more competitors, which may make it harder for a firm to maximise market share. Therefore, there is a need for the firm to anticipate changes in industry demand when deciding on the degree of product differentiation or how much prices should be lowered.

Part (b) Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: ● **Good scope** – explains the strategy of product differentiation and at least one other strategy to increase market share, and ● **Good balance** – explains both the workings and limitations/unintended consequences of the two policies, and ● **Good rigour** – utilises appropriate firm analysis, together with relevant economic diagrams, and ● **Good application to context** – supports analysis with appropriate real-world examples of firms.	8 – 10
L2	For an underdeveloped answer that: ● Lacks scope – explains only product differentiation, and/or ● Lacks balance – explains only the workings of the two policies, and/or ● Lacks rigour – gives a descriptive explanation the analysis or missing diagrammatic analysis, and/or ● Lacks contextual application – theoretical answer with minimal real-world examples.	5 – 7

L1	For a largely irrelevant response that contains serious and pervasive errors, with non-existent or minimal application of economic concepts or theories.	1 – 4
Level	**Evaluation Synthesis**	**Marks**
E3	Takes a clear overall stand that is comprehensively justified by providing convincing evaluative comments on which is the best strategy.	5
E2	For an answer that makes a clear overall stand but is only partially justified as o Only some of the points mentioned in the body were evaluated o The overall stand was largely justified by the inclusion of additional concluding points to sway the overall argument o The arguments used to evaluate individuals points were unconvincing or somewhat flawed.	3 – 4
E1	For a reasoned questioning of the effectiveness or appropriateness of one policy. Answers in this range would provide an evaluation for at least one of the body arguments and/or provide insightful opinion(s) which might are not directly relevant to question requirements.	1 – 2

3 Since the outbreak of "monkey pox" (mpox) in May 2022, there have been 88,600 confirmed cases and 152 deaths. However, as compared to the Covid-19 vaccinations which have been made widely available and provided for free by the Singapore government, this is not the case for mpox vaccinations. This is because the risk to the general public remains low with disease transmission predominantly via close physical or prolonged contact.

(a) Explain why vaccinations against infectious diseases if left to market forces, might be allocated inefficiently. [10]

(b) Discuss the view that the extent of government intervention always depends on the degree of market failure. [15]

Part (a) Question interpretation

Command word/phrase	*Explain why*	To give a thorough explanation of why vaccinations against infectious diseases if left to market forces, might result in allocative inefficiency.
Content	*Allocated inefficiently*	Explain the two sources of market failure – positive externalities and imperfect information
Context	*Vaccinations against infectious diseases*	Responses are to bring in the market for vaccinations against infectious diseases

A relevant response requires an explanation of the two causes of market failure – positive externalities and imperfect information

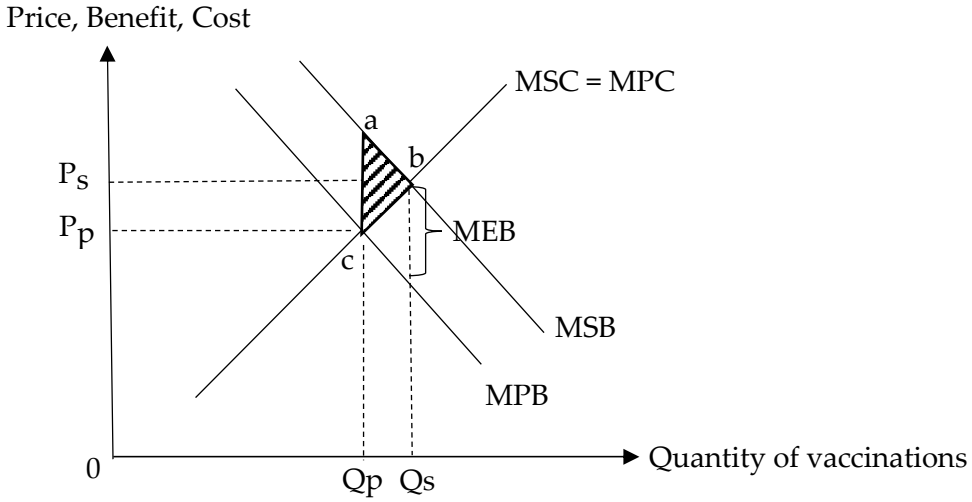
Introduction – outline approach

- This essay will explore how the issue of positive externalities and imperfect information results in the free market not being able to allocate vaccinations against infectious diseases efficiently.

Key Argument 1: Explain why positive externalities results in the free market not being able to allocate vaccinations against infectious diseases efficiently

- **Positive externalities results in the free market not being able to allocate vaccinations against infectious diseases efficiently.**
- Vaccinations against infectious diseases will be under consumed if left to the free market forces alone.
- **[Private costs and benefits]** In deciding how much vaccines to consume, individuals consider only their private benefits and costs. The MPB of consuming the vaccines could be the protection from infectious diseases such as monkeypox or Covid-19, while the MPC of consuming the vaccines includes the price of the vaccination shots.
- **[External benefits]** The consumption of measles vaccination generates positive externalities as it confers external benefits on third parties who are not involved in the production or consumption of the vaccine.
- **[Third parties]** The consumption of the vaccine can help to prevent the spread of monkeypox or Covid-19 which is highly infectious to third parties such as family members and friends.

Figure 1: Market failure for vaccination against infectious diseases resulting from positive externalities

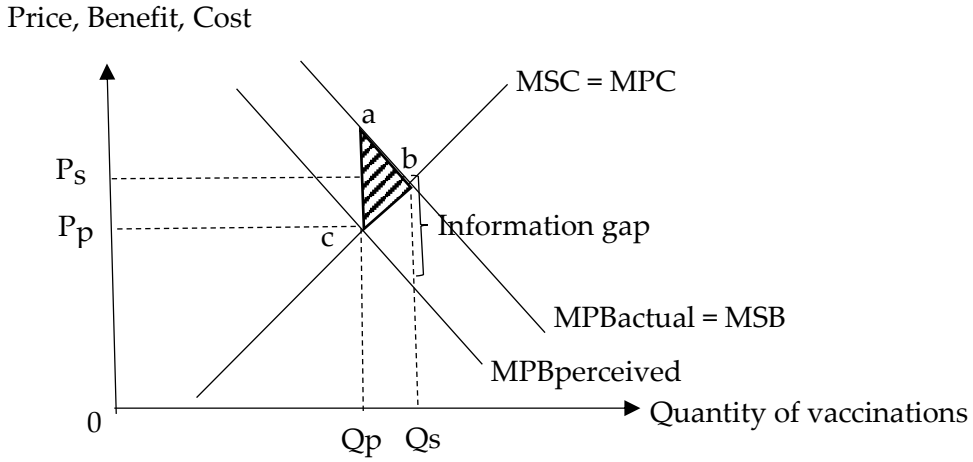


- **[Divergence between perceived MPB and MSB]** In Figure 1, the existence of positive externalities creates a divergence between the MPB and the MSB where MSB > MPB. Assuming that there are no negative externalities, MPC = MSC.
- **[Qp vs Qs]** If left to the free market, consumers would only consider their perceived MPB and MPC and would consume Qp units of vaccines, where MPC = Perceived MPB. However, the socially optimum level of consumption is Qs units, where MSB = MSC. There is under-consumption of QpQs units of vaccines against infectious diseases as the private optimal level of consumption at Qp is less than the socially optimal level of consumption at Qs.
- **[Deadweight loss]** From Qp to Qs units, the total social benefits (area QpabQs) exceeds the total social costs (area QpcbQs). The shaded area 'abc 'represents the deadweight loss which is the welfare loss to society. The private optimal quantity is allocative inefficient.
- Thus, government intervention is needed to address the issue of allocative efficiency resulting from positive externalities in the market for vaccinations against infectious diseases.

Key Argument 2: Explain why imperfect information results in the free market not being able to allocate vaccinations against infectious diseases efficiently.

- **[Imperfect information]** In addition, many consumers under-estimate the actual benefits that they could gain from being vaccinated, such as the long-term protection against the disease, and hence either missed their vaccines or did not complete the required dosage for lifelong protection.
- Hence as consumers **underestimate the full private benefits** of consuming vaccinations against infectious diseases, they perceive the MPB to be lower than what it actually is.
  - The MPBactual curve lies above the $MPB_{PERCEIVED}$ curve by the extent of information gap.
  - Assuming that there are no negative externalities, MPC = MSC

Figure 2: Market failure for vaccination against infectious diseases resulting from imperfect information



- **[Qp vs Qs]** If left to the free market, the consumers consume **Qp** units of insulin, where $MPB_{PERCEIVED}$ = MPC, as they only consider their perceived private costs and benefits. However, the social optimal level of consumption is **Qs** units, where MPBactual = MSB = MSC.
- Since Qp < Qs, there is **underconsumption** of insulin.
- **[Deadweight Loss]** From Qp to Qs units, the total social benefits (area QpabQs) exceeds the total social costs (area QpcbQs). Hence, causing a **deadweight loss** to society shown by the shared area abc.
- Thus, government intervention is needed to address the issue of allocative efficiency resulting from positive externalities in the market for vaccinations against infectious diseases.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: • **Good scope** – explains the two different causes of market failure i.e positive externalities and imperfect information, and • **Good rigour** – recognises and understand the external benefits and the imperfect information as well as illustrating allocative inefficiency with a fully-labelled and accurate diagram that recognises the context.	8 – 10
L2	For an underdeveloped answer that: • Lacks scope – explains only one cause of market failure, and/or • Lacks rigour – descriptive answer without application to any context or any diagrammatic explanations.	5 – 7
L1	For an answer that shows some knowledge of different types of market failure causes but not specific to positive externalities and imperfect information	1 – 4

(b) Discuss the view that the extent of government intervention always depends on the degree of market failure. [15]

Part (b) Question interpretation

Command word/ phrase	*Discuss the view*	Examine and present a balanced argument on whether the extent of government intervention always depends on the degree of market failure or on other factors
Content	*Extent of government intervention* *Always depends on degree of market failure*	Extent of government intervention refers to how much the government intervenes in the market resulting from market failure Question suggests that the higher the degree of market failure, the more the government intervention. Responses should also suggest other factors that affect the extent of government intervention such as the level of inequity or the budget priorities or constraints of the government.
Context	*No context*	No context but responses can take reference to the context in the preamble about vaccinations against infectious diseases such as Covid-19 or monkeypox

Students will need to explain at least two factors (degree of market failure or any other relevant factor such as degree of inequity) on the extent of government intervention. Finally, a well-reasoned evaluative conclusion on the relative significance/ importance of the different factors based on a well-reasoned ATMS angle.

Introduction

- The extent of government intervention may depend the extent of market failure or on other factors such as the level of inequity. In this essay, I will be exploring which factor is more significant in influencing the extent of government intervention in the market of vaccinations against infectious diseases as well as the market for education.

Body

Key Argument 1: Explain how to level of government intervention depends on the level of market failure

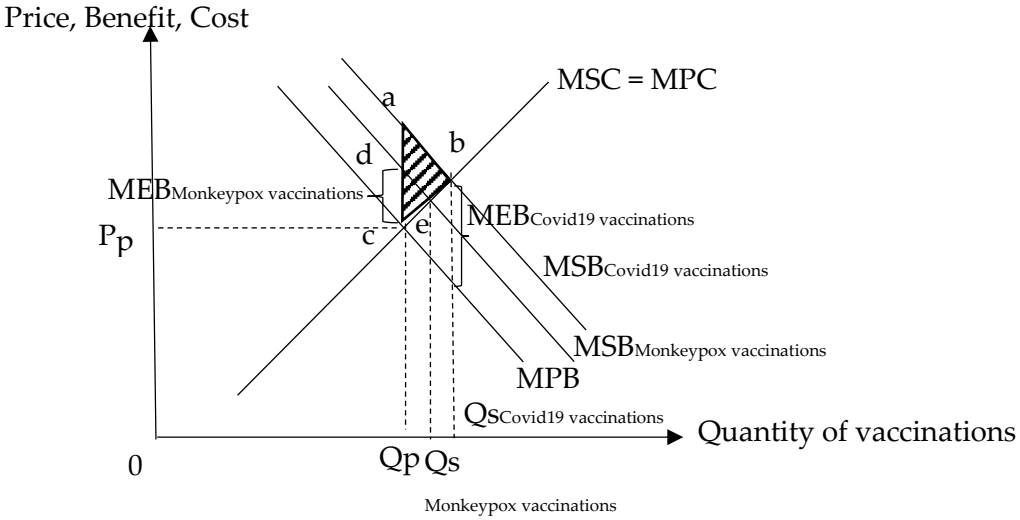
Compare the extent of market failure in the market for vaccinations against Covid-19 vaccinations against monkeypox:

- The market for vaccinations against infectious diseases results in allocative inefficiency due to positive externalities as well as imperfect information.
- However, due to the extent of positive externalities, the vaccination against Covid-19 results in a greater extent of positive externalities and hence resulting in a greater extent of allocative inefficiency / market failure.
- This is because for monkeypox, as shown in the preamble, “risk to the general public remains low with disease transmission predominantly via close physical or prolonged contact”. This suggests that the risk of transmission for Covid-19 is still much higher than for monkeypox.

Hence, the consumption of the Covid-19 vaccine can help to prevent the spread of Covid-19 which is more infectious to third parties such as family members and friends.

- Hence, with reference to Figure 3, as Covid-19 is much more infectious than monkeypox currently, the level of MEB for Covid-19 vaccinations is higher than the level of MEB for monkeypox vaccinations.
- Hence, the level of underconsumption between Qp and Qs Covid-19 vaccinations vs Qp and Qs Monkeypox vaccinations is also greater.
- From Qp to Qs Covid19 vaccination units, the total social benefits (area QpabQs) exceeds the total social costs (area QpcbQs). The shaded area 'abc 'represents the deadweight loss which is the welfare loss to society. This deadweight loss area abc is also larger than the deadweight loss area 'cde'. This results in a greater extent of market failure in the vaccinations for Covid-19.

Figure 3: Comparing the extent of market failure between vaccinations against Covid-19 and vaccinations against Monkeypox



- The preamble also suggests that Covid-19 vaccinations are provided to all and for free, while Monkeypox vaccinations are not available to all and provided free.
- Hence, this suggests that the government intervened more in the market for Covid-19 vaccinations than in the market for monkeypox vaccinations as the extent of market failure for Covid-19 vaccinations is greater than extent of market failure for Monkeypox vaccinations.

Key Argument 2: Explain how the extent of government intervention may not aways depend on the extent of market failure, but instead on the extent of inequity

- Governments intervene due to two reasons – to improve efficiency and/or improve equity.
- **Hence, the extent of government intervention may not always depend on the extent of market failure (allocative efficiency) but instead, the level of inequity in the market.**
- Inequity is when there is an unfair distribution of economic welfare in the market for necessities or essential goods, especially when the poor/ lower income groups are priced out of the free market when the prices of essential goods are too high.
- In the market for private education (e.g private tuition or enrichment classes), the level of government intervention is low because of how private education, compared to public education, is not a necessity good.

- In both private and public education, there are also two sources of market failure involved – positive externalities and imperfect information, similar to the market of vaccination against infectious diseases.
- However, between private and public education, governments intervene more heavily in the market for public education compared to private education. For example, in the year 2022 alone, Singapore government allocated around $13.6 billion dollars to the Ministry of Education, which takes up about 13% of the entire government expenditure. In Singapore, the SG government has also mandated that all Singapore students born after 1 Jan 1996 and living in Singapore must attend a national primary school unless exemption is granted. The primary, secondary and post-secondary education in Singapore are also heavily subsidised. However compared to public education, the government has little to no intervention in the private education market.
- This is because while the private education also generates positive externalities and has imperfect information, it is not considered a necessity or an essential good given that there is already public education made available to most. In comparison, public education is considered a necessity and an essential good, where all children will benefit from public education. Hence, as seen from the examples above, the level of government intervention is high in the market for public education due to the level of inequity that may arise if there is no government intervention.

Evaluative conclusion *(a reasoned stand that follows from the above analysis + 1 well-developed ATMS evaluative angle would suffice):*

- **[Stand + Magnitude]** Out of the two factors discussed, we can see that the extent of government intervention may not always depend on the extent of market failure. Instead, it depends on the market involved and whether efficiency or equity is of a bigger issue to the government. In some instances, the level of government intervention may also depend on the extent of both the market failure as well as the extent of inequity.
- **[Alternative]** Furthermore, governments may also consider other factors such as the level of government budget and government goals or priorities, when deciding on the extent of government intervention. The government budget will also influence how much is spent on a particular sector/ market as there are limited resources but unlimited wants, resulting in scarcity and hence necessitating choice between two or more competing demands.
- **[Situation]** Furthermore in Singapore, the government prioritizes heavily on the role of education as a social leveler and hence, a large proportion of the government budget is allocated to public education. The Singapore government sees the importance of education and has established the meritocratic system which ensures that all students are given access to education regardless of their socio-economic status, in order to provide ample opportunities to progress based on merit.

Part (b) Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: ● **Good scope** – explains both how the extent of government intervention in markets depends on the extent of market failure as well as other factors such as the level of inequity , and ● **Good balance** – explains both market failure as well as other reasons for government intervention, and ● **Good rigour** – utilises appropriate market failure analysis, together with real-world examples applied.	8 – 10
L2	For an underdeveloped answer that: ● Lacks scope – limited explanation of both extent of government intervention in markets depending on the extent of market failure as well as other factors such as the level of inequity, and/or ● Lacks balance – only has market failure arguments, and/or ● Lacks rigour – gives a descriptive explanation of comparing the extent of market failure without rigorous market failure analysis.	5 – 7
L1	For an answer that shows some knowledge of how the extent of market failure affects the extent of government intervention. Answer may contain multiple conceptual errors.	1 – 4
Level	**Evaluation Synthesis**	**Marks**
E3	For a well-substantiated judgement on the significance and weighing of the different factors. Analysis makes it clear that the considerations are well contextualized.	5
E2	For an attempt at a judgement on the different factors.	3 – 4
E1	For a reasoned questioning of the significance of the different factors.	1 – 2

4 Indonesia's central bank has cut interest rate in its attempt to raise the standard of living of its residents.

(a) Explain how a cut in interest rate could impact the national income of countries differently.

[10]

(b) Discuss whether real Gross Domestic Product (GDP) is the best measure of the standard of living in Indonesia. [15]

Part (a) Question interpretation

Command word/ phrase	*Explain*	Make clear the process using economic reasoning.
Content	*Internal and external effects of high inflation*	The cause is a cut in interest and the focus is the impact on national income. Consider what factors could have an impact on national income when there is a cut in interest rates.
Context	*An economy*	No specified context, but students should use relevant examples

This question requires a rigorous explanation of how national income of a country could be affected by a cut in interest rate via the size of multiplier and business outlook. Hence the numerical explanation of the workings of the multiplier process is required.

Introduction

- A cut in interest rates by the central bank would have increased the real national income of a country through the multiplier effect.

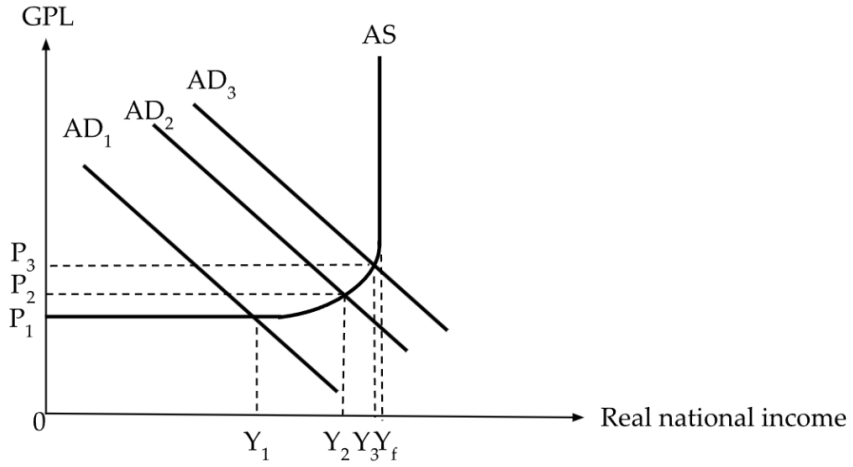
KA1: Explain how a cut in interest rate would lead to a multiplied increase in real national income. Differences in size of multiplier will affect the extent of increase in real national income of different countries.

- A cut in interest rate reduces the cost of borrowing for firms and households. As households are now more incentivised to borrow to purchase big-ticket items, this will encourage consumption. The cut in interest rates also increases expected profitability for firms, raising investment. In addition, households would experience a decrease in the returns to savings when there is a cut in interest rates, causing them to be less incentivised to save and hence increase their consumption instead.
- **Together, the increases in consumption and investment can lead to a multiplied increase in national income via the multiplier effect.**
- When consumers and producers increase their consumption expenditure and investment, for example, by $1 million. This $1 million will be injected into the economy. This will mean more workers are being employed, meaning this $1 million is used to pay the households for their labour services provided.
- Assuming a marginal propensity to consume (MPC) of 0.5, out of this increase in real national income of $1 million, households will spend part of it, which is $50 million, on consumption

and the rest of $50 million will be withdrawn in the form of savings, taxes and import expenditure.

- The additional income of $50 million induces consumption further by $25 million (0.5 x $50 million), while the remaining $25 million are withdrawn. In the subsequent round, induced consumption increases by $25 million, and $12.5 million is withdrawn.
- Each round of increase in income generates another increase in income-induced consumption, which will increase AD further. Firms increase production again, leading to a further increase in households' income until the total increase in withdrawals from savings, taxes and imports is equal to the initial increase in consumption and investment of $1 million, hence achieving equilibrium.
- Assuming there is spare capacity, the increase in consumption and investment will trigger the multiplier effect, leading to successive rounds of increase in income- induced consumption. AD increases from AD_1 to AD_2 because of the initial injection, and eventually to AD_3 because of the multiplier effect.
- The result is an increase in real national income from Y_1 to Y_3 by a total of $2 million that is 2 times the initial increase in consumption and investment given that k= 1/1-MPC.

Figure 1



- **The extent of the increase in national income differs as the multiplier size differs from country to country.** It is calculated by using the marginal propensity to withdraw (MPW), which is made up of the marginal propensity to save (MPS), marginal propensity to tax (MPT) and marginal propensity to import (MPM). The multiplier k is calculated as: k = 1 / MPW = 1 / (MPS + MPT + MPM).
- Generally, countries with higher MPW tend to have small multiplier value. Such countries are usually more open to trade and/or greater savings culture, resulting in a large MPM and MPS respectively.
    - An example is Singapore. As Singapore is a small country and lacks many resources, it relies heavily on imported raw materials and food for survival, making it one of the countries that has a high MPM. At the same time, with the Central Provident Fund (CPF) – a compulsory national saving scheme, Singapore has one of the highest savings rates in the world. This will give rise to a high MPS value too. Together, the high MPM and MPS will give rise to a high MPW for Singapore, and hence a small k value. This means that for every additional dollar of income earned, a larger proportion of the income is saved and spent on imports, leaving a smaller proportion that is further injected into its economy.

- In contrast, big and developing countries like Indonesia tend to have a large *k* and hence large MPC as its people have a lower level of income. **I**t is very likely that for every additional income earned, a larger proportion is spent on goods and services, leading to larger rounds of induced injections into the economy. With a large *k*, the extent of increase in real national income due to a cut in interest rate would be larger.

KA2: Differences in business outlook of different countries will affect interest rate sensitivity and hence extent of increase in real output of different countries.

- **For countries where consumers and producers have poor business and consumer outlook, which can limit the increase in real national income when interest rate is cut.** Households and firms may not increase C and I by a large amount as they may not be optimistic about earning higher future incomes and higher expected profits respectively. The interest insensitivity may mean that households and firms are not very responsive to a cut in interest rate, leading to limited increase in AD and hence limited increase in real national income may be achieved. This contrasts with countries where there is great optimism about the future. A cut in interest rates in such countries would have a greater increase in AD and hence real national income.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: ● **Good scope** – analyses the impact on national income due to size of multiplier and interest sensitivity of consumers and producers. ● **Good rigour** – uses relevant economic analysis and examples	8 – 10
L2	For an underdeveloped answer that: ● Lacks scope – explains the impact on national income due to size of multiplier or interest sensitivity of consumers and producers. ● Lacks rigour – can be descriptive at times with gaps in analysis.	5 – 7
L1	For a largely irrelevant response that contains serious and pervasive errors, with non-existent or minimal application of economic concepts or theories.	1 – 4

(b) Discuss whether real Gross Domestic Product (GDP) is the best measure of the standard of living in Indonesia. [15]

Part (b) Question interpretation

Command word/ phrase	*Discuss whether… best…*	Consider the uses and limitations of real GDP AND an alternative measure in measuring SOL over time. Compare them to come to a well-reasoned judgement on which indicator is best.
Content	*Real GDP… measure of SOL*	Real GDP Living standards – consider both material and non-material SOL. Comparison over time: important to use real values to account for inflation, and on per capita basis to account for changes in population size.
Context	*Indonesia*	To consider the context and situation of Indonesia, a developing country. There would be a need to choose limitations of these indicators which are more relevant to a developing country.

This question requires an analysis of the uses and limitations of real GDP AND an alternative measure in measuring SOL over time. A comparison between the 2 indicators is needed to arrive at a well-reasoned judgement on which indicator is best.

Introduction

- **[Outline approach]** In this essay we will be discussing whether real GDP is the best indicator to measure living standards by contrasting it to another indicator such as Human Development Index.
- **[Define key terms]** An economy's standard of living can be defined as the well-being of residents in the economy and is typically split into material standard of living and non-material standard of living.
  - **Material standard of living** is associated with the amount of goods and services available for consumption by the residents of an economy.
  - **Non-material standard of living** is associated with the intangible aspects of well-being such as literacy rates and life expectancy of residents.

- **Key Argument 1a: GDP, presented in real values, can be a measure of how living standards in a developing country changed over time.**
- GDP measures the income generated by residents (both citizens and foreigners) within the geographical boundaries in a country. Income earned by the residents represents the ability of its residents to consume. The higher the residents' income, the greater the purchasing power and hence ability to consume more and/or better-quality goods and services, leading to a higher **material standard of living** for residents of the country.
- Real GDP should be used as an increase in nominal GDP could be partly or entirely due to an increase in general price level. Nominal GDP needs to grow faster than the rate of increase in general price level (GPL) for material living standards to improve. In other words, real GDP is nominal GDP that has been adjusted for inflation and would reflect changes in material living standards over time more accurately than nominal GDP.

- **Key Argument 1b: However, real GDP has its limitations.**
- For a more accurate representation, real GDP should be presented in per capita basis, that is, real GDP per capita.
    - To account for population changes over time, the use of real GDP on a per capita basis is needed to reflect the average real GDP per person. This is measured by dividing real GDP by the size of the resident population. A rise in the real GDP per capita indicates a general increase in the material standard of living per person.

- Real GDP per capita may still not do a good job in measuring changes in living standards due to calculation and interpretation problems.
    - (Calculation issues) Mistakes and inaccuracies may arise from the data collection process. Such problems are more serious in developing countries like Indonesia as there is often a higher level of illiteracy, causing many residents to be unable to accurately declare their income. Economic activities in geographically inaccessible areas also tend to be omitted because of poor transportation and telecommunications infrastructure. As such, data collection problems might result in inaccurate GDP statistics, which would **understate** the material standard of living in the country.

    OR
    - (Calculation issues) Output that is non-marketed is not computed in GDP statistics even though they generate welfare for the society. For example, in developing countries where subsistence farming is common, the size of the non-marketed economy can be substantial. In other cases, homemakers may choose to perform 'do-it-yourself (DIY)' home renovation and render childcare services on their own, and therefore the value of such output is not monetised and recorded in national income. When there are extensive non-marketed activities, GDP statistics will **understate** the material standard of living in the country.

    OR
    - (Interpretation issues) Improvements in real GDP per capita may even worsen non-material living standards. In fact, the influx of foreign investments into Indonesia has also been linked to rising crime rates. Much higher levels of pollution from increased industralisation have also been observed in Indonesia. In such instances, the overall standard of living tends to be **overstated**.

- **Key Argument 2a: HDI is an alternative indicator that can measure of how living standards in a developing country changed over time.**
- For a more comprehensive measure of living standards, other indicators should also be considered to reflect non-material living standards. A possible composite indicator to use is the Human Development Index (HDI), which considers income, education and health indicators.
- The HDI would include real GNI per capita as one of its indicators, which allows for the benefits of this indicator to be captured.
- In addition, HDI comprises an education dimension made up of
    - school enrolment as measured by the expected years of schooling for children of school entering age;
    - adult literacy rates as measured by the average years of schooling for adults aged 25 years and more; and

- HDI also comprises a health dimension, measuring life expectancy at birth.
- **[Magnitude]** With a more holistic measure that captures non-material SOL indicators such as health and education levels, it would be a more complete indicator that real GDP per capita.

- **Key Argument 2b: However, HDI has its limitations.**
- With more sources of data, this might augment the data collection problems that were mentioned earlier. Developing countries like Indonesia would have several rural regions which are difficult to reach and may be served by both governments and Non-Governmental Organisations (NGOs) for their health and education needs. This would result in collection of data from multiple sources, which complicates the creation of composite indictors.

Evaluative Conclusion *(a reasoned stand that follows from the above analysis + 1 well-developed ATMS evaluative angle would suffice):*

- **[Situation]** Given that the government of Indonesia would have many other urgent issues on its hands (for example. reducing unemployment, promotion of growth), data collection methods are likely to be a significant limitation in all different measures proposed in this essay.
- **[Stand + Time Frame]:** Therefore, in the short run, while the data for real GDP per capita is not free of problems, it is still one of the best indicators to track changes in material living standard over time, since the problem of data accuracy is likely to plague any other alternative indicators as well. In the longer run, when Indonesia becomes more developed, with fewer rural regions and strong data collection processes set up, then it would be advisable to shift towards composite indicators like HDI for a more comprehensive measure of living standards.

Part (b) Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: ● **Good scope** – analyses the use of real GDP, and at least one alternative indicator to measure how material and non-material SOL have changed over time; and ● **Good rigour** – clearly explains how the economic indicators can be used to measure how SOL has changed over time; and ● **Good balance** – explains a limitation for each indicator; and ● **Good application to context** – provides relevant examples in the context of Indonesia, a developing country.	8 – 10
L2	For an underdeveloped answer that: ● Lacks scope – only analyses the use of real GDP and/or only analyses the material/non-material aspect of SOL, and/or ● Lacks rigour – provides a descriptive explanation with gaps when explaining how the economic indicators can be used to measure how SOL has changed over time; and/or	5 – 7

	● Lacks application to context – theoretical explanation with little relevant application to Indonesia, a developing country.	
L1	For a largely irrelevant response that contains serious and pervasive errors, with non-existent or minimal application of economic concepts or theories.	1 – 4
Level	**Evaluation Synthesis**	**Marks**
E3	For a valid questioning of the usefulness of the various indicators AND a well-reasoned evaluative judgement on which indicator is the best measure of how living standards in Indonesia, a developing country, have changed over time.	5
E2	For a valid questioning of the usefulness of the various indicators AND an attempt at an evaluative judgement on which indicator is the best measure of how living standards in Indonesia, a developing country, have changed over time.	3 – 4
E1	For a valid questioning of the usefulness of the various indicators, but with no overall evaluation.	1 – 2

5 Inflation in Singapore has generally been low, with headline inflation averaging 1.8 percent over the last four decades (1981–2021). However, consumer prices in Singapore went up by 6.1 percent in 2022 compared to the previous year, the fastest rate of increase since 2008. The dramatic rise in inflation was driven by several shocks to demand and supply in the global and Singapore economies.

Source: Monetary Authority of Singapore

(a) Explain the internal and external effects of high inflation for an economy. [10]

(b) Assess the domestic and international factors that are likely to contribute to Singapore's failure to achieve price stability. [15]

Part (a) Question interpretation

Command word/ phrase	*Explain*	Give clear reasons and elaborate on the cause-process-effect using economic reasoning.
Content	*Internal and external effects of high inflation*	Internal effects refer to the **consequences** on an economy's economic growth, full employment and price stability. External effects refer to the consequences on the country's FDI, external demand, and subsequently, trade balance and exchange rate.
Context	*An economy*	No specified context, but students should refer to the preamble as far as possible to aid them in their application, which would be the Singapore context in this case.

This question requires a rigorous analysis of the negative consequences of high inflation on both the internal and external effects of an economy, applied to a context.

Introduction

- Inflation refers to a sustained increase in the general price level of goods and services in the economy. High inflation can bring about negative effects both internally and externally.

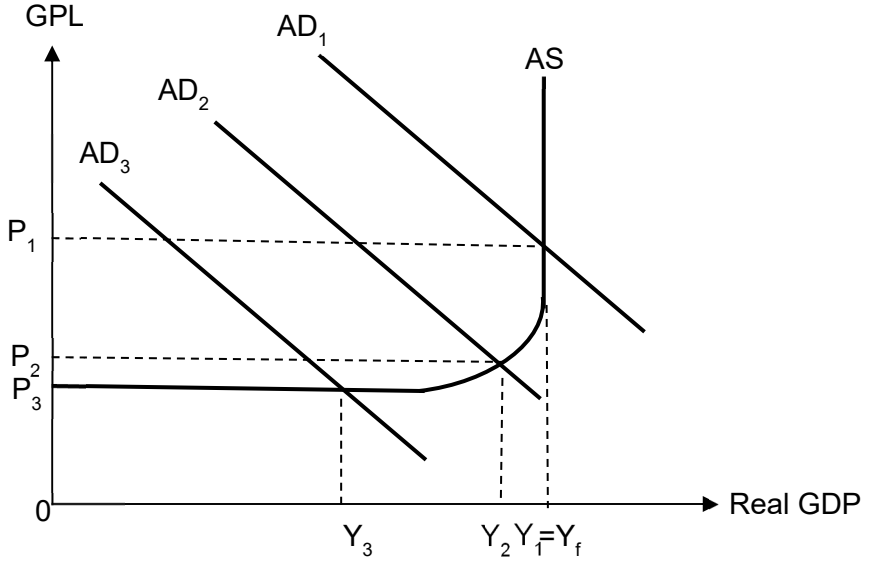
Body

- ***Key argument 1:*** **Internally, high inflation in an economy like Singapore can bring about negative consequences on economic growth, demand-deficient unemployment, and material living standards.**
- High inflation erodes the real value of money, causing consumers to have a lower purchasing power. Even with the same amount of nominal income, they are able to consume fewer goods and services than before, and hence their material standard of living will worsen.
- Furthermore, high inflation erodes the real value of savings, which discourages households from saving. With less domestic savings, there are less funds available for firms to borrow for investments, and the fall in supply of loanable funds will drive interest rates up, making it more

costly to borrow. Moreover, high inflation makes it difficult for firms to predict their future costs, expected revenues and hence profits. Since there is greater uncertainty about future profitability, business firms are discouraged from investing.

- A fall in investment expenditure, a component of AD, will lead to a fall in AD from AD_1 to AD_2.
  - This can trigger the reverse multiplier, leading to successive multiplied decreases in income-induced consumption. AD hence falls further from AD_2 to AD_3, leading to a multiplied fall in real GDP from Y_1 to Y_3. The result is <u>negative economic growth.</u>
  - As real GDP falls, the derived demand for labour falls, and <u>demand-deficient unemployment</u> increases to ($Yf-Y_3$).

Figure 1: Negative economic growth and higher unemployment in Singapore



- As consumers have lower purchasing power, and the economy experiences negative economic growth and higher demand-deficient unemployment, this will lead to a larger proportion of the population experiencing lower incomes. They will hence consuming less goods and services. M<u>aterial SOL will fall</u> as a result of high inflation.
  - For Singapore, an economy that relies on FDI to as a driver for economic growth, higher inflation rates, especially, if persistent and cost-push in nature, can negatively affect its attractiveness as a global investment hub.

- ***Key argument 2:*** **Externally, high inflation in Singapore can negatively impact its trade balance.**
- A higher inflation rate in Singapore relative to the other countries can cause Singapore's exports to become relatively more expensive, reducing the price competitiveness of domestically produced goods compared to foreign goods.
- Ceteris paribus, as prices of exports rise, the quantity demanded for its exports fall. Assuming that the demand for the country's exports is price elastic, a rise in export prices will lead to a more than proportionate fall quantity demanded for its exports, resulting in an overall fall export earnings for Singapore. As imports become relative cheaper compared to domestically produced substitutes, consumers' demand for imported substitutes increase, leading to a rise in import expenditure. The fall in export revenue together with the rise in import expenditure hence worsens Singapore's balance of trade (BOT).

- For Singapore, a very open economy where its trade (X+M) exceeds 300% of its GDP, the impact of higher relative inflation in Singapore would be quite significant.

- ***Optional Key argument 3:*** **Externally, high inflation in Singapore can weaken the exchange rate and lead to a depreciation of the Singapore dollar.**
- As explained earlier, high inflation can lead to a fall in export revenue and increase import expenditure. As the demand for SGD is derived from the demand for Singapore's goods and services, the fall in X would mean a fall in the demand for SGD. Likewise, as M increases, more SGD would be sold in the forex (foreign exchange) market in exchange for foreign currencies to purchase the foreign imports.
- The fall in demand for SGD and rise in supply of SGD will lead to the depreciation of SGD.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: ● **good scope** – explains both the internal and external effects of high inflation; ● **good rigour** – utilises a suitable AD/AS and economic diagram to explain, with application to a context.	8 – 10
L2	For an underdeveloped answer that is: ● lacking in scope – only explains either the internal OR external effects of high inflation; and/or ● lacking in rigour – descriptive answer without a suitable framework or diagram or application to the context.	5 – 7
L1	For an answer that shows some knowledge of the negative consequences of high inflation on the different macroeconomic objectives of the government.	1 – 4

(b) Assess the domestic and international factors that are likely to contribute to Singapore's failure to achieve price stability. [15]

Part (b) Question interpretation

Command word/ phrase	*Assess*	Present different perspectives (factors) and weigh the factors to make a judgement on which factor is the most important.
Content	*Domestic…*	Domestic or internal factors that caused Singapore's inflation included the rise in Consumption expenditure (C) amid the post-Covid recovery and tight labour market.
	International factors…	International or external factors that caused Singapore's high inflation are the global supply-chain disruptions due to Covid-19, the Russia-Ukraine war in 2022, and the rise in Singapore X revenue as foreign countries increase spending on Singapore's exports amid the post-Covid recovery.
	Failure to achieve price stability	This refer to high inflation, which could be demand-pull and/or cost-push in nature.
Context	*Singapore*	Students would need to apply their analysis to the Singapore context and demonstrate application through real-world examples.

This question requires a rigorous analysis of the causes of both demand-pull inflation and cost-push inflation in Singapore, stemming from domestic and international factors. The evaluation conclusion would require weighing the significance of the domestic factors against the international factors before making a well-substantiated judgment that addresses the question.

Introduction – define key term(s) and set context

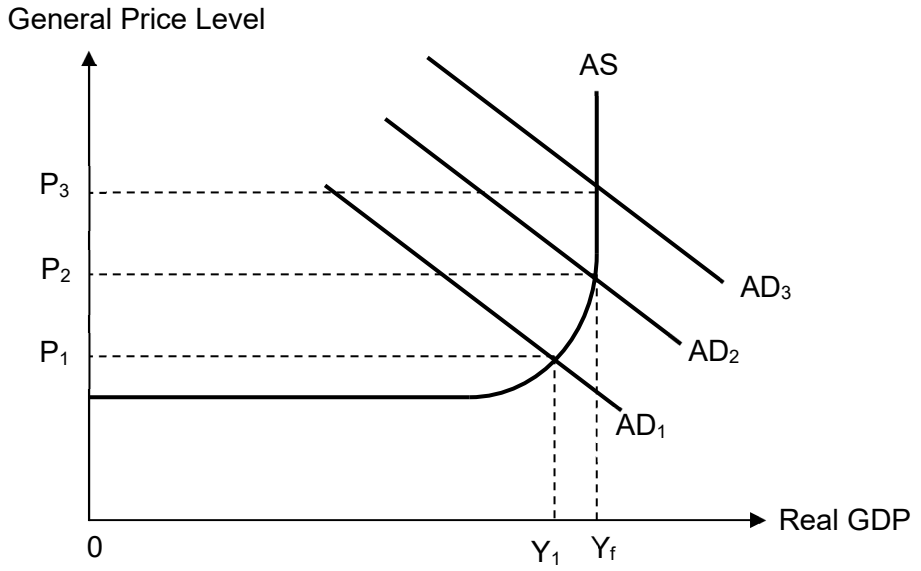
- Price stability refers to low, stable positive rates of inflation ranging from 1 – 3 %. As mentioned in the preamble, the dramatic rise in inflation to 6.1% in 2022 was caused by several demand and supply shocks, which stemmed from both domestic and international factors.
- These factors will be analysed in this essay, before being weighed to determine if domestic or international factors play a large role in causing demand-pull and cost-push inflation in Singapore.

Body

- ***Key argument 1:*** **Domestic factors that cause demand-pull inflation in Singapore include the rise in Consumption expenditure (C) amid the post-Covid recovery and tight labour market.**
- Demand-pull inflation refers to rising general price levels caused by rising AD near or at the full employment level of national output.

- Singapore experiences a tight labour market because of demographic changes like an ageing population and declining birthrates. These have led to a shrinking workforce.
  - Moreover, due to Covid-19, Singapore put a freeze in 2020 on new work permits from China and included strict limits on entry approval for work-pass holders. These further reduced labour supply, leading to a shortage of labour in Singapore.
- Given a tight labour market, the Singapore economy is operating very near the full employment level of output Yf. This is shown in Figure 2, where the economy is initially in equilibrium at Y_1 output level at the rising portion of the AS curve.
- When Covid-19 broke out in 2020, many Singaporean households accumulated substantial savings as they were unable to spend as much due to the movement restrictions imposed to contain the spread of the virus. However, as Covid-19 vaccines became available, Singapore was able to re-open its economy over the course of 2021.
  - This caused a strong increase in Consumption expenditure (C) as households could unleash their "pent-up" demand and tap on their accumulated savings to spend more on goods and services like dining out that they were unable to purchase during the worst of the pandemic.
- As C, a component of AD, increased, this caused an increase in AD from AD_1 to AD_2. Coupled with the multiplier effect where there are multiple rounds of increases in income-induced consumption when income increases, there will be a larger increase in AD to AD_3, and a multiplied increase in real GDP from Y_1 to Y_3.

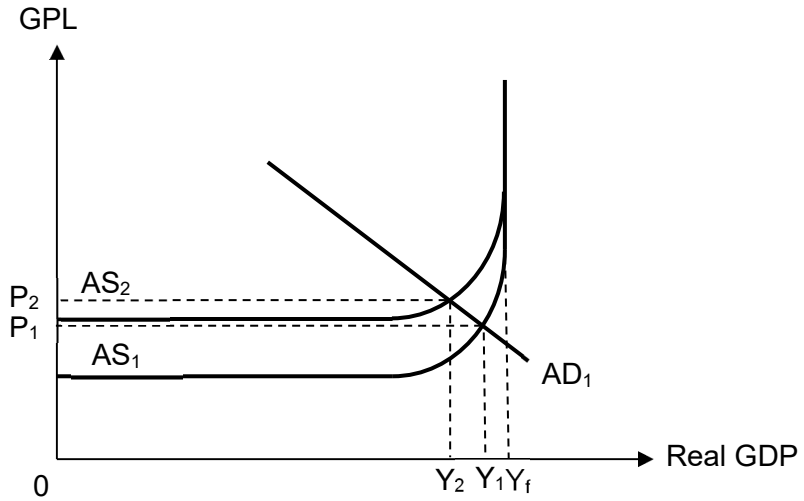
Figure 2: Demand-pull inflation in Singapore



- As AD rises from AD_1 to AD_2 due to the increase in C, the general price level (GPL) increases from P_1 to P_2 and real GDP rose to Y_f. At full employment output level Y_f, there is no more spare resources and real output cannot rise any further.
  - When AD continues to rise from AD_2 to AD_3 because of the multiplier effect, industries which are already at full employment would have to compete for resources and this will cause the bidding up of the prices of the factors of production. The higher unit cost of production incurred by firms are then passed on to households in the form of higher prices of goods and services, resulting in the GPL escalating from P_1 to P_3. This led to demand-pull inflation in Singapore.

- ***Key argument 2:*** **Cost-push inflation in Singapore could be caused by international factors like global supply-chain disruptions due to Covid-19.**
- Cost-push inflation refers to rising general price levels caused by persistent increases in costs of production, for reasons not associated with an increase in AD.
- The pandemic-related restrictions disrupted operations at factories and ports and adversely affected logistics, transportation, and global production supply chains, resulting in shortages.
  - These shortages created upward pressure on prices of energy and commodities. As global food and energy prices of Singapore's trading partners surged, key inputs like energy and raw food that go into the production of goods and services sold in Singapore, became much more expensive. The higher import prices drove up firms' unit cost of production.
  - *(Optional)* The outbreak of the Russia-Ukraine war in February 2022 added to these cost-push inflationary pressures. The two countries are major suppliers of key commodities such as oil and gas, as well as fertiliser, wheat, and edible oils. The war disrupted their supply and generated considerable uncertainty, causing commodity prices to spike. Higher energy prices drove up electricity and transport costs for firms.
- As Singapore has no natural resources and imports a lot of raw materials, the rising commodity prices would result in increased unit cost of production arising from imported inflation.
  - This would cause a fall in AS, as shown by the upward shift of the AS curve from AS_1 to AS_2 in Figure 3.

Figure 3: Cost-push inflation in Singapore



- As a result, there is a further increase in the GPL from P_1 to P_2, leading to cost-push inflation.

Evaluative Conclusion *(a reasoned stand that follows from the above analysis + 2 well-developed ATMS evaluative angles would suffice):*

- **[Magnitude/Situation]** The relative importance of the factors contributing to Singapore's high inflation largely depends on the nature of the economy.
  - For Singapore, a small and very open economy which is highly trade dependent, international factors like the export revenue and FDI constitute a large proportion of the country's AD and hence GDP. As domestic factors constitute a lower proportion of

Singapore's GDP, a rise in domestic consumption alone is unlikely to have a significant impact on AD to cause high inflation rates in Singapore compared to international factors.
  - Also, Singapore's lack of natural resources would mean that it relies heavily on the imports of raw materials to produce goods and services, making it vulnerable to imported inflation caused by international factors.
- **[Stand]** Therefore, failure to achieve price stability would more likely be caused by international factors rather than domestic factors.
- **[Time]** However, over time, domestic factors could play a larger role in contributing to Singapore's high inflation. As Singapore's population continues to age rapidly *(it is projected to become super-aged society by 2026),* the tight labour market would be increasingly significant as a domestic factor because it reduces the rate at which the productive capacity of Singapore's economy can grow.
- Moreover, as wages increase in response to the labour shortage, this would cause the unit cost of production for firms to rise, leading to a fall in the AS, and also cause cost-push inflation in Singapore.

Note: Besides the above approach, students may adopt an alternative approach and discuss both the domestic and international factors that led to demand-pull inflation as Key Argument 1 and discuss how domestic and international factors cause cost-push inflation in Singapore for Key Argument 2 before evaluating the significance of these factors.

Part (b) Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: ● **Good scope** – analyses how at least one domestic factor and one international factor caused demand-pull inflation and cost-push inflation; and ● **Good rigour** – uses AD/AS analysis in the analysis of the causes, with clear and elaborate chains of reasoning evident; and ● Good application to Singapore's context.	8 – 10
L2	For an underdeveloped answer that: ● Lacks scope – only explain domestic or international factors or only demand-pull inflation or cost-push inflation; and/or ● Lacks rigour – provides a descriptive explanation of different factors with very brief elaboration; and/or ● Lacks application to context – theoretical explanation with little relevant Singapore-based examples.	5 – 7
L1	For an answer that displays superficial knowledge of the factors that contribute to Singapore's high inflation.	1 – 4
Level	**Evaluation Synthesis**	**Marks**
E3	For a well-substantiated judgement on the relative significance of the domestic and international factors that contributed to Singapore's failure	5

	to achieve price stability. A summative conclusion with an overall judgement is also made.	
E2	For an answer that makes some attempt at weighing the relative significance of the factors that caused Singapore's high inflation.	3 – 4
E1	For a reasoned questioning of the significance of one factor.	1 – 2

6 The resurgent Covid-19 has led to concerns over slowing global economic growth and a surge in debts for governments. It has also led to renewed calls for self-sufficiency and protectionist measures such as import tariffs over free trade. Supporters of protectionism claim that there are many benefits to be reaped, such as preventing the unemployment rate from rising.

(a) Explain <u>one</u> impact of import tariffs on trade balance and <u>one</u> impact of import tariffs on domestic consumers and producers. [10]

(b) In light of the recent global economic developments, discuss whether protectionism should be the preferred approach for governments. [15]

<u>Part (a) Question interpretation</u>

Command word/ phrase	*Explain*	To utilise economic reasons and reasoning to explain a possible impact of import tariffs on trade balance and on both domestic consumers and producers
Content	*Import tariffs* *Trade balance* *Consumers and producers*	Explain briefly what import tariffs and use a diagram to explain its impact Impact of import tariff on trade balance (X-M) Consider how consumer and producer surplus would be affected with the implementation of import tariffs.
Context	*No context*	-

Introduction

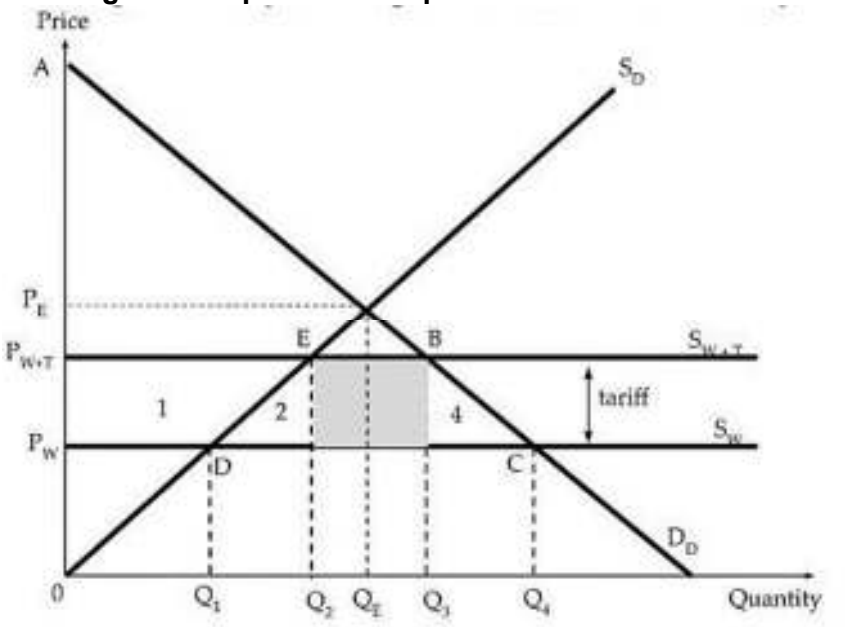
- An import tariff is a tax levied on imports which will raise import prices.
- The balance of trade records the inflow and outflow of local currency arising from international trade in goods and services.
- An import tariff will affect a country's trade balance, which refers to the net export revenue, export revenue (X) minus the import expenditure (M).
- It will also have affect domestic producers and consumers, in particular in terms of consumer surplus and producer surplus.
  - Consumer surplus is the difference between the maximum price that consumers are willing and able pay for a given quantity and the market price.
  - Producer surplus is the difference between the market price and the minimum price which producers are willing and able to sell for a given quantity.

Key argument 1: Explain how import tariffs will affect the trade balance

- Import tariffs are taxes imposed on imports which make imports more expensive and encourage switch in domestic consumption from imports to domestically produced substitutes, ceteris paribus.
- To illustrate this, we can consider an example of a good such as steel. In Figure 1 below, DD and SD are the domestic demand and domestic supply curves of steel. In the absence of trade, the domestic equilibrium price and quantity of steel are PE and QE respectively.

- When the country is open to foreign trade, assuming that this country is too small to affect world markets and prices (i.e. price taker), this country faces a perfectly price elastic world supply for steel Sw. That is, the country can import as much as it wants at the prevailing world price of PW.
- With free trade and at the price PW, domestic consumers will demand 0Q4 units of steel, of which 0Q1 is supplied by domestic producers and the remaining Q4 - Q1 is imported from other countries.
- The government levies a specific import tariff on steel imports, thus raising the world supply curve from SW to SW+T by the amount of the import tariff, raising the price of imports correspondingly from PW to PW+T.
- At PW+T, domestic production increases from Q1 to Q2 while domestic consumption decreases from Q4 to Q3. As a result, the number of units imported decrease from Q4 - Q1 to Q3 - Q2.
- As such, there would be a fall in the quantity of steel imported. Assuming demand for imports is price elastic, quantity demanded of imports falls more than proportionately than the increase in price, leading to a fall in import expenditure. Ceteris paribus, trade balance would improve.

Figure 1: Impact of an import tariff on steel market



Key argument 2: Explain how import tariffs will affect domestic consumers and producers.

- We can analyse the impact of an import tariff on domestic consumers and producers by considering the impact on consumer and producer surplus respectively.
- Before the tariff, the consumer surplus was area ACPW, while the producer surplus was area 0DPW. After the tariff, prices rise from Pw to Pw+T. Consumer surplus falls to area ABPw+T
- For producers, before the tariff, producer surplus was 0DPw. After the tariffs, domestic producers sell more quantity and at a higher price, leading to producer surplus increasing to area 0EPw+T.
- Overall, domestic consumers are worse off while domestic producers are better off.

Conclusion

- Import tariffs have a negative effect on trade balance and domestic consumers while domestic producers are better off.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: ● **Good scope** – addresses the impact of import tariffs on trade balance as well as domestic consumers and producers. ● **Good rigour** – uses relevant economic analysis and diagram (import tariff) and analyses the impact in terms of X-M and consumer and producer surplus.	8 – 10
L2	For an underdeveloped answer that: ● Lacks scope – addresses the impact of import tariffs only on trade balance OR domestic consumers and producers; and/or ● Lacks rigour – is descriptive at times with gaps in analysis.	5 – 7
L1	For a largely irrelevant response that contains serious and pervasive errors, with non-existent or minimal application of economic concepts or theories.	1 – 4

(b) In light of the recent global economic developments, discuss whether protectionism should be the preferred approach for governments. [15]

Part (b) Question interpretation

Command word/ phrase	*Discuss*	To provide a balanced analysis on whether protectionism or free trade should be the preferred approach for governments.
Content	*Protectionism… preferred approach* *Governments*	Consider protectionist measures and their impact on the economy as well as free trade and its impact on the economy. Consider the impact of these approach on the macroeconomy linking to the macroeconomic goals
Context	*Recent global economic developments*	To take into account the slowing growth and rising debts of governments No fixed context (in terms of countries) – possible to consider countries of different characteristics for evaluation.

Introduction

- As mentioned in the preamble, economies around the world are facing slowing economic growth, with many governments facing rising debts which may limits the options available to them in navigating through these issues.
- Governments may favour either protectionism or free trade to address these concerns.

Body

- ***Key Argument 1:*** **Governments may favour the protectionist approach over free trade as it can help to address rising unemployment rates in the economy and alleviate the rising debts.**
- In the process of specialisation in goods which the country has comparative advantage, workers from the contracting sectors ('sunset' industries) may face occupational immobility and lack the skills to take up jobs that are created in the expanding sectors ('sunrise' industries) leading to structural unemployment.
- The use of protectionism measures can help to reduce structural unemployment.
- As mentioned in (a), domestic production will increase with the use of protectionist measures such as import tariffs, which helps to protect domestic producers and workers from the 'sunset' industry from foreign competition.
- Such measures allow these 'sunset' industries to decline slowly, hence reducing the extent of structural unemployment by allowing more time for the government to implement complementary policies to retrain displaced workers to address the mismatch of skills between workers in sunset industries and the skills required in sunrise industries.
- In addition, the import tariffs can help the government to improve its budget position through the tariffs revenue collected.

- ***Key Argument 2a: Governments may not prefer protectionism due to its drawback.***
- Protectionism may create a 'beggar-thy-neighbour" effect as the export revenue of its trading partners will fall, leading a fall in AD and hence real output of its trade partners. This would be particularly impactful considering the global economic slowdown. This fall in national income of trading partners may in turn lead to a fall in demand of the exports of the country engaging in protectionism (assuming that the exported goods are normal goods). This would lead to a fall in AD and hence a fall in real GDP and negative actual growth for the country engaging in protectionism.

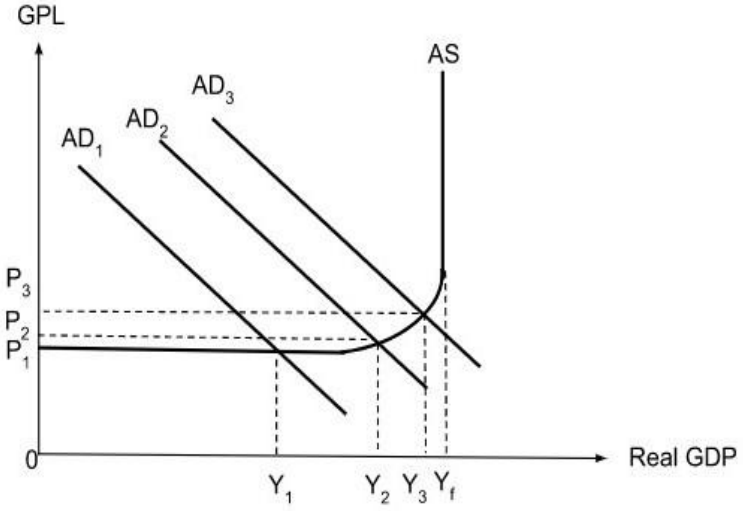
OR Alternative Key Argument 1**: Governments may favour the protectionist approach as it can help to address slowing growth in the economy.**

- As mentioned in (a), protectionist measures such as import tariffs can cause domestic producers to increase their quantity sold which can lead to a rise in consumption expenditure (C).
- In addition, other protectionist measures such as export subsidies can lead to a fall in unit cost of production of domestic producers, increasing the competitiveness of domestically produced goods and services. This would lead to a rise in export revenue and hence net export revenue (X-M) increases.
- The increase in both C and (X-M) would lead to an increase in AD as they are both components of AD. AD curve rightwards from AD1 to AD2. Assuming spare capacity, the

increase in C and (X-M) will trigger the multiplier effect and lead to multiple rounds of increases in income-induced consumption, causing a larger increase in AD from AD2 to AD3.

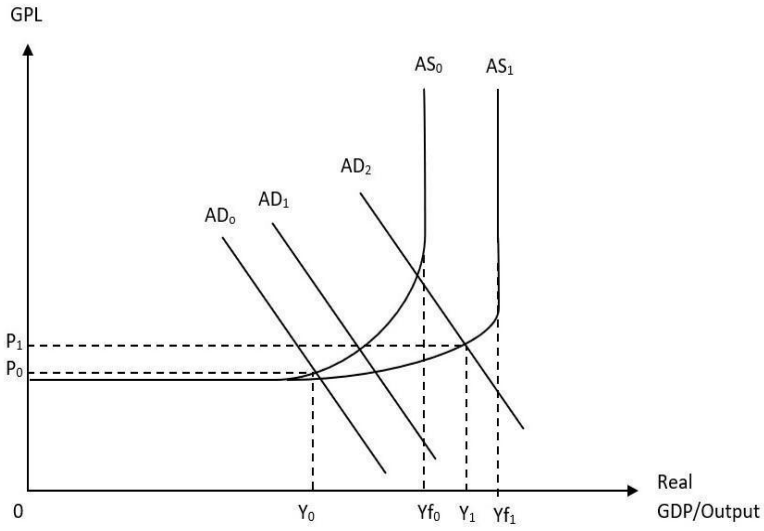
- As seen in Figure 3, real output increases by a multiplied amount from Y1 to Y3. As more output is produced, firms increase derived demand for factors of production, including labour. Demand-deficient unemployment falls from Yf – Y1 to Yf – Y3.

Figure 3: Impact of import tariffs on an economy



- ***Key Argument 2b: Governments may prefer the free trade approach as it can help to address the slowing growth in the economy.***
- Free trade allows countries to overcome their domestic demand constraints as it allows them to have access to a larger market through the export of their goods and services. This increases the net export revenue (X-M).
- In addition, this increased trade also tends to attract foreign direct investment as they provide a platform to tap on a larger market and possibly an increase in profitability.
- The increase in (X-M) and I would lead to an increase in AD since they are both components of AD. AD curve rightwards from AD0 to AD1. Assuming spare capacity, the increase in C and (X-M) will trigger the multiplier effect and lead to multiple rounds of increases in income-induced consumption, causing a larger increase in AD from AD2 to AD3.
- As seen in Figure 2, real output increases by a multiplied amount from Y0 to Y2 leading to actual economic growth.
- In addition, the increase in I would increase the quantity of capital goods in the economy. Increasing FDI would also possibly enable the country to gain access to foreign production methods, allowing for technological transfers. This would lead to an increase in productivity. As such, the increase in quantity of capital goods and productivity should lead to an increase in LRAS and LRAS shift rightwards from AS0 to AS1, achieving potential growth
- Since AD and AS increase in tandem, there is sustained growth.

Figure 2: Impact of free trade on an economy



- In contrast, protectionism may create a 'beggar-thy-neighbour" effect, where exports of its trading partners are reduced. This would lead to a fall in income of its trading partners which in turn lead to a fall in demand of the exports of the country engaging in protectionism (assuming that the exports are a normal good). This would lead to a fall in AD and hence a fall in real GDP and negative actual growth, exacerbating the issues faced by the government.

Evaluative Conclusion *(a reasoned stand that follows from the above analysis + 2 well-developed ATMS evaluative angles would suffice):*

- **[Stand +Time]** In light of the global economic development, governments may prefer free trade over a protectionist approach. While protectionist policies such as import tariffs may seem to be able to alleviate the concerns face in terms of improving government budget position through tariff revenue, this would likely to be a short-term improvement as trading partners are likely to retaliate by imposing protectionist measures as well. This will lead to slowing or negative growth in the long-run which may then affect the tax revenue collected by the government, a much more significant source of revenue for the government. As such a protectionist approach may simply worsen the issues faced in the longer term.
- **[Situation]:** In addition, the protectionist measures would also not necessarily improve structural unemployment. As mentioned in the preamble, governments are now faced with rising debt levels. As such, even with protectionist measures which aim to buy time for retraining, it may be possible that governments lack the necessary funds to implement complementary supply-side policies to address the skills gap. As such protectionist measures would be simply dragging out the inevitable and would not address the issue.
- **[Time]:** Overall, protectionism at best can only be justified in the short run if it is introduced to help reduce the negative impact of the pandemic. In the long run, countries should embrace free trade in order to realise the gains from free trade The pandemic has exerted economic damage on every country. It is even more critical for countries to use free trade to bring the global economic damage to an end.

Part (b) Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: ● **Good scope and balance** – analyses the benefits of protectionism and free trade as well as limitations of protectionism; and ● **Good rigour** – uses relevant economic analysis (AD-AS) and explains the impact in terms of the macroeconomic goals; and ● Good application to Singapore's context – demonstrates recognition of the global economic developments	8 – 10
L2	For an underdeveloped answer that: ● Lacks scope and balance – only explains the benefits of either protectionism or free trade OR does not consider the limitations of protectionism; and/or ● Lacks rigour – provides a descriptive explanation with gaps in economic analysis; and/or ● Lacks application to context – theoretical explanation without recognising the context of the global economic developments.	5 – 7
L1	For a largely irrelevant response that contains serious and pervasive errors, with non-existent or minimal application of economic concepts or theories.	1 – 4
Level	**Evaluation Synthesis**	**Marks**
E3	Takes a clear overall stand that is comprehensively justified by providing convincing evaluative comments on the preferred approach for governments.	5
E2	For an answer that makes a clear overall stand but is only partially justified as o Only some of the points mentioned in the body were evaluated o The overall stand was largely justified by the inclusion of additional concluding points to sway the overall argument o The arguments used to evaluate individuals points were unconvincing or somewhat flawed	3 – 4
E1	For a reasoned evaluation of at least one measure.	1 – 2