

TEMASEK JUNIOR COLLEGE

2022 JC2 PRELIMINARY EXAMINATIONS

Higher 2



ECONOMICS

9757/01

Paper 1

24 August 2022

2 hours 15 min

Additional Materials: **one 12-page** answer booklet, **one piece** of writing paper for rough work

READ THESE INSTRUCTIONS FIRST

An answer booklet will be provided with this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

Answer **all** questions.

Indicate the question number clearly in your answers.

Start Question 1 and Question 2 on a fresh page.

The number of marks is given in brackets [] at the end of each question or part question.

This document consists of 7 printed pages and 1 blank page.

Question 1: Government intervention in the market for rare earths

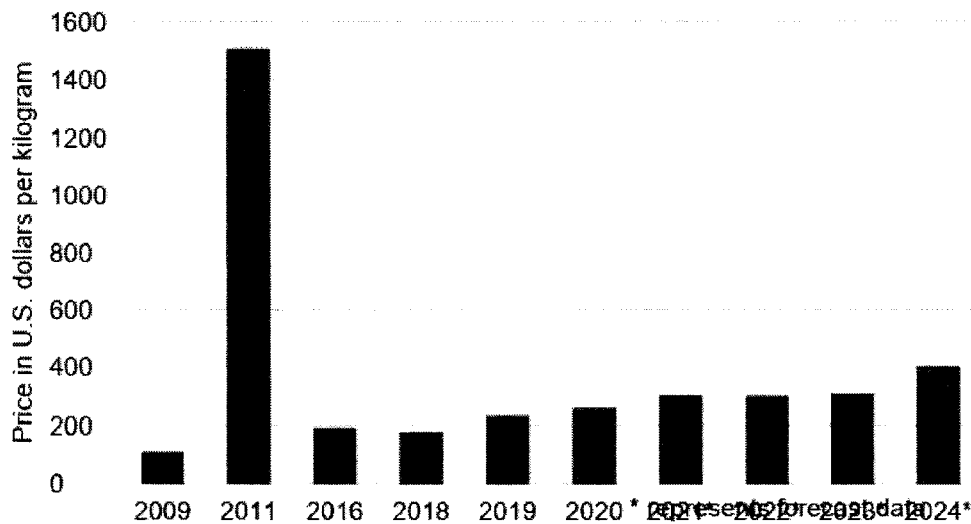
Extract 1: The uses of rare earth elements

Rare earth elements (REEs) is a collective term for seventeen chemical elements in the periodic table. Despite the name, REEs are not very rare and found far more commonly in the Earth than most precious metals such as gold and platinum. However, extracting, processing and refining REEs are tricky for a myriad of technical and environmental reasons.

Rare earth metals like dysprosium and terbium play a critical role in defense, technology and electric vehicles. Neodymium and praseodymium are some of the most sought-after rare earth elements crucial in products such as motors, turbines and medical devices. Demand for them exploded in recent years with the growth of technology and will continue to climb amid the ongoing race to create a large electric vehicle market.

Source: *CNBC*, 17 April 2021

Figure 1: Price of rare earth dysprosium oxide, 2009 – 2024 (US\$ per kilogram)



Source: *statista.com*

Extract 2: The harms of rare earth mining

Beginning in the 1990s, rare earth mining took off in the region located in Southeast China about 300 miles north of Hong Kong. As China began to produce more smartphones, wind turbines, electric vehicles, and other high-tech products requiring REEs, the mining intensified. But the removal of these elements from the earth's crust, using a mix of water and chemicals, caused extensive water and soil pollution.

"To us as an environmental group, we hope that the environmental damage can stop and that these external [pollution costs] could be internalized in the cost" of products, Ma Jun, a leading Chinese environmentalist and director of the Institute for Public and Environmental Affairs, said in a phone interview.

Ma's fear is that other regions around the world could suffer a similar fate if they become, like China, the supplier of cheap rare earth elements, with little or no environmental price attached. "I hope that we don't miss this opportunity," he said. "There is talk that similar mining could be started in Africa and other regions, so we should not repeat the same mistakes."

Deng Zhiyong, director of the Longnan Environmental Protection Department, said in an interview that the mining has dumped excessive amounts of ammonia and nitrogen compounds into the region's ground and surface water. Other pollutants, such as cadmium and lead, are also released during the mining process; long-term exposure to these metals poses health risks.

Source: *Yale School of the Environment*, 2 July 2019

Extract 3: China's stranglehold of the rare earths supply chain will last another decade

Western economies are set to remain heavily dependent on China for the refining of REEs for the next decade. For three decades, the Chinese government has had a strategic vision for the REE industry – something the West has lacked – and it now dominates the supply chain.

In 2021, China made up 54% of global REE mine supply, followed by North America at 18%, the rest of Asia at 14%, Australia at 12% and Europe at 2%, according to Roskill. However, its dominance of neodymium's global mine supply is higher, at 62%. In 2021, China accounted for 85% of the global supply of refined REEs, followed by the rest of Asia at 13% and Europe at 2%, according to Roskill. In the case of neodymium, it made up 84% its refined supply.

Furthermore, China has a more than 90% share of the global production of downstream rare earth products and technologies, including magnets, according to consultancy Tahuti Global.

Source: *Mining-technology*, 26 Apr 2022

Extract 4: Cleaning up mining

There are several things that need to happen regarding the environmental impact of rare-earth mining. First, there should be efforts in research and development toward products that rely less on rare-earth metals. For example, Honda is developing hybrid cars that are mostly free of rare-earth metals.

Second, there needs to be an emphasis on finding more sustainable options for extraction.

Third, diplomatic channels should be used to incentivise a modernising reform of China's lax regulation of rare earth mining and an improvement of standards for environmental protection. Only then will associated environmental cleanup and preservation costs be added to the cost of operating mines.

Lastly, the United Nations could pursue global standards for rare-earth mining.

All of these steps will go toward preventing additional damage to the Earth. However, existing damage must be cleaned up. China is taking steps toward fixing the issues resulting from decades of rare earth mining. These remediation efforts involve processes like pumping contaminants out of groundwater and pumping fresh water back in to dilute toxin concentrations. The country is also enacting tougher regulations to stem the damage done by existing mining companies. For example, companies must upgrade their equipment to more modern, efficient technology and must mine for metals using more sustainable practices.

Source: *earth.org*, 14 July 2020

Questions

- (a) With evidence from Extract 1,
- (i) What can you conclude about the price elasticity of supply of rare earth elements (REEs)? [2]
 - (ii) Using a demand and supply diagram, explain the likely change in the REEs market in the future. [4]
- (b) With reference to Figure 1, summarise the trend of the price of dysprosium oxide during the period 2009 – 2024. [2]
- (c) Explain the meaning of a positive statement and a normative statement and identify an example of each type from Extract 2. [4]
- (d) To what extent would rare earth mining improve the standard of living of people in China? Discuss. [8]
- (e) Discuss the view that tougher government regulations for mining companies to 'upgrade their equipment to more modern, efficient technology in rare earth mining' (Extract 4) is the best policy to alleviate the negative effects in the extraction of rare earth metals. [10]

[Total: 30]

[Turn Over]

Question 2: Opportunities and challenges in Southeast Asian economies**Table 1: Selected economic indicators of Indonesia from 2016 – 2020**

	2016	2017	2018	2019	2020
Real GDP Growth rate (% change in Real GDP)	5.0	5.1	5.2	5.0	2.5
Consumer Price Inflation (% change in Consumer Price Index)	3.5	3.8	3.2	3	1.9

Source: World Bank, 2022

Extract 5: Vietnam economy is Asia's shining star during COVID-19

Vietnam has minimised the economic damage from Covid-19 and is the only country in Southeast Asia on track for growth this year. Its economy is expected to grow 2.4% this year, according to latest figures from the International Monetary Fund. The IMF credited “decisive steps to contain the health and economic fallout from COVID-19” for the country’s success. Vietnam has had only 1,288 Covid-19 cases and 35 deaths. The IMF is predicting a strong economic recovery in 2021, with growth projected to strengthen to 6.5% “as normalisation of domestic and foreign economic activity continues.”

The country has seen slower growth this year and its once-thriving tourism sector has taken a particularly bad hit, but it has avoided the worst economic effects of the pandemic. A number of factors have cushioned the blow, according to Michael Kokalari, chief economist for Vinacapital, a Vietnam-focused investment company. Vietnam’s exports to the US have increased by 23% in the first three quarters compared to the same period in 2019, with electronics exports up 26%. The ongoing US-China trade war has made China a less attractive place to manufacture, with a number of tariffs in place on exports. Many multinationals have started operating in Vietnam, including global technology leaders like Apple and Samsung. Apple now has plans to manufacture its high-end AirPods studio earphone in Vietnam. The pandemic has also prompted more companies to consider manufacturing there, because of the need to diversify their supply chains, said Mr Kokalari. “When Covid comes, you thought you had a global supply chain, and you find out that you only have a China supply chain and you can’t produce. Well that’s a much more urgent, emotionally catalysing problem,” he said.

Source: BBC, 19 November 2020

Extract 6: Is low growth the new normal for Singapore?

When the global financial crisis hit Singapore in 2009, the shock left the country with real GDP growth of 0.1 per cent. But the economy rebounded quickly. The following nine years delivered an average annual growth of 5.2 per cent, owing largely to a sharp rebound in 2010, registering a growth of 14.5 per cent. The mood is discernibly more downbeat this time. The Government now forecasts that the economy will grow only within the range of 0.5 to 2.5 per cent in 2020. Is low growth the new normal for Singapore? As a small, open economy heavily dependent on external demand, Singapore’s national output is subject to the vagaries of the global economy. One reason to think we are less likely to see a strong recovery this time around is that the

US-China trade war is affecting the Singapore economy by disrupting global supply chains. Although many of the tariffs (taxes on imported goods) imposed by the US on Chinese goods do not directly affect Singapore, there are spillover impact due to Singapore's role in global supply chains. For example, Singapore companies that produce intermediate goods used as inputs in the production of China's exports to the US may see a lower demand for their goods.

Singapore's continued growth will be tested as it faces bigger challenges on the horizon including an ageing population and weakening productivity. The growth of Singapore's total real GDP today also depends on labour force growth, and capital investment. The number of citizens in the working ages of 20 to 64 years will start to decline from this year onwards due to more retiring and fewer entering the workforce, as the number of babies dropped to an eight-year low in 2019. Ageing reduces economic growth as there are fewer new workers to boost output. Workforces in some 40 countries are already shrinking because of demographic change. Technology may at some point overcome the stifling effect of ageing. Some experts find that when young workers are sufficiently scarce, manufacturers invest in more automation, and experience faster productivity growth as a result, measured as an increase in output produced per unit input.

Source: Various

Extract 7: MAS eases monetary policy as economy reels from impact of COVID-19

Singapore's central bank eased monetary policy as expected on Monday (Mar 30), as the economy reels from the impact of a novel coronavirus pandemic. The Monetary Authority of Singapore (MAS) said with the deterioration in macroeconomic conditions and expectations of a weaker outlook, the Singapore dollar nominal effective exchange rate (S\$NEER) policy band has "depreciated to a level slightly below the mid-point of the policy band". "MAS will adopt a zero per cent per annum rate of appreciation of the policy band starting at the prevailing level of the S\$NEER," it added. The COVID-19 pandemic has led to a severe contraction in economic activity in Singapore and globally, due to the combination of supply chain disruptions, travel restrictions imposed in many countries and a sudden decline in demand. Looking ahead, MAS expects global economic growth to stall or even contract in the first half of 2020, with "significant interruption" to economic activity in most of Singapore's major trading partners. Growth in the trade-related industries will be weighed down by the decline in external demand and supply chain disruptions.

Source: Channel News Asia, 30 March 2020

Extract 8: Economic prospects in Indonesia

Disruption from COVID-19 and developments in commodity and financial markets will have severe implications for Indonesia in 2020. As events unfold, Indonesia's key trade partners already expect severe impacts on their economies. Domestic demand is likely to weaken as business and consumer sentiment falls. GDP growth is accordingly forecast at 2.5% this year. As the global economy recovers in 2021 and investment reform gains traction, growth is forecast at 5.0%.

Earnings from exports of goods and services are expected to contract for a second year in 2020. As the COVID-19 outbreak halts production in economies that import Indonesian commodities, earnings from petroleum, palm oil, and coal are likely to suffer this year. Travel bans and flight cancellations will hit tourism receipts. Signs already show domestic consumer confidence beginning to decline. The impact of the COVID-19 outbreak on consumer sentiment and

[Turn Over

spending is likely to be strong. Unless the government successfully contains the outbreak, household spending on health care could jump, productivity fall, and discretionary spending shrink.

Growth in Indonesia has averaged 5% since 2015, yet much higher growth is needed for the country to achieve its ambition to join the world's five largest economies by 2045. The main factor constraining potential growth has been stagnant productivity partly attributed to limited technological sophistication. To exploit the benefits of new technologies, companies and workers need to have the know-how to absorb and adopt them. However, Indonesia currently lacks such workers. Many firms struggle to find workers with the right competencies in software and information technology services, inducing them to move to other countries. The share of the population in the 25–34 age group with a tertiary education is still relatively low at 16.1%, below that of other countries in the Group of 20.

*Source: Asian Development Outlook 2020,
www.adb.org*

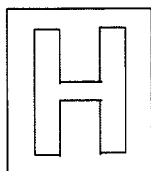
Questions

- (a) Explain what is the Consumer Price Index (CPI). [2]
- (b) Using Table 1, describe the trends in real GDP and general price level in Indonesia from 2016 to 2020. [2]
- (c) With reference to Extract 5 and using a diagram, explain the impact of an increased number of multinationals operating in Vietnam on the exchange rate of the Dong (Vietnam's currency). [4]
- (d) With reference to Extract 5 and the use of a diagram, explain **one** reason why a firm like "Apple now has plans to manufacture its high-end AirPods studio earphone in Vietnam". [4]
- (e) Using economic analysis and based on the evidence provided, assess whether open economies such as Vietnam and Singapore would gain or lose from the US-China trade war. [8]
- (f) Assess whether tackling falling growth rate is more important than raising productivity. [10]

[Total: 30]

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TEMASEK JUNIOR COLLEGE

2022 JC2 PRELIMINARY EXAMINATIONS

Higher 2



TEMASEK
JUNIOR COLLEGE

ECONOMICS

9757/02

Paper 2

12 September 2022

2 hours 15 min

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

An answer booklet will be provided with this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

Answer **three** questions in total, of which **one** must be from Section A, **one** from Section B and **one** from **either** Section A or Section B.

Begin each question on fresh page.

Indicate the question number clearly in your answers.

The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **3** printed pages and **1** blank page.

Answer **three** questions in total.

Section A

One or two of your three chosen questions must be from this section.

- 1 Amid the surge in demand for face masks in the light of the COVID-19 outbreak, the price of face masks skyrocketed and there was a global shortage.
 - (a) With the aid of a diagram, explain why a shortage of face masks might still persist after the rise in price of face masks. [10]
 - (b) Discuss the policies that a government can implement to address the skyrocketing face mask prices. [15]

- 2 Singapore's furniture retail market consists of large firms such as IKEA as well as smaller, individual retail shops. These firms employ different strategies based on their sizes. Smaller retail shops tend to compete on prices while prices remain stable across the large firms.
 - (a) Explain **two** possible objectives of firms and how these may affect their price and output decisions. [10]
 - (b) Discuss whether the strategies to increase profits adopted by large firms such as IKEA might differ from those of smaller, individual retail shops. [15]

- 3 Lifelong learning, the practice of continuing to learn throughout one's entire life, brings not only personal development but also economy-wide productivity improvements. In Singapore, the government has launched a campaign to rally Singaporeans towards lifelong learning and provided subsidies like the SkillsFuture Credit.
 - (a) Explain the factors that a rational consumer may **and** may not consider when making decisions about participating in lifelong learning. [10]
 - (b) Assess whether government subsidy is the best policy to ensure an optimal outcome in lifelong learning. [15]

Section B

One or two of your three chosen questions must be from this section.

- 4 The Bank of England has cut interest rates twice from 0.75% to 0.1% as the UK economy attempts to recover from an unprecedented economic contraction.

Source: *CNBC*, 17 June 2020

- (a) Explain **one** demand reason and **one** supply reason for negative real GDP growth. [10]
- (b) Discuss whether a cut in interest rates is the most appropriate for a country facing a recession. [15]

- 5 Singapore's headline inflation turned negative with authorities expecting inflation to remain subdued on the back of lower oil prices and impact from the COVID-19 outbreak. Weak labour market conditions also dampened consumer demand, thus capping price increases for discretionary goods and services.

Source: *Channel News Asia*, 26 May 2020

- (a) Explain **one** internal factor and **one** external factor that are likely to have contributed to negative inflation in Singapore. [10]
- (b) Discuss the view that governments should pursue price stability over the other macroeconomic aims. [15]

- 6 Recently, many countries implemented export bans on food products such as grains and meat. When countries ban exports, this can cause soaring prices, presenting potential risks to Singapore's economy.

Source: International Food Policy Research Institute

- (a) Explain the likely consequences of export bans on both the exporting **and** importing countries. [10]
- (b) Assess the extent to which the Singapore government can manage the harms of export bans by other countries on her economic performance. [15]

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Question 1: Government intervention in the market for rare earths
Suggested answers

<p>(a) With evidence from Extract 1.</p> <p>(i) What can you conclude about the price elasticity of supply of rare earth elements (REEs)? [2]</p> <ul style="list-style-type: none"> Extract 1 mentions that "extracting, processing and refining REEs are tricky for a myriad of technical and environmental reasons". This suggests that the production of REEs is highly complex with a lengthy production process. [1] The supply of REEs would hence be price inelastic [1] with quantity supplied increasing less than proportionately when price increases. 	
<p>(ii) Using a demand and supply diagram, explain the likely change in the REEs market in the future. [4]</p>	<p>The demand for REEs like dysprosium and terbium are derived from the demand for electric vehicles because these elements are factor inputs in the production of electric vehicles. [1]</p> <p>Amid the ongoing race to create a large electric vehicle market (Extract 1), the derived demand for REEs will continue to increase, shown by the rightward shift of the demand curve from D_0 to D_1. [1]</p> <div style="text-align: center;"> <p>Figure 1: REEs market</p> </div> <ul style="list-style-type: none"> [1] for a fully labelled and accurately drawn diagram Given a price inelastic supply of REEs as concluded in (a)(i), an increase in the demand for REEs in the future will lead to a significant increase in price from P_0 to P_1, and a slight increase in equilibrium quantity from Q_0 to Q_1. [1]

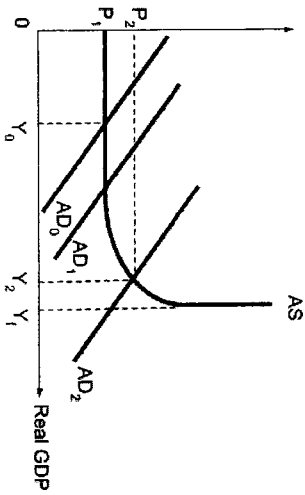
<p>(b) With reference to Figure 1, summarise the trend of the price of dysprosium oxide during the period 2009 – 2024. [2]</p>	<p>General trend:</p> <ul style="list-style-type: none"> The price of dysprosium oxide is forecasted to increase generally during the period 2009-2024. [1] <p>Refinement:</p> <ul style="list-style-type: none"> except for the years 2016-18 where the price decreased. [1] <p>OR</p> <ul style="list-style-type: none"> There was a spike in 2011. [1] 									
<p>(c) Explain the meaning of a positive statement and a normative statement and identify an example of each type from Extract 2. [4]</p>	<ul style="list-style-type: none"> A positive statement is an objective statement whose accuracy can be tested by looking at evidence. [1] One example is "the removal of these elements from the earth's crust, using a mix of water and chemicals, caused extensive water and soil pollution." [1] <p>OR</p> <ul style="list-style-type: none"> "Other pollutants, such as cadmium and lead, also are released during the mining process; long-term exposure to these metals poses health risks." A normative statement involves value judgement and is subjective; cannot be proven or disproved by looking at facts. [1] An example is "There is talk that similar mining could be started in Africa and other regions, so we should not repeat the same mistakes." [1] OR "Ma's fear is that other regions around the world could suffer a similar fate if they become, like China, the supplier of cheap rare earth elements, with little or no environmental price attached." 									
<p>(d) To what extent would rare earth mining improve the standard of living of people in China? Discuss. [8]</p>	<p>Question Interpretation</p> <table border="1"> <tr> <td data-bbox="973 143 1045 978">Command phrase</td> <td data-bbox="973 143 1045 978">To what extent...improve</td> <td data-bbox="973 143 1045 978">Balanced discussion on both sides (SOL improved and worsened) before an evaluative conclusion on the overall extent</td> </tr> <tr> <td data-bbox="1045 143 1109 978">Content</td> <td data-bbox="1045 143 1109 978">Standard of living (SOL)</td> <td data-bbox="1045 143 1109 978">Material (supported with AD/AS analysis) and non-material SOL</td> </tr> <tr> <td data-bbox="1109 143 1173 978">Context</td> <td data-bbox="1109 143 1173 978">Rare earth mining and people in China</td> <td data-bbox="1109 143 1173 978">Evidence from case material on the effects of rare earth mining on the people in China.</td> </tr> </table> <p>This question requires a balanced discussion on the effects of rare earth mining to the standard of living (improve and worsen) of the people in China. The discussion should be undergirded by AD/AS analysis where relevant and supported with evidence from case material before coming to a reasoned conclusion on the overall extent mining REEs improves SOL in China.</p> <p>Introduction</p>	Command phrase	To what extent...improve	Balanced discussion on both sides (SOL improved and worsened) before an evaluative conclusion on the overall extent	Content	Standard of living (SOL)	Material (supported with AD/AS analysis) and non-material SOL	Context	Rare earth mining and people in China	Evidence from case material on the effects of rare earth mining on the people in China.
Command phrase	To what extent...improve	Balanced discussion on both sides (SOL improved and worsened) before an evaluative conclusion on the overall extent								
Content	Standard of living (SOL)	Material (supported with AD/AS analysis) and non-material SOL								
Context	Rare earth mining and people in China	Evidence from case material on the effects of rare earth mining on the people in China.								

- With the intensification of rare earth mining in China (Extract 2), it remains to be seen whether the standard of living would improve or decrease.
- Standard of living comprises two components, material standard of living and non-material standard of living.

Thesis: Rare earth mining would improve the standard of living of people in China

- The mining of rare earth could have increased the material standard of living of people in China as it increases the national income of her people through its net export revenue.
- As China dominates the global REE supply chain (Extract 3), an increase in the extraction of rare earths to meet the explosion of demand for REEs (Extract 1) will increase the export revenue of China, increasing its (X-M), and thus increasing the AD.
 - Assuming spare capacity, the increase in (X-M) will trigger successive rounds of income-induced consumption due to the multiplier effect.
 - AD increases from AD_0 to AD_1 , because of the initial injection, and eventually to AD_2 because of the multiplier effect. This would result in an increase in real GDP from Y_0 to Y_2 , where there is **higher actual economic growth**.

Figure 2: Higher actual economic growth from REEs mining
General Price Level (GPL)



- If the rate of real GDP growth rate exceeds the population growth, there will be an increase in **real GDP per capita**. This translates to consumers having greater purchasing power and hence higher ability to purchase more goods and services. This increases their material standards of living.
- With higher actual growth from increased REE mining, the increase in output also increases the derived demand for labour, reducing demand deficient unemployment from $Y_1 - Y_0$ to $Y_2 - Y_2$.
 - With more people having jobs and incomes, this will increase the opportunity costs of committing crime. The crime rates in China would be expected to reduce, leading to an improvement in non-material standard of living as well.
- OR
 - The increase in incomes from the higher employment rates would mean higher tax revenue for the government, increasing the government's budget and ability to spend more on education and healthcare to improve literacy rates and life expectancy rate, increasing China's non-material SOL.

Anti-thesis: Rare earth mining may decrease the standard of living of people in China

- However, the mining of rare earths generates negative externalities which would decrease the non-material standard of living of people in China.
 - The extraction of REEs generate spillover costs in terms of "extensive soil and water pollution" (Extract 2) to third parties who are not involved in the rare earth mining process. These people are the residents staying nearby the rare earth mines.
 - The pollution would worsen air and water quality and lower sanitary levels, leading to people developing illnesses, reducing life expectancy rates and lower non-material standard of living.
 - If a significant number of people fall ill due to the pollution, and lose the ability to work, the fall in incomes may also worsen the material stand of living.

Evaluative Conclusion

- [Stand + Alternative] As rare earth mining could raise the material living standards of residents in China due to an increase in net export revenue and hence income, the overall impact on resident's living standards depends on the government's ability to mitigate the negative externalities in production.
 - With tougher regulation to stem the damage done by rare earth mining, together with more sustainable mining practices (Extract 4), these negative effects are likely to be minimised. Thus, rare earth mining would improve the living standards of people in China.

- OR
- [Time Frame + Stand] In the short run, the production of rare earths suffers from negative externalities in production, hurting residents' non-material living standards. However, in the long run, as China take steps to fix the issues and enacting tougher regulations to mitigate the negative effects (Extract 4), rare earth mining will likely raise the living standards of people in China in the future.

Mark Scheme

L2	For a well-developed answer that has: <ul style="list-style-type: none"> • good scope – explains the impact of rare earth mining on the material and non-material SOL of people in China; and • good balance – explains the positive and negative impacts of rare earth mining on SOL; and • good rigour – explains using AD/AS analysis; and • good application to context – applies analysis to the context of China 	4 – 6
L1	For an under-developed answer that: <ul style="list-style-type: none"> • lacks scope – did not explain the impact of rare earth mining on the material SOL or non-material SOL; and/or • lacks balance – did not explain the positive or negative impact of rare earth mining on SOL; and/or • lacks rigour – descriptive explanation of how SOL of the Chinese is affected by rare earth mining • lacks application to context – did not explain change in SOL using case material. 	1 – 3

E	For a well-reasoned judgement on the extent to which rare earth mining will improve or worsen the material and non-material SOL of people in China.	1-2
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(e) Discuss the view that tougher government regulations for mining companies to 'upgrade their equipment to more modern, efficient technology in rare earth mining' (Extract 4) is the best policy to alleviate the negative effects in the extraction of rare earth metals. [10]

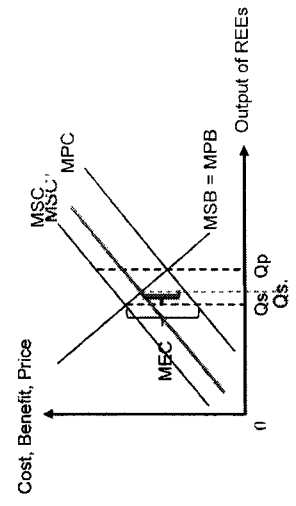
Question Interpretation		
Command word/phrase	Discuss the view...best policy	Present a balanced perspective of the workings and limitations/unintended consequences of two policies, one of which is the policy stated in the question followed by a well-substantiated judgement on which policy would be better.
Content	Regulations for...upgrade equipment... Alleviate the negative effects	The use of more efficient technology can help reduce the MEC associated with the extraction of REEs. Address the negative externalities in (f(i)) and improve allocative efficiency
Context	Extraction of rare earth metals	The case material should be used, where applicable.

A relevant response requires a balanced analysis of the appropriateness of two policies, including the tougher regulations for firms to upgrade their mining equipment through technology, in terms of their workings and limitations/unintended consequences in addressing negative externalities before making a well-reasoned judgment on overall appropriateness of the policies in addressing the market failure.

- Introduction**
- [Set context and outline approach] The extraction of rare earth metals generate negative externalities, causing residents living near mining sites, the third parties, to suffer health issues and incur higher health costs due to pollutants such as cadmium and lead (Extract 2). The presence of MEC would lead to overproduction of REEs, and result in deadweight loss (DWL).
 - Alleviating the negative effects in the extraction of rare earth metals would hence require a reduction of the DWL.
 - [Outline approach] Besides tougher government regulations for mining companies to upgrade their equipment, a government can also impose an indirect tax on REE mining.
- Policy 1: Explain how tougher regulations for firms to upgrade to more efficient technology can reduce the extent of negative externalities to alleviate the negative effects, alongside its limitations**
- Tougher regulations for firms to upgrade to more efficient technology will reduce the extent of negative externalities, and hence reduce the deadweight loss to improve allocative efficiency.

- As companies upgrade their equipment to more modern and efficient technology, the extraction process will release lesser pollutants into the atmosphere.
- This represents a decrease in the spillover costs to third parties, leading to a decrease in the MEC in rare earth mining.
- As MEC decreases, MSC moves to MSC', which is nearer to MPC. The new socially optimal level of rare earth mining is at Qs', where MSC' = MSN, which is closer to Qp.
- The DWL falls, hence alleviating the negative effects of rare earth mining.

Figure 3: Effects of tougher regulations



- This policy could incur high administrative costs on governments to monitor and enforce the regulation as inspections would need to be carried out periodically. This incurs an opportunity cost as the budget could have otherwise been spent on other areas such as improving the healthcare industry.
- This policy is likely to be limited in its effectiveness as the mandate to upgrade to more modern, efficient technology would require governments to have a good understanding of the REE mining industry and the available technologies. However, imperfect information could reduce the extent to which MEC can be reduced and hence the reduction in the DWL.

- Policy 2: Explain how an indirect tax can reduce the extent of negative externalities to alleviate the negative effects, alongside its limitations**
- Another policy that a government can implement is an indirect tax on REE mining so that the "external [pollution costs] could be internalised in the cost" of products (Extract 2).
 - By implementing a per-unit tax equal to the MEC at Qs, this forces producers to internalise the external costs to third parties by raising their unit costs of production, increasing the MPC.
 - This is shown as a shift of the MPC curve to the MPC', which coincides with the MSC curve.
 - The new private optimal production level, Qp', where MPC' = MPB, falls to coincide with Qs, achieving allocative efficiency.
 - The DWL is eliminated, alleviating the negative effects of mining.

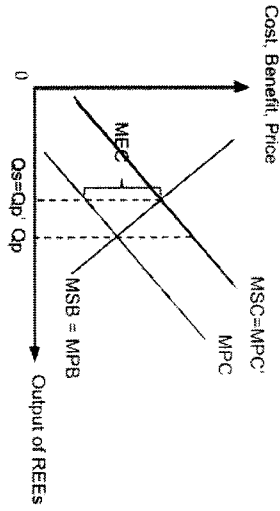


Figure 4: Effects of indirect tax

- However, the government is likely to have imperfect information regarding the monetary value of the MEC generated at Q_s . Estimates would have to be made, and errors in terms of under-estimation or over-estimation would mean that allocative inefficiency would still persist in the REEs market.
 - Moreover, an overestimation could result in a tax that is too high, possibly leading to government failure where the DWL generated could be greater than before non-intervention.
- Evaluative conclusion**
- **[Stand]** Tougher regulations alone may not be the best policy to alleviate the negative effects of rare earth extraction. A combination of both tougher regulations and indirect taxes may be more suitable instead.
 - **[Alternative]** The taxation is a short run policy which can yield immediate effects and raise tax revenue. Given China's domination in the global market for rare earth elements and the rising global demand, it is likely to generate substantial tax revenue for China which can be directed towards enforcement of regulation and be used to finance the research and development into cleaner technology, whose effects can only be reaped in the long run.

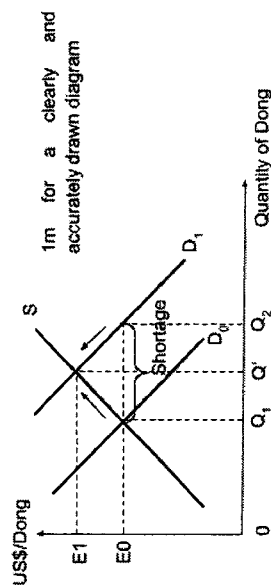
Mark Scheme

Level	Marking Description	Mark
L2	<ul style="list-style-type: none"> • For a well-developed answer that has: <ul style="list-style-type: none"> • good scope – explains the tougher regulations for firms to upgrade to more efficient technology in rare earth mining and one alternative policy to alleviate the negative externalities in rare earth metals extraction, • and balance – explains both the workings and limitations/unintended consequences of both policies, and • good rigour – explains using benefit-cost market failure analysis; and • good application to context 	5 – 7
L2	<ul style="list-style-type: none"> • For an under-developed answer that: <ul style="list-style-type: none"> • lacks scope – did not explain an alternative policy to alleviate the negative externalities in rare earth metals extraction • lacks balance – did not explain the limitations/unintended consequences of both policies; and/or • lacks rigour – descriptive explanation of the workings and limitations/unintended consequences of both policies in addressing the negative externalities of rare earth metals extraction; and/or • lacks application to context – limited use of case material to support analysis 	1 – 4
E	<ul style="list-style-type: none"> • A well-reasoned judgement on the extent to which the tougher regulations for firms to upgrade to more efficient technology in rare earth mining is the best policy to alleviate the negative effects in the extraction of rare earth metals. 	1 – 3

Question 2: Opportunities and Challenges in Southeast Asian economies
Suggested answers

(a) Explain what is the Consumer Price Index (CPI). [2]	<ul style="list-style-type: none"> The Consumer Price Index (CPI) is an index that is used to measure the price changes of a fixed basket of goods and services [1] consumed by a typical household of a country [1].
(b) Using Table 1, describe the trends in real GDP and general price level in Indonesia from 2016 to 2020. [2]	<ul style="list-style-type: none"> Real GDP increased throughout from 2016 to 2020. [1] General price level increased throughout from 2016 to 2020 [1]
(c) With reference to Extract 5 and using a diagram, explain the impact of an increased number of multinationals operating in Vietnam on the exchange rate of the Dong (Vietnam's currency). [4]	<ul style="list-style-type: none"> The increase in number of multinational firms operating in Vietnam will increase the demand for factor inputs in Vietnam as they seek to "diversify their supply chains". (Extract 5). [1] This leads to an increase in demand for Dong in the foreign exchange market, causing the demand curve to shift rightwards from D_0 to D_1. [1] As a result, the Dong appreciates from E_0 to E_1 as shown in Figure 1. [1]

Figure 1: Impact on exchange rate of the Dong



(d) With reference to Extract 5 and the use of a diagram, explain one reason why a firm like "Apple now has plans to manufacture its high-end AirPods studio earphone in Vietnam". [4]	<ul style="list-style-type: none"> As mentioned in Extract 5, China is now a less attractive place to manufacture due to the number of tariffs in place. Apple will thus be inclined to manufacture in Vietnam instead as it allows them to get around the tariffs. [1] Due to an absence of tariffs, there is a lower cost of production as compared to manufacturing in China, leading to a fall in MC and AC from MC_1 and AC_1 to MC_2 and AC_2 respectively when they manufacture in Vietnam. [1] Profits increase from P_1 to P_2 and C_1 to C_2. [1]
<p>1m for a clearly and accurately drawn diagram</p> <p>Figure 2: Increase in profits of Apple</p>	(e) Using economic analysis and based on the evidence provided, assess whether open economies such as Vietnam and Singapore would gain or lose from the US-China trade war. [8]
Question interpretation	
Command word/phrase Assess	To provide a balanced analysis of gains and losses for the two economies from the US-China trade war, before coming to a well-reasoned judgement.
Content US-China trade war leading to loss or gains for the two open economies	Students are expected to use AD/AS analysis to examine how the US-China

	trade war will affect the macroeconomic performance of Vietnam and Singapore.
Context	Extract 5 & 6

Candidates should explain how the US-China trade war will affect the AD and AS of the two open economies Vietnam and Singapore. Gains and losses should be explained in terms of actual or potential growth and/or unemployment. They can also explain the impact in terms of material and non-material standard of living (SOL). A well-substantiated evaluative judgement on the overall impact (gains and loss) is required.

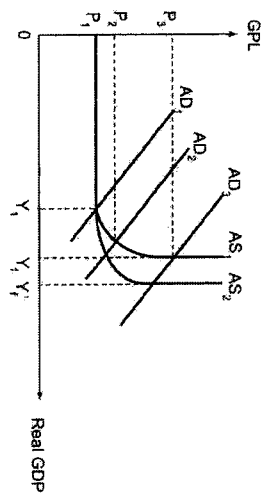
Introduction

- [Set the context] Open economies such as Vietnam and Singapore experience relatively free flows of trade, capital and labour. The US-China trade war has differing impacts on the two open economies, in terms of their macroeconomic performance, with opportunities and threats.

Body 1: Vietnam gains from US-China trade war

- **Due to its openness to capital flows, Vietnam has benefited from the US-China trade war.**
- Due to the tariffs imposed on China, Vietnam has become a more attractive place for US companies to manufacture goods since there are no tariffs in place on exports from Vietnam to US. This is evident from Extract 5, where "Many multinationals have started operating in Vietnam, including global technology leaders like Apple and Samsung."
- Multinationals relocating to Vietnam increases the Foreign Direct Investment (FDI) into Vietnam. This increases investment expenditure (I), which increases AD.
- Below the full employment level, there will be a multiplier effect due to the multiplied increase in income-induced consumption. AD increases from AD₁ to AD₂ because of the initial injection, and eventually to AD₃ because of the multiplier effect. As shown in Figure 3, this would result in an increase in real GDP from Y₁ to Y_{1'}, where there is **higher actual economic growth**.
- The increase in real GDP will also increase the derived demand for labour as more workers are hired to produce more goods and services, **decreasing demand-deficient unemployment**.

Figure 3: Impact of US-China Trade War



- The increase in FDI also leads to an increase in productive capacity, leading to an increase in the AS, shown in the above figure as a rightward shift of the AS curve. As real GDP increases from Y₁ to Y_{1'}, Vietnam enjoys **higher potential growth**.
- In addition, the increase in AD and AS in tandem will lead to **higher sustained economic growth**, where real GDP increases from Y₁ to Y_{1'}, with lower inflationary pressures.
 - This is supported by the IMF's prediction of a strong economic recovery in 2021, with growth projected to strengthen 6.5%, "as normalization of domestic and foreign economic activity continues." (Extract 5).

Body 2: Singapore loses from US-China trade war

- **On the other hand, the US-China trade war has brought about losses to Singapore.**
- Due to the openness of the Singapore economy, it has a role in the global supply chain which has been disrupted by the US-China trade war. As stated in Extract, even though tariffs aren't imposed on Singapore exports, Singapore companies that produce intermediate goods used as inputs in the production of China's exports to the US may see a lower demand. With demand for exports falling, (X-M) falls, leading to AD and real GDP falling.
- The decrease real GDP will also decrease the derived demand for labour as fewer workers are hired to produce more goods and services, **increasing demand-deficient unemployment. (can also link to SOL)**

Evaluative Conclusion (stand + 1 well-substantiated A-T-M-S angle)

- **[Stand]** Overall, it would seem that Singapore loses while Vietnam gains from the US-China trade war.
- **[Time frame]** However, if the US-China trade war intensifies further, the resulting decline in global economic growth and incomes is likely to lead to a fall in demand for exports worldwide, and Vietnam could experience a fall in exports and actual growth as well.
- **[Situation]** Depending on how similar Singapore exports are to Chinese exports, Singapore's exports could increase if US switches from more expensive tariff-imposed Chinese goods to Singapore goods. Moreover, Singapore could also attract US companies to relocate there and this could lead to more gains than losses for the economy.

Level	Knowledge Application Understanding, and Analysis	Marks
L2	For a well-developed answer that has: <ul style="list-style-type: none"> good scope – explains the impact of US-China trade war on the macroeconomic performance in terms of the macroeconomic goals (e.g. economic growth, unemployment) good balance – explains both the benefits and costs of US-China trade war on Vietnam and Singapore; and good rigour – explains using AD/AS analysis, supported by relevant diagram(s); and good application to context – explains using the context of the two economies mentioned in Extracts 5 and 6. 	4 – 6
L1	For an under-developed answer that: <ul style="list-style-type: none"> lacks scope – explains the impact of US-China trade war on only 1 macroeconomic goal of the two economies; and/or lacks balance – only explains the benefits OR costs of US-China trade war; and/or lacks rigour – descriptive explanation without use of AD/AS analysis or diagram(s) lacks application to context – answer is purely theoretical and did not explain using case material. 	1 – 3
E	For a well-reasoned judgement on the overall impact of US-China trade war on the two economies.	1 – 2

Mark Scheme

- Raising productivity involves an increase in the quality of factors of production, resulting in an increase in output produced per unit input.
- Both tackling falling economic growth and raising productivity are important goals and this essay assesses whether the former should take precedence over the latter.

Body

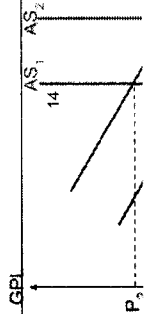
Thesis: Explain how tackling falling economic growth may be more important than raising productivity.

- if the adverse consequences from falling economic growth rate are significant, tackling falling economic growth rates may be more important than raising productivity.
- Slower actual growth can occur from a slower than expected growth or a decline in any of the components of the AD. This can lead to pessimism in the outlook of the economy. As consumer and business confidence falls, C and I will also fall because consumers are pessimistic about their future expected incomes, and firms are pessimistic about their future expected profits. This will then give rise to negative growth, lower incomes and lower material SOL.
- Furthermore, continued weak economic growth could limit the amount of resources available to sustain growth, since there is less investment in capital, resulting in lower productive capacity and slower or even lower potential growth in the long run. Lower sustained growth limits both current and future material SOL as households have lower current and future incomes.
- With slower growth, the government collects less tax revenue, which can in turn limit its ability to enact redistributive policies to reduce income inequality to promote more inclusive growth. Non-material SOL could also be lowered if the lower tax revenue impacts the government's ability to spend on healthcare and education.
- Hence, in such a situation where there is a drastic fall in growth rates resulting in significant negative growth and a full-blown recession, governments should focus on boosting the growth rates to mitigate the negative consequences of a recession.

Anti-Thesis: Raising productivity growth is more important than tackling falling growth rates.

- Governments may decide to focus on raising productivity growth due to the positive consequences on its long-term growth.
- The potential growth is especially important for economies that are operating near full employment. Without an increase in productive capacity, further actual growth is not possible. This is because at full employment level, an increase in AD causes factor prices to be bid up as firms compete for factors of production that are in shortage, leading to demand-pull inflation as firms. This is the case in Indonesia where much higher growth is a challenge due to "stagnant productivity" which is the "main factor constraining potential growth" (Extract 7).
- By raising productivity, the increase in LRAS together with an increase in AD can lead to sustained growth as shown in Figure 4, where there is an increase in real GDP from Y1 to Y3 with no significant upward pressure on GPL (slight increase in GPL from P1 to P3). This increases both current and future material SOL.

Figure 4: Sustained growth arising from raising productivity



(f) Assess whether tackling falling growth rate is more important than raising productivity. [10]

Command word/phrase	Assess whether	Give a balanced and comparative analysis of the benefits of tackling falling growth rate over raising productivity and vice versa, before providing a judgement on which which aim takes precedence.
Content	Falling growth rates...raising productivity More important	Analyse the impact (consequences) of actual growth vs productivity growth More important in terms of benefits
Context	Not stated	Answer should make reference to case material and bring in relevant examples of economies - Singapore or any economy is acceptable.

Introduction

- Falling growth rates could refer to a slower rate of positive actual growth or even negative actual growth.



Evaluative conclusion (stand + 1 well-reasoned ATWS evaluative angle)

- [Stand]: Whether tackling falling economic growth is more important than raising productivity depends on the current economic state of the economy.
- [Situation]: While productivity growth is important, it takes a lower priority when there is an economic fallout as severe as the one during Covid-19. The economic fallout from Covid-19 was the most severe, surpassing even the SARS outbreak of 2002 and September 2001 attacks where the impact was more short-lived. Weaker economic growth during Covid could dampen already weak business and consumer confidence, and this could tip the economy into a full-blown recession, where growth rates become negative. Moreover, efforts at raising productivity have unpredictable outcomes, unlike efforts to boost economic growth by increasing government expenditure and through transfer payments to households. Ultimately boosting growth to preserve jobs takes precedence during times of recessions.

OR

- [Stand]: Whether tackling falling economic growth is more important than raising productivity depends on the severity of falling growth rates and types of challenges faced by the economy.
- [Situation]: If growth rates are still positive despite weaker growth, governments may choose to focus on raising productivity to address other challenges instead. For instance, while Singapore has been facing lower growth over the years, its growth rate was still forecasted to be "within the range of 0.5 to 2.5 per cent in 2020" (Extract 5). On the other hand, there are greater threats to its long-term growth, in the form of an "ageing population and weakening productivity". Without an increase in productivity through greater investment in automation for instance, Singapore is likely to face limited potential growth which will greatly limit its ability to achieve sustained growth in the long run. Hence, for such economies facing long-term demographic challenges which threatens its long-term growth, boosting productivity is more important than tackling falling growth rates.

Student's Evaluation (Wang Yiqin, CG 06/21)

- [Stand]: In conclusion, tackling falling growth rate and raising productivity are both important as focusing on one objective alone would inevitably lead to creation of other unintended economic problems.
- [Alternative]: If the focus is on tackling falling growth rate and productivity growth is ignored, there may be significant inflation. If the focus is on productivity and not falling growth rate, unemployment could keep rising. Hence, both objectives must be taken care of.

- [Situation]: However, in real world situations, which objective to place more importance on depends on the situation of the economy as it is costly and incurs great opportunity cost to focus on both. Developing countries should focus on falling growth rates more as they are likely to have spare capacity in the economy for AD to rise further, while developed countries should focus on productivity more for future growth.

Mark Scheme

Level	Description	Mark
L2	A well-developed answer that has: <ul style="list-style-type: none"> Good balance and scope – analyses the benefits of tackling falling economic growth and raising productivity; and Good rigour – analyses the benefits of tackling falling economic growth and raising productivity using AD/AS analysis; and Good application – arguments are supported with case evidence and examples of Southeast Asian economies where relevant. 	5 – 7
L2	For an answer that: <ul style="list-style-type: none"> Lacks balance and scope - analyses only the benefits of tackling falling economic growth or raising productivity; and/or Lacks rigour – there are gaps in explaining the benefits of tackling falling economic growth or raising productivity; and/or Lacks application – there is little or no support with case evidence and examples of Southeast Asian economies. 	1 – 4
E	For a well substantiated conclusion on whether tackling falling economic growth is more important than raising productivity.	1 – 3

Paper 2: Essay Questions

1 Amid the surge in demand for face masks in the light of the COVID-19 outbreak, the price of face masks skyrocketed and there was a global shortage.

- (a) With the aid of a diagram, explain why a shortage of face masks might still persist after the rise in price of face masks. [10]
- (b) Discuss the policies that a government can implement to address the skyrocketing face mask prices. [15]

Part (a) Question Interpretation

Command word/phrase	With the aid of a diagram, explain	To utilise an economic diagram and economic reasoning (demand, supply and price elasticities) to explain the phenomenon of a persisting shortage.
Content	shortage... ... still persist after the rise in price	Quantity demanded greater than quantity supplied at the initial price. This could be due to a larger increase in demand compared to supply. A persisting shortage could be due to the rise in price not being significant enough to alleviate the shortage. This could be due to price inelastic demand and/or price inelastic supply which requires a very significant increase in price for the market to clear.
Context	Preamble: surge in demand Face masks Preamble: in light of the COVID-19 outbreak	Large increase in demand Demand and supply framework to be applied to the context of face masks during the COVID-19 pandemic. During the pandemic, both demand and supply of face masks rose.

This response requires students to use demand and supply concepts to first explain the shortage of face masks, followed by price elasticities of demand and supply to explain the persisting shortage despite the rise in price during the COVID-19 pandemic.

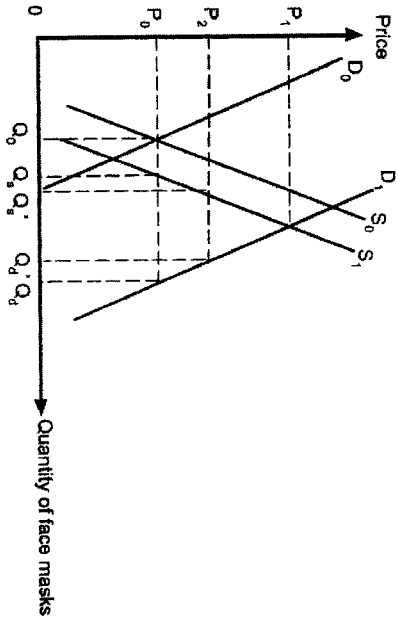
Introduction

- [Define key term(s)] A shortage occurs when the quantity demanded of a good exceeds its quantity supplied at the current price level.
- [State approach] This response will use the concepts of demand and supply, as well as price elasticity of demand (PED) and price elasticity of supply (PES) to explain the persisting shortage of face masks despite the price increase during the COVID-19 outbreak.

Body 1: Explain how the shortage of face masks arose due to the surge in demand which exceeded the increase in supply

- During the COVID-19 outbreak, both the demand and supply of face masks rose. The shortage of face masks can be explained by the huge increase in demand which exceeded the rise in supply.
- After news that the wearing of face masks could help reduce the transmission of the COVID-19 broke out, consumers' taste and preferences shifted favourably towards face masks, resulting in a 'surge in demand for face masks' as stated in the preamble.
 - o The rise in willingness and ability to purchase face masks is shown as a rightward shift in the demand curve for face masks from D_0 to D_1 in Figure 1 below.
- At the same time, there were government measures to increase the supply of face masks, both by increasing the import sources of face masks, and by increasing the domestic production of face masks.
 - o The increase in willingness and ability to produce and sell face masks is shown as a rightward shift in the supply curve for face masks from S_0 to S_1 .
 - o An increase in demand would increase the size of shortage, while a rise in supply would reduce the extent of shortage.
- Overall, due to time lags in the production of face masks, the increase in demand exceeded the rise in supply of face masks.
 - o This can be observed by the larger rightward shift of the demand curve compared to the supply curve.
 - o At the initial price P_0 , consumers are willing and able to buy Q_d units but firms are only able to sell only Q_s units. As the quantity demanded of face masks, Q_d , exceeded the quantity supplied of face masks, Q_s , this resulted in a shortage of $Q_d - Q_s$ units at P_0 .
 - o The shortage will put an upward pressure on prices, causing the price of face masks to rise. (Optional) This explains why the price of face masks 'skyrocketed' in the preamble.
 - o If the price of face masks rose to P_1 , the shortage could have been eliminated, but this was not the case as the shortage persisted.

Figure 1: Market for face masks



Body 2: Explain how the persisting shortage despite the price rise could be attributed to the price inelastic demand and price inelastic supply of face masks

- The price inelastic demand and price inelastic supply of face masks meant the price increase was not sufficiently significant to remove the shortage, resulting in the shortage of face masks persisting.
- The demand for face masks is price inelastic ($|PED| < 1$) because of the high degree of necessity of face masks as a precautionary measure to reduce the spread of COVID-19.
- The supply of face masks is price inelastic ($0 < PES < 1$) because of the fairly complex production process.
 - The production of face masks requires several different inputs and the assembly of different parts in a relatively sophisticated process in order to form the multi-layered face mask with filtering properties to trap small particles while allowing air to pass through.
 - Given a shortage which will exert an upward pressure on price, causing price to rise, quantity demanded will fall and quantity supplied will increase.
 - However, as $PED < 1$, quantity demanded will fall less than proportionately to the increase in price, ceteris paribus. Likewise, with a price inelastic supply, the quantity supplied of face masks will rise less than proportionately to the increase in price, ceteris paribus.
- Together, this meant that when price increased, quantity demanded and quantity supplied may not respond sufficiently for the shortage to be removed.
- As shown in Figure 1 above, despite the increase in price from P_0 to P_2 , there is still a persisting shortage of $Qd' - Qs'$ units, and the market does not clear.

Mark scheme

Level	Knowledge, Application, Analysis, Evaluation and Synthesis	Markers
L3	For a well-developed answer that has: <ul style="list-style-type: none"> • good scope – explains the larger increase in demand compared to supply and the price inelastic demand and supply of face masks; • good rigour – utilises a suitable demand and supply framework and economic diagram to explain the persisting shortage, in the context of COVID-19, with reference to the preamble. 	8 – 10
L2	For an underdeveloped answer that is: <ul style="list-style-type: none"> • lacking in scope – only explains increase in demand and supply without recognising price elasticities of demand and supply OR only explains the increase in demand and price inelastic supply of face masks; • 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 demand, supply, and/or price elasticities for face masks. Answer may contain irrelevant responses or conceptual errors.	1 – 4

(b) Discuss the policies that a government can implement to address the skyrocketing face mask prices. [15]

Part (b) Question Interpretation

Command word/phrase	Discuss the policies	To provide a balanced analysis on the various policies (Workings and limitations)
Content	Policies... address... skyrocketing face mask prices	Policies to increase the high face mask prices include: reducing demand, increasing supply, price control (price ceiling/maximum price)
Context	A government... face masks	Policies that can be carried out by a government. Real-world examples should be given to demonstrate application.

A relevant answer requires a balanced analysis (both the workings and limitations) of the various policies that a government can implement to address the skyrocketing face mask prices. Policies could entail either an increase in the supply or a decrease in the demand. There should also be comparison between these policies to craft a well-reasoned judgement of the appropriateness/effectiveness of the various policies discussed in a real-world context.

Introduction

- [State approach] To address the skyrocketing face mask prices, a government can either increase the supply of face masks, decrease the demand for face masks, or impose a price

ceiling on face masks. However, each of these policies are not without limitations, as will be analysed in this response.

Policy 1: Explain the workings of increasing supply of face masks, together with its limitation/unintended consequence

- **A government can increase the supply of face masks to reduce the shortage and hence address the skyrocketing face mask prices.**
- Increasing the supply of face masks could be achieved by sourcing for more suppliers of face masks globally and diversifying import sources over a range of countries like Japan, India, the U.S, Thailand and China. As the number of producers increase, the supply of face masks would rise.
- Alternatively, a government can encourage domestic firms to increase their production of face masks through financial support like subsidies or providing technical expertise in terms of the skills and knowledge to produce the filtration properties of face masks.
- Government support can lead to firms' incurring lower unit costs of production, thus increasing producers' willingness and ability to produce and sell face masks.
- As the supply of face masks increase, this would reduce the extent of shortage as seen in Figure 1, reducing the upward pressure on price.
- Ceteris paribus, an increase in supply of face masks will reduce its price, hence addressing the skyrocketing face mask prices.
- **However, given the global shortage in face masks as mentioned in the preamble, there is a limit to which supply of face masks can be increased rapidly.** This is because despite attempts to diversify import sources, some countries like Germany, Russia and Thailand have banned exports of face masks to ensure sufficient supplies of face masks for its own citizens.
- Moreover, there are time lags involved in producing face masks domestically to raise supply given the relatively complex production process as explained earlier in (a).
- As a result, this limits the extent of increase in supply to lower the face mask prices.

Policy 2: Explain the workings of reducing demand for face masks, together with its limitation/unintended consequence

- **Another measure that a government can implement is to decrease the demand of face masks to reduce face mask prices.**
- The fear and uncertainty surrounding the COVID-19 outbreak and adequacy of face masks given the global shortage led to panic buying and a surge in demand. Therefore, to reduce the panic buying and hence decrease demand for face masks, a government can allay public fears by reassuring the public that there are sufficient stockpiles of face masks for public consumption.
- In Singapore, the then Minister for Trade and Industry Chan Chun Sing took to the press to inform the public that the country's stockpile is sufficient, and the government distributed four face masks per household to signal the adequacy of supplies of face masks within the country to allay public fears.
- In addition, there were active efforts by the government to identify new supplies of face masks to boost supply and reminders to the public to be responsible and sensible in their purchase of face masks.
- Ceteris paribus, the reduction in panic buying would reduce the demand for face masks, reducing the shortage and hence reduce face mask prices.

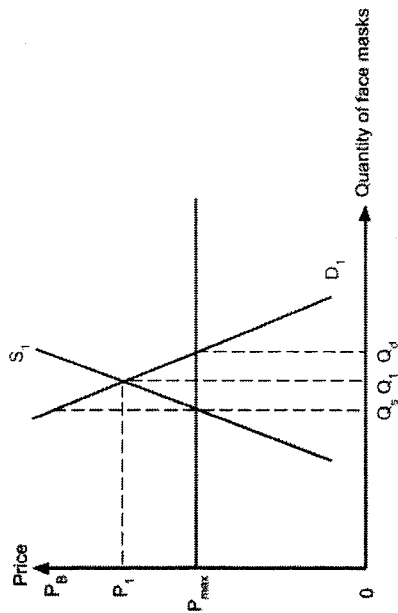
- **Nonetheless, there is a limit to which the rise in demand for face masks can be mitigated.** Given the high degree of necessity of face masks as a precautionary measure, and the infectious nature of COVID-19, the demand for face masks would likely remain very high.

- In addition, shifting the public mindset takes time and the success also depends on the receptiveness of the people to change their consumption and buying habits.
- In the short run, demand will still likely rise, albeit by a smaller extent, hence limiting the extent to which the skyrocketing face mask prices are addressed.

Policy 3: Explain the workings of a maximum price on face masks, together with its limitation/unintended consequence

- **Lastly, a government could implement a price ceiling on face masks to address the skyrocketing prices.**
- A price ceiling is the legal maximum price at which a good can be sold. To be effective, it needs to be set below the market equilibrium price.
- After a price ceiling is imposed, the equilibrium price falls from P_1 to P_{max} in Figure 2 below. This addresses the skyrocketing face mask prices.

Figure 2: Price ceiling on face masks



- **However, a price ceiling may give rise to a black market, where consumers and producers make illegal transactions without the knowledge of governments.**
- This is because at the lower P_{max} , consumers increase quantity demanded of face masks from Q_1 to Q_d , while producers reduce quantity supplied to Q_s , leading to a shortage of $Q_d - Q_s$ units.

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- o Also, the quantity transacted falls from Q_1 to Q_s . Consumers who could have consumed Q_1 - Q_s units of face masks are now no longer able to purchase and consume legally after the price ceiling.
- o Some of these consumers might turn to the black market and pay a higher price P_b based on their willingness and ability to purchase as reflected by the demand curve.
- o As a result, in these cases, the price of face masks sold in the black market would likely be much higher than in the free market without government intervention due to the price inelastic demand for face masks.

Evaluative conclusion

- **[Stand!]** As the skyrocketing facemasks is a multi-faceted and complex issue, a multi-pronged approach, requiring both the increase in supply and reduction in demand for face masks is needed to best address the skyrocketing face mask prices. A price ceiling is less appropriate because of its unintended consequences.
- **[Magnitude]** Given the time lags associated with both policies to increase supply and reduce demand, coupled with the global shortage and skyrocketing face mask prices, there needs to be a significant increase in both supply and demand in order to sufficiently remove the shortage to bring prices down.
 - o Moreover, to be able to manage the panic-buying of face masks and hence reduce demand successfully, the public needs to be convinced that there are adequate supplies of face masks when needed, which require countries to boost their supply of face masks.
- **[Magnitude]** Comparatively, a price ceiling would be less ideal to address the skyrocketing face mask prices. While it could, in theory, reduce prices with shorter time lags, there could be inequity problems when prices of face masks are sold at higher prices in black markets, and the quantity transacted is lower, implying that some consumers would be without face masks.

Mark scheme

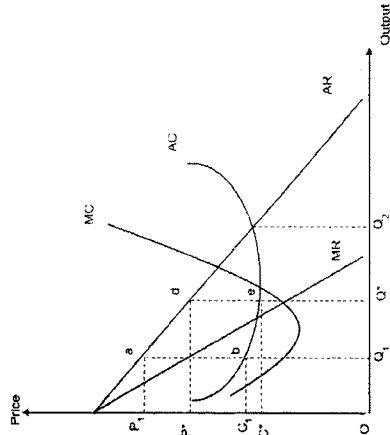
Level	Knowledge, Application/Understanding and Analysis	Mark
L3	For a well-developed answer that has: <ul style="list-style-type: none"> • Good scope – explains how different policies work to increase supply and reduce demand for face masks to reduce price; • Good balance – explains the usefulness and limitations of the above-mentioned policies, and • Good rigour – utilises appropriate demand and supply analysis, together with real-world examples. 	8 – 10
L2	For an underdeveloped or incomplete answer that: <ul style="list-style-type: none"> • Lacks scope – limited explanation of how different policies work to address skyrocketing face mask prices and/or • Lacks balance – only has either workings OR limitations of the policies analysed, and/or • Lacks rigour – gives a descriptive explanation of the workings and limitations of the policies to address skyrocketing face mask prices with limited real-world application 	5 – 7
L1	For an answer that shows some knowledge of how different policies work to address skyrocketing face mask prices. Answer may contain multiple conceptual errors.	1 – 4

2022 T.JC JC2 H2 Economics Preliminary Examination Suggested Answers

Level	Evaluative Statement	Mark
E3	For an answer that builds on earlier economic analysis to support an evaluative statement on the relative appropriateness of the policies to address the skyrocketing face mask prices, well-applied to the real-world context.	4 – 5
E2	For an answer that makes some attempt at an evaluation on the most appropriate policy to address skyrocketing face mask prices, well-applied to the real-world context.	2 – 3
E1	For an unexplained evaluative statement.	1

2022 TJC JC2 H2 Economics Preliminary Examination Suggested Answers

- To maximise profits, the price-setting firm will thus produce the output at which $MR=MC$. The equilibrium output will be at Q^* and this output will be sold at the equilibrium price, P^* .



Body 2: Another possible objective of firms could be market share dominance.

- Firms may aim for growth maximisation in the size of the firms. This could allow them to earn higher profits in the long-run as growth maximisation could lead to greater market share and market power in the long run. With increased market power, firms have increased price-setting ability and would be able to make larger profits that may offset the profits foregone in the short run.
- In order to achieve this, firms can aim to maximise output so as to get its goods or services to as many consumers as possible while subjecting itself to the constraint that profits are not negative. This can be done by producing at the output level where average revenue (AR) = average costs (AC) and the firm makes normal profits during the period in which it is aiming for maximum growth. This can be seen in, where the firm produces a higher output level Q_1 , instead of the profit-maximising output level Q^* and sell their products at a lower price of P_1 instead of the profit-maximising price level of P^* .

2022 TJC JC2 H2 Economics Preliminary Examination Suggested Answers

2 Singapore's furniture retail market consists of large firms such as IKEA as well as smaller, individual retail shops. These firms employ different strategies based on their sizes. Smaller retail shops tend to compete on prices while prices remain stable across the large firms.

- (a) Explain two possible objectives of firms and how these may affect their price and output decisions. [10]
- (b) Discuss whether the strategies to increase profits adopted by large firms such as IKEA might differ from those of smaller, individual retail shops. [15]

Part (a) Question Interpretation

Command word/phrase	Explain	Elaborate on a particular concept, using economic theories.
Content	Objectives of firms Price and output	There is a need to identify and explain the reason for firms to pursue profit-maximisation and one other alternative goal and how this affects their price and output.
Context	No context	No context provided. Answer can be largely theoretical.

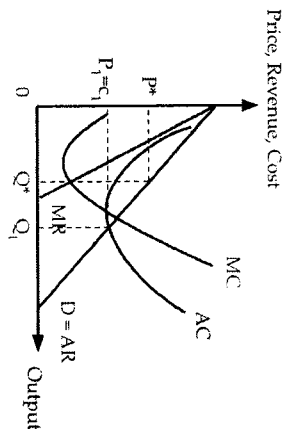
This question requires students to explain the profit maximising and one other objective of firms. Students should explain why firms pursue the identified objectives and how they can do so (in terms of price and output). Firms analysis and diagram should be used to allow for a rigorous answer.

Introduction

- While firms typically aim to maximise their profits, they may also have alternative goals such as entry deterrence or market share dominance which will have an impact on their price and output decisions.

Body 1: One possible objective of firms is profit maximisation

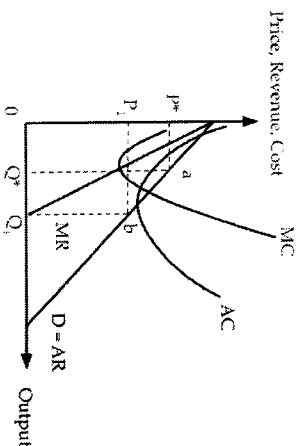
- Firms are fundamentally concerned about profits and hence, a rational firm would therefore aim to maximise economic profits which can be defined as total revenue minus total opportunity cost (both implicit and explicit costs).
- In order to maximise profits, firms will adopt the marginalist approach. Profits are maximised when marginal revenue (MR) = marginal costs (MC) where the MC curve cuts the MR curve from below.
- This is because if $MR > MC$, it must benefit the firm to increase its output, as each extra unit will add to its total profits. This can be seen from the diagram where profits increase from P^*abC_1 to P^*deC^* when firms increase their output from Q_1 to Q^* .
- However, if output goes beyond $MR = MC$, and MC becomes greater than MR, the extra cost is greater than the extra revenue and the additional units will not be produced as they would reduce the total profits. This can be seen from the diagram where profits fall from supernormal profits of P^*deC^* to normal profits when output increases from Q^* to Q_1



OR

Body 3: Another possible objective of firms could be to maximise revenue instead of profits.

- Firms could aim to maximise revenue (where $MR = 0$). This could be due to managers and sales personnel being paid based on sales revenue (i.e. commissions). When this happens, they have the incentive to sell as much as possible and maximise revenue.
- In addition, sales figures are much easier to track (and more visible) than profit figures on a regular basis as corporate reporting of profits are subjected to many accounting rules and regulations that are difficult for normal investors to understand. As such, owners of the firm may judge performance based on revenue and not profit. Therefore, the perception that good managers are those who make more sales entices managers to chase sales figures rather than profits in order to appeal to the owners of the firm.
- A revenue-maximising firm will mean that firms produce where $MR=0$ at Q_1 instead of profit maximising output Q^* and they will also charge a lower price P_1 instead of P^* .



Conclusion:

As such, firms could have different objectives depending on their current goals.
Mark Scheme

Level	Knowledge, Application / Understanding and Analysis	Marks
L3	For an answer that has: <ul style="list-style-type: none"> Good Rigour - answer utilises firm analysis to explain how price and output will be determined and is supported by a well-drawn diagram. Good Scope - Answer considers two different objectives of firms and why they may pursue these objectives. 	8 - 10
L2	For an underdeveloped answer that: <ul style="list-style-type: none"> Lacks Rigour - answer is descriptive without clear reference to how prices and output are determined; Diagram is inaccurate or not referenced to. Lacks Scope - Answer only considers one objective of firms OR answer does not explain why firms may pursue the different objectives 	5 - 7
L1	For an answer that shows some knowledge of the objective of firms.	1 - 4

- b) Discuss whether the strategies to increase profits adopted by large firms such as IKEA might differ from those of smaller, individual retail shops. [15]

Question Interpretation

Command word/phras	Discuss whether	Present different perspectives of the view and evaluate the validity of the view.
Content	Strategies to increase profits Large firms.. smaller individual retail shops	There is a need to consider the different strategies used by large firms as compared to smaller shops to maximise profits and assess whether these strategies are different. Diagrams to show how revenue and costs will change and hence profits will be helpful in adding rigour to the answer
Context	No fixed context	While there is no fixed context here, it may be helpful to consider the furniture industry as suggested in the preamble and the mention of IKEA in the question. Relevant examples should be provided.

A relevant response requires a balanced analysis (both the similarities and differences) of the strategies utilised by both small and large firms to increase profits. There is also a need to explain how these strategies could allow the firms to increase profits. Both price and non-price strategies should be considered to allow for more scope in the answer.

Introduction

- Strategies adopted by firms to increase their profits via an increase in revenue and decrease in costs may be categorised as price and non-price. Firms may compete by lowering their price to increase market share, or they may adopt non-price strategies such as advertising or product differentiation.
- The type of strategies may differ in different market structures. This is because the behaviour of firms is affected by the respective characteristics of the market structure such as the ability to set price and the interdependence among firms.
- Large firms such as IKEA may operate more similarly to a firm in an oligopolistic market structure and may be more likely to adopt non-price strategies, while smaller individual firms may behave more similarly to a firm in a monopolistic competition market structure and are more likely to adopt price strategies.

Thesis 1: Strategies implemented by large firms may differ from smaller individual firms as large firms are less likely to rely on price strategies.

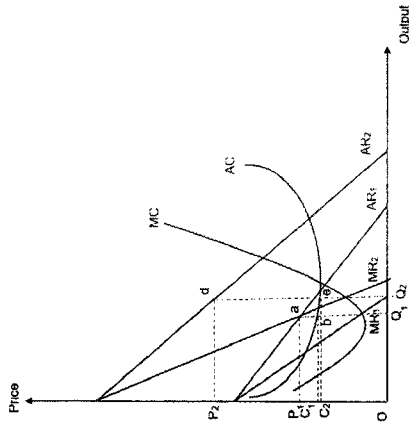
- As mentioned earlier, large firms such as IKEA are likely to behave similarly to a firm in an oligopolistic market structure. Firms in such a market structure are mutually interdependent and this results in price rigidity where the actions of one firm would warrant a response by the other firms. Specifically, price rigidity occurs due to the assumption that rival firms match price decreases but not price increases.
- Due to this, oligopolistic firms tend to arrive at a stable price and output over time.
- Demand will be price elastic above this price – should a firm increase its price, quantity demanded will fall more than proportionately. As such, the rise in revenue due to the increase in price will be less than the fall in revenue due to the fall in quantity and total revenue will fall.
- Demand will be price inelastic below this price, should a firm reduce its price all competitors will follow suit to prevent loss of customers and hence quantity demanded will increase less than proportionately. This will also lead to a fall in total revenue.
- Since both unilateral raising and cutting of price will lead to a loss of revenue, an oligopolist tends to avoid price changes as it takes into account its rivals' likely responses and hence, it is unlikely for a large firm to compete using price strategies.
- On the other hand, smaller individual firms each has a small market share. This allows firms to adopt price competition if they wish.
- Since the demand facing the monopolistic competitive firm is likely to be price-elastic, lowering the price will lead to a more than proportionate increase in quantity demanded. This will thus lead to an increase in total revenue which would lead to an increase in profits.

Note: Students may argue that large firms are more likely to use price strategies such as limit or predatory pricing as compared to smaller firms as the large firms have long-run supernormal profits which allow them to utilise such strategies. These answers will be equally accepted.

Anti-Thesis 1: Both large and small firms may utilise non-price strategies to increase profits.

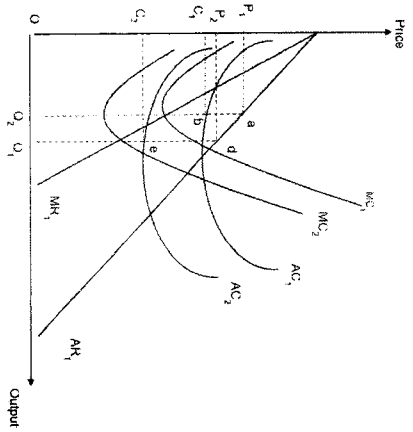
- Both type of firms possess a certain degree of market power and may thus be able to utilize non-price strategies. For example, both types of firms practise product differentiation, where they offer furniture of different design or material to cater to different groups of consumers.
- These non-price strategies would increase the demand for firms and make the demand more price inelastic as the substitutability of the products decreases.

- As seen in the diagram below, this would lead to an increase in the demand and MR and AR increases from MR1 and AR1 to MR2 and AR2 respectively. Revenue increases from $0P_1aQ_1$ to $0P_2dQ_2$ and profits increases from P_1aC_1 to P_2deC_2 .



Thesis 2: While both type of firms may use non-price strategies, they may differ in the type of non-price strategies used.

- Since larger firms like IKEA operate similarly to an oligopolistic firm, they are able to earn supernormal profits in the long-run due to high barriers to entry which may allow them to adopt non-price strategies such as the research and development of new products. For example, larger firms such as IKEA are able to regularly churn out new product lines which may better cater to the changing tastes and preferences of consumers.
- In addition, IKEA has also been able to utilize strategies such as process innovation, manage their inventory. They also managed to combine their warehouse and retail space, reducing their rental costs. All this would lead to a fall in their marginal and average costs, from MC1 and AC1 to MC2 and AC2 respectively, leading to an increase in profits from P_1aC_1 to P_2deC_2 .
- Larger firms are also more likely to undergo branding and marketing on a larger scale to further differentiate themselves from their competitors. This may come in the form of extensive online advertisements or the release of magazines showcasing their new line of products as done by IKEA. On the other hand, smaller firms may only advertise on a smaller scale such as on their own social media page or via distribution of flyers in the neighbourhoods where they are located.



Evaluative Conclusion

- **[Stand + Magnitude]** While large and small firms may differ in strategies, the extent to which they differ may depend on the type of small firms. There has been a growing trend of smaller firms catering to specific consumers such as those looking for sustainably sourced furniture or those looking for customized pieces of furniture made from specific material such as suar wood. In such cases, these smaller firms are more likely to behave more similarly to large firms and focus more on non-price strategies such as extensive branding and research and development of new products to cater to the consumers. In such cases, the strategies used by smaller and larger firms might not differ much.
- **[Situation]** Although smaller, individual firms that operate in rural areas may only have a small market share relative to the entire market, they may be able to operate as a local monopoly and thus be able to earn supernormal profits in the long-run as well. For such smaller firms, it is likely that the non-price strategies to increase profits would be similar to that of larger firms as they have the ability to engage in product differentiation or process innovation.

Mark Scheme

Level	Knowledge, Application/ Understanding and Analysis	Marks
L3	For an answer that has: <ul style="list-style-type: none"> • Good Rigour - answer uses firm analysis to explain the different characteristics of large and small firms and how these affect the strategies used. Answer uses a well-labelled diagram to explain how these strategies can increase profits levels. • Good Scope - Answer considers both price and non-price strategies; for non-price strategies, both strategies which affect cost and revenue are considered • Good Balance - Answers considers how the strategies may be similar and different. 	8 - 10
L2	For an answer that: <ul style="list-style-type: none"> • Lacks Rigour - answer may be descriptive at times without a clear tool of analysis. Diagram is either not drawn or poorly labelled and not referenced to. • Lacks Scope - Answer considers only either price OR non-price strategies • Lacks Balance - Answers considers only how the strategies may be similar OR different. 	5 - 7
L1	For an answer that is mostly descriptive, with some inaccuracies.	1 - 4
Level	Evaluation/Synthesis	Marks
E3	For an answer that arrives at a reasoned judgement on whether large and small firms utilise different strategies to increase profits.	4 - 5
E2	For an answer that attempts to come to a judgment on whether large and small firms may utilise different strategies to increase profits.	2 - 3
E1	For an unexplained judgement, or one that is not supported by economic analysis	1

- 3 Lifelong learning, the practice of continuing to learn throughout one's entire life, brings not only personal development but also economy-wide productivity improvements. In Singapore, the government has launched a campaign to rally Singaporeans towards lifelong learning and provided subsidies like the SkillsFuture Credit.

- (e) Explain the factors that a rational consumer may and may not consider when making decisions about participating in lifelong learning. [10]
- (b) Assess whether government subsidy is the best policy to ensure an optimal outcome in lifelong learning. [15]

Part (a) Question interpretation

Command phrase	Explain the factors	Question requires students to make clear the considerations that one gives when making a rational decision.
Content	Factors that a rational consumer may and may not consider when making decision	The decision-making framework involving the benefits, costs and constraints is needed as the basic tool of analysis. The marginal benefits including external, perceived and actual benefits as well as marginal costs based on the marginalist principle in the pursuit of maximising self-interest are relevant
Context	Participating in lifelong learning	Factors need to be contextualised to lifelong learning.

This question requires a thorough explanation of the factors involved in rational decision making as well as factors that a rational consumer typically disregards or is unaware of based on the context of lifelong learning. A simple analysis on how decision is made based on marginalist approach completes the answer.

Introduction

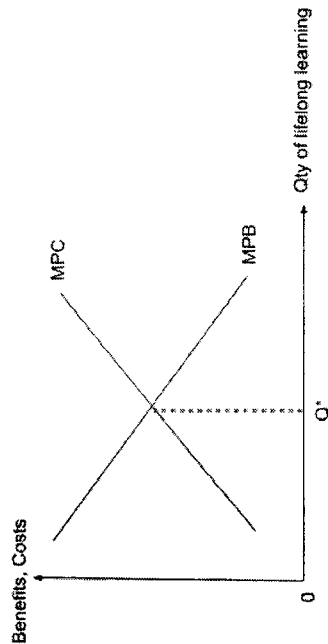
- A consumer aims to maximise his own self-interest.
- Self interest is maximised where the marginal benefit of taking part in an activity is equal to its marginal cost.
- Therefore, a rational consumer will consider the relative benefits and costs of lifelong learning when making decisions about participating in it.

Body 1: Explain the benefits and costs that a consumer may consider when deciding to participate in lifelong learning.

- From participating in lifelong learning, there will be benefits (MPB) in the form of higher lifetime earnings.
 - o As the consumer participate in lifelong learning, there will be skills that the individual acquired, therefore it increases the productivity of the individual.
 - o With an increase in productivity, firms are willing to pay higher wages to the worker with higher productivity, therefore, the wages that the individual can earn would increase, thus increasing lifetime earnings.
 - o At the same time, the acquisition of skills through lifelong learning helps to overcome occupational immobility as he/she would be able to enter into sunrise industries and take up jobs which are in high demand, therefore able to command higher wages.
 - o This increase in income increases the individual's material standard of living as higher income translate to higher purchasing power, and therefore greater ability to purchase goods and services.

- o The individual is also likely to benefit from reduced stress from inability to find employment, therefore facing higher non-material standard of living.
- There are also costs in the form of implicit and explicit costs that the individual would consider when deciding to participate in lifelong learning.
 - o The costs incurred from spending on lifelong learning can be categorized into implicit and explicit costs.
 - o Implicit costs are opportunity costs which are defined as the value of the next best alternative forgone from taking the decision. From taking on lifelong learning, the individual may have to forgo the income that he could have earned from working instead of participating in the courses related to lifelong learning.
- A rational consumer would participate in lifelong learning when his MB exceeds or is minimally equal to his MC.

Figure 1: Decision of participating in lifelong learning



- o As seen in Figure 1, a rational consumer would participate in lifelong learning and consume Q^* amount of lifelong learning where his $MPC = MPB$.
- o Beyond Q^* units, where MPC exceeds MPB , the additional costs (both explicit and implicit) outweigh the additional benefits the consumer gains from lifelong learning. This reduces his total consumer surplus or utility and he would therefore decide not to participate in additional lifelong learning.
- o On the other hand, it is also not rational to consume less than Q^* units as each additional unit of lifelong learning would add more to the tourist's total benefits than costs. He would not be maximising his total utility if he consumes less than Q^* units, and would therefore decide to go for more lifelong learning.
- A rational consumer surplus / utility is therefore maximised when $MPB = MPC$ at Q^* units. This is the optimal amount of lifelong learning.
- (Optional): There are also constraints that the individual would consider when deciding to participate in lifelong learning.

- o A key constraint is the availability of funds or the individual's budget to spend on these courses for lifelong learning.
- o The individual may face budget constraints in the form of his/her income and the competing needs for that income (e.g. food/transportation/savings etc).

Body 2: Explain the factors that a consumer may not consider when deciding to participate in lifelong learning.

- **The individual may not consider the external benefits to third parties and the imperfect information in his/her consumption of lifelong learning.**
 - o When the individual consumes lifelong learning and becomes more skilful and productive as mentioned earlier, his employer benefits as well. There are spillover benefits to the employers in the form of higher revenue and hence profits earned as the employee becomes more skilful and productive.
 - o At the same time, the individual's colleagues also become more productive and may earn higher income as well because of the spillover effects that the individual's consumption of lifelong learning have on his/her colleagues.
- o At the same time, the individual may underestimate the full private benefits to himself in the consumption of lifelong learning due to imperfect information. He may not be aware of the higher future income or better employment opportunities that he may potentially receive or gain from the higher productivity gleaned from the lifelong learning courses.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that: <ul style="list-style-type: none"> • good scope – explains benefits and costs of the decision, and also the external benefits and imperfect information of the decision • good rigour – clearly explains the above, using relevant, well-labelled and accurate diagrams; and • good use of examples to link to the decision on participating in lifelong long. 	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> • lacks scope: only explains the factors that individual may consider OR the factors that the individual may not consider • lacks rigour: gaps in the explanation of the costs/benefits/external benefits and imperfect information 	5 – 7
L1	For an answer that is largely descriptive, shows little or no application of economics, and contains conceptual errors.	1 – 4

(b) Assess whether government subsidy is the best policy to ensure an optimal outcome in lifelong learning. [15]

Part (b) Question interpretation

Command word/ phrase	Assess whether...is the best....	To examine the given policy and present a balanced assessment relative to at least one other policy in order to arrive at a judgement whether the given policy is the best in the context.
Content	Government subsidy and other policies to encourage consumption	Answer requires an explanation of how government subsidy works to increase consumption up to social optimal level as well as its limitations before discussing at least one alternative policy in the same regard.
Context	Market for lifelong learning	Preamble suggested government policies like skill/future credit and public campaigns. Other policies relevant in raising the participation of lifelong learning are relevant as well.

This question requires a discussion of the given policy - subsidy in terms of how it encourages consumption of lifelong learning to reach the social optimal outcome and its limitations. This is followed by a discussion of at least one alternative policy, campaigns before evaluating whether subsidy is the best policy relative to the other policies in the Singapore context.

Introduction

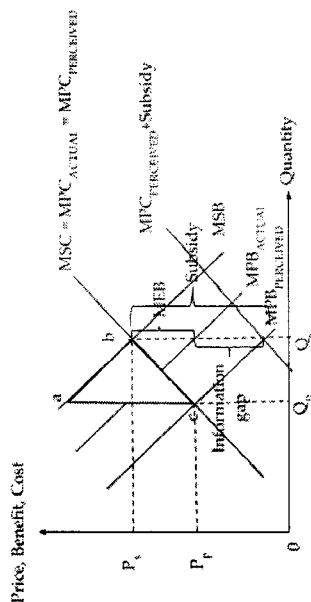
- In this question, the outcome of interest – ‘optimal outcome’ refers to the attainment of allocative efficiency in lifelong learning.
- This essay aims to explain whether the government subsidy is the best policy in achieving the optimal outcome in lifelong learning.

Body 1: Explain why the market may fail in the consumption of merit goods like lifelong learning

- Lifelong learning may be considered a merit good, which suffers from both positive externalities and imperfect information in consumption.
 - In the consumption of lifelong learning, consumers fail to recognise the full private benefits to themselves resulting from the consumption of it, and they ignore the external benefits enjoyed by third parties, as mentioned in part (a).
 - The existence of positive externalities creates a divergence between the MPB and the MSB. As consumers also underestimate the full private benefits of merit goods, they perceive the MPB to be lower than what it actually is.
 - This results in underconsumption of lifelong learning as it is not consumed at the social optimal level. There is market failure as the private optimal quantity is allocative inefficient and social welfare is not maximised.
 - Therefore policies like subsidies and campaigns are put in place to encourage consumption of lifelong learning.

Policy 1: Explain how a government subsidy would work in achieving the optimal outcome for lifelong learning

- A subsidy provided to producers will be able to decrease the price and hence the marginal private cost of consumption of lifelong learning, thus achieving the optimal outcome.
 - When a subsidy of $s = \text{MEB} + \text{information gap}$ at Q_s is given to producers, the supply of lifelong learning will increase, reducing the price of it.
 - As producers pass on this price to consumers, consumers' MPC lowers to $\text{MPC}_{\text{perceived}} + \text{subsidy}$ as seen in the Figure 1 below.
 - The new private optimal quantity is now at Q_p as $\text{MPC}_{\text{perceived}} + \text{subsidy} = \text{MPB}$. This quantity equates to the socially optimal quantity Q_s , thus achieving the optimal outcome.

Figure 1: Subsidy given for lifelong learning

- However, the government may not be able to accurately estimate the amount of subsidy to be given due to imperfect information, thus limiting its ability to achieve the optimal outcome.
 - As the spillover benefits is likely to vary between different types of training, a subsidy across the board for all courses of lifelong learning would be unlikely to be optimal.
 - If the government under-subsidise, it does not fully correct the underconsumption issue and deadweight loss still persist.
 - And if the government over-subsidise, it will create a larger deadweight loss than if the government did not intervene, resulting in government failure.

Policy 2: Explain how education campaigns would work in achieving the optimal outcome for lifelong learning

- Alternatively, the government can also create education campaigns to close the info gap and help to reduce the inefficiency in the consumption of lifelong learning, moving the private allocation nearer to the optimal outcome.
 - The government can conduct public education campaigns through mass media and roadshows to increase public awareness of the actual private benefits of consuming lifelong learning.
 - This will have the effect of increasing the $\text{MPB}_{\text{perceived}}$ to $\text{MPB}_{\text{actual}}$ as seen in Figure 1 above.
 - The private optimal quantity of consumption thus increases from Q_p to Q_p' , nearer to Q_s . Thus, this moves the private allocation nearer towards the optimal outcome.
- However, the effects of education campaigns are uncertain and it takes time to realise the desired outcome.
 - This is because the achievement of the outcome is dependent on the receptivity of consumers. Some may not heed the advice to attain lifelong learning due to ingrained mindsets against going for education courses.

Evaluative conclusion

- **[Stand]** Whether a government subsidy is the best policy depends on the target group that Singapore is focusing on.
- **[Situation]** For example, for workers facing structural unemployment, the long spell of unemployment would have depleted much of their savings, therefore the government needs to provide subsidies to help them overcome their financial constraints. i.e. subsidies more critical for this group of workers. However, for the university graduates who have just completed university, they may not be so resistant to the idea of taking courses for lifelong learning and therefore education campaigns may be more targeted for this group of workers.
- **[Situation & Alternative]** Singapore being a developed country has sufficient funds to subsidise lifelong learning without incurring large opportunity costs. At the same time, with a relatively educated workforce, receptivity of lifelong learning is also expected to be high. That said, both policies are complementary. Subsidies tend to work more quickly in the short run to increase consumption of lifelong learning while concurrent campaigns educate consumers about the benefits of lifelong learning to improve awareness so subsidies can be reduced in the longer term.

Mark scheme

Level	Knowledge, Application, Understanding and Analysis	Mark
L3	For a well-developed answer that has: <ul style="list-style-type: none"> • Good scope – explains how at least two policies (subsidy and another policy) could help to achieve the optimal outcome in lifelong learning; • Good balance – explains both the workings and limitations or unintended consequences of the above-mentioned policies • Good rigour – utilises appropriate analysis, together with real-world context in examples. 	8 – 10
L2	For an underdeveloped or incomplete answer that: <ul style="list-style-type: none"> • Lacks scope – only explains one policy (either subsidy or another policy) • Lacks balance – only explains the workings OR limitations/ unintended consequences of the above policies; • Lacks rigour – gives a descriptive explanation of the workings and limitations of different policies. 	5 – 7
L1	For an answer that shows some knowledge of the policies to achieve optimal outcome for lifelong learning. Answer may contain multiple conceptual errors.	1 – 4
Level		
E3	For a well substantiated evaluation on whether government subsidy is the best policy to achieve the optimal outcome in lifelong learning.	4 – 5
E2	For an answer that makes some attempt at an evaluation whether government subsidy is the best policy to achieve the optimal outcome in lifelong learning	2 – 3
E1	For an unexplained evaluative statement that addresses the question.	1

- 4 The Bank of England has cut interest rates twice from 0.75% to 0.1% as the UK economy attempts to recover from an unprecedented economic contraction.

Source: CNBC, 17 June 2020

- (a) Explain one demand reason and one supply reason for negative real GDP growth. [10]
- (b) Discuss whether a cut in interest rates is the most appropriate for a country facing a recession. [15]

Part (a) Question Interpretation

Command word/phras e	Explain	To utilise economic reasons and reasoning to explain one demand and one supply reason for negative real GDP growth
Content	Demand reason, supply reason	Utilise AD-AS framework to explain why the Aggregate demand and Aggregate Supply would have fallen
	Negative real GDP growth	Decrease in real GDP, negative growth
Context	Nil	No context specified. Students may use information from their own knowledge or the UK economy, as specified in the pre-amble

A relevant answer requires candidates to utilise the AD-AS model to explain one reason why Aggregate demand could have fallen and one reason why Aggregate Supply could have fallen, resulting in negative real GDP growth in an economy.

Introduction

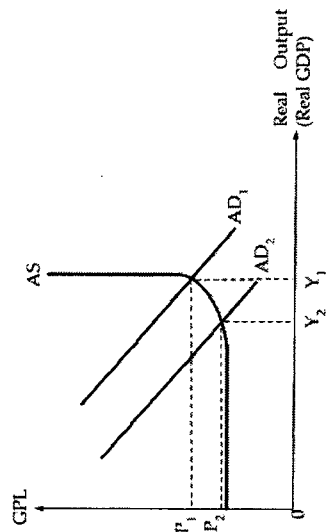
- Negative real GDP growth refers to a situation where the real GDP or real output in an economy is falling.
- This can be caused by either a decrease in Aggregate Demand (AD) or a decrease in Aggregate Supply (AS) in an economy.

Reason 1: Explain why Aggregate Demand could have fallen in an economy

- **One reason for negative real GDP growth is the decrease in the AD of the economy.**
 - The AD in an economy could decrease because of a fall in any of the components of AD – Consumption expenditure (C), Investment expenditure (I), Government expenditure (G) and Net export revenue (X-M).
 - In the height of the 2020 Covid-19 situation where there was lockdown in many countries, there was pessimistic business outlook throughout the economy and consumers may be pessimistic about their future incomes and businesses may be pessimistic about their future profits, therefore C and I would fall respectively.

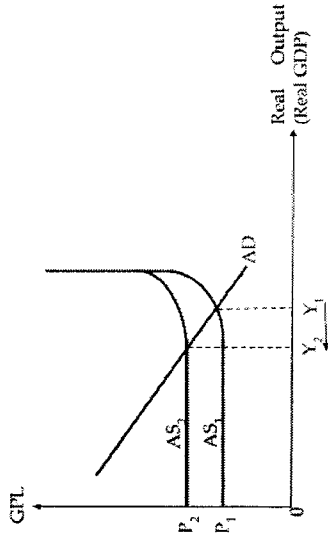
- o Assuming there is spare capacity in the economy, the decrease in C and I would trigger the reverse multiplier effect where there are multiple rounds of decreases in income-induced consumption due to the initial fall in AD.
- o Taken together, the decrease in C and I and the reverse multiplier effect will cause aggregate demand to decrease, represented by a leftward shift of the AD curve from AD₁ to AD₂ as seen in Figure 1. Real output will fall from Y₁ to Y₂, leading to negative real GDP growth.

Figure 1: Negative real GDP growth due to a fall in AD



- Reason 2: Explain why Aggregate Supply could have fallen in an economy**
- **One reason for negative real GDP growth is the decrease in the AS of the economy.**
 - o The AS in an economy could decrease due to a rise in the economy-wide cost of production.
 - o In 2022, due to the Russia-Ukraine war, countries imposed sanctions on Russian oil exports, reducing the global supply of oil, increasing its price.
 - o When there is an increase in global oil prices, countries that import oil will face a rise in the economy wide cost of production would increase as oil is an important factor input in the generation of energy used in the production of many products like plastic used in clothing, electronics and more.
 - o When cost of production increases, the AS will fall, shifting the AS upwards from AS₁ to AS₂ in Figure 2 below.
 - o The real output will fall from Y₁ to Y₂, leading to negative real GDP growth.

Figure 2: Negative real GDP growth due to a fall in AS



Conclusion

- A fall in AD and AS would lead to a fall in real GDP, thus resulting in negative real GDP growth.

Mark Scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that: <ul style="list-style-type: none"> • good scope – explain one AD and one AS reason leading to negative real GDP growth and • good rigour – clearly explains the above, using relevant, well-labelled and accurate AD-AS diagram(s); and • good use of examples to explain the causes of negative real GDP growth. 	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> • lacks scope: only explain either one AD reason or one AS reason; and/or • lacks rigour: gaps in explaining the causes of negative real GDP growth; and/or • lack of reference to AD-AS model. 	5 – 7
L1	For an answer that is largely descriptive, shows little or no application of economics, and contains conceptual errors.	1 – 4

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- (b) Discuss whether a cut in interest rates is the most appropriate for a country facing a recession. [15]

Part (b) Question Interpretation

Command word/phras	Discuss whether...	To examine and present the different aspects of a problem or subject, and give a judgement on which policy approach is the most appropriate one
e	cut in interest rates	Expansionary interest rate monetary policy
Content	Recession	Periods of negative actual growth and high unemployment (spare capacity)
Context	A country	No specified context. Students can bring in examples from large economies (UK, China) or Singapore.

A relevant response requires an explanation of how three policies, expansionary interest rate monetary policy, expansionary fiscal policy, and supply-side policies, can be adopted to help countries address recession and to explain the limitations associated with each policy. The evaluation then requires making a judgement on the relative effectiveness of the policies and the suitability of the policies depending on the context of the countries.

Introduction

- A recession is defined as two consecutive quarters of negative economic growth. A world-wide recession would mean that many countries around the globe are experiencing negative economic growth.
- Besides a cut in interest rates, expansionary fiscal policy and supply-side policies could be adopted to address the fall in real GDP brought about by a recession.

Thesis 1: Explain how expansionary interest rate policy could be an appropriate policy during a world-wide recession.

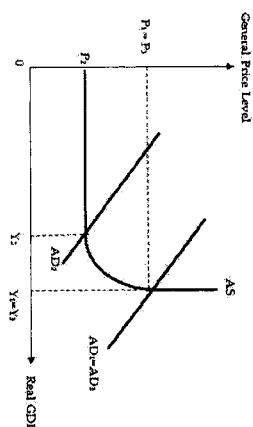
- **Expansionary interest rate monetary policy via a decrease in interest rates could be an appropriate policy for a country to adopt during a world-wide recession.**
 - The cut in interest rates will reduce the cost of borrowing and the returns to savings for consumers and firms.
 - As households are now more incentivised to borrow more to purchase big-ticket items and less incentivised to save, this will encourage more consumption expenditure (C).
 - The fall in interest rates also increases expected profitability on investment for firms, increasing investment expenditure (I).
 - During a world-wide recession, there is likely to be high unemployment and hence spare capacity. The increases in C and I would lead to a multiplied increase in the aggregate demand (AD). From Figure 3 below, this is represented by a rightward shift of AD curve from AD₂ to AD₃.

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- This leads to an increase in the general price level from P₂ to P₃ and a multiplied increase in real GDP from Y₂ to Y₃. Actual growth is hence achieved, addressing the fall in GDP as a result of a recession.

Figure 3: Expansionary Interest Rate Monetary Policy and Expansionary Fiscal Policy



Antithesis 1: Explain the limitations and/or unintended consequences of monetary policy and why it may not be an appropriate policy for some countries to adopt during a world-wide recession.

- During a world-wide recession, there is likely to be poor business and consumer confidence in the economies. Hence, even when interest rates fall, consumers and firms might not be incentivised to borrow to increase their consumption and investment respectively.
- [Situation] In addition, monetary policy would not be effective in addressing recession for countries that are facing the problem of a liquidity trap, such as Japan and the UK.
 - In such instances, interest rates are near the zero lower bound and cannot be lowered further to stimulate consumption and investment, rendering expansionary monetary policy ineffective.

Thesis 2: Explain how expansionary fiscal policy could be an appropriate policy during a world-wide recession.

- **Expansionary fiscal policy through an increase in government expenditure (G) or decrease in direct taxes (T) could be another appropriate policy that a country can adopt during a world-wide recession.**
 - An increase in G, in the form of spending on healthcare or education infrastructure, a component of AD, would directly cause an increase in AD.
 - With reference to Figure 3 above, the increase in G would lead to a larger increase in AD, via multiple rounds of income-induced consumption.
 - This would result in a multiplied increase in real GDP from Y₂ to Y₃, given that there is spare capacity in an economy. Actual growth is hence achieved, addressing the fall in real GDP as a result of a recession.
 - When a government reduces personal income taxes, it raises consumers' disposable income, leading to an increase in purchasing power and consumption expenditure (C).

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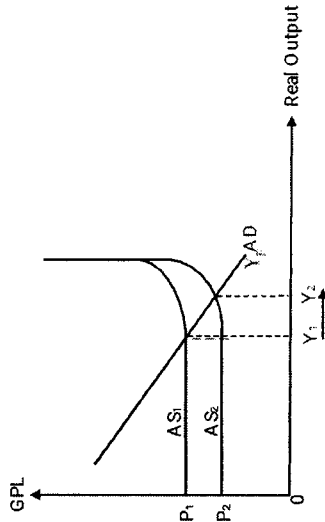
- When a government reduces corporate income taxes, it raises firms' post-tax profits and stimulate investments, increasing investment expenditure (I).
 - Coupled with the multiplier process, the increase in C and I would lead to an increase in AD and help the economy to achieve actual economic growth and address the fall in real GDP as a result of the recession.

Antithesis 2: Explain the limitations and/or unintended consequences of expansionary fiscal policy and why it may not be appropriate for some countries to adopt during a world-wide recession.

- [Situation] Expansionary fiscal policy would not be too effective in countries which has a small multiplier, such as Singapore. Singapore has a small multiplier due to the high savings rate and high amount of import, therefore in order to achieve a large increase in output level, the Singapore government has to increase expenditure by a larger amount but this would be constrained by her budget. Even though Singapore has a budget surplus, the Singapore government practises very prudent spending, and would consider very carefully for any increase in government expenditure.
 - Moreover, expansionary fiscal policy would not be feasible for countries that are in debt and facing budget deficit.

Thesis 3: Explain how supply-side policies could be appropriate during a world-wide recession.

Figure 4: Cost-cutting measures



- Supply-side policies that can reduce production costs may also be appropriate for a country to adopt during a world-wide recession.
- Countries could also adopt market-oriented supply-side policies to achieve economic growth.
 - For example, due to the 2008 global financial crisis, the Singapore government implemented the Jobs Credit Scheme in 2009, which help firms offset 12% of the wages of each local employee, up to a monthly cap of \$2,500. This reduces firms' cost of production, increasing their profitability.
 - With reference to Figure 4, this would lead to an increase in AS in the short run as represented by a downward shift of the AS curve from AS1 to AS2.
 - As a result, the general price level falls from P1 to P2 and the level of output increase from Y1 to Y2, given that there is spare capacity in an economy. Actual growth is hence achieved, addressing the fall in real GDP as a result of a recession.

Explain the limitations of supply-side policies and why they may not be appropriate for some countries to adopt during a world-wide recession.

- Many of the supply-side policies would incur government expenditure.
 - For instance, the Jobs Credit Scheme cost the Singapore government \$4.5 billion. These would also be inappropriate for the European economies which are in budget deficits.

Evaluative Conclusion

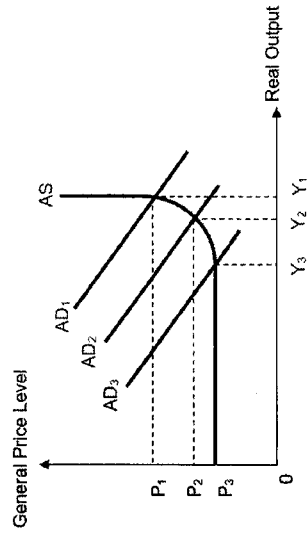
- **[Stand!]** Whether the cut in interest rates is the most appropriate policy depends on the country in question due to the respective circumstances and constraints that they face.
- **[Situation]** For a small and open country like Singapore whose trade is around 300% of her GDP, the control over her exchange rate is an important tool to manage the impact of the changes in external economy on her GDP. Moreover, Singapore is an interest rate taker in the global interest rate market, and therefore a cut in interest rates would not be an appropriate policy to address the effects of recession.
 - **[Time Period + Alternative]** Instead, a combination of exchange rate and supply-side policy in the form of cost-cutting measures would be more appropriate for Singapore. This is because Singapore generally does not face budgetary constraints and would have sufficient budget to spend to help companies tide through the recession in the short run. For exchange rate monetary policy, the Singapore government could utilise a zero appreciation exchange rate policy to help exporters and supply-side measures to lower firms' cost of production.
 - **[Time Period + Alternative]** In the long run, Singapore could also focus her expansionary fiscal policy on stimulating the productive capacity of the economy through strategic spending on key infrastructural projects such as Jewel and 2nd CBD at Jurong Lake District, allowing the economy to emerge stronger. Such developmental expenditure may have limited impact on AD in the short run due to the small multiplier size and hence limited actual growth is achieved, but it can lead to improvements in productive capacity and potential growth in the long run, which is key to sustained growth.
- **[Situation]** However, in big countries like United States and China where there are large domestic markets in which Consumption and Investment expenditure are key drivers of growth, expansionary interest rate monetary policy in the form of a cut in interest rates could be appropriate to address the effects of recession.
 - **[Situation]** In contrast, other countries that are facing liquidity trap like Japan may not find expansionary interest rate monetary policy as appropriate. They may have to turn to cost-cutting measures in the short run, and also expansionary fiscal policy with a focus on increasing the productive capacity in the long run.
 - **[Situation]** For other countries that are facing high debt, they would have limited capability of pursuing cost-cutting measures and expansionary fiscal policy. These countries would have to turn to austerity measures instead even as they grapple with the negative consequences of a recession. Painful austerity measures will enable the country to tide through the worsening of recession at the initial stages with austerity measures first, before adopting fiscal or supply-side policies to tackle recession.

Mark Scheme

Level	Knowledge, Application and Analysis	Mark
L3	For a well-developed answer that has: <ul style="list-style-type: none"> • Good scope – explains how three policies (including expansionary interest rate monetary policy) could help to address the effects of recession; • Good balance – explains both the usefulness and limitations or unintended consequences of all three policies • Good rigour – utilises appropriate analysis, together with real-world context in examples. 	8 – 10
L2	For an underdeveloped or incomplete answer that: <ul style="list-style-type: none"> • Lacks scope – only explains one or two policies (including expansionary interest rate monetary policy) • Lacks balance – only explains the usefulness OR limitations/unintended consequences of the above policies; • Lacks rigour – gives a descriptive explanation of the usefulness and limitations of different policies. 	5 – 7
L1	For an answer that shows some knowledge of the policies to achieve economic growth. Answer may contain multiple conceptual errors.	1 – 4
E3	For a well substantiated evaluation on whether expansionary interest rate monetary policy is the most appropriate for a country during recession.	4 – 5
E2	For an answer that makes some attempt at an evaluation whether expansionary interest rate monetary policy is the most appropriate for a country during recession.	2 – 3
E1	For an unexplained evaluative statement that addresses the question.	1

- The fall in C leads to a fall in AD from AD1 to AD2 in Figure 1. This triggers the reverse multiplier effect where there are multiple rounds of reductions in income-induced consumption, causing a multiplied fall in AD to AD3.
- Assuming the economy was near or at full employment output initially, there will be a fall in GPL from P1 to P3, leading to negative inflation in Singapore.

Figure 1: Negative inflation caused by weak labour market conditions



Alternative internal factor

- One internal factor that could have led to negative inflation in Singapore is a pessimistic economic outlook among domestic consumers and firms. Due to uncertainty and fears regarding how long the pandemic may last, domestic consumers and firms may be pessimistic about their future incomes, jobs, and profits respectively. As a result, domestic consumers cut back on consumption expenditure (C) while firms cut back on investments (I).
- The fall in C and I leads to a fall in AD from AD1 to AD2. This triggers the reverse multiplier effect where there are multiple rounds of reductions in income-induced consumption, causing a multiplied fall in AD to AD3.
- Assuming the economy was near or at full employment output initially, there will be a fall in GPL from P1 to P3, leading to negative inflation in Singapore.

Body 2: Explain one external factor that could lead to negative inflation

- One external factor that could have led to negative inflation in Singapore is the falling global oil prices.
- Singapore imports oil which is used to fuel transportation and generate electricity, and is a key factor input in the production of many products, e.g. plastics used in clothing, electronics, and more.
- The fall in global oil prices leads to an economy-wide fall in cost of production in Singapore, causing SRAS to increase and shift downwards from AS1 to AS2.
- Given the pessimistic economic outlook and reduction in economic activities, it is likely that spare capacity was present in the Singapore economy. Since the economy was initially producing below the full employment output, the increase in SRAS causes a fall in GPL from P1 to P2, thus leading to negative inflation in Singapore.

- 5 Singapore's headline inflation turned negative with authorities expecting inflation to remain subdued on the back of lower oil prices and impact from the COVID-19 outbreak. Weak labour market conditions also dampened consumer demand, thus capping price increases for discretionary goods and services.

Source: Channel News Asia, 26 May 2020

- (a) Explain one internal factor and one external factor that are likely to have contributed to negative inflation in Singapore. [10]
- (b) Discuss the view that governments should pursue price stability over the other macroeconomic aims. [15]

Part (a) Question Interpretation

Command phrase	Explain	Make clear the theory behind the Cause-and-Effect relationship and explain thoroughly, with clear analysis of how the cause (factor) leads to the effect (negative inflation).
Content	One internal factor One external factor contributed to negative inflation Singapore	Explain causes of falling GPL – one cause that arises domestically and one cause that arises externally.
Context		Analysis to be based on Singapore, taking into account its characteristics and/or context as mentioned in the preamble.

The answer requires a thorough explanation of the causes of falling GPL in Singapore. A rigorous analysis should clearly identify which is a cause that arises domestically and which arises externally, before using AD/AS analysis and diagrams to explain how they lead to falling GPL. Answers could use information in the preamble to explain the possible causes.

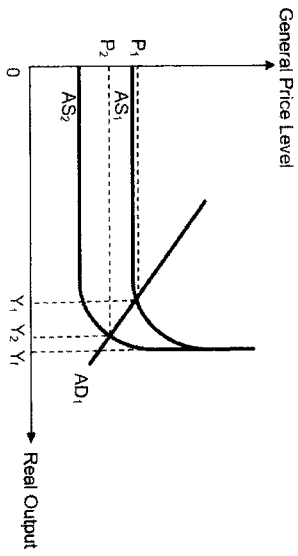
Introduction

- Negative inflation or falling general price level (GPL) in Singapore can be caused by internal or external factors.
- Internal factors are those that arise domestically within Singapore while external factors arise beyond Singapore.

Body 1: Explain one internal factor that could lead to negative inflation

- One internal factor that could have led to negative inflation in Singapore is falling wages due to weak labour market conditions.
- Due to the lockdowns and travel bans imposed because of the pandemic, domestic economic activity declined, leading to lower profits for firms in Singapore.
- As firms cut back on their production, there is lower derived demand for labour, leading to falling wages and rising demand-deficient unemployment.
- This fall in real incomes in a weak labour market leads to a fall in purchasing power, causing consumers to reduce their consumption expenditure (C).

Figure 2: Negative inflation caused by falling global oil prices



- Conclusion**
- In summary, falling GPL in Singapore could be caused by a variety of internal and external factors, such as weak labour market conditions or pessimistic economic outlook by consumers and firms.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> good scope - explains one internal and one external factor of negative inflation; and good rigour - thoroughly analyses the how each factor leads to negative inflation using AD/AS analysis and diagrams; and good application to context - supports explanations with reference to the context of Singapore. 	8 – 10
L2	For an under-developed answer that: <ul style="list-style-type: none"> lacks scope – explains only one internal or one external factor of negative inflation; and/or lacks rigour – descriptive explanation of how each factor leads to negative inflation; and/or lacks application to context – analysis has little or no reference to the context of Singapore. 	5 – 7
L1	For an answer that shows some understanding of the causes of falling general price level. Answer is descriptive and superficial, lacking in development and/or there are major conceptual errors that affect the accuracy of the essay.	1 – 4

- (b) Discuss the view that governments should pursue price stability over the other macroeconomic aims. [15]

Part (b) Question Interpretation

Command phrase	Discuss the view	Provide a balanced analysis of the view presented before making a judgement on the validity of the view with substantiation.
Content	Governments should pursue price stability Other macroeconomic aims	Benefits of low and stable inflation Full employment, sustainable and inclusive growth, favourable balance of trade
Context	Not specified	Analysis could be based on any context, with relevant examples brought in to support arguments made.

A relevant response requires an explanation of the benefits of attaining low and stable inflation as reasons why governments should pursue price stability. For a balanced analysis, the answer would need to explain why governments may pursue at least two other macroeconomic goals instead of price stability (i.e. positive consequences of the other macroeconomic goals). The evaluation requires an overall judgment on whether governments should pursue price stability instead of the other macroeconomic goals, and the reasons to substantiate why.

Introduction

- Every government has four macroeconomic objectives that it seeks to achieve, i.e. sustainable and inclusive economic growth, full employment, price stability and a healthy balance of trade.
- Price stability refers to a low and stable rate of inflation which ranges between 2% and 3% for most countries.
- This essay aims to discuss whether governments should prioritise the pursuit of price stability over the other macroeconomic objectives.

Thesis: Governments should pursue price stability over the other macroeconomic aims objectives.

- Low inflation encourages savings as consumers do not need to worry that the real value of their savings would be eroded by high inflation rates. The increase in savings increases the supply of loanable funds, thus lowering interest rates. This reduces the cost of borrowing, which further incentivises consumption C and investment I, and hence AD. Due to the multiplier effect where there are multiple rounds of increase in induced-consumption, real GDP increases by a multiplied amount of the initial increase in C and I, thus achieving actual growth.
- With actual growth, derived demand for labour increases as firms step up production to meet increased demand for goods and services, thus reducing demand-deficient unemployment in the economy.
- In addition, higher investment increases capital stock accumulation, leading to an increase in productive capacity and LRAS, hence contributing to potential growth of the economy. The increase in AD and LRAS leads to both actual and potential growth, which facilitates the achievement of sustained growth.

OR

- **Governments should pursue a low and stable rate of inflation as it protects the material standard of living of households and profits of firms.**
- Low and stable inflation rate protects the real income of the majority in the country, preventing the real value of incomes from being eroded by rapidly rising prices. Consumers' purchasing power and hence material standard of living (SOL) are thus maintained.
- Moreover, low inflation encourages savings as consumers do not need to worry that the real value of their savings would be eroded by high inflation rates, which improves households' future material SOL.
- For firms, low and stable rate of inflation allows them to better predict their cost of production and expected revenue, and hence their profits. As firms are able to project their expected returns with greater certainty, firms could have greater confidence in planning for and undertaking long-term investments, thus improving their long-term viability.

(Note: Answers that explain the reasons as avoiding the negative consequences of deflation are also acceptable.)

Anti-thesis: Governments should pursue the other macroeconomic aims instead of price stability (explain the positive consequences of at least 2 other macroeconomic aims)

- **A government should also focus on achieving sustainable and inclusive economic growth as doing so benefits the material and non-material SOL of current and future generations.**
- Sustainable economic growth indicates a rate of growth that can be sustained without creating other significant economic problems (such as depleted resources and environmental problems), particularly for future generations. Inclusive growth indicates a rate of growth that is sustained over a period of time, is broad-based across economic sectors, and creates productive employment opportunities for the majority of the country's population.
- Firstly, achieving sustained growth in an economy would allow the citizens of a country to enjoy higher material standard of living. With higher output levels with no significant upward pressure on GFL, households would have higher income and higher purchasing power to consume more and better quality goods and services. With higher incomes, C will increase. Consumers benefit as they are able to enjoy a greater quantity, wider variety and higher quality of goods and services, leading to higher material SOL.
- With sustainable growth, the economy grows without placing too much pressure on water, land and energy resources, and in a manner that minimises the generation of negative externalities through pollutive activities. Hence, the environment is protected for future generations to enjoy, protecting their material and non-material SOL.
- In addition, inclusive growth ensures that income distribution is taken into consideration and that the economic benefits of growth are distributed fairly. This ensures that the material SOL of the average resident increases with economic growth.
- **A government may focus on pursuing low unemployment as it increases the material SOL of households.**
- When consumers are employed, they earn an income and have higher purchasing power to consume more goods and services, enabling them to enjoy a higher material SOL. Moreover, with regular incomes, consumers are more likely to save. With more savings, consumers are able to enjoy a higher future material SOL.
- When individuals are employed, they face less stress as they are able to provide for their families. Employed individuals pay taxes, which the government can use to enhance

education and healthcare for citizens, improving literacy and life expectancy rates. Low unemployment also generally reduces crime rates as the opportunity costs of committing crimes rises with employment, promoting greater safety in society. All these lead to higher non-material SOL.

Evaluative conclusion (stand + at least 2 ATMS evaluative angles)
(Any 2 of the following justifications will suffice)

- **[Stand]:** Whether a government should pursue price stability over the other macroeconomic goals depends on several factors such as the state and nature of the economy.
- **[Situation – state of economy]:** if an economy is suffering from macroeconomic problems such as high unemployment and negative growth, the government should prioritise achieving full employment through stimulating actual growth.
 - For instance, during the global financial crisis, the US suffered economic consequences such as fall in national output and high unemployment. The US government was more concerned with raising output and reducing the near 10% unemployment rate than to deal with inflation. Hence, during an economic recession, the fall in real GDP and increase in unemployment could be very severe, rendering addressing inflation a less important consideration for the government.

OR

- During a period of deflation and negative economic growth, the government could choose to focus on pursuing actual growth and low unemployment. As economic outlook improves together with economic growth and employment, consumers are likely to increase their spending. This helps break the vicious cycle of falling spending and prices or a deflationary spiral that can arise from consumers' expectations of further falls in price levels. Hence, focusing on achieving actual growth and low unemployment can help the government achieve price stability in times of a deep recession.
- **[Situation – nature of economy]:** Small and open economies may have to prioritise price stability over other macroeconomic objectives because price stability is important for such economies to maintain their price competitiveness of exports over time and to sustain their export-driven economic growth.
 - This is seen in the case of Singapore, where her government views price stability as the intermediate goal to attain other macroeconomic goals in the long run. This is because price stability creates a conducive environment for foreign direct investment (FDI) in Singapore which will eventually contribute to sustained economic growth and low unemployment. Price stability also helps ensure the price competitiveness of her exports, enabling Singapore to increase her export revenue and achieve greater actual growth. Sustained growth will then allow Singapore to achieve sustainable and inclusive growth in the long run.
 - On the other hand, price stability for large and less open economies may not be as pressing an objective compared to the small and open economies. This is because it is less crucial for a large economy to target inflation as an intermediate goal in order to achieve economic growth and low unemployment, given its lower dependence on FDI and exports as a source of economic growth.
- **[Situation – nature of economy]:** The government of a developed country may be more concerned with maintaining price stability, due to the high level of accumulated savings and assets households generally possess from previously produced national output. When inflation is high, the real value of savings will be eroded, causing households to lose the purchasing power of their savings and assets, causing a rapid fall in material standard of

- living. As developed economies are likely to have attained high levels of real GDP per capita and hence high material SOL, achieving economic growth may be less of a priority.
 - On the other hand, the government of a developing country may prefer to prioritise economic growth and low unemployment over inflation, since it requires the rapid economic growth to improve the material standard of living of households, and to create employment for its largely unutilized labour force. Although increase in prices may result in fall in purchasing power, households in developing countries tend to have little savings and assets; hence the impact of price increases is not as significant compared to developed countries.
- [Time frame]: In the short run, a government may prefer economic growth and job creation over price stability. A government may be willing to relinquish price stability in order to achieve high economic growth to increase the standard of living of her people rapidly.
 - For instance, it is not uncommon to observe near two-digit inflation rates in India in recent years. However, the economic growth registered often surpasses that of her inflation. The Indian government was willing to tolerate inflation in return for rapid increase in national output. This led to rapid improvement in the average material welfare of the Indian citizens.
 - In the long run, when the economy may have achieved a high material standard of living, the priority of the government may then switch to ensuring price stability to prevent people's real incomes from being eroded and hence their material standard of living from falling.

Mark scheme		Mark
L3	For a well-developed answer that has: <ul style="list-style-type: none"> • good scope – exhibits clear analytic understanding of why governments may aim to pursue price stability and at least two other macroeconomic goals; and • good rigour – utilises appropriate AD/AS analysis, together with real-world examples to explain the positive consequences of achieving price stability and the other macroeconomic goals. 	8 – 10
L2	For an underdeveloped answer that: <ul style="list-style-type: none"> • lacks scope – only explains why governments may aim to pursue price stability or other macroeconomic goals; and/or • lacks rigour – gives a descriptive explanation of the positive consequences of achieving price stability and the other macroeconomic goals. 	5 – 7
L1	For an answer that shows some knowledge of the reasons for pursuing price stability and the other macroeconomic goals. Answer may contain multiple conceptual errors.	1 – 4
E3	For a well-substantiated evaluation of whether governments should prioritise the pursuit of price stability over the other macroeconomic goals, contextualised and well supported with economic analysis.	4 – 5
E2	For some attempt to provide synthesis/conclusion but lack clear substantiation/elaboration.	2 – 3
E1	For an unsubstantiated evaluative statement that addresses the question.	1

- 6 Recently, many countries implemented export bans on food products such as grains and meat. When countries ban exports, this can cause soaring prices, presenting potential risks to Singapore's economy.

Source: *International Food Policy Research Institute*

- (a) Explain the likely consequences of export bans on both the exporting and importing countries. [10]
- (b) Assess the extent to which the Singapore government can manage the harms of export bans by other countries on her economic performance. [15]

Part (a) Question Interpretation

Command word/phrase	Explain	Make clear the process of cause (export bans)-effect (macroeconomic performance) relationships using economic theory and examples.
Content	Export bans	Restrictions on the quantity of goods exported to a specific country or countries by a Government.
	Consequences	Impact on macroeconomic performance.
Context	Exporting and Importing countries	May apply to any country, including Singapore that conduct and/or are affected by export bans.

This response requires students to explain how export bans that have been implemented by countries around the world have impacted these countries as well as the countries they export to.

Introduction

- Export bans are restrictions on the quantity of goods exported by a country.
- Countries around the world have been enacting export bans amid shortage in their own country. Examples of these include face masks, vaccines at the start of Covid-19 and chicken and grain following global supply chain disruptions caused by the Russian-Ukraine crisis.

Body 1: Explain the likely consequence of export bans on exporting countries

- The intended consequence of export bans is to manage shortage and the resulting high prices in the exporting country. For example, Malaysia recently banned the exports of chicken to prevent escalation of chicken prices domestically thus maintaining equity since chicken is a basic food item for Malaysians. By imposing an export ban, domestic firms are prevented from exporting their goods, leading to an increase in domestic supply. As domestic supply increases, price of these goods fall, resulting in cost of production decreasing and AS increasing from AS1 to AS2 in Figure 1. This leads to lower general price levels from P1 to P2 and thus lower inflation.

- However, the unintended consequence is that export bans result in lower exports for the exporting country. Since firms can no longer export their products, export revenue decreases, and since X is a component of AD, AD falls. Assuming there is spare capacity, the reverse multiplier effect sets in resulting in a multiplied fall in AD from AD1 to AD2 in Figure 2. With lower economic growth, derived demand for labour falls and demand-deficient unemployment increases from Y1-Y1 to Y1-Y2.

Figure 1: Impact of Export Ban on AS

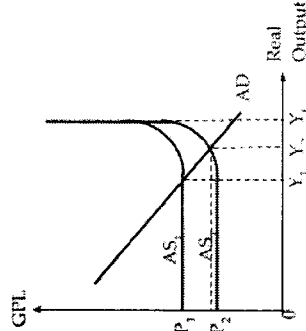
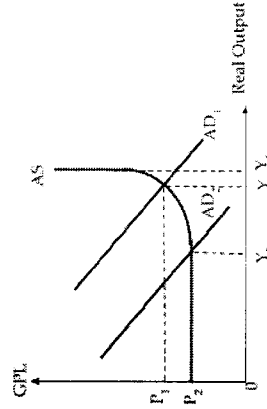


Figure 2: Impact of Export Ban on AD



Body 2: Explain the likely consequence of export bans on importing countries

- Export bans result in shortage of these products in the importing countries, driving up prices. Even if these countries try to diversify their import sources, prices of these imports are still likely to be higher than from the original source. Importing countries thus face higher cost of production. AS falls in the short run and the AS curve shifts upwards from

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AS2 to AS1 in Figure 1, and the country faces cost-push inflation as GDP increases from P2 to P1 and potentially lower economic growth from Y2 to Y1.

Mark Scheme

Level	Knowledge, Application / Understanding and Analysis	Marks
L3	<p>For a well-developed answer that has:</p> <ul style="list-style-type: none"> ● good scope – explains at least two different consequences of export bans on both exporting and importing countries; ● good rigour - thoroughly analyses the consequences of export bans using relevant tool of analysis, i.e AD/AS; and ● good application to context - supports explanations with real-world and relevant context. 	8 - 10
L2	<p>For an underdeveloped answer that:</p> <ul style="list-style-type: none"> ● lacks scope – explains only one consequence of export bans on exporting and importing countries; and/or explains two consequences of export bans on either exporting or importing countries. ● lacks rigour – provides some degree of economic analysis of consequences of export bans on exporting or importing countries; and/or ● lacks application to context – limited or no reference to real-world context. 	5 - 7
L1	<p>For an answer that shows some knowledge of export bans and its consequences but is largely irrelevant or contains conceptual errors.</p>	1 - 4

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(b) Assess the extent to which the Singapore government can manage the harms of export bans by other countries on her economic performance. [15]

Part (b) Question Interpretation

Command word/phrase	Assess the extent...	To examine and present the different aspects of a problem or subject, usually in support of a position or argument and give a judgement. Present the arguments to support your judgement of how far the Singapore government is likely to be successful in managing the harms of export bans.
Content	Harms of export bans	Follow through from part (a), cost-push inflation and/or weaker economic growth.
Context	Singapore government	Bring in relevant examples applied to different contexts of the export bans faced by Singapore.

This response requires students to first explain the different policies the Singapore government could adopt to manage the harms of export bans. The answer should go on to explain the limitations and/or negative unintended consequences of these policies. Finally, the evaluation requires students to give a sound judgement on how likely the Singapore government is in managing the harms of export bans.

Introduction

- As mentioned in the preamble, when countries ban exports, this can cause soaring prices, presenting potential risks to Singapore's economy. Part (a) shows that importing countries such as Singapore face higher cost-push inflation which could lead to lower economic growth. This essay assesses the extent to which the Singapore government can manage the harms of these export bans on her economic performance.

Policy 1: Encourage Investments/promote R&D

Singapore can manage the harms of export bans by other countries through the use of supply-side policies to increase domestic supply. For example, Singapore has its 30 by 30 plan to meet 30% of Singapore's nutritional needs by 2030. Such measures decrease Singapore's reliance on imports, making it more resilient to external shocks. This allows Singapore to mitigate effects of shortages and ensure sufficient supply for the population.

After facing vaccine and mask shortage at the onset of Covid, Singapore has now attracted German biotechnology company BioNTech, which developed the COVID-19 vaccine, to establish its Asia-Pacific regional headquarters in Singapore, where it will also set up an mRNA manufacturing facility which will produce several hundreds of millions of mRNA vaccine doses per year starting from 2023. Other firms such as Thermo Fisher and Sanofi will also manufacture a range of vaccines. Singapore has also been ramping up its masks production capabilities, with government agency A*STAR working with local enterprises, including local textile and apparel manufacturer Ramatex, to help design effective masks for Singaporeans' use.

national security importance. Even though economy theory suggests that these policies go against the theory of CA, there appears to be little choice given that Singapore is unable to control the policies of export-banning countries.
[Alternative] Even as Singapore adopts policies which appear to go against the principles of free trade, it continues to negotiate more FTAs to diversify its existing trade links. It should also push for WTO to impose punitive measures on countries which implement export bans.

Mark Scheme

Level	Knowledge, Application / Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> • good scope – explains how Singapore government is able to manage the harms of export bans, using at least 3 policies; and • good balance – explains how the use of such policies may not be effective or successful; and • good rigour – utilises appropriate AD/AS analysis, to explain how the impact of these policies on undoing the harms of export bans. 	8 – 10
L2	For an underdeveloped answer that: <ul style="list-style-type: none"> • lacks scope – explains fewer than three policies; and/or • lacks balance – does not explain how they may not be effective or successful and/or • lacks rigour – gives a descriptive explanation of how the policies work to manage the harms of export bans. 	5 – 7
L1	For an answer that shows some knowledge of policies to manage export bans. Answer may contain multiple conceptual errors.	1 – 4
Level	Evaluation/Synthesis	Marks
E3	For a well-substantiated evaluation of the extent that the Singapore government is able to manage the harms of export bans. Synthesises economic arguments to arrive at a well-reasoned conclusion.	4 – 5
E2	For an answer that makes some attempt at an evaluation of the extent that the Singapore government is able to manage the harms of export bans	2 - 3
E1	For an answer that gives an unsupported evaluative statement(s).	1

(Limitation) However, given that Singapore does not have comparative advantage in producing these goods, this may lead to productive inefficiency and higher cost of production, decreasing AS. As such, Singapore is likely to incur higher opportunity costs in producing these goods. Moreover, promoting R&D to increase supply entails time lag and uncertainties in outcomes. Government funds could have been used for important competing uses such as education and healthcare. As a whole, this could lead to lower Standard of Living for the citizens.

Policy 2: Diversify sources of imports/build buffer stock

To counter the harms of export bans, Singapore could ensure supply resilience by diversifying its import sources and signing more FTAs. Singapore has signed more than 22 regional and bilateral FTAs to ensure it is not vulnerable to export bans from other countries. When Malaysia banned its chicken, Singapore was able to turn to Brazil and Thailand for frozen and chilled chicken thanks to its FTAs with the countries allowing the country to have alternative sources of chicken. Hence, by maintaining good relations with regional and western markets, Singapore will be able to mitigate effects of export bans though cost may increase due to greater transportation costs. Overall, diversification and FTA can alleviate soaring prices, curbing cost-push inflation arising from export bans.

(Limitation) Diversifying import sources necessarily entails sourcing from more expensive suppliers. This could be due to higher transportation costs, for example chicken from Brazil vs Malaysia. The quality of goods may also be compromised, for example the import from Malaysia is fresh chicken while those from other countries are frozen chicken and at best chilled chicken. The higher cost of production results in AS falling in the SR and the AS curve shifting upwards from AS2 to AS1 in Figure 1, resulting in Higher General Price Levels (P2 to P1) and weaker economic growth (Y2 to Y1).

Policy 3: Appreciate SGD to deal with food price inflation

Singapore can mitigate cost-push inflation by using contractionary exchange rate monetary policy. This involves appreciating the SGD by buying the SGD on the forex market. The appreciation of SGD results in foreign imports being cheaper in terms of domestic currency and hence a fall in cost-push inflation as Singapore can import cheaper factors of production from other countries.

(Limitation) A limitation of the exchange rate monetary policy is that Singapore may risk a weaker economic growth as they become less price competitive. An appreciation makes exports more expensive in foreign currency terms and imports cheaper in domestic currency terms. Assuming Marshall-Lerner condition holds, ie, the absolute sum of price elasticities for demand and supply is greater than one, (X-M), a component of AD, will fall, and with the reverse multiplier effect results in a large fall from AD from AD1 to AD2 and real output falling from Y1 to Y2 in Figure 2.

Evaluative conclusion

[Stand] All three measures have been adopted by the Singapore government to deal with export protectionism and are useful and necessary stop-gap measures. As Singapore has strong ties with many countries and also a good reputation, she is likely able to diversify its trade composition to protect the economy against export bans.
[Situation] Unlike many countries, Singapore has the financial as well as political ability to implement difficult and costly measures such as manufacturing products deemed to be of

