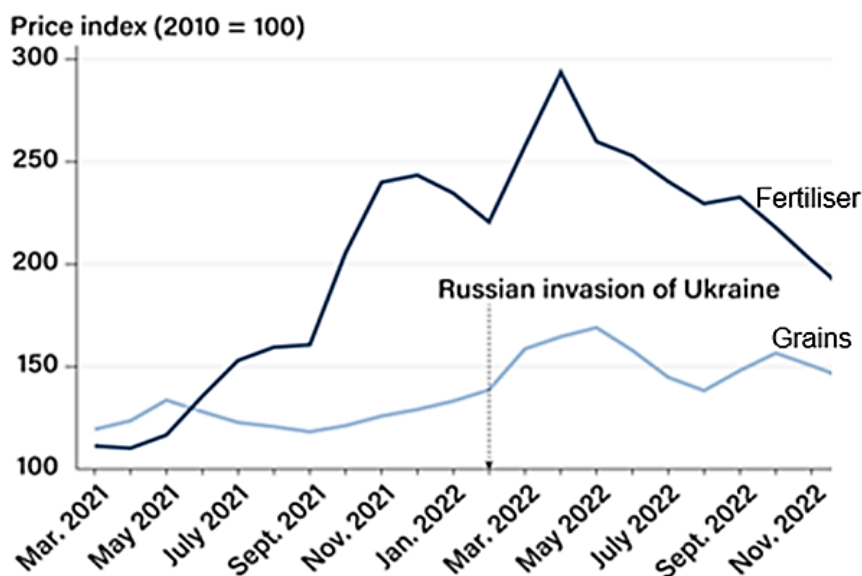


**Adapted from 2024 NYJC Prelims Paper 1****Question 1: Impact of Russia-Ukraine War on Various Industries****Extract 1: Effects of war on the fertiliser industry**

The effects of the Russia-Ukraine war may reverberate through the global fertiliser industry for years to come. Post-COVID supply-chain disruptions had already pushed fertiliser prices to cyclical highs in 2021. Russia's invasion of Ukraine in February, and the sanctions and trade supply disruptions that followed then pushed prices even higher, grain prices also increased, reaching a peak in May 2022. Russia is a major producer of the three main types of fertilisers - nitrogen, phosphate, and potash (NPK), and a major exporter of key raw materials for fertiliser production elsewhere in the world. High fertiliser prices have boosted earnings and profitability of the 12 global fertiliser companies rated by S&P Global Ratings. This is boosting fertiliser companies' profits and credit quality for now. But this has also destroyed demand from farmers who are unable to afford fertilisers and, in turn, increased food insecurity worldwide. It also highlights the need to reduce dependence on Russia, the world's largest fertiliser exporter. Yet, investment required to end dependence on Russian and Belarussian fertilisers is being hampered by high inflation, supply shortages, and in the case of nitrogen fertilisers, uncertainties over the shape of further regulation to decarbonize the industry.

**Figure 1: Comparison between fertiliser and grains prices from 2021 to 2022**

*Adapted from USDA, Economic Research Service Department of Agriculture, 2022 and World Bank, 2022*

**Extract 2: Pollution generated from the use of fertilisers**

Farmers apply nutrients on their fields in the form of chemical fertilisers and animal manure, which provide crops with the nitrogen and phosphorus necessary to grow and produce the food we eat. However, when nitrogen and phosphorus are not fully utilised by the growing plants, they can be lost from the farm fields and negatively impact air and downstream water quality.

This excess nitrogen and phosphorus can be washed from farm fields and into waterways during rain events and when snow melts and can also leach through the soil and into groundwater over time. High levels of nitrogen and phosphorus can cause eutrophication of water bodies. Eutrophication can lead to hypoxia ("dead zones"), causing fish kills and a decrease in aquatic life.

Excess nutrients can cause harmful algal blooms (HABs) in freshwater systems, which not only disrupt wildlife but can also produce toxins harmful to humans.

Fertilized soils, as well as livestock operations, are also vulnerable to nutrient losses to the air. Nitrogen can be lost from farm fields in the form of gaseous, nitrogen-based compounds, like ammonia and nitrogen oxides. Ammonia can be harmful to aquatic life if large amounts are deposited from the atmosphere to surface waters. Nitrous oxide is a potent greenhouse gas.

There are many ways that farmers can reduce nutrient losses from their operations, including, but not limited to Adopting Nutrient Management Techniques: Farmers can improve nutrient management practices by applying nutrients (fertiliser and manure) in the right amount, at the right time of year, with the right method and with the right placement. This would likely increase their operating cost of production but would hopefully reduce the negative impacts on others.

*Source: Environmental Protection Agency, 2022*

### **Extract 3: Rethinking the use of nitrogen fertiliser**

Governments can start by promoting more responsible and efficient uses for nitrogen fertilisers. In this regard, they might consider promoting the principles enshrined in the International Code of Conduct for the Sustainable Use and Management of Fertilisers. This Fertiliser Code was designed to support the implementation of the Voluntary Guidelines for Sustainable Soil Management produced by the Global Soil Partnership to promote practices to reduce the overuse and misuse of fertilisers. The Fertiliser Code includes recommendations for government regulations related to the sale, distribution, and labelling of fertiliser products.

Second, governments can promote greater use of organic fertilisers such as manure, compost, peat, seaweed, or guano, where conditions permit. These fertilisers do have their limitations: they are often more expensive, slower in releasing nutrients, often limited to moist and warmer soils, and insufficient to meet the food demands of a growing world population. Yet they can still offer an additional tool to improve soil structure in an environmentally friendly way until there are more effective solutions available.

These options, while useful in the short term, do not offer a satisfactory alternative to our long-standing reliance on nitrogen fertilisers, especially when considering current projections of population growth through 2050. What other options do governments have to reduce reliance on nitrogen fertilisers in the medium to long term?

There are promising scientific developments underway for alternative fertilisers, but many of these approaches need further development. For example, scientists are working to perfect a process known as “biological nitrogen fixation”, where legumes such as peas, beans, or lentils, by using a particular type of soil bacteria called rhizobia, “reduce” or “fix” nitrogen from the atmosphere into a form that crops can use as a fertiliser. If further developed, scientific experts say this could be a viable alternative to nitrogen fertilisers that rely on natural gas.

However, research and development on fertilisers based on biological nitrogen fixation are still at a very early stage.

Government support that currently goes to chemical fertilisers could go instead to supporting further research and development of alternative fertilisers, including this one. Not only would repurposing farm subsidies in this way help the environment by reducing nitrogen pollution and supporting cleaner marine and freshwater ecosystems, but it would help secure greater crop yields for farmers, with related benefits for global food security. This government support for research and development to fertiliser alternatives could also be matched by private investment.

Under any scenario, both public and private efforts would be essential for rethinking the use of nitrogen fertilisers in agriculture to ensure sufficient, safe, and nutritious food for everyone with

minimal environmental harm. As the current crisis has reminded us, we need to start making changes now both to address our current hunger and food security challenges while also ensuring we are better able to withstand other shocks in the future.

*Source: International Institute for Sustainable Development, 24 March 2022*

#### **Extract 4: European industry braced for pain from latest surge in oil and gas prices**

The latest surge in oil and gas prices as the west responds to Russia's invasion of Ukraine is threatening a sharp rise in costs for European industry, severely hurting sectors from steel and aluminium to fertilisers and transport. That means yet more pain for airlines, shipping companies, carmakers and other energy-intensive industries, which had already called on governments to address "unbearably high energy prices" before the current crisis.

##### **Airline Companies**

Higher oil prices sent shares in airline groups lower on Monday, with a more than 7 per cent fall at Ryanair taking monthly losses to 30 per cent. Higher crude prices feed through to jet fuel used to power the giant machines of global transport. Jet fuel has more than doubled in a year to the highest level since 2008 at \$1,166 per metric tonne, according to S&P Global Commodity Insights. "The high fuel cost and higher inflation is here to stay longer," said Rico Luman, a senior economist specialising in transport at ING. Although fuel accounts for roughly 50 per cent of shipping companies' costs versus 20 to 35 per cent for aviation, analysts said airline companies were more exposed to the rise in fuel costs as the industry recovers from the pandemic because of consumer sensitivity to higher ticket prices. While countries have experienced a decline in tourism in the last two years due to the Covid-19 pandemic have not yet recovered, the conflict between Ukraine and Russia has negatively affected the tourism sector globally. Sathish Sathish Sivakumar, analyst at Citigroup, said legacy carriers could more easily introduce emergency fuel surcharges compared with the low-cost carriers that would have to increase ticket prices.

##### **Carmakers**

For Europe's car plants already battling rising parts bills and stuttering supply chains, a further steep rise in energy costs is the latest in a long line of hammer blows to competitiveness. After labour and raw materials, energy costs are the largest bill that vehicle manufacturers face, even though Europe's auto plants have reduced their energy use by 28 per cent since 2005. Executives at Mercedes-Benz, Stellantis and Renault have all recently warned of rising costs from higher raw material prices. As well as the electricity used in running their own factories, carmakers will also be hit by rising production costs among suppliers making everything from steel and aluminium to plastics and glass. "Metals, chemicals, plastics and glass rely a lot on gas for processing," said Dominic Tribe, a supply chain analyst at Vendigital. He added that roughly half of the industrial energy use was based on gas, while a fifth was from electricity, which is also rising. "The list is long because so many manufacturing processes in automotive are heat-based," said Philippe Houchois, analyst at Jefferies. The cost implications are material. Tribe estimated that overall costs for vehicle manufacturers could rise by as much as a fifth in the coming months, denting carmakers' margins, which for most are about 10 per cent when things run well. Bills for carmakers are unlikely to rise immediately because many plants buy energy in advance, generally a quarter at a time. The gas rates are therefore unlikely to feed through into higher prices until next month, although they will also take longer to fall once the global price comes down. Growing concerns about the automotive supply chain, a potential energy crisis and consumer confidence crash are feeding fears about the impact of the Ukraine-Russia war on car retail.

*Adapted from Financial Times, 8 March 2022, Journal of Aviation, May 2022 and AM Online, 4 April 2022*

**Questions**

- (a) Identify and explain the similarity between the price of fertiliser and grain from February to April 2022. [2]
- (b) Using a relevant price elasticity concept, explain the impact of the Russia-Ukraine war on Russia's fertiliser export revenue. [4]
- (c) 'But this has also destroyed demand from farmers who are unable to afford fertilisers and, in turn, increased food insecurity worldwide.' (Extract 1)
- From the above statement, explain one microeconomic objective that is not achieved. [2]
- (d) (i) With the aid of a diagram, explain the source of market failure in the fertiliser market as mentioned in Extract 2. [4]
- (ii) Discuss the various policies a government could undertake to achieve efficient allocation of resources in the fertiliser market. [8]
- (e) With reference to Extract 4, discuss whether energy cost is the main factor affecting the profitability of firms due to Russia's invasion of Ukraine. [10]

**[Total: 30]**

**Question 2: Opportunities and Challenges in the Post-Covid World****Extract 5: Supply chain disruptions cost Singapore \$2.6 billion annually**

Supply chain disruptions are setting Singapore's economy back by \$2.6 billion per year, according to business transformation consultancy TMX Global, and undermining the profitability of businesses.

As such, the Singapore government has rolled out initiatives aimed at building more resilient supply chains. This includes an \$18 million Supply Chain 4.0 Initiative to integrate digital and automated solutions to help businesses anticipate scenarios in the event of disruptions to their supply chains. The Singapore Trade Data Exchange (SGTraDex) has also been launched to facilitate the secure sharing of information between the supply chain ecosystem participants via a common data corridor.

However, TMX Global's Country Manager of Malaysia and Singapore, Greg O'Shea states that technology is not a cure-all. Businesses also need to optimise and transform their operations to enable business agility as well as upskill their workforce to serve a reinvented supply chain.

*Adapted from The Edge Singapore, 16 February 2023*

**Table 1: United Kingdom, Selected Economic Indicators (Quarterly Data)**

	2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>GDP growth (%)</b>	-1.0	7.3	1.7	1.5	0.5	0.1	-0.1	0.1	0.2	0	-0.1	-0.3
<b>Inflation rate (%)</b>	0.9	2.1	2.7	4.4	5.5	7.9	8.7	9.4	9.0	7.7	6.3	4.4

*Source: Trading Economics and UK Office for National Statistics*

**Extract 6: UK prices soar at fastest rate for almost ten years**

Inflationary pressures, coupled with the uneven pace of economic recovery from the Covid-19 pandemic has led to concerns over stagflation, which refers to an economy characterised by high inflation and low economic growth.

Inflation soared in 2022 because oil and gas were in greater demand after the Covid pandemic. Energy prices surged again when Russia invaded Ukraine, cutting global supplies.

Government support to businesses during the pandemic – like reduced VAT for hospitality – has ended. In addition, businesses are struggling to recruit lorry drivers and hospitality staff, and so are having to put up wages (costs that get passed on to consumers). This is partly due to the pandemic, but is also compounded by Brexit, according to international policy forum the OECD.

Inflation had remained above the Bank of England's 2% target partly because of high energy and food prices. Food prices are still 25% higher than at the beginning of 2022, and petrol prices are increasing again.

*Source: BBC, 17 November 2021 and 20 June 2024*

**Extract 7: Is the Bank of England done hiking?**

The Bank of England (BoE) uses interest rates to try and keep inflation at 2%.

When inflation was well above that target, it increased interest rates for 14 successive rounds from 0.25% in January 2022 to 5.25% in August 2023 and has held it steady since.

Britain's economy is already under strain from the run-up of interest rates between December 2021 and August this year, with about half of the impact of those rate hikes yet to be felt. Warning against complacency, Governor Andrew Bailey said inflation was still too high and that the BoE was determined to get it all the way back to its 2% target.

Bailey acknowledged that the conflict in the Middle East created a risk of higher energy prices that could feed through into inflation but said that had not happened so far.

Although inflation has fallen from 11.1% - its highest since the 1980s - just over a year ago to 6.7% in the most recent data, it remains more than three times the BoE's 2% target. The central bank said it expected no growth in Britain's economy in July-September, before expansion of just 0.1% in the fourth quarter. It forecast zero growth in 2024 and an expansion of just 0.25% in 2025.

The BoE is now facing the dilemma of whether to keep interest rates on hold, or to lower them.

Although the headline CPI figure has hit the 2% target in June 2024, the Bank also considers other measures of inflation when deciding how to change rates, such as "core inflation". Core inflation doesn't include food or energy prices because they tend to be very volatile, but it was 3.5% in May, which suggests price rises are still an issue.

The BoE is keeping a close eye on strong wage growth, however, which it fears could keep price pressures simmering.

*Adapted from various sources*

**Extract 8: RCEP, a catalyst for recovery, regional integration in Asia-Pacific**

The Regional Comprehensive Economic Partnership (RCEP) Agreement was inked in November 2020 by the 10 ASEAN countries as well as China, Australia, New Zealand, Japan and South Korea. It is by far the largest plurilateral free trade agreement in the world, covering nearly one third of the world's population, one third of the global GDP, and one third of the world's total exports. The bloc is also the fastest growing and most promising investment region in the world.

As the world grapples with the COVID-19 pandemic and multiple uncertainties, the implementation of the RCEP trade pact offers a timely boost to faster recovery and long-term growth and prosperity of the region.

It aims to ultimately eliminate tariffs on over 90 percent of goods trading among its signatories over the next 20 years, open up trade in goods and services, and promote investment to help emerging economies catch up with the rest of the world.

The pact will also give participating countries preferential access into growing markets in the region and reduce costs and time for companies by allowing them to export products anywhere within the bloc without meeting separate requirements for each country.

According to an Asian Development Bank study, the RCEP will increase the member economies' incomes by 0.6 percent by 2030, adding 245 billion dollars annually to regional income and 2.8 million jobs to regional employment.

*Adapted from Xinhua, 3 January 2023*

**Extract 9: The limits of the RCEP**

Expanded trade can create jobs and improve peoples' lives. However, governments have often been reluctant to admit that all trade deals have both winners and losers because they reduce tariffs and other trade barriers, intensify competition, and result in job losses in some industries. In fact, India left the deal due to concerns about larger trade deficits with China and the inability to protect its local industries.

The RCEP also lacks rules to protect the environment and workers, and the tariff reductions it demands are not as large as the ones required by the other big Asia-Pacific trade agreement, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, which includes seven RCEP members. As a result, it may not bring major economic benefits, even for participating countries.

*Source: Australian Institute of International Affairs, 27 November 2020 and Project Syndicate, 4 December 2020*

**Questions**

- (a) Explain how supply chain disruptions may be “undermining the profitability of businesses” (Extract 5). [2]
- (b) Using Extract 5, explain the different effects of the Singapore government’s initiatives to build more resilient supply chains on its employment levels. [4]
- (c) (i) Explain how Table 1 can be used to show evidence of stagflation in the UK economy from 2021 to 2022. [1]
- (ii) With reference to Extract 6 and using a diagram, explain how stagflation might have occurred in the UK economy. [5]
- (d) ‘The BoE is now facing the dilemma of whether to keep interest rates on hold, or to lower them.’ (Extract 7)
- In light of the challenges faced, discuss the factors that the Bank of England should consider in deciding whether to change its interest rates. [8]
- (e) Assess whether the Regional Comprehensive Economic Partnership (RCEP) would likely be of overall benefit to the Asian economies. [10]

**[Total: 30]**

**Adapted from 2024 NYJC Prelims Paper 1****Question 1: Impact of Russia-Ukraine War on Various Industries****Suggested Answers**

(a)	<b>Identify and explain the similarity between the price of fertiliser and grain from February to April 2022. [2]</b>	
	<ul style="list-style-type: none"> <li>With reference to Figure 1, both the price of fertiliser and grain increased from February to April 2022. [1]</li> <li>With reference to Extract 1, the sanctions and trade supply disruptions result in a fall in supply, ceteris paribus, leading to a rise in price of fertiliser. As fertiliser is one of the factor inputs in producing grain, marginal cost of producing grain increases, causing supply of grain to fall, ceteris paribus, and hence the price of grain increases as well. [1]</li> <li><i>Note: The mark allocation for the 2<sup>nd</sup> mark is rather demanding. Students should minimally explain how fertiliser are a factor input in producing grain. Hence, any rise in price of fertiliser will increase the COP of grain production, leading to a fall in supply and a rise in price as well.</i></li> </ul>	
(b)	<b>Using a relevant price elasticity concept, explain the impact of the Russia-Ukraine war on Russia's fertiliser export revenue. [4]</b>	
	<ul style="list-style-type: none"> <li>From Extract 1, "Russia's invasion of Ukraine in February, and the sanctions and trade supply disruptions that followed then pushed prices even higher". There is an increase in the price of fertilisers exported by Russia. [1]</li> <li>Since fertilisers plays a crucial role in modern farming due to its high level of necessity for ensuring robust crop yield, the demand for fertilisers is price inelastic. [1]</li> <li>This means that a rise in price will lead to a less than proportionate decrease in quantity demanded. [1]</li> <li>With an increase in price, the fall in export revenue due to fall in quantity will be lesser than then gain in export revenue due to rise in price and export revenue will increase. [1]</li> </ul>	
(c)	<b>'But this has also destroyed demand from farmers who are unable to afford fertilisers and, in turn, increased food insecurity worldwide.' (Extract 1)</b>  <b>From the above statement, explain one microeconomic objective that is not achieved. [2]</b>	
	<ul style="list-style-type: none"> <li>From the above statement, the microeconomic goal of equity is not achieved. [1]</li> <li>The rising prices of fertilisers will lead to a rise in cost of producing crops, pushing up food prices. Lower income groups may not be able to afford basic necessity like food, hence worsening the goal of equity in the market for food. [1]</li> </ul>	
(d)	(i)	<b>With the aid of a diagram, explain the source of market failure in the fertiliser market as mentioned in Extract 2. [4]</b>
	<ul style="list-style-type: none"> <li><b>[P]</b> Consumers (farmers) only consider their marginal private benefits such as the marginal revenue from the crops which use fertilisers to grow and marginal private costs such as price of fertilisers.</li> <li><b>[ET]</b> However, there is Marginal External Cost (MEC) from the consumption of fertilisers, either as higher medical costs from consuming water that contains harmful algal bloom or loss of income to fishermen due to decrease in aquatic life. [1]</li> <li><b>[DQQ]</b> The existence of MEC creates a divergence between MPC and MSC by the amount of MEC. Assuming no positive externalities, MPB=MSB. As such, the socially optimal level of</li> </ul>	

consumption is at  $Q_s$  where  $MSB=MSC$  while the private optimal quantity is at  $Q_p$  where  $MPB=MPC$ . [1]

- [D] Since  $Q_p > Q_s$ , there is over-consumption of fertilisers by  $Q_p$   $Q_s$ . Between  $Q_p$   $Q_s$ , total social costs ( $ABQ_sQ_p$ ) outweighs total social benefits ( $ACQ_sQ_p$ ), leading to deadweight loss to society by area  $ABC$  as shown in Figure 1. [1]

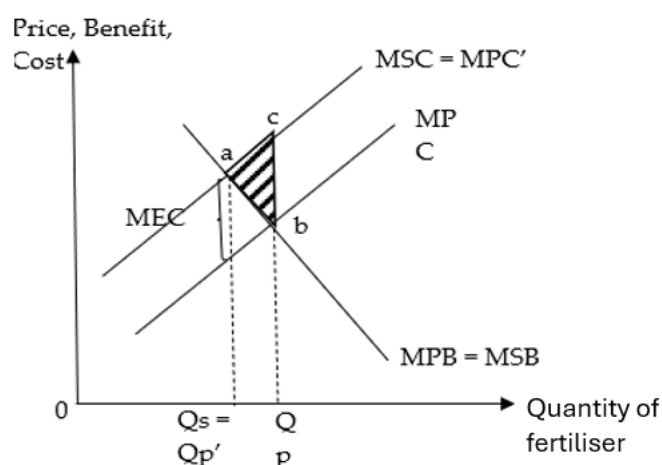


Figure 1: Market Failure in the market for fertiliser

- Diagram [1]
  - Note that a more complete answer would be to include the “P” from PETDQQD as well. However, due to the limited marks allocated + the need of a diagram, it is possible that marks will not be allocated for “P”.

(e) (ii) Discuss the various policies a government could undertake to achieve efficient allocation of resources in the fertiliser market. [8]

#### Question Interpretation

<b>Command phrase</b>	Discuss the various policies	Consider the workings and limitations of 2 policies before coming to an evaluative conclusion
<b>Content</b>	Efficient allocation of resources	Policies should aim to address the issue of negative externalities to improve allocative efficiency.
<b>Context</b>	Fertiliser market	Market for fertiliser

Students are expected to explain the use 2 different policy, in terms of their workings and limitations, before making a well-reasoned judgment on the overall effectiveness of the policies in addressing the market failure.

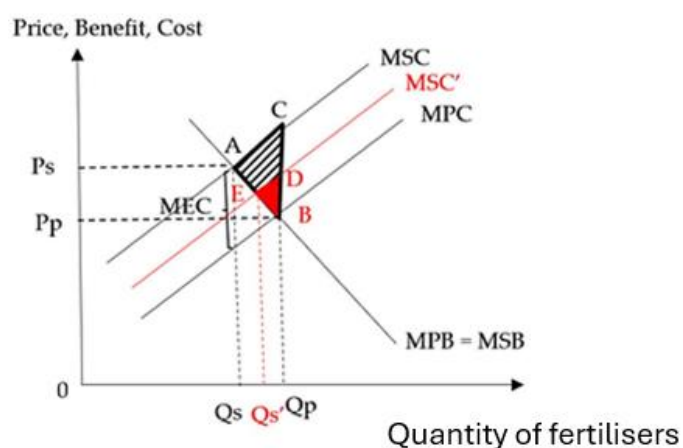
#### Policy 1: Explain how the Nutrients Management Techniques can achieve efficient allocation of resources, alongside its limitations

- Government can enforce farmers to adopting Nutrient Management Techniques. As stated in extract 2, adopting new technique to apply nutrients to crops “would likely increase their operating cost of production” which increases MPC, causing farmers to internalise the externality.
  - If price of fertilisers increases by the amount equal to MEC at  $Q_s$ , the MPC of farmers will rise to  $MPC'$  and coincide with MSC.
- If  $MPC' = MSC$ , farmers would consume at  $Q_{p'}$  where  $MPC' = MPB$  which coincides with  $Q_s$ . Since  $Q_{p'} = Q_s$ , consumption is now at the socially optimal level. The problem of over-consumption is solved and deadweight loss of  $ABC$  is eliminated.

- However, this will lead to the government incurring administrative and enforcement costs, which could possibly put a strain on the government budget. There could also be opportunity costs incurred in the form of welfare gained from spending on education.

**Policy 2: Explain how the use of alternative fertilisers such as organic fertilisers, can improve the allocation of resources, alongside its limitations**

- As seen from Extract 3, there can be greater encouragement on the use of alternative fertilisers such as organic fertilisers. As the use of these fertilisers generate less negative externalities, it will help to reduce MEC when consumers switch from nitrogen fertilisers to organic fertilisers.
- In Extract 3, “Farmers can adopt the Nutrient Management Techniques and improve nutrient management practices by applying chemical fertilisers in the right amount, at the right time of year, with the right method and with the right placement. This would reduce the negative impacts on others.”
- As such MSC will fall and shift downwards to MSC'. The new social optimal quantity,  $Q_s'$  (MSC'=MSB) is now closer to  $Q_p$ . Deadweight loss reduces from area 'abc' to area 'edc' and the market failure issue is alleviated.



**Figure 2**

- However, as mentioned in Extract 3, these fertilisers are often more expensive and slower in releasing nutrients. This could raise the cost of production and also reduce the yield of food crops, leading to a fall in supply and rise in price. As the lower-income families may not be priced out of food, which is a necessity, it will worsen equity.
- *Note: The workings of the policies are slightly flexible – e.g. you could explain Nutrients Management Technique as a fall in MEC and MSC instead. Alternatively, for the use of organic fertilisers, if your diagram is on the market of nitrogen fertilisers specifically, you can model it as a fall in MPB and hence fall in  $Q_p$  to be closer to  $Q_s$  instead.*

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

- **[Stand + Time + Situation]** Enforcing the Nutrients Management Techniques could be a better policy than relying of alternative fertilisers in the short run as it can be imposed and enforced easily within a short period of time.
  - On the other hand, the development of alternative organisers are still in the process of development as seen from Extract 3 and hence may not be ready in the short-run. However, the use of alternative fertilisers would be preferred in the long-run as it addresses the root cause of the issue.

**Mark Scheme**

Level	Knowledge, Understanding, Application and Analysis	Marks
L2	A well-developed answer that has: <ul style="list-style-type: none"> <li>• <b>Good balance and scope:</b> Answer explains the workings and limitations of two policies</li> <li>• <b>Good rigour:</b> Answer uses relevant market analysis with the aid of a well-labelled diagram</li> <li>• <b>Good application to context:</b> answer is applied to the context of fertilisers.</li> </ul>	4–6
L1	An under-developed answer that: <ul style="list-style-type: none"> <li>• <b>Lacks balance and scope:</b> Answer explains only the workings OR limitations of two policies; OR answer explains the working and limitations of only one policy</li> <li>• <b>Lack rigour:</b> Answer has inaccuracies or gaps in analysis.</li> <li>• <b>Lacks application to context:</b> Policies suggested are generic and does not consider the context of fertilisers.</li> </ul>	1–3
<b>Evaluation</b>		
E	<ul style="list-style-type: none"> <li>• One evaluative point that is well-explained with a clear, overall relevant stand in the conclusion.</li> </ul>	2

- (f) **With reference to Extract 4, discuss whether energy cost is the main factor affecting the profitability of firms due to Russia's invasion of Ukraine.** [10]

Question Interpretation

<b>Command phrase</b>	<i>Discuss whether.. main factor</i>	Provide a balanced analysis by considering how energy cost and one other factor affect the profitability of firms before arriving at a evaluative conclusion.
<b>Content</b>	<i>Energy cost, profitability</i>	Energy cost – to consider the impact on MC and AC and hence profits
<b>Context</b>	<i>Extract 4</i>	Consider the context as provided in Extract 4

*Students are to consider how energy costs and one other factors affect the profitability of firms before arriving at a well-reasoned conclusion.*

**Introduction**

- Profits are determined by Total Revenue – Total costs. Other than energy cost, raw materials cost and labour cost also affects the cost of firms while Extract 4 also suggests reasons such as a decline in revenue due to the decline in tourism.
- **KA1: Energy cost may be the main factor affecting profitability of firms**
- From Extract 4, it suggests that rising price of oil and gas has led to rising energy cost and hence the cost of production of firms.
- Initially, the profit-maximising output of the firm is at Q0, where MR=MC1 and the firm earns supernormal profits of area P0ABC0.
- However, with the rise in energy prices, a form of variable costs, there would be an increase MC and AC to MC1 and AC1 respectively.
  - The new profit maximizing output of the firm will be at Q1 where MR=MC1. There will be a rise in price from P0 to P1 and average cost rises from C0 to C1.
  - Therefore, profits fall from supernormal profits P0ABC0 to smaller supernormal profits of P1FGC1.

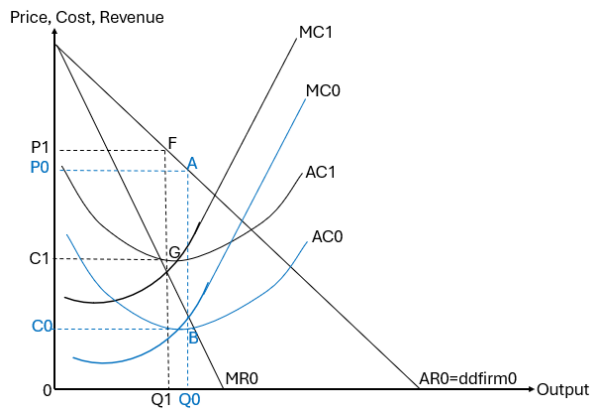


Figure 3

**Anti-thesis: Energy cost is not the main factor affecting profitability of firms because there are other costs and/or demand reasons.**

- **However, there are other factors that affect the profits of firms such as demand reasons.**
- As seen in Extract 4, there was a decline in tourism which resulted in the fall in demand for air travel since traveling by air is a form of transportation for tourists.
  - This would lead to a fall in MR & AR for the airline companies, with the MR curve and AR curve shifting to the left to MR1 and AR1 respectively.
- Initially, airline firm was producing at Q0 where  $MR_0 = MC$  and charging a price P0. They would thus earn supernormal profits of area P0ABC.
  - With the fall in MR and AR, firms would now produce at  $MR_1 = MC$  and charge a price P1.
- They would now earn lower supernormal profits of area P1FGC.
- *Note: Evidence can also be in the form of consumer confidence crash for car retail → which should also see a fall in MR and AR.*

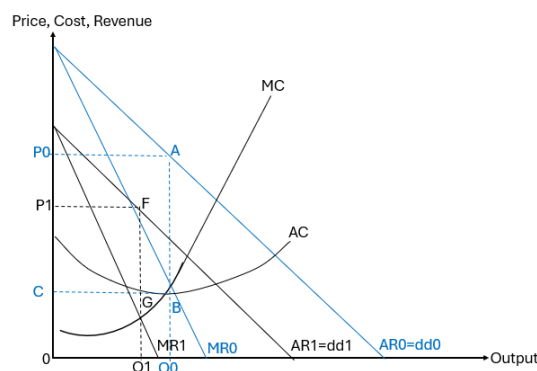


Figure 4

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

- **[Stand + Situation]** Whether rising energy costs is the main factor affecting profitability may depend on the industry as well as the sector. As seen from Extract 4, 'Jet fuel has more than doubled in a year' and 'fuel accounts for 20 to 35 per cent for aviation'. These suggest that the energy cost is a significant reason for any change in profitability for airline firms.
  - However, even for airline firms, there will be differing impacts on profitability, with Extract 4 also mentioning how legacy carriers may be able to pass on the higher COP to consumers in the form of higher prices as opposed to low-cost carriers.

**Mark Scheme**

Level	Knowledge, Application, Understanding and Analysis	Marks
L2	A well-developed answer that has: <ul style="list-style-type: none"> <li>• <b>Good balance and scope:</b> Answer explains how rising energy costs and one other factor may affect profitability</li> <li>• <b>Good rigour:</b> Answer uses the appropriate tool of analysis (firms analysis) and make reference to a well-labelled diagram</li> <li>• <b>Good application to context:</b> Answer draws from the context provided in extract 4</li> </ul>	4-7
L1	An underdeveloped answer that: <ul style="list-style-type: none"> <li>• <b>Lacks balance and scope:</b> Answer explains only rising energy cost OR one other factor which may affect profitability</li> <li>• <b>Lacks rigour:</b> Answer is descriptive or has gaps in analysis</li> <li>• <b>Lacks application to context:</b> Answer does not use the context provided in extract 4</li> </ul>	1-3
E	One evaluative point that is well-explained with a clear, overall relevant stand in the conclusion.	2-3

## Question 2: Opportunities and Challenges in the Post-Covid World

### Suggested Answers

(a)	<b>Explain how supply chain disruptions may be “undermining the profitability of businesses” (Extract 5). [2]</b>
<ul style="list-style-type: none"> <li>Supply chain disruptions may lead to delays in raw material shipments, higher freight costs driven by global shortages in containers and vessels, and port congestion, which raises the marginal cost of production. [1]</li> <li>Given that profits = total revenue – total cost, a rise in cost would lead to a fall in profits, assuming constant revenue, thereby “undermining the profitability of businesses”. [1]</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Delays in delivery arising from the supply chain disruptions can lead to delays in delivery, causing customer dissatisfaction which can result in cancelled orders, loss of sales and damage to the business's reputation, which lowers sales revenue. [1]</li> <li>Given that profits = total revenue – total cost, a fall in revenue would lead to a fall in profits, assuming constant costs, thereby “undermining the profitability of businesses”. [1]</li> </ul>	
(b)	<b>Using Extract 5, explain the different effects of the Singapore government's initiatives to build more resilient supply chains on its employment levels. [4]</b>
<ul style="list-style-type: none"> <li><i>FYI: Extract 5 mentioned the roll out of an S\$18 million Supply Chain 4.0 Initiative and the SGTraDex to integrate digital and automated solutions and facilitate the secure information sharing.</i></li> <li>The S\$18 million Supply Chain 4.0 Initiative is an example of government expenditure (G). The government increases spending to support the adoption of new technologies such as building of digital infrastructure. As G is a component of Aggregate Demand (AD), this will increase the AD of the economy. [1]</li> <li>As AD rises, this triggers the multiplier effect, assuming spare capacity, leading to successive increases in income-induced consumption, and an eventual multiplied increase in real GDP. As real output increases, firms will <u>increase derived demand for labour</u>, causing a <b>fall in demand-deficient unemployment</b> and employment levels to rise. [1]</li> <li>The Singapore government's initiatives rely heavily on technology which may displace lower-skilled labour as automation technologies can perform routine tasks previously done by workers such as inventory management, order processing, and even logistics operations. At the same time, there may be a rise in the demand for new skills such as programming, systems analysis, and technical maintenance. [1]</li> <li>As there is a <u>mismatch of skills</u> between the displaced / retrenched workers and the skills in demand by the employers, these workers may not be readily employable in the new high-tech environment due to <u>occupational immobility</u>, leading to <b>structural unemployment</b> and fall in employment levels. [1]</li> <li>Hence, the need to “upskill their workforce to serve a reinvented supply chain” (Extract 5).</li> </ul>	
(c)	<b>(i) Explain how Table 1 can be used to show evidence of stagflation in the UK economy from 2021 to 2022. [1]</b>
<ul style="list-style-type: none"> <li>From Extract 6, stagflation refers to an economy characterised by “high inflation and low economic growth.” [1]</li> <li>From 2021 Q2 to 2022 Q2, Table 1 shows slowing / weak (positive) economic growth from 7.3% to 0.1%, while inflation has been rising from 2.1% to 7.9%. [1]</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li><i>Although you learnt previously that stagflation refers to a situation of high inflation, high or rising unemployment and low/ weak or negative economic growth, you need to be flexible and follow the definition in the case!</i></li> </ul>	

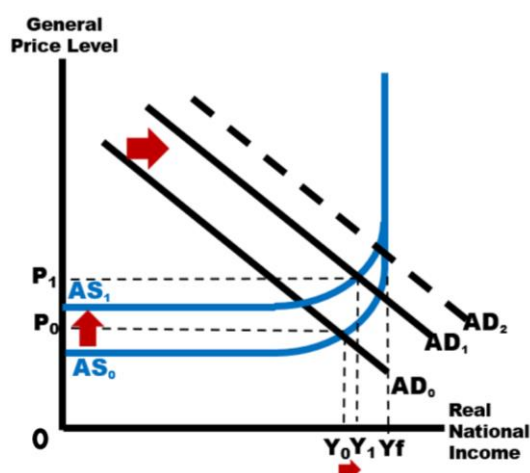
- Therefore, based on the definition in Extract 6 where there is low growth, any other time period showing a falling but positive GDP growth and corresponding rise in inflation rates is accepted.

(ii) With reference to Extract 6 and using a diagram, explain how stagflation might have occurred in the UK economy. [5]

- The low economic growth could be caused by the “uneven pace of economic recovery (Extract 6) which suggests that AD is rising by a smaller extent [1] from  $AD_0$  to  $AD_1$  instead of  $AD_0$  to  $AD_2$ .
- The high inflation could be caused by the rising energy prices, due to “greater demand for oil and gas” where the increased demand would create an upward pressure on price OR “surge in energy prices when global supplies were cut when Russia invaded Ukraine” (Extract 6) where the fall in supply will create a shortage and cause prices to rise. [1]

OR

- The high inflation could be caused by rising wages due to “businesses struggling to recruit lorry drivers and hospitality staff” (Extract 6) because of the pandemic and Brexit. As labour becomes scarce, firms would bid up factor prices and cause a rise in wages. [1]
- As energy / labour is a major factor input to produce goods and services, this will lead to a rise in the economy-wide unit cost of production, leading to a fall in AS [1] from  $AS_0$  to  $AS_1$ .
- Both effects will lead to weak economic growth, where real national income rises from  $Y_0$  to  $Y_1$ , and rising inflation, where GPL increases from  $P_0$  to  $P_1$  as shown in the below figure. [1]



- [1] for accurate and fully labelled AD/AS diagram showing a small rise in real national income and rise in GPL.

Notes:

- Because of the case defines stagflation as low economic growth, the above analysis needs to show positive growth and hence there needs to be an increase in AD.
- This is different from our usual practices where the stagflation was defined as negative economic growth and rising unemployment. Learning point: You will need to be flexible depending on how the case defines stagflation.

- (d) 'The BoE is now facing the dilemma of whether to keep interest rates on hold, or to lower them.' (Extract 7)
- In light of the challenges faced, discuss the factors that the Bank of England should consider in deciding whether to change its interest rates. [8]

Question Interpretation

<b>Command word/phrase</b>	<i>Discuss the factors...the Bank of England should consider</i>	The rational decision-making framework should be applied here, with consideration of the benefits and costs/constraints before making a reasoned judgement as to which factor is more important.
<b>Content</b>	<i>...deciding whether to change its interest rate</i>	A change in interest rates is monetary policy which would influence C and I and hence AD.
<b>Context</b>	<i>In light of the challenges faced</i>	Apply analysis to the context of Extract 7 and the UK economy.

Candidates are required to briefly explain the challenges that the UK economy is facing before considering the benefits and costs of changing its interest rates as a form of demand-management monetary policy. The evaluation entails a reasoned conclusion on which factor would be more important in the Bank of England's consideration.

**Introduction**

- **[Set context]** The UK economy faces the challenges of "too high" inflation and its economy is "under strain," where there is forecasted "zero growth in 2024" (Extract 7).
- Therefore, the BoE faces the dilemma of whether to keep interest rates on hold or to change them by lowering interest rates.

**Notes:**

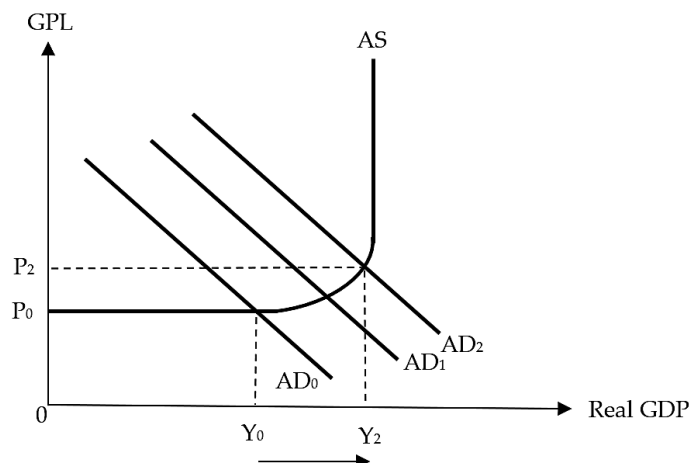
- To determine whether the change in interest rates refer to an increase or decrease, students can use the following information to decide the direction of the change:
  - While inflation rates remain high – it is "more than three times the BoE's 2% target" – it has fallen due to active efforts by the BoE which increased interest rates for "14 successive times", and the headline CPI figure has hit the 2% target in June 2024. This suggests that inflation is less of an issue compared to the sluggish growth of the UK economy.
  - Moreover, the question stem of part (d) quoted that BoE is considering lowering interest rates.

**Body:**

**Factor 1: Benefit of lowering interest rates**

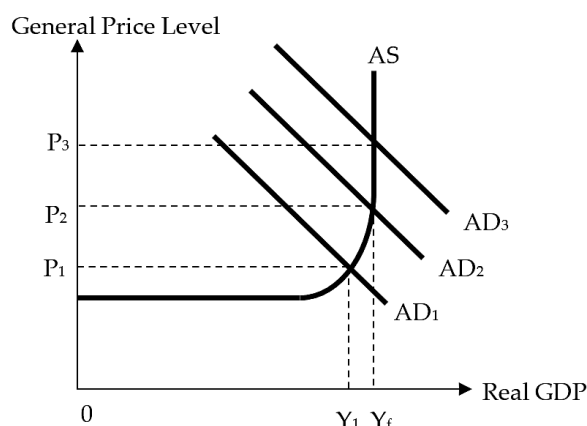
- **One factor that the BoE should consider in deciding whether to lower interest rates is the benefits in terms of increased economic growth.**
- When interest rates are lowered, this reduces the cost of borrowing credit and lowers the returns to savings.
  - Households will be less incentivised to save, but more encouraged to borrow to purchase big-ticket items, hence increasing their consumption expenditure (C).
  - Likewise, firms will be more incentivised to borrow due to higher expected profitability and this increases investment expenditure (I).
  - Together, the increase in C and I would increase AD from  $AD_0$  to  $AD_1$ .
- Given the low growth, there is likely spare capacity, and the increase in AD would trigger the multiplier effect to bring about successive increases in income-induced consumption, causing a larger increase in AD from  $AD_1$  to  $AD_2$ .

- This is because as AD rises, firms experience an unplanned fall in inventories which will signal to them to step up production and demand for more factors to produce more output.
- The result is a multiplied increase in the equilibrium level of real output from  $Y_0$  to  $Y_2$ , indicating actual economic growth. This will help to address the challenge of low growth rates.



### **Factor 2: Costs/ unintended consequence of lowering interest rates**

- **Another factor that the BoE should consider in deciding whether to lower interest rates is the costs in terms of worsening demand-pull inflation and lower material SOL.**
- Demand-pull inflation refers to rising prices caused by rising AD near or at the full employment level of national output.
- As seen in the below figure, when lowering the interest rates causes AD to increase continually from  $AD_1$  to  $AD_2$ , the GPL rises more steeply from  $P_1$  to  $P_2$ .
  - When real output level increases to  $Y_f$  where there are no more spare resources, any further increase in AD from  $AD_2$  to  $AD_3$  will not cause further increases in real output.
- At full employment  $Y_f$ , firms start competing for resources with one another, and this will cause the bidding up of factor prices.
  - The higher unit cost of production incurred by firms are then passed on to households in the form of higher prices of goods and services, resulting in demand-pull inflation, where the GPL escalates to  $P_3$ .



- With inflation rates being high in the UK economy already, further increases in the GPL would further erode households' purchasing power and reduce their ability to consume, decreasing their material living standards.
  - Furthermore, high inflation makes it difficult for firms to predict their future costs, expected revenues and hence profits. Due to uncertainty regarding future profitability, firms may be

less willing to take the risks associated with any investment projects, reducing their investment expenditure.

- This could potentially lead to a fall in AD, and with the reverse multiplier effect, lead to a multiplied fall in real output, dampening the initial increase in actual economic growth from the lower interest rates.

- **(Optional) For added scope: In addition, the BoE may consider constraints when making its decision to lower interest rates.**
- Given the gloomy economic outlook of the UK economy where there are “concerns over stagflation” (Extract 6), there is likely interest insensitivity.
  - This would cause consumers and firms to be less responsive to changes in interest rates. As such, even when the BoE lowers interest rate, the rise in C and I may be limited, leading to a limited impact on the increase in AD and hence actual economic growth.

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

- **[Stand]** Between benefits and costs, costs is likely a more important factor that the BoE should consider when deciding whether to lower interest rates.
  - **[Magnitude]** This is because the costs incurred – higher inflation rates and a worsening of the growth rates – would undermine the benefits and worsen the two challenges that the UK economy is facing and seeks to address in the first place.

#### Mark scheme

Level	Knowledge, Application/Understanding, and Analysis	Marks
L2	A well-developed explanation that has <ul style="list-style-type: none"> <li>• <b>good scope and balance</b> – explains both the benefits and costs of lowering its interest rates in addressing the slow growth and inflationary pressures; and</li> <li>• <b>good rigour</b> – utilises appropriate AD/AS analysis to clearly explain the workings of interest rate monetary policy, supporting the analysis with accurate and well-explained diagram(s) where relevant; and</li> <li>• <b>good application</b> to context of the UK economy and good use of case material from Extract 7 to support analysis.</li> </ul>	4 – 6
L1	For an underdeveloped answer that <ul style="list-style-type: none"> <li>• <b>lacks scope and balance</b> – only explains the benefits or costs associated with lowering interest rates; and/or</li> <li>• <b>lacks rigour</b> – there are gaps in using AD/AS analysis to explain the workings of the interest rate monetary policy, or answer does not have any proper framework of analysis; and/or</li> <li>• <b>lacks application</b> of the case materials or mainly lifts evidence from extracts without additional economic analysis.</li> </ul>	1 – 3
<b>Plus up to 2 marks for Evaluation</b>		
	<ul style="list-style-type: none"> <li>• For a well-reasoned judgement on the relative importance of the factors that the Bank of England considers when deciding whether to lower its interest rates.</li> <li>• For max E marks, a logical weighing of both factors based on a sound criterion should be displayed, followed by a summative conclusion [stand] that addresses the question.</li> </ul>	1-2

<b>(e)</b>	<b>Assess whether the Regional Comprehensive Economic Partnership (RCEP) would likely be of overall benefit to the Asian economies.</b>	<b>[10]</b>
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### Question Interpretation

<b>Command word/phrase</b>	<i>Assess whether... be of overall benefit...</i>	This a consequence question that requires a balanced analysis of the benefits and costs of RECP before weighing both sides to make a judgement on whether the RCEP will ultimately benefit the Asian economies.
<b>Content</b>	<i>RCEP</i>  <i>Benefit to the Asian economies</i>	The RCEP is a free trade agreement (FTA) among 15 Asia-Pacific nations that aims to facilitate greater trade and investment flows across member countries.  Outcome is on the macroeconomic goals of member countries in terms of economic growth, price stability, full employment, and balance of trade.
<b>Context</b>	<i>Asian economies.</i>	Apply analysis to the Asian member countries in Extracts 8 and 9.

*Candidates are required to explain how the signing of RCEP, a FTA, would benefit the member countries in terms of the attainment of their macroeconomic goals, but also bring about negative consequences / costs. The evaluation requires an overall judgement on whether member counties would eventually benefit from the RCEP.*

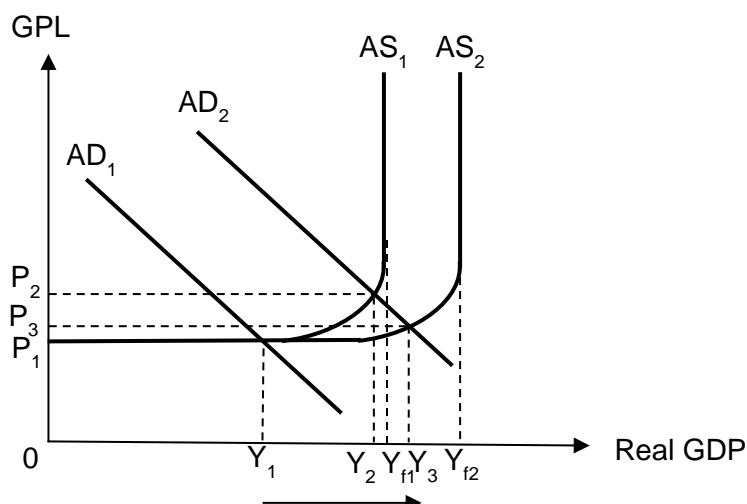
### **Introduction**

- **[Set context and outline approach]** The RCEP is a free trade agreement (FTA) among 15 Asia-Pacific nations. It aims to “open up trade in goods and services and promote investments” (Extract 8) and can bring about both benefits and costs to Asian economies, which will be discussed.

### **Body:**

- **KA1 [Thesis]: The RCEP may benefit the Asian economies by increasing economic growth, reducing demand-deficient unemployment and improving member countries' balance of trade (BOT).**
- The RCEP lowers trade barriers and allow member countries access to larger world markets for its exports, especially benefitting countries with small domestic markets like Singapore.
  - This could lead to an increase in the demand for exports increase, which would increase exports prices and quantities, hence leading to a rise in export revenue.
- Also, as the RCEP has the potential to “eliminate tariffs on over 90 percent of goods traded among member countries (Extract 8), this will reduce the price of exports for member countries, enhancing their export price competitiveness.
  - Assuming that the price elasticity of demand (PED) for exports is more than one because of the availability of close substitutes in the world market, the fall in export prices will lead to a more than proportionate increase in quantity demanded to bring about an increase in export revenue.
  - This is because a rise in revenue from selling more units of exports outweighs the fall in revenue from selling the exports at a lower price.
  - Assuming import expenditure is unchanged, this increase in X will increase (X-M).  
Member countries will see an improvement in their trade balance.
- The RCEP can also promote greater investment expenditure (I) by further promoting FDI through the greater market access, and “reduce costs and time for companies”, allowing them to enjoy lower unit costs of production, increasing their expected profitability.

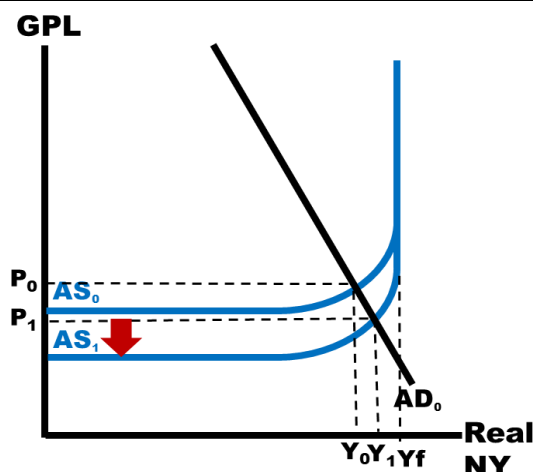
- This explains why the bloc is “also the fastest growing and most promising investment region in the world.” (Extract 8).
- This increase in  $X$  and  $I$  will increase  $AD$ . Assuming spare capacity, the increase in  $X$  and  $I$  will trigger multiple rounds of income induced consumption, leading to a greater increase in  $AD$  from  $AD_1$  to  $AD_2$ , resulting in a multiplied increase in real GDP from  $Y_1$  to  $Y_2$ , attaining actual economic growth.
- As real output increases, firms will increase the derived demand for labour, hence leading to a fall in demand-deficient unemployment from  $(Y_{f1} - Y_1)$  to  $(Y_{f1} - Y_2)$ .



- At the same time, the increase in  $I$  also means an increase in the quantity of capital in the economy. Productive capacity increases, leading to an increase in the (LR)AS from  $AS_1$  to  $AS_2$ . Potential growth is attained with the increase in full employment output level from  $Y_{f1}$  to  $Y_{f2}$ .
- The combined impact is sustained growth, where the real GDP increases from  $Y_1$  to  $Y_3$ , and GPL increases slightly from  $P_1$  to  $P_3$ .

**Optional: In addition, the RCEP can benefit the Asian economies by lowering cost-push inflation.**

- The RCEP reduce barriers to importing factors of production by removing import tariffs, leading to lower factor prices which will decrease firms' costs of production.
- The access to larger and growing markets allows firms to expand and enjoy cost-savings in the form of lower average costs when they reap internal economies of scale, lowering the unit cost of production.
  - (Optional) It also simplifies trade by allowing firms to export their products within the bloc without meeting separate requirements for each country. This reduces the administrative costs and increases efficiency in production, lowering the costs of production.
- The effect is an increase in AS because producers are now more willing and able to supply goods at every price level. This will be illustrated as a downward shift of the AS curve from  $AS_0$  to  $AS_1$ .
- At the current GPL  $P_0$ , there is a surplus of goods and services, causing a downward pressure on the GPL to fall from  $P_0$  to  $P_1$ , hence reducing cost-push inflation.



- **KA2 [Anti-thesis]:** However, the RCEP also brings about costs to the Asian economies by preventing them from attaining sustainable growth and lead to falling non-material SOL.
- As the RCEP “lacks rules to protect the environment and workers,” (Extract 9), the omissions of regulations to protect the environment could lead to increased carbon emissions and pollution from the increased industrial activity due to higher trade activities.
  - These could result in negative externalities where the residents living near the factories suffer higher risks of respiratory diseases, incurring higher healthcare costs.
  - The faster rate of environmental degradation and depletion of natural resources, especially if member countries prioritise economic growth over environmental protection which may be costly would result in non-sustainable growth.
- The increased FDI and increase in production levels from the RCEP would increase the derived demand for labour, especially cheap labour to manage firms’ cost of production. Without standards to safeguard labour rights, there could be increased child labour and issues of violation of human rights, which are historically prevalent in member countries like China and Myanmar.
- In more severe cases, the higher risks of injuries and potential loss of lives could result, worsening the non-material SOL of residents as the quality of life falls.

**Optional: Additional costs of RCEP could include the loss of comparative advantage and higher structural unemployment.**

- *With the reduction of tariffs and other trade barriers, domestic industries in some countries may face intensified competition from more efficient and lower-cost producers within the bloc erodes the comparative advantage in less competitive sectors.*
- *The resulting influx of cheaper imports could lead to firms in the vulnerable sectors shutting down and leaving the industry, causing loss of jobs.*
- *There will be a skills mismatch between the retrenched workers and the jobs available in the expanding industry. If the displaced workers do not have the skills to take on jobs in the growth sectors due to occupational immobility, this could lead to structural unemployment.*
  - *This is evidenced by India’s decision to withdraw from the RCEP due to concerns over their inability to product their local industries against Chinese competition (Extract 9).*

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

- **[Stand]** The RCEP is likely be of overall benefit to the Asian economies through enhancing trade, strengthening supply chains, and boosting economic growth and job creation. The integration of diverse economies within the bloc promises significant opportunities for market access and investment.

- However, the extent to which the RCEP is beneficial depends on several factors.
- **[Time]** While the immediate economic benefits are clear, the long-term sustainability and equitable distribution of these gains will depend on how member countries address the associated social and environmental challenges.
  - The more developed countries like Singapore and Japan are better able to implement policies to support vulnerable industries, labor rights, and environmental sustainability more effectively than less developed countries like Cambodia, Laos, and Myanmar due to their superior financial resources, robust institutions, advanced technology, skilled workforce, strong legal frameworks, political stability, global integration, and comprehensive social safety nets. These advantages allow them to maximize the benefits of the RCEP, contributing to sustainable and inclusive economic growth.
- **[Situation]** The extent to which RCEP is beneficial also depends on the level of openness of the economy to free trade prior to RCEP.
  - Large and less open economies such as Japan, which are more reliant on domestic consumption and investment as engines of growth, are likely to benefit more from removal of tariffs through the RCEP than smaller and more trade dependent economies such as Singapore.
  - The latter may already experience relatively low trade barriers as they would have existing FTAs in place with other countries.
- **[Situation]** Developed economies such as Singapore, Japan and South Korea are better placed to benefit more from the RCEP due to their superior infrastructure and technological capabilities, giving them a competitive edge and allowing them to efficiently expand production, innovate, and integrate into new markets.
  - Economies that are less developed such as Cambodia or Indonesia on the other hand are constrained by limited infrastructure and technology, as well as financial resources to upgrade and innovate, causing them to lag behind in export competitiveness and hence limiting their potential benefits from the trade agreement.

#### Mark scheme

Level	Knowledge, Application/Understanding, and Analysis	Marks
L2	For a well-developed answer that has <ul style="list-style-type: none"> <li>• <b>good scope and balance</b> – analyses both positive and negative impacts of the RCEP on member Asian economies; and</li> <li>• <b>good rigour</b> – clearly explains the impacts using appropriate economic analysis (e.g. AD/AS analysis), supporting the analysis with accurate and well-labelled diagram(s) where relevant; and</li> <li>• <b>good application</b> – has consistent use of case material and good application to the context.</li> </ul>	4-7
L1	For an undeveloped answer that <ul style="list-style-type: none"> <li>• <b>lacks scope / balance</b> – analyses only the positive OR negative impact of RCEP on the Asian economies; and/or</li> <li>• <b>lacks rigour</b> – there are gaps in using appropriate economic analysis (e.g. AD/AS analysis) to explain the impacts; and/or</li> <li>• <b>lacks application</b> of the case materials.</li> </ul>	1-3
<b>Plus up to 3 marks for Evaluation</b>		
E	<ul style="list-style-type: none"> <li>• For a well-reasoned judgement on the overall impact of RCEP on the Asian economies.</li> <li>• A logical comparison of the overall impact based on a sound criterion should be displayed for max E marks.</li> </ul>	1-3

**Adapted from 2024 NYJC Prelims Paper 2**

Answer **three** questions in total.

**Section A**

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

- 1** Governments are involved in making policy decisions to achieve both microeconomic and macroeconomic objectives. In times of rising prices, governments usually subsidise necessities to make it affordable to the citizens.
  - (a)** With the use of examples, explain what is meant by price elasticity of demand and price elasticity of supply. [10]
  - (b)** Discuss whether governments should only consider the price elasticity concepts when deciding to make necessities affordable. [15]
- 2** In a globalised world, domestic firms can both benefit from and lose out due to increased competition. To protect domestic firms, the government imposes tariff on some imported goods.
  - (a)** Explain how the openness of an economy to trade can threaten domestic firms' survival in the market. [10]
  - (b)** Discuss whether a tariff is the best way for the government to protect domestic firms from shutting down. [15]
- 3** To make transport greener, Singapore will accelerate the adoption of electric vehicles. During Budget 2020, it was announced that the country would gradually phase out internal combustion engine vehicles by 2040. Since then, the Government has provided "significant" incentives for electric vehicle adoption.

Source: Channel NewsAsia, 18 February 2022

- (a)** Explain how a rational consumer decides on whether to buy an electric vehicle or not, and how a rational producer of electric vehicles determine their output level. [10]
- (b)** Discuss the extent to which government policies are successful in encouraging more consumers to adopt electric vehicles to maximise social welfare in the electric vehicle market. [15]

**Section B**

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

- 4** The Monetary Authority of Singapore (MAS) has a unique monetary policy framework that focuses on managing the exchange rate rather than interest rates. This approach has implications for the country's macroeconomic objectives.
- (a)** Explain why Singapore chooses exchange rates rather than interest rates as its main tool of monetary policy. [10]
  - (b)** Assess whether the use of monetary policy to achieve low inflation will lead to trade-offs in the Singapore economy. [15]
- 5** **(a)** Explain the link between economic growth, unemployment and income inequality. [10]
- (b)** Discuss whether supply-side policy is the most appropriate policy in achieving inclusive growth in an economy. [15]
- 6** In recent years, the rise of anti-globalisation sentiments has challenged the prevailing consensus on the benefits of global economic integration. With rising trade tensions between major economies, policymakers and citizens alike grapple with the implications of a more insular global economy.
- (a)** Explain why anti-globalisation sentiments have gained momentum in various parts of the world, particularly in developed economies. [10]
  - (b)** In view of the rising anti-globalisation sentiments globally, assess the measures that the Singapore government can adopt to sustain its global competitiveness. [15]

**Adapted from 2024 NYJC Prelims Paper 2 Suggested Answers**

**1 Governments are involved in making policy decisions to achieve both microeconomic and macroeconomic objectives. In times of rising prices, governments usually subsidise necessities to make it affordable to the citizens.**

**(a) With the use of examples, explain what is meant by price elasticity of demand and price elasticity of supply. [10]**

**(b) Discuss whether governments should only consider the price elasticity concepts when deciding to make necessities affordable. [15]**

Part (a) Question Interpretation

<b>Command word/phrase</b>	<i>Explain</i>	To explain the concepts of PED and PES
<b>Content</b>	<i>PED, PES</i>	To explain the sign and magnitude of PED and PES and what they mean, as well as the determinants of PED and PES.
<b>Context</b>	<i>With the use of examples, (no specific context)</i>	To provide examples

*This answer requires an explanation of PED and PES. Students will need to explain the sign and magnitude of PED and PES as well as the determinants of PED and PES.*

**Introduction**

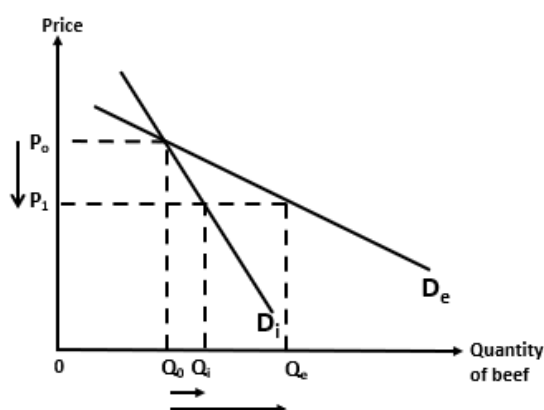
- Price elasticity of demand (PED) and price elasticity of supply (PES) are both elasticity concepts that tells us the extent to which quantity demanded or supplied will change due to a change in price.
- In this essay, we will be looking at the sign, magnitude and factors affecting them..

**Body**

*Explain PED → sign, magnitude and determinants.*

- **Key Argument 1: PED measures the responsiveness of quantity demanded of a good due to a change in its price, ceteris paribus.**
- The formula of PED is percentage change in quantity demanded of a good divided by the percentage change in price of the same good. The PED value has a negative sign for example -4.5 as there is an inverse relationship between price and quantity demanded (due to the law of demand) where an increase in the price of a good would lead to a fall in its quantity demanded and vice versa.
- A PED value of -4.5 means that a 1% fall in price results in a 4.5% increase in quantity demanded, ceteris paribus. The magnitude of the PED value signifies the sensitivity or responsiveness of quantity demanded to a change in the price of a good. Demand for a good is price elastic if the change in price results in a more than proportionate change in quantity demanded. The quantity demanded is regarded as very responsive to price changes and the magnitude of PED lies between 1 and infinity. Graphically, the more price elastic the demand, the gentler the slope of the demand curve as shown in Figure 1 by De.
- On the other hand, demand for a good is price inelastic if a change in price results in a less than proportionate change in quantity demanded. The quantity demanded is regarded as not very responsive to price changes and the magnitude of PED lies between 0 and 1. Graphically, the more price inelastic the demand, the steeper the slope of the demand curve as shown by Di in Figure 1.

- There are several factors that affects the PED of a good or service. One such factor could be the proportion of income. For example, demand for luxury cars is likely to be price elastic as it would likely form a large proportion of consumers' income. Thus, when price falls from  $P_0$  to  $P_1$ , quantity demanded rises more than proportionately from  $Q_0$  to  $Q_e$  as these consumers take the opportunity to consume more of a meat that they typically do not consume more of.
- In contrast, the demand for bicycles could be price inelastic as they may take up a smaller proportion of consumers' income. With that, even when price falls from  $P_0$  to  $P_1$ , quantity demanded rises less than proportionately only from  $Q_0$  to  $Q_i$  since they do not regard it as a need to try other types of meat.



Explain PES → sign, magnitude and determinants

- **Key Argument 2: PES measures the responsiveness of quantity supplied of a good due to a change in the price of the good itself, ceteris paribus.**
- The formula of PES is percentage change in quantity supplied of a good divided by the percentage change in price of the same good. The positive sign of PES reflects the direct relationship between the price and quantity supplied of a good (law of supply). X
- For example,  $PES = +0.5$  means that a 1% rise in price results in a 0.5% increase in quantity supplied, ceteris paribus.
- The magnitude of the PES value signifies the sensitivity or responsiveness of quantity supplied due to a change in the price of a good. Supply of a good is price elastic if a change in price results in a more than proportionate change in quantity supplied. The quantity supplied is regarded as very responsive to price changes and the magnitude of PES lies between 1 and infinity. Graphically, the more price elastic the supply, the gentler the slope of the supply curve as shown in Figure 2 by  $S_e$ .
- Supply of a good is price inelastic if a change in price results in a less than proportionate change in quantity supplied. The quantity supplied is regarded as not very responsive to price changes and the magnitude of PES lies between 0 and 1. Graphically, the more price inelastic the supply, the steeper the slope of the supply curve as shown by  $S_i$ .
- There are factors that affects the PES of a good or service. For example, supply of agricultural product like wheat is price inelastic due to its long gestation period. Even when farmers plant more wheat now due to the rise in price from  $P_0$  to  $P_1$ , quantity supplied can only increase less than proportionately from  $Q_0$  to  $Q_i$  since it cannot be harvested immediately, and farmers have to wait for the next season for wheat to be ripe.
- On the other hand, supply for electronic products such as tablets is price elastic since there is mobility of factors of production such as semiconductors that are used in the production of laptops and smartphones as well as labour. Labour that is involved in the assembly of laptops and smartphones can also assemble tablets. Thus, when price rises from  $P_0$  to  $P_1$ , quantity supplied rises more than proportionately from  $Q_0$  to  $Q_e$ .

**Conclusion (optional – link to part b)**

- Therefore, governments can make use of PED and PES before deciding on policies since it tells them about the extent of quantity changing when price changes.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li><b>good scope</b> and rigour– explains the sign and magnitude of PED and PES as well as the determinants of PED and PES; and</li> <li><b>good use of examples</b> to explain why there will be different PED and PES values for different goods.</li> </ul>	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> <li><b>lacks scope and rigour</b> – explains only the sign, magnitude and determinants of only PED or PES OR explains only the sign/magnitude/determinants of both PED and PES; and/or</li> <li><b>lacks example</b> – highly descriptive and theoretical answer without application</li> </ul>	5 – 7
L1	For an undeveloped answer that: <ul style="list-style-type: none"> <li>is descriptive, lacking in application of economic theory; and/or</li> <li>contains serious and pervasive conceptual errors; and/or</li> <li>is largely irrelevant.</li> </ul>	1 – 4

- 1 Governments are involved in making policy decisions to achieve both microeconomic and macroeconomic objectives. In times of rising prices, governments usually subsidise necessities to make it affordable to the citizens.

- (b) Discuss whether governments should only consider the price elasticity concepts when deciding to make necessities affordable. [15]

Part b Question Interpretation

<b>Command word/phrase</b>	<i>Discuss whether</i>	To examine and present the different aspects of a problem or subject, and give a judgement on whether the government should only consider price elasticity concepts
<b>Content</b>	<i>Government... consider Price elasticity concepts Make necessities affordable</i>	Governments' decision-making process – Factors governments consider when deciding on policies to implement, e.g. objectives, cost-benefit analysis, unintended consequences, etc. Government intervention in terms of microeconomic policies to make necessities affordable, e.g. imposition of price ceiling, provision of subsidies. Application of PED, PES to assess effectiveness of policies
<b>Context</b>	<i>Necessities</i>	Include examples

A relevant response requires students to consider the different factors a government should consider when deciding to make necessities affordable before arriving at a well-reasoned conclusion.

### Introduction

- One of governments' microeconomic objectives is to fulfil equity in the society. Hence, governments will make necessities affordable through policies such as subsidising necessities or imposing a price ceiling on necessities. Through the process of deciding the policies to implement in order to effectively achieve the objective, governments consider price elasticity of demand and supply amongst other factors such as opportunity costs, unintended consequences, etc.

### Body

- KA1: Governments should consider price elasticity concepts when deciding to make necessities affordable.**
- A subsidy is a payment to the producers by the government. The effect of a subsidy is to lower the cost of production, increasing profitability and thereby shifting the supply curve downwards by the amount of the subsidy. Consider the situation where subsidies are implemented in the market for rice.
- Given that rice is a staple in Asian countries, the degree of necessity is high, hence demand is price inelastic, reflected by the demand curve  $D_i$ . With reference to the Figure 1 above, for a same given amount of per unit subsidy, supply increases from  $S_1$  to  $S_2$ , ceteris paribus, at the original price  $P$  there is a surplus, resulting in a downward pressure on price, price fall by a greater extent from  $P$  to  $P_i$  when demand is price inelastic as compared to price falling to only  $P_e$  when demand is price elastic.
- Hence, the more price inelastic the demand for the good, the greater the fall in price, the greater the affordability for the same given amount of per unit subsidy on the necessity. As such, governments' provision of a small amount of subsidy is effective enough to lower the price sufficiently for consumers.
- As such, price elasticity values should be considered as it can inform governments' on the extent of benefits of the policy (the degree to which price will fall and hence improve affordability. It will also inform governments' provision of a small amount of subsidy is effective enough to lower the price for consumers, hence may lower the governments' opportunity costs of providing subsidies for necessities such as rice.

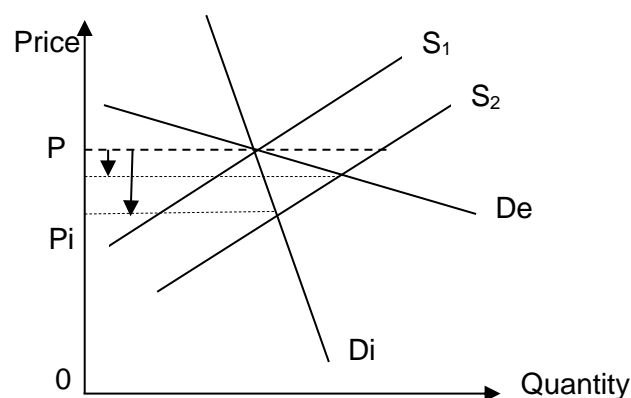
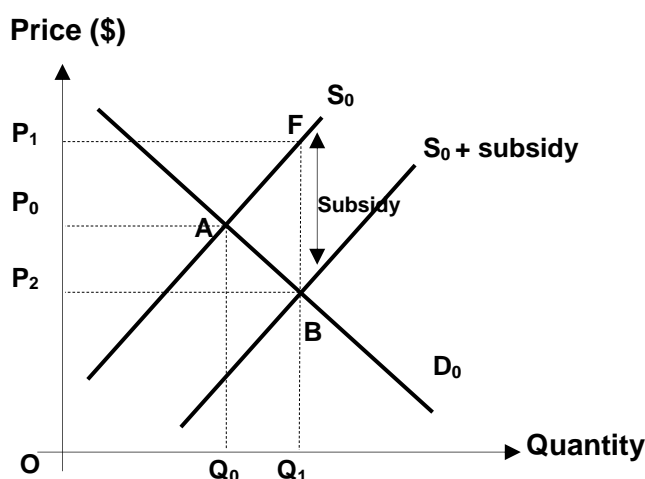


Figure 5

- **KA2: Governments should consider other factors when deciding to make necessities affordable.**

### Unintended consequences

- Government intervention in a free market result in the market being allocative inefficient.
- With reference to Figure 3 below, of the total amount subsidised of Area P1P2BF in order to make the good affordable, Area P1FAP0 goes to producers as an increase in producers' surplus, Area P0ABP2 goes to consumers as an increase in consumers' surplus, Area AFB is the welfare loss to the society as this is part of government spending on subsidies which nobody gains. Hence, the unintended consequence of imposing an indirect subsidy is deadweight loss incurred by the society. There is a trade-off between efficiency and equity.



**Figure 3: Imposition of subsidy on society's welfare**

### Opportunity costs

- When governments decide to subsidise a necessity such as rice in order to make it affordable for all, less funds will be available for other areas like spending on building new infrastructures such as schools, hospitals, new R&D facilities, etc to promote other macroeconomic objectives such as growth and employment, hence may result in a fall in living standards. Opportunity cost, which is the next best alternative forgone, is incurred.

### Budget constraints

- Not all governments draw in budget surpluses annually. Budget deficits experienced by Japan for example, will put the country in a high budget constraint position. Careful assessment of the use of limited financial funding and the possible avenues of getting monetary resources (e.g. through incurring internal or external debt, etc) is required in order to prevent future economic problems such as recession and unemployment when fiscal bandwidth narrows further.

○ *Note: Consider at least the unintended consequences regarding allocative inefficiency.*

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

- **[Stand + Assumption]** Governments should not only consider the price elasticity concepts when deciding to make necessities affordable. This is due to potential issues regarding the accuracy of the PED and PES data.
  - For example, many of the elasticity values obtained are historical estimates of consumer behaviour and a lot may have changed over the years. On top of that, there may be a time lag between the collation of the data on PED and PES and the current time period which results in changes in market conditions.

- There may also be cases whereby the data is only applicable to a certain group of people, especially when the sample sizes of the market surveys to determine PED and PES are small. Thus, the results may not be reliable as they may not be reflective of the actual markets for the necessities.
- **[Situation]** More importantly, governments would need to consider other factors in their decision making as well. For example, they are also concerned about the goal of efficiency. There is therefore a need to consider unintended consequences in order to mitigate any other potential problems which may arise when solving the existing problem.

### Mark Scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li>● <b>good scope and balance</b> – answer explains two factors that the government should consider when deciding to make necessities affordable.</li> <li>● <b>good rigour</b> – detailed and accurate explanation of economic concepts with accurately labelled and well-explained diagram</li> <li>● <b>good application</b> – supports analysis with examples.</li> </ul>	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> <li>● <b>lacks scope</b> and balance – only explains one factor that the government should consider when deciding to make necessities affordable.</li> <li>● <b>lacks rigour</b> – incomplete explanation with gaps in analysis; and/or</li> <li>● <b>lacks balance</b> – only explains the workings OR limitations of strategies; and/or</li> <li>● <b>lacks application</b> – little to no use of examples</li> </ul>	5 – 7
L1	For an undeveloped answer that: <ul style="list-style-type: none"> <li>● is descriptive, lacking in application of economic theory; and/or</li> <li>● contains serious and pervasive conceptual errors; and/or</li> <li>● is largely irrelevant.</li> </ul>	1 – 4
Level	Evaluation/Synthesis	Marks
E3	Two well-explained evaluative judgements that are supported by arguments presented in the answer and linked to the context of the question PLUS a summative conclusion.	5
E2	Two evaluative judgements, one of which is explained	3 – 4
E1	Evaluative statements that are unexplained or not supported by the arguments presented in the answer OR a judgement that is not linked to the context of the question; OR One explained evaluative judgement.	1 – 2

**2 In a globalised world, domestic firms can benefit and lose with increased competition. To protect domestic firms, government impose tariff on some imported goods.**

- (a) **Explain how openness of an economy to trade can threaten domestic firms' survival in the market.** [10]
- (b) **Discuss whether tariff is the best way for government to protect domestic firms from shutting down.** [15]

Part a Question Interpretation

<b>Command word/phrase</b>	<i>Explain how</i>	To utilise economic reasons and reasoning to explain how openness of an economy to trade can threaten domestic firms' survival in the market.
<b>Content</b>	<i>Openness of an economy to trade</i>	Openness to trade: to consider the impact on revenue and cost and hence profits
	<i>Survival in the market</i>	Shutdown condition in the LR.
<b>Context</b>	<i>Not specified</i>	To provide own examples where relevant

*A relevant answer requires the students to consider how openness to trade can affect the revenue and costs of domestic firms and how it affects profitability.*

**Introduction**

- When an economy is open to trade, that involves the movement of goods and services into and out of the country in terms of imports and exports. The more open the country is to trade, the greater the volume of exports and imports.
- Local firms may feel the threat of survival in the market as that increased competition with the participation of foreign firms in the market may erode its profits. It may also put them at greater risk of changes in costs due to greater reliance on imported factor inputs. All these will have implications on the profitability of a firm.

**Body**

*Explain how openness of an economy to trade can affect domestic firms' revenue.*

- Key Argument 1: An economy who is open to trade can lead to fall in revenue for domestic firms, which will impact their survivability.**
- With foreign firms entering the market given the openness to trade, there will be an increased in competition in the market
  - With reference to Figure 1 below, AR and MR of the firm will fall and become more price elastic as there are more substitutes available, shifting from AR0 and MR0 to AR1 and MR1 respectively, assuming cost conditions remain unchanged.
  - Given that the firm is profit-maximizing, the firm now produce at Q1 where MR1=MC and charge a price P1.
  - Consequently, the firm now earns a subnormal profit of only area C1CDP2 as compared to initial supernormal profit of area P1ABC1.
- Since the firm is now earning a subnormal profit where  $AC > AR$ , this threatens their survival the long run as they would likely shut down and exit the industry.

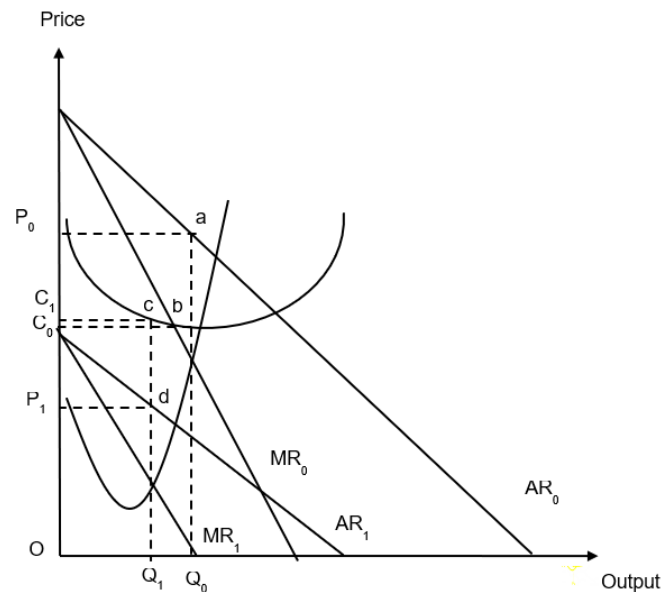


Figure 1

Explain how openness of an economy to trade can affect domestic firms' costs.

- **Key Argument 2: An economy who is open to trade can lead to a rise in cost for domestic firms, which will impact their survivability.**
- Due to the openness of an economy, there may be greater dependence on imported factor inputs. Firms are now more susceptible to external situations such as global supply chain disruptions which may lead to a rise in price of raw materials such as oil.
  - Since oil is needed in the operation of a firm such as machineries as well as transportation, it will raise their MC and AC.
  - With reference to the diagram below, AC and MC of the firm will rise shifting to AC2 and MC2 from AC1 and MC1 respectively, assuming revenue conditions remain unchanged. Given that the firm is profit-maximizing, the firm now produce at Q0 where  $MR=MC2$  and charge a price P2.
  - Consequently, the firm now earns a subnormal profit of area C2abP2 as compared to the normal previously.
- Since  $AC > AR$ , there is now a threat to their survival in the long run as they may be forced to shut down and exit the industry.

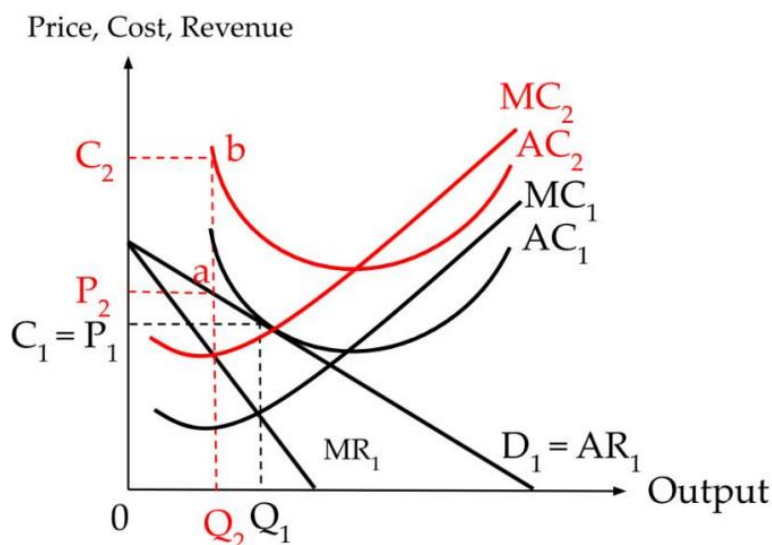


Figure 6

**(Optional) Conclusion**

- Openness of the economy can hence lead to negative impact on revenue and cost which may threaten the survival of firms.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li>• <b>good scope</b> – explain how the revenue and costs of domestic firms and hence profitability would be affected; and</li> <li>• <b>good rigour</b> – uses relevant economic analysis with well-labelled and accurate firm diagrams; and</li> </ul>	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> <li>• <b>lacks scope</b> – only explains the impact on revenue OR costs; and/or</li> <li>• <b>lacks rigour</b> – descriptive answer with gaps in explanation</li> </ul>	5 – 7
L1	For an undeveloped answer that: <ul style="list-style-type: none"> <li>• is descriptive, lacking in application of economic theory; and/or</li> <li>• contains serious and pervasive conceptual errors; and/or</li> <li>• is largely irrelevant.</li> </ul>	1 – 4

**2 In a globalised world, domestic firms can benefit and lose with increased competition. To protect domestic firms, government impose tariff on some imported goods.**

- (b) Discuss whether tariff is the best way for government to protect domestic firms from shutting down. [15]**

Part (b) Question Interpretation

<b>Command word/phrase</b>	<i>Discuss whether ... best way..</i>	Consider different possible measures before arriving at a well-reasoned conclusion.
<b>Content</b>	<i>Tariff</i>	Explain how a tariff would affect domestic firms
	<i>Protect domestic firms from shutting down</i>	Consider the long-run shut-down condition
<b>Context</b>	<i>No fixed context</i>	Provide own examples

*A relevant answer requires candidates to analyse the effects a tariff on domestic firms. Candidates should also consider the limitations of the policies before bringing in another policy. The evaluation entails a reasoned judgement on whether tariffs would be the best way to protect domestic firms from shutting down.*

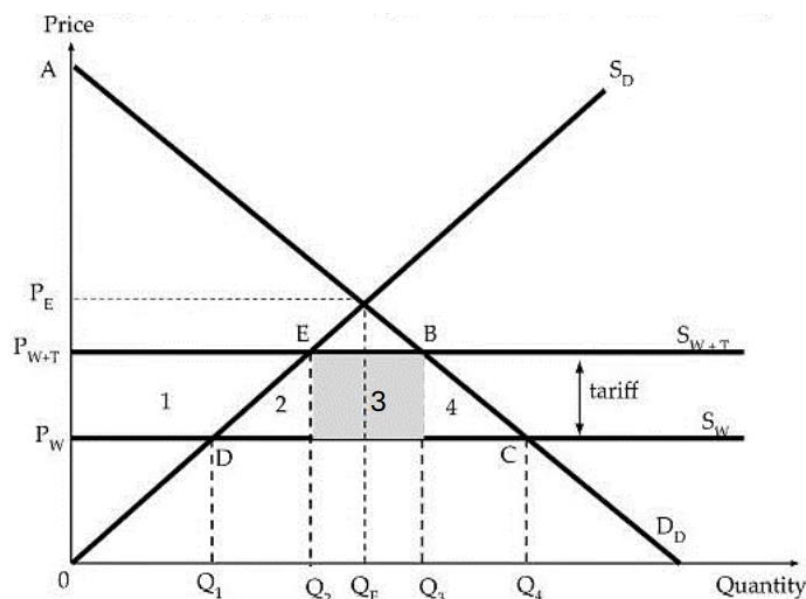
**Introduction**

- When domestic firms faced threats from foreign competition, government may step in to prevent local firms from shutting down (which will happen in the LR when  $AR < AC$ ) primarily to protect local employment.
- One possible way to do this would be via tariffs or through the provision of subsidies to domestic firms.

**Body**

*Explain how tariff can protect domestic firms shutting down*

- **Thesis: The implementation of a tariff can increase revenue for domestic firms and prevent them from shutting down.**
- When the country is open to foreign trade, assuming that this country is too small to affect world markets and prices (i.e. price taker), this country faces a perfectly price elastic world supply for steel  $S_W$ . That is, the country can import as much as it wants at the prevailing world price of  $P_W$ .
- When the government levies a specific import tariff on steel imports, it raises the world supply curve from  $S_W$  to  $S_{W+T}$  by the amount of the import tariff, raising the price of imports correspondingly from  $P_W$  to  $P_{W+T}$ .
- At  $P_{W+T}$ , domestic production increases from  $OQ_1$  to  $OQ_2$ .



**Figure 7**

- The rise in price of imported goods would lead to consumers switching away from imported goods and substituting them with domestically produced goods and services. This would lead to a rise in MR and AR for domestic firms from  $MR_0$  and  $AR_0$  to  $MR_1$  and  $AR_1$  respectively.
- The profit-maximising output for firms will now be at  $Q_1$  where  $MR_1 = MC$  and they will charge a price of  $P_1$ .
- Ceteris paribus, this will lead to a rise in profits as seen from normal profits to supernormal profits  $P_1 - AC_1$
- This helps to ensure the survival of the domestic firms by ensuring that  $AR$  will be greater than  $AC$ .

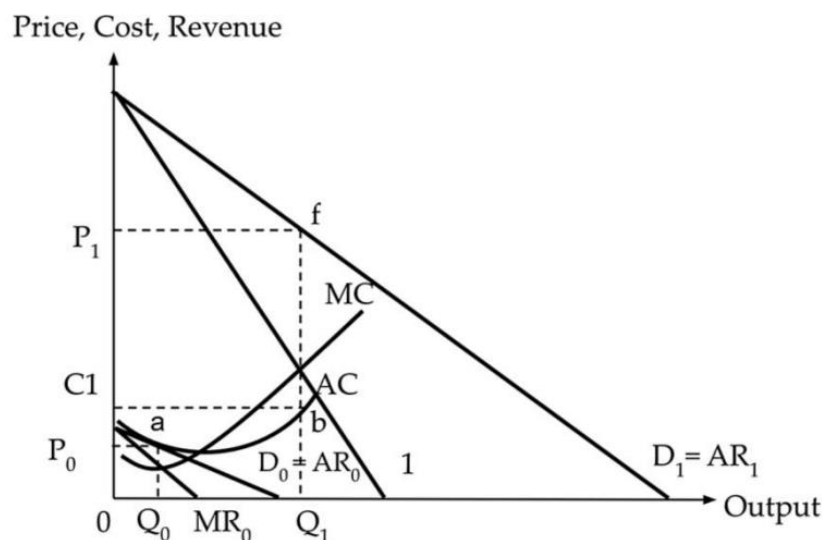


Figure 8

- However, protectionism would decrease the competition from abroad and may cause domestic firms to become complacent, so they may not aim to produce at the lowest possible average cost in order to maximise profits and hence do not remain price competitive and hence are not productive efficient. This rise in costs may mean that firms may perhaps be more prone to shutting down.

*Explain how subsidising domestic firms' cost of production can protect domestic firms from shutting down*

- **KA2: The provision of a subsidy can reduce costs for domestic firms and prevent them from shutting down.**
- When government subsidises the domestic firms' cost of production, that lowers the firms' marginal and average costs, holding revenue conditions unchanged.
- As this means a fall in the variable costs, their AC and MC will fall.
- From the diagram below, the AC and MC curves will shift downwards from AC1 to AC2 and MC1 to MC2 respectively.
- This will cause the profit-maximising output (where  $MR=MC_2$ ) for the firm to rise from  $Q_1$  to  $Q_2$  and the profit-maximising price to fall from  $P_1$  to  $P_2$ .
- The firm will benefit from a rise in its supernormal profits from area  $P_1abC_1$  to area  $P_2efC_2$ .
- As this will reduce the AC of the firm, it will help to ensure the survival of firms and prevent them from shutting down.

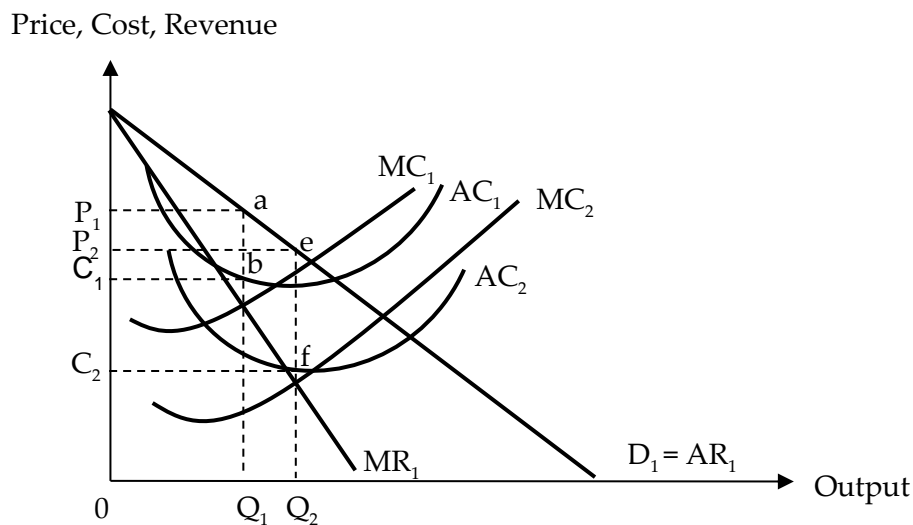


Figure 9

However, providing subsidies for firms is costly and would lead to a strain on government budget. There would also be opportunity cost incurred in the form of welfare gained from spending on another area such as education.

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

- **[Stand + Situation]** Whether implementation of tariff would be the best way to protect domestic firms from shutting down would depend on the root cause of the issue. If this is due to the infant industry argument to allow for domestic firms to grow and develop, it would be justifiable. Alternatively, if the reason for domestic firms shutting is due to dumping by foreign competitors, a tariff would also address the root cause. However, if the root cause is due to a loss of comparative advantage, tariff would not be the best way to address the issue. It would be more important for the government to provide subsidies and encourage R&D among the domestic firms to transit to a different growth area.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li>• <b>good balance and scope</b> – explains both the workings and limitations of a tariff and one other policy which will affect the cost of firms; and</li> <li>• <b>good rigour</b> – uses relevant economic tools of analysis (tariffs and firms analysis) with reference to well-labelled diagram; and</li> </ul>	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> <li>• <b>lacks balance and scope</b> – only explains the working and limitations of one policy OR only explains the working or limitations of two policies OR chooses policies which only affect revenue or costs alone; and/or</li> <li>• <b>lacks rigour</b> – descriptive answer with some gaps in explanation</li> </ul>	5 – 7
L1	For an undeveloped answer that: <ul style="list-style-type: none"> <li>• is descriptive, lacking in application of economic theory; and/or</li> <li>• contains serious and pervasive conceptual errors; and/or</li> <li>• is largely irrelevant.</li> </ul>	1 – 4
Level	Evaluation/Synthesis	Marks
E3	Two well-explained evaluative judgements that are supported by arguments presented in the answer and linked to the context of the question PLUS a summative conclusion.	5
E2	Two evaluative judgements, one of which is explained.	3 – 4
E1	Evaluative statements that are unexplained or not supported by the arguments presented in the answer OR a judgement that is not linked to the context of the question; OR One explained evaluative judgement..	1 – 2

- 3 To make transport greener, Singapore will accelerate the adoption of electric vehicles. During Budget 2020, it was announced that the country would gradually phase out internal combustion engine vehicles by 2040. Since then, the Government has provided “significant” incentives for electric vehicle adoption.

Source: Channel NewsAsia, 18 February 2022

- (a) Explain how a rational consumer decides on whether to buy an electric vehicle or not, and how a rational producer of electric vehicles determine their output level. [10]
- (b) Discuss the extent to which government policies are successful in encouraging more consumers to adopt electric vehicles to maximise social welfare in the electric vehicle market. [15]

#### Part (a) Question Interpretation

<b>Command word/phrase</b>	<i>Explain how</i>	To utilise economic reasons and reasoning to demonstrate the process by which rational consumers and producers make decisions about consumption/production of electric vehicles.
<b>Content</b>	<i>Rational consumers, rational producer, decide/determine output level</i>	Through marginalist principle → $MPB = MPC$
<b>Context</b>	<i>Electric vehicles</i>	Apply analysis to the context of electric vehicles

A relevant answer requires candidates to explain using the marginalist principle, how rational consumers and producers would make decisions about the consumption and production of electric vehicles.

#### Introduction

- In making rational decisions, economic agents should be focused on comparing the marginal cost and benefit of the decision, which is also known as the marginalist principle.
- To know how a rational consumer and producer decide on their consumption and output level respectively, marginalist principle needs to be applied.

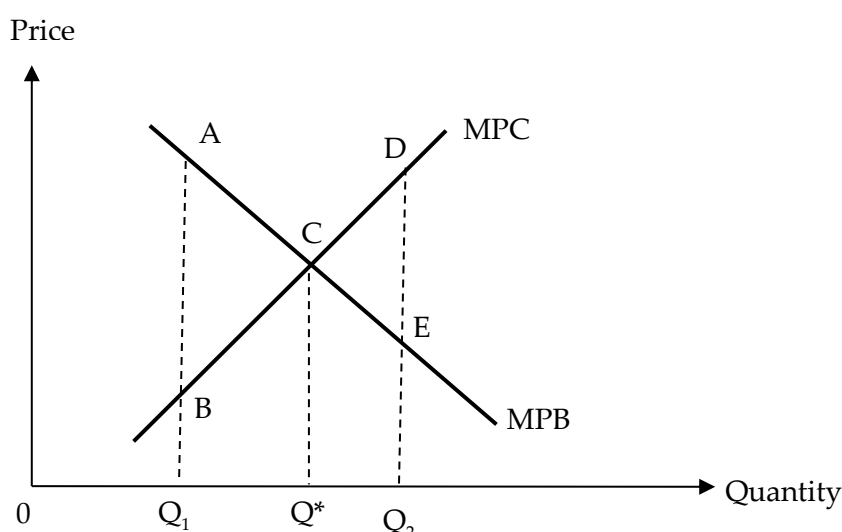
#### Body

Explain how a rational consumer would make decision regarding the consumption of electric vehicles

- Key Argument 1: To maximise utility, a rational consumer would weigh the marginal private benefit of consuming electric vehicles against the marginal private cost when deciding whether to buy an electric vehicle.**
  - Marginal private benefit (MPB) in the context of consumers refers to the additional benefit to consumers from the consumption of an additional unit of a good or service.
    - Example of MPB of consuming an electric vehicle could be the smoother driving experience due to the absence of an internal combustion engine or the convenience of owning an additional electric vehicle.
    - The law of diminishing marginal utility states that as more units of the good is consumed, the additional satisfaction from consuming an additional unit falls.
    - This results in the MPB curve being downward sloping.

- Marginal private cost (MPC) in the context of consumers refers to the additional cost to consumers from the consumption of an additional unit of a good or service.
  - This can come in the form of the cost of consuming an additional electric vehicle.
  - As marginal cost rises with increases in output, the price of goods and services increases as output increases, resulting in an upward sloping MPC curve.
- To maximise utility, a rational consumer will decide to consume electric vehicle only up to a quantity where  $MPB = MPC$ .
  - As a rational agent, the consumer would want to maximise his own net private benefit.
  - Thus, he will continue to consume electric vehicle as long as the MPC is less than MPB, as he will continue to enjoy net benefits as he continues to consume more units.
  - This can be seen in Figure 1. At quantity  $Q_1$ ,  $MPB > MPC$ , and consumers may enjoy a net benefit of AB if he continues consuming that unit of healthcare. If he continues increasing consumption, he will continue to enjoy net benefit, thus he will not stop consuming additional units when  $MPB > MPC$ .

Figure 1: Marginalist principle



- As more units are purchased, he starts experiencing diminishing marginal utility and thus will be prepared to pay a lower price for each additional unit.
  - With reference to Figure 1, at quantity  $Q^*$  where  $MPC = MPB$ , his MPB is exactly equal to the MPC. It is where his net benefit is maximised.
  - Past this point,  $MPC > MPB$  which means that he is paying more than what he values the good at, and that incurs a net cost, for example at quantity  $Q_2$ , the consumer incurs a net cost of DE.
- Thus, the rational consumer finds it optimal to consume at  $Q^*$  when  $MPC = MPB$  and will purchase an electric vehicle as long as the  $MPB \geq MPC$ .

*Explain why consumer decisions may result in inefficient allocation of resources*

- **Key Argument 2: Consumer decisions in the consumption of healthcare services may result in inefficient allocation of resources due to the presence of externalities in consumption.**
- Rational producers would seek to maximise profits when producing electric vehicles by using the Marginalist Principle to determine on their output level.
- The marginal revenue of producer of electric vehicles is the additional revenue earned from producing an additional electric vehicle.
- The marginal cost is the additional cost incurred from producing an additional electric vehicle and this includes cost of batteries, labour cost, amongst others.
- According to the Marginalist Principle, rational producers should produce at quantity  $Q$ , where  $MR = MC$  to maximise profits. At  $Q_1$  where  $MR$  is greater than  $MC$ , the firm will increase output

to Q as every additional unit produced increases net benefits (profits). At Q2, MC is greater than MR thus the firm will reduce output to Q as the firm incur net costs for every additional unit produced between Q to Q2.

- Thus, the rational producer finds it optimal to produce at Q when  $MC=MR$ .

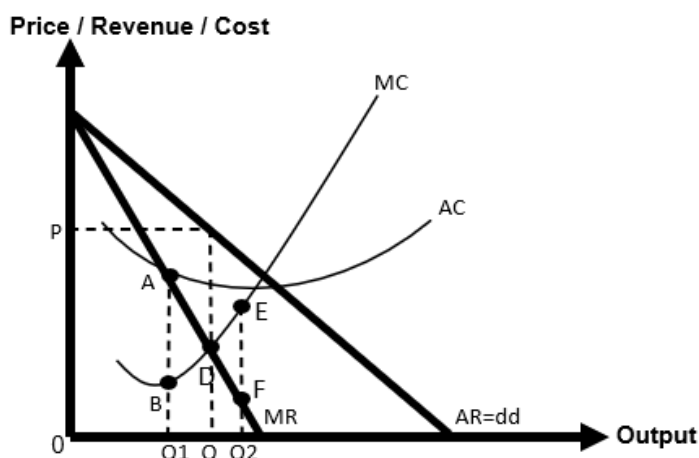


Figure 2

### Conclusion

- Rational consumers and producers may have used marginalist principle to decide on the output level to consume and produce respectively but consumers' decision to consume electric vehicles may still not be enough to maximise social welfare which we will look at in part (b).

### Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li><b>good scope</b> – explain both how rational consumers and producers make decisions; and</li> <li><b>good rigour</b> – clearly explains the above, using relevant, well-labelled and accurate diagram(s); and</li> <li><b>good application</b> to context of electric vehicles.</li> </ul>	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> <li><b>lacks scope</b> – only explain either how rational consumers OR rational producers make decisions; and/or</li> <li><b>lacks rigour</b> – gaps in explaining the above, and/or explanation is not supported by well-labelled and accurate diagrams; and/or</li> <li><b>lacks application</b> to the context of electric vehicles.</li> </ul>	5 – 7
L1	For an undeveloped answer that: <ul style="list-style-type: none"> <li>is descriptive, lacking in application of economic theory; and/or</li> <li>contains serious and pervasive conceptual errors; and/or</li> <li>is largely irrelevant.</li> </ul>	1 – 4

**3 To make transport greener, Singapore will accelerate the adoption of electric vehicles. During Budget 2020, it was announced that the country would gradually phase out internal combustion engine vehicles by 2040. Since then, the Government has provided “significant” incentives for electric vehicle adoption.**

**(b) Discuss the extent to which government policies are successful in encouraging more consumers to adopt electric vehicles to maximise social welfare in the electric vehicle market.** [15]

Part (b) Question Interpretation

<b>Command word/phrase</b>	<i>Discuss the extent</i>	To examine and present the different policy options and give a judgement on whether the policies will be successful in encouraging more consumers to adopt electric vehicles
<b>Content</b>	<i>Government policies</i>  <i>Maximise social welfare in the electric vehicle market</i>	Two different policies to address the issue of positive externalities  Market failure
<b>Context</b>	<i>Electric vehicles</i>	Apply analysis to the context of electric vehicles.

*A relevant response requires candidates to first explain the cause of market failure in the market for electric vehicles. They would be required to consider and explain the workings and limitations of two different policies. The evaluation entails a judgement on whether the policies will be successful in encouraging more consumers to adopt electric vehicles.*

**Introduction**

- There is currently allocative inefficiency in the market for electric vehicles due to the presence of positive externalities. In this essay, we will consider how incentives and other policies can encourage consumers to adopt electric vehicles to maximise social welfare.

**Body**

*Thesis: Explain how the presence of positive externalities leads to market failure*

- KA1: There is allocative inefficiency in the market for electric vehicles due to the presence of positive externalities.**
- [Private costs and benefits]** Consumers would only consider their MPB and MPC (as mentioned in (a)) when consuming electric vehicles.
- [External benefits & Third parties]** However, they would ignore the external benefits to third parties, such as improved air quality, which may improve the health and productivity of workers, leading to higher profits for employers.
- [Divergence between perceived MPB and MSB]** The presence of marginal external benefit (MEB) creates a divergence between the marginal social benefit (MSB) and marginal private benefit (MPB), where  $MSB > MPB$ . Diagrammatically, the MSB curve lies above the MPB curve by the amount of the MEB as shown in Figure 1. Assuming that there are no negative externalities, the marginal private cost (MPC) = marginal social cost (MSC).
- [Qp vs Qs]** If left to the free market, the producers produce  $Q_p$  units of R&D, where  $MPB = MPC$  as they only consider their own private costs and benefits. However, the social optimal level of production is  $Q_s$  units, where  $MSB = MSC$ . As  $Q_p < Q_s$ , there is an underproduction of R&D.

- **[Deadweight loss]** At  $Q_p$ ,  $MSB > MSC$ . The additional unit of R&D produced adds more to society's benefits than to society's costs. From  $Q_p$  to  $Q_s$  units, the total social benefits (area  $Q_pabQ_s$ ) exceed the total social costs (area  $Q_pcbQ_s$ ). The shaded area  $abc$  represents the deadweight loss which is the welfare loss to society when R&D is not produced at the social optimal level. There is market failure as the private optimal quantity is allocative inefficient and social welfare is not maximised.

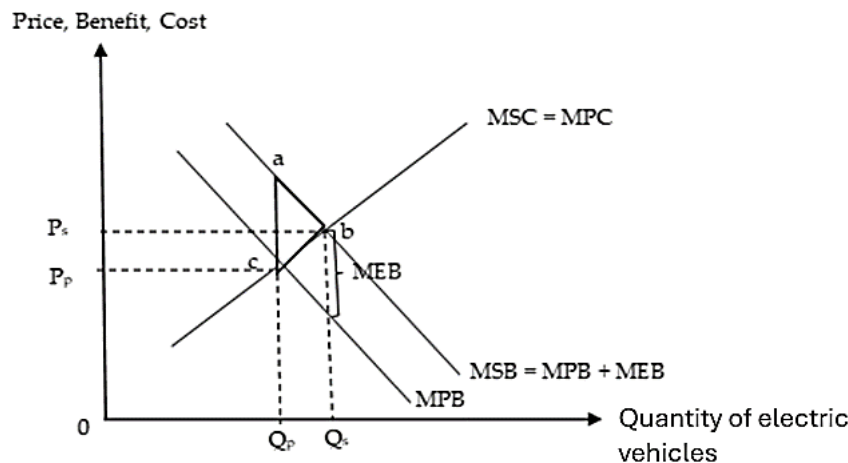


Figure 3

- Note: The full PETDQQD as seen above is not required; students can do a truncated version as the focus of the question is on the policies instead.
- **KA2: Government incentives can help to increase the consumption of electric vehicles and maximise social welfare.**
- Incentives such as the Electric Vehicle Early Adoption Incentive allows those who buy fully electric cars and taxis to receive a rebate on the Additional Registration Fee. This reduces the MPC of consuming electric vehicles to  $MPC'$ .
  - As such, the private optimal quantity will now increase to  $Q_p'$  ( $MPC' = MPB$ ), which coincides with  $Q_s$ . As such the deadweight loss is eliminated and social welfare is maximised.

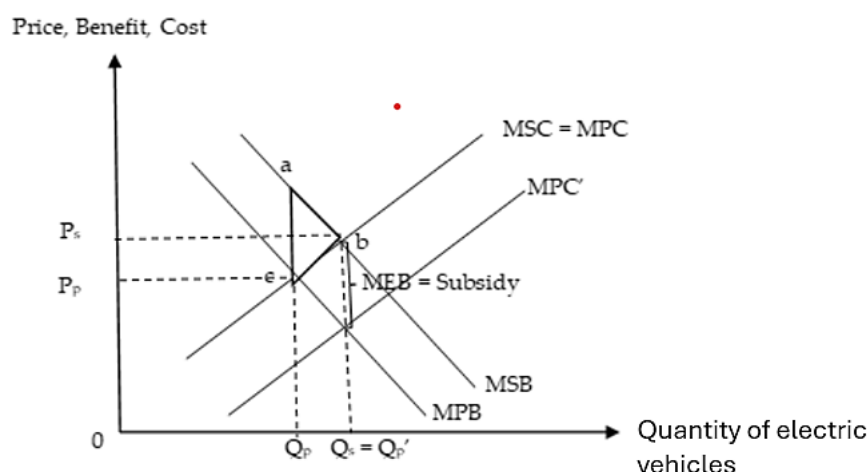


Figure 4

- However, these incentives require government spending and would put a strain on government budget and may thus not be sustainable. In addition, there will also be opportunity costs incurred in the form of welfare gained from spending on education.

- **KA3: Increasing the accessibility of electric vehicle charging points can help to increase the consumption of electric vehicles and maximise social welfare.**
- The government can improve the infrastructure to increase the consumption of electric vehicles. For example, Singapore has been expanding the electric vehicles charging infrastructure, with an aim for 60000 charging points to be deployed nationwide by 2030 under the Singapore Green Plan.
  - The improved accessibility of these charging points would increase the convenience of electric vehicles, leading to an increase in MPB for electric vehicles from MPB to MPB'.
  - The new private optimal quantity,  $Q_p'$  (where  $MPB'=MPC$ ) now coincides with  $Q_s$ . Hence, deadweight loss is eliminated and society welfare is maximised.

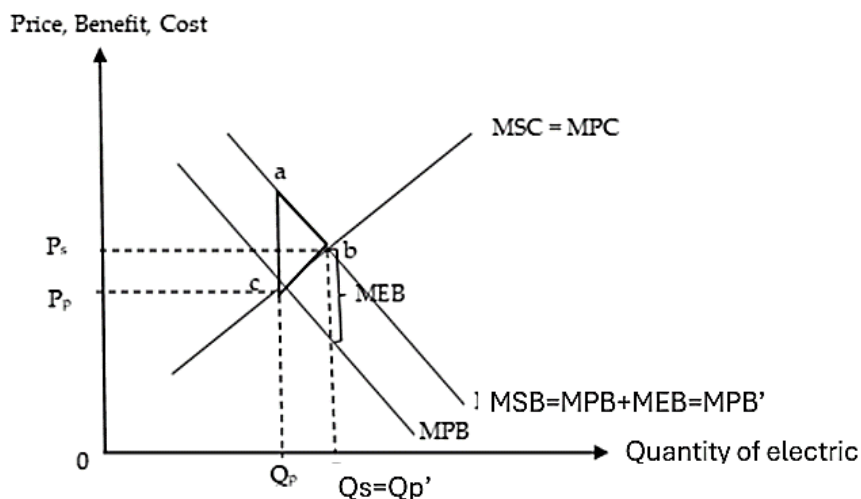


Figure 5

- However, this policy would take a long time to take effect. It is also possible that MPB does not increase significantly as despite the improved accessibility to charging points, consumers may still find it inconvenient to own an electric vehicle due to the long charging time required between drives.

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

- **[Stand]** Government policies are likely to be successful in getting consumers to adopt electric vehicles and maximise social welfare in the electric vehicles market.
- **[Situation]** As seen in the preamble, Singapore plans to phase out internal combustion engine vehicles eventually, which should serve as a further incentive for consumers to take up electric vehicles. In addition, the policies implemented by the government currently complements each other, with the subsidies being effective in the short-run while the improvement of infrastructure works to increase the appeal of electric vehicles to consumers in the long-run. Budget constraints would also likely not be a big hurdle for the Singapore government due to the consistent budget surpluses. In addition, the spending on infrastructure are only temporal until the necessary infrastructure is built.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li>● <b>good scope and balance</b> – explains the workings and limitations of at least two form of government intervention</li> <li>● <b>good rigour</b> – clearly explains the workings, limitations and/or unintended consequences of the government intervention with a well-labelled diagram; and</li> <li>● <b>good application</b> to context of electric vehicles where relevant.</li> </ul>	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> <li>● <b>lacks scope and balance</b> – only explains either the working or limitations of two policies OR explains the workings and limitations of only one policy; and/or</li> <li>● <b>lacks rigour</b> – descriptive answer with some gaps in analysis</li> </ul>	5 – 7
L1	For an undeveloped answer that: <ul style="list-style-type: none"> <li>● is descriptive, lacking in application of economic theory; and/or</li> <li>● contains serious and pervasive conceptual errors; and/or</li> <li>● is largely irrelevant.</li> </ul>	1 – 4
Level	Evaluation/Synthesis	Marks
E3	Two well-explained evaluative judgements that are supported by arguments presented in the answer and linked to the context of the question PLUS a summative conclusion.	5
E2	Two evaluative judgements, one of which is explained.	3 – 4
E1	Evaluative statements that are unexplained or not supported by the arguments presented in the answer OR a judgement that is not linked to the context of the question; OR One explained evaluative judgement.	1 – 2

**4 The Monetary Authority of Singapore (MAS) has a unique monetary policy framework that focuses on managing the exchange rate rather than interest rates. This approach has implications for the country's macroeconomic objectives.**

**(a) Explain why Singapore chooses exchange rates rather than interest rates as its main tool of monetary policy. [10]**

**(b) Assess whether the use of monetary policy to achieve low inflation will lead to trade-offs in the Singapore economy. [15]**

Part (a) Question Interpretation

<b>Command word/phrase</b>	<i>Explain why</i>	Give clear reasons, use examples and explain the theory behind the question
<b>Content</b>	<i>Why Singapore chooses exchange rates... rather than interest rates as its main tool of monetary policy</i>	Control over exchange rate → influence over (X-M); X and M > 300% of GDP  Control over interest rate → influence over C and I  Impossible trinity → free capital mobility and control over exchange rate → give up interest rate control
<b>Context</b>	<i>Singapore</i>	Apply analysis to Singapore's characteristics and nature – small and open economy that is trade dependent; import reliant and export oriented, global interest rate taker

*Students are required to explain why Singapore (i) does not use interest rate monetary policy but chooses to (ii) adopt an exchange rate-centered monetary policy based on the nature and characteristics of her economy. Rigour: The impossible trinity and Singapore's high dependence on trade (export-oriented, import-reliant) should be used to support Singapore's choice of exchange rate monetary policy.*

- *Note: This was the exact same question as our 2024 JC2 MYA EQ 1(a) and the A-level N2018 EQ5(a)!*

**Introduction:**

- **[Outline approach]** Exchange rates and interest rates are alternative tools of monetary policy and Singapore chooses exchange rates over interest rates as its main monetary tool. The primary reason is because of her small and open nature, where there is high dependence on international trade and that Singapore is a global interest rate taker.

**Body:**

- **Key Argument 1: Singapore chooses exchange rates as its main monetary policy tool as she is highly dependent on both exports and imports for international trade.**
- As Singapore has no natural resources, it is highly dependent on imports for both consumption goods and factor inputs. Also, given the small size of its economy, Singapore is a price taker on the global market. This makes Singapore vulnerable to imported cost-push inflation.
- With the high import content of its output and consumption, changes in the exchange rate would have a significant and direct influence on the general price level in Singapore's economy. This makes the exchange rate a powerful tool to mitigate imported inflation and help attain price stability in Singapore.

- This explains why the Monetary Authority of Singapore pursues a modest and gradual appreciation of the Sing dollar as this will decrease the price of imports, including imported raw materials, hence reducing the economy-wide unit cost of production to address cost-push inflation.
- Moreover, due to the small domestic market, Singapore's economy is export-oriented, and highly dependent on exports to generate enough demand for its goods and services. Since Singapore is highly open with its high dependence on trade on trade, managing the exchange rates would enable the Singapore government to have greater control over the prices of imports and exports, and directly influence net exports and the AD.
  - *(Optional)* For example, the Singapore government could use the exchange rate monetary policy to reduce inflation through the appreciation of the Singapore dollar. An appreciation would reduce the value of (X-M); assuming the absolute price elasticities of exports and imports greater than 1, and cause a fall in the AD.
- **Key Argument 2: Singapore does not use interest rates as her monetary policy tool as she is a small player in the global interest rate market.**
- Singapore's role as a financial centre means that it is very open to capital flows in and out of the country. With the relatively small size of Singapore's economy as compared to other countries, Singapore has little influence in global interest rates and is thus an **interest rate taker**.
- If Singapore's domestic interest rates deviate from global interest rates in other countries, short-term capital (hot money) can move rapidly in and out of Singapore, depending on which country has the most favourable interest rates. Such huge capital movements into and out of Singapore can cause serious fluctuations in exchange rates.
  - This can lower business confidence as fluctuations in exchange rates would result in uncertain costs and revenues for businesses that are dependent on the external sector.
  - Moreover, as **C and I are relatively smaller components as compared to the size of X and M (trade)** in terms of GDP, there is limited impact of interest rate monetary policy on the components of AD in Singapore.
- Therefore, Singapore faces the constraint of limited scope for a completely independent interest rate monetary policy.
- As Singapore needs free capital mobility and exchange rate control, she would have to give up interest rate control. This is known as the **impossible trinity** (open economy trilemma).
  - For example, suppose Singapore tries to increase its interest rates by reducing money supply. Ceteris paribus, with free capital mobility, there will be hot money inflows as foreign speculators move their funds to Singapore to take advantage of the higher interest rates. This would create an increase in demand for Singapore dollars in the foreign exchange market, causing an upward pressure on the exchange rates. However, if the Singapore government wishes to control the exchange rate as well, it would increase the supply of Sing dollar, which would negate the initial reduction of money supply!

### **Conclusion (optional):**

- To sum up, due to Singapore's high dependence on exports and imports, and it being a global interest rate taker, the country chooses exchange rates over interest rates as its main tool of monetary policy.

Mark Scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li>• <b>good scope</b> – explains two reasons (dependence on trade and interest rate taker) behind why Singapore chooses exchange rates instead of interest rates as its main tool of monetary policy; and</li> <li>• <b>good rigour</b> – utilises a framework in explaining these two reasons (e.g. open economy trilemma), together with contextually specific examples in reference to Singapore's economy.</li> </ul>	8 – 10
L2	For an underdeveloped answer that is: <ul style="list-style-type: none"> <li>• lacking in scope – only explains one reason behind why Singapore chooses exchange rates instead of interest rates as its main tool of monetary policy; and/or</li> <li>• lacking in rigour – fails to utilise any form of framework in explaining the why Singapore chooses exchange rates instead of interest rates as its main tool of monetary policy and fails to make any form of reference to contextually specific examples in reference to Singapore's economy.</li> </ul>	5 – 7
L1	For an answer that shows some knowledge of why Singapore chooses exchange rates as its main tool of monetary policy	1 – 4

**4 The Monetary Authority of Singapore (MAS) has a unique monetary policy framework that focuses on managing the exchange rate rather than interest rates. This approach has implications for the country's macroeconomic objectives.**

**(b) Assess whether the use of monetary policy to achieve low inflation will lead to trade-offs in the Singapore economy. [15]**

Part (b) Question Interpretation

<b>Command word/phrase</b>	<i>Assess whether</i>	Consider a balanced analysis by explaining the workings and unintended consequences of exchange rate monetary policy to achieve price stability before making an overall judgement to the extent to which trade-offs will occur.
<b>Content</b>	<i>Use of monetary policy to achieve low inflation ...</i>  <i>Lead to trade-offs</i>	<i>Appreciation (contractionary exchange rate monetary policy) can help to counter both demand-pull and cost-push inflation</i>  <i>Trade-offs → negative unintended consequences on the economy</i>
<b>Context</b>	<i>Singapore economy</i>	Context of Singapore's economy

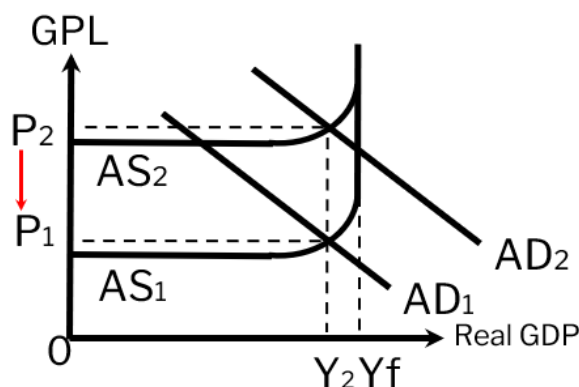
*A relevant response requires students to explain how exchange rate monetary policy work to achieve low inflation in Singapore and provide a balanced analysis as to whether there will necessarily be negative unintended consequences. Students are required to come up with a reasoned conclusion on whether an appreciation of the Sing dollar will eventually result in trade-offs on the Singapore's economy.*

**Introduction:**

- In Singapore, the use of monetary policy to achieve low inflation involves managing the exchange rate.
  - In particular, a gradual and modest appreciation of the SGD is the Monetary Authority of Singapore (MAS)'s usual stance to manage both demand-pull inflation and cost-push inflation to achieve low inflation.
- However, this can also result in trade-offs on its economy, which will be explored.

**Key Argument 1(a): Explain how an appreciation of SGD can mitigate both demand-pull and cost-push inflation**

- **The use of contractionary exchange rate monetary policy by appreciating Singapore's currency (SGD) can achieve low inflation.**
- Initially, Singapore's economy may be experiencing both demand-pull and cost-push inflation, where the AD increased from  $AD_1$  to  $AD_2$  while AS decreased from  $AS_1$  to  $AS_2$ . Thus, the general price level (GPL) would have increased from  $P_1$  to  $P_2$  as seen in Figure 1 below.
  - When the SGD appreciates, price of exports in foreign currency increases and quantity demanded for exports falls. At the same time, price of imports in SGD decreases and the quantity demanded for imports increases.
  - Assuming Marshall-Lerner condition holds, where  $IPED_x + PED_{ml} > 1$ , an appreciation would lead to a fall in  $(X-M)$ , causing AD to fall.
  - A decrease in  $(X-M)$  will also trigger the reverse multiplier effect, thus leading to a multiplied decrease in income-induced consumption, thus shifting the AD curve leftwards from  $AD_2$  to  $AD_1$  in Figure 1 below. This will mitigate demand-pull inflation.
  - At the same time, the price of imported raw materials falls. As mentioned in (a), since Singapore does not have many natural resources and would depend on imported factors of production, an appreciation leads to a fall in the unit cost of production and AS increases and shift downwards from  $AS_2$  to  $AS_1$ . This addresses cost-push inflation.
- Thus, the appreciation of the SGD would have resulted in the GPL decreasing from  $P_2$  to  $P_1$ , thus achieving low inflation in Singapore.

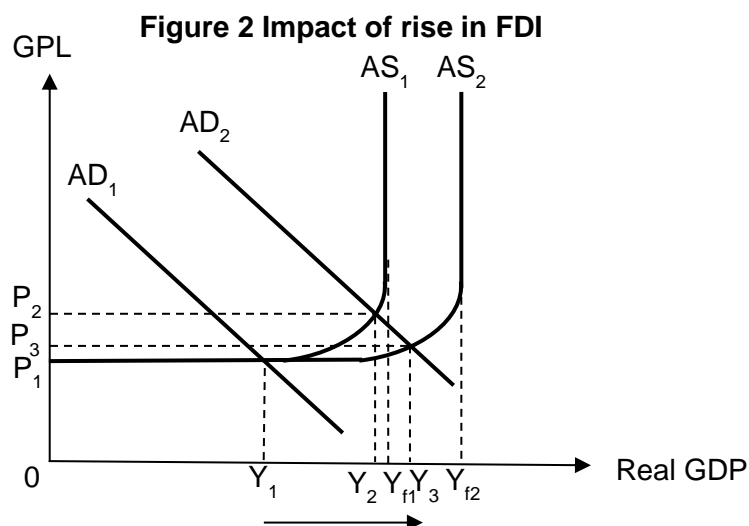
**Figure 1: Impact of appreciation on Singapore's economy**

**Key Argument 1(b): Explain how contractionary exchange rate monetary policy can lead to trade-off(s).**

- However, appreciation may potentially lead to the trade-offs of a worsening trade balance, negative growth and higher demand-deficient unemployment.
- As explained above, the appreciation will lead to a fall in net export revenue, worsening the trade balance. If the export revenue falls below the import expenditure, there will be a deficit on the balance of trade, leading to a trade-off.
- In addition, if the magnitude of the AD falling outweighs the rise in AS as seen in Figure 1 above, the overall impact would be a fall in real GDP from  $Y_f$  to  $Y_2$ .
  - This reduction in real GDP means negative actual growth. This reduction in output also means that firms would face an increase in their inventory levels, thus reducing derived demand for labour. Demand deficient unemployment thus rises to  $(Y_f - Y_2)$ .
- Thus, this potentially incurs the trade-off of negative growth and higher demand-deficient unemployment.
- **[Magnitude/ Situation]** To evaluate, the extent of the fall in real GDP and negative growth may not be so pronounced in Singapore. While Singapore's top exports are electronics, integrated circuits and refined petroleum, these goods have a high import content. Appreciation of the SGD allows Singapore to keep imported costs in check, as explained in part (a).
  - Therefore, the extent of the rise in export prices may be mitigated by the lower imported costs and AD may not fall significantly, and thus the trade-off between low inflation and negative economic growth and higher demand-deficient unemployment may not be so significant.

**Key Argument 2: Explain how contractionary exchange rate monetary policy may not result in trade-off(s).**

- An appreciation of the SGD could encourage FDI as the strength of the currency could be a signal of a stable and well-managed economy. More importantly, an appreciating SGD would allow the profits earned by foreign firms to rise in value over time as the remitted profits, when converted back to their home currencies, would increase.
- As FDI and hence investment expenditure (I) increases because of the higher expected returns, this would boost AD and trigger the multiplier effect, assuming spare capacity.
  - The successive increases in income-induced consumption would lead to a multiplied increase in real GDP and boost actual growth from  $Y_1$  to  $Y_2$ .



- At the same time, the increase in firms' expenditure on capital goods from higher FDI represent an increase in the quantity of capital, and possibly higher quality of capital when there is a transfer of technology and knowledge sharing by the foreign firms.
  - This will increase the economy's productive capacity and lead to an increase in AS from  $AS_1$  to  $AS_2$ , boosting potential growth as the full employment output level rises from  $Y_{f1}$  to  $Y_{f2}$ .
- With AD and AS rising in tandem, sustained growth, which is long-run inflationary economic growth, is attained.
  - Real GDP rises from  $Y_1$  to  $Y_3$ , where the GPL only rises slightly from  $P_1$  to  $P_3$ .
- Furthermore, the rise in FDI represents higher inflows of long-term capital flows, which will improve Singapore's balance of payments via the capital and financial account.

### **Evaluative Conclusion**

*(Because of the in-body EV earlier, a reasoned stand that follows from the above analysis + 1 well-developed ATMS evaluative angle would suffice):*

- **[Magnitude]** Even though an appreciation would lower the unit cost of production and increase SRAS, hence increasing real GDP as imported components make up only a portion of a final good or services' production cost, export prices will still see an eventual increase because of the stronger currency.
- **[Stand]** Assuming Marshall-Lerner conditions, the decrease in (X-M) and **worsening trade balance would be an inevitable tradeoff** that the Singapore economy incurs when she uses exchange rate monetary policy to achieve low inflation.

OR

- **[Magnitude/Situation]** In the context of Singapore, it is likely that the appreciation of the SGD would cause the SRAS to rise more than the fall in AD.
  - This is because Singapore's small multiplier size from her high marginal propensity to import (MPM) due to the lack of natural resources and the high marginal propensity to save (MPS) due to the compulsory savings scheme – the Central Provident Fund – would lead to a smaller fall in AD while the large proportion of imported raw material that Singapore uses would lead to a larger rise in SRAS. Hence it is likely that for Singapore, SRAS is expected to rise more than the fall in AD.
- **[Stand]** Therefore, an appreciation might result in lower GPL and an increase in real NY, implying that **trade-offs from the use of monetary policy to achieve low inflation might not be that significant in the Singapore economy.**

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li>• <b>good scope and balance</b> – explains the workings of contractionary exchange rate monetary policy to achieve price stability, and how tradeoff may and may not occur; and</li> <li>• <b>good rigour</b> – utilises appropriate AD/AS analysis and relevant, well-labelled and accurate AD-AS diagram(s); and</li> <li>• <b>good application</b> to the context of Singapore.</li> </ul>	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> <li>• <b>lacks scope</b> – only explain the workings or tradeoffs of exchange rate monetary policy; and/or</li> <li>• <b>lacks balance</b> – only explains how the use of exchange monetary policy may or may not incur tradeoffs; and/or</li> <li>• <b>lacks rigour</b> – there are gaps in explaining how exchange rate monetary policy work or in the analysis of the tradeoffs and/or explanation is not supported by well-labelled and accurate AD-AS diagram(s); and/or</li> <li>• <b>lacks application</b> to the context of Singapore.</li> </ul>	5 – 7
L1	For an undeveloped answer that: <ul style="list-style-type: none"> <li>• is descriptive, lacking in application of economic theory; and/or</li> <li>• contains serious and pervasive conceptual errors; and/or</li> <li>• is largely irrelevant.</li> </ul>	1 – 4
Level	Evaluation/Synthesis	Marks
E3	For a balanced answer that arrives at an analytically well substantiated judgement on whether the use of monetary policy to achieve low inflation will lead to tradeoffs in the Singapore economy.	5
E2	For an answer that has balance and makes some attempt at a substantiated judgement on whether the use of monetary policy to achieve low inflation will lead to tradeoffs in the Singapore economy.	3 – 4
E1	For an answer that makes an attempt to weigh the extent of trade-offs.	1 – 2

- 5 (a) Explain the link between economic growth, unemployment and income inequality. [10]
- (b) Discuss whether supply-side policy is the most appropriate policy in achieving inclusive growth in an economy. [15]

Part (a) Question Interpretation

Command word/phrase	Explain the link	Explain the economic reasoning and relationships, using examples.
<b>Content</b>	<i>Economic growth</i>	Economic growth refers to the realised increase in real national output for a given period of time e.g. a rise in real GDP.
	<i>Unemployment</i>	Unemployment refers to the situation where people of legal working age are not working, but are available for work and actively seeking work.
	<i>Income inequality</i>	Income inequality occurs when there is an income gap between different groups of workers, and there is unevenness in income distribution.
<b>Context</b>	<i>No context</i>	No specified context, but real-world examples should be given to demonstrate application skills.

Students are expected to explain what is meant by economic growth, unemployment, income inequality, and analyse the possible relationships between them.

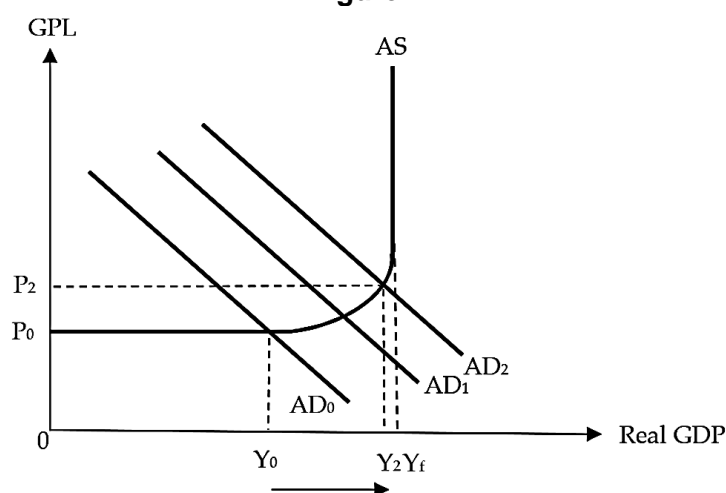
- Notes:
  - This question has a similar structure to the A-level N2017 EQ5(a) Explain the link between the standard of living, a high cost of living and the macroeconomic performance of a country. [10] which we covered during our Term 3 Revision.
  - To adopt a 2 Key Arguments (KA) approach for this question, KA1 would need to include a relationship between all three variables, so KA2 can just focus on two other variables. E.g. KA1: Economic growth can lead to falling unemployment but rising income inequality, KA2: A rise in unemployment may lead to rising unemployment.
  - Alternatively, students may categorise their answers by explaining the links between two variables separately e.g. KA1: Relationship between economic growth and unemployment, KA2: Relationship between unemployment and income inequality, and KA3: Relationship between economic growth and income inequality. This alternative approach is simpler and would hence be adopted! 😊
  - Learning point: You would have to be flexible if this was the question that you chose during the A-levels!

**Introduction**

- **[Define key terms]** Economic growth refers to the realised increase in real national output for a given period of time.
- Unemployment refers to the situation where people of legal working age are not working, but are available for work and actively seeking work.
- Income inequality occurs when there is an income gap between different groups of workers, and there is unevenness in income distribution.

**Body****KA1: Explain the link between economic growth and unemployment**

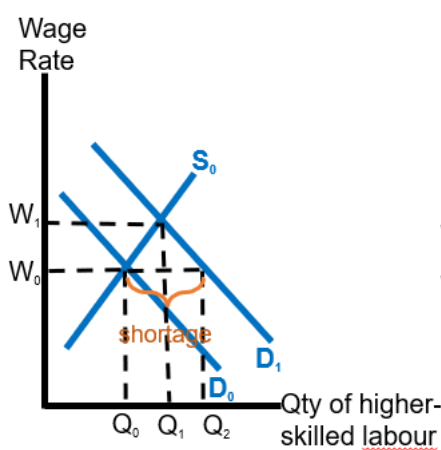
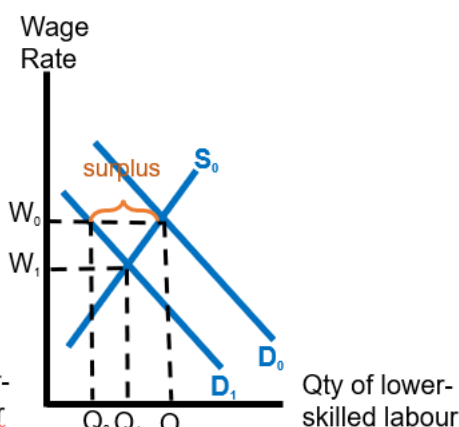
- There is an inverse relationship between economic growth and unemployment; with positive economic growth, unemployment rates would fall.
- For instance, when there is a positive outlook in the economy and high consumer and business confidence, consumption expenditure (C) would increase as consumers are optimistic about earning higher future incomes, and firms will increase investment expenditure (I) as they are positive about earning higher future profits.
  - The increase in C and I, which are components of AD, would lead to a rise in AD.
- Assuming there is spare capacity in the economy, the increase in AD<sub>1</sub> to AD<sub>2</sub> would trigger the multiplier effect to bring about successive increases in income-induced consumption, causing a larger increase in AD from AD<sub>1</sub> to AD<sub>2</sub>.
  - This is because as AD rises, firms experience an unplanned fall in inventories which will signal to them to step up production and demand for more factors to produce more output.
- The result is a multiplied increase in the equilibrium level of real output from Y<sub>0</sub> to Y<sub>2</sub>, indicating actual economic growth.

**Figure 1**

- The increase in economic growth causes firms to increase production of goods and services and increase the derived demand for factors of production such as labour. As such, demand-deficient unemployment falls from  $Y_f - Y_0$  to  $Y_f - Y_2$ .
- (Optional) For added scope: students may choose to explain how economic growth driven by a restructuring of the economy e.g. driven by technological advancements and R&D may lead to structural unemployment.
  - Technology is often a substitute for lower-skilled labour and a complement for higher-skilled labour. With increased automation, this can lead to a fall in the demand for low-skilled manual labour performing routine tasks like clerical work. The fall in demand for the low-skilled workers can lead structural unemployment as there is a skills mismatch between the skill sets of the retrenched workers and the skills in demand by the employers. As the lower-skilled workers face occupational immobility and are unable to transit to rising industries, they become structurally unemployed.

**KA2: Explain the link between unemployment and income inequality**

- **Rising unemployment often worsens income inequality, causing a widening income gap between the higher-income and lower-income households.**
- This is especially so if there was rising structural unemployment caused by a restructuring of the economy to one that is more technology driven. This will favour the higher-skilled labour and increase demand for higher skills like programming and systems analysis.
  - As the demand for such high-skilled labour rises, this creates a shortage at the prevailing wage rate  $W_0$ , creating an upward pressure on wages, causing it to rise to  $W_1$  in Figure 2a.
  - With falling demand for lower-skilled workers from  $D_0$  to  $D_1$  in Figure 2b, this results in a surplus of labour of  $Q_0 - Q_2$  units, and there is rising unemployment. This creates a downward pressure on wages that leads to a fall in wages from  $W_0$  to  $W_1$ .

**Figure 2a****Figure 2b**

- The rising wage gap between these different workers of different skills lead to rising income inequality.

**KA3: Explain the link between economic growth and income inequality**

- **Economic growth could reduce income inequality.**
- With higher economic growth, households tend to earn higher incomes and pay higher personal income taxes, generating more tax revenue for the government.
- Likewise, businesses tend to perform well during periods of robust economic growth, leading to higher profits.
  - This will generate greater tax revenue from the higher corporate income tax collected.
- At the same time, economic growth encourages consumer confidence, leading to increased spending on goods and services.
  - This generates more sales tax and value-added tax revenues, such as GST for the Singapore government.
- The increase in tax revenues for the government means that there is greater capability for the government to engage in their redistributive efforts, for example in providing greater support for lower income groups through utilities rebates, or increasing transfer payments to them, the latest being the GSTV – Cash Payout in 2024, where eligible Singaporeans are able to receive additional payouts. Thus, government redistributive efforts during economic growth can reduce income inequality by increasing the disposable incomes of the lower-income households and increasing their purchasing power.

OR

- **Economic growth could worsen income inequality.**
- This is because when a country experiences economic growth, different sectors of the economy tend to expand at different pace. This means that the demand for labour in different sector rises disproportionately. Hence wages between sectors grow at different rates.
  - For example, if economic growth was mainly due to a rise in exports, the demand for labour and hence wages in the export industry will rise relatively more than other industries. This is seen in China where urban disposable income in coastal cities is much higher than it is in the interior regions. Thus, uneven economic growth can lead to rising income inequality.

Mark Scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li>• <b>good scope</b> – explains the linkages between the three economic concepts – economic growth, unemployment and income inequality; and</li> <li>• <b>good rigour</b> – uses relevant AD/AS analysis and diagram(s) where appropriate together with contextually specific examples.</li> </ul>	8 – 10
L2	For an underdeveloped answer that is: <ul style="list-style-type: none"> <li>• lacking in scope – only explains the linkages between two of the three economic concepts; and/or</li> <li>• lacking in rigour – a descriptive answer that does not utilise any tools of analysis and/or has missing gaps in analysis</li> </ul>	5 – 7
L1	For an answer that shows some knowledge of the links between the economic concepts.	1 – 4

**5 (b) Discuss whether supply-side policy is the most appropriate policy in achieving inclusive growth in an economy. [15]**

Part (b) Question Interpretation

<b>Command word/phrase</b>	<i>Discuss whether</i>	To provide a balanced analysis of the workings and limitations/unintended consequences (O-W-L framework) of supply-side policy and one alternative policy in attaining inclusive growth before evaluating which policy measure is more appropriate.
<b>Content</b>	<i>Supply-side policy</i>  <i>Most appropriate policy</i>  <i>Achieving inclusive growth</i>	<p>Supply-side policies influence AS by lowering the unit cost of production and/or increasing the productive capacity of the economy.</p> <p>Comparison with an alternative policy is required. The most appropriate policy could be analysed in terms of its effectiveness and/or more suitable because it has less severe unintended consequences.</p> <p>Inclusive growth is sustained growth that takes income distribution into consideration and does not contribute to worsening income inequality.</p>
<b>Context</b>	<i>An economy</i>	No specified context, but real-world examples should be given.

*Students are expected to provide a detailed explanation of the workings and limitations/unintended consequences of supply-side policies and at least one alternative policy to achieve inclusive growth (i.e. sustained growth + more equal distribution of income and wealth). The evaluation would entail a reasoned judgement that compares between the two policies to form a stand on which might be the most appropriate policy to achieve inclusive growth.*

**Introduction**

- **[Outline approach and define key terms]** While supply-side policies that aim to influence the Aggregate Supply (AS) of the economy can be effective in attaining inclusive growth, which is defined as a sustained rate of growth that is broad-based across economic sectors, and creates productive employment opportunities for the majority of the country's population such that it does not contribute to worsening income inequality, it is not without flaws.
  - In addition, income or wealth distributive policies can be an alternative measure to achieve inclusive growth.

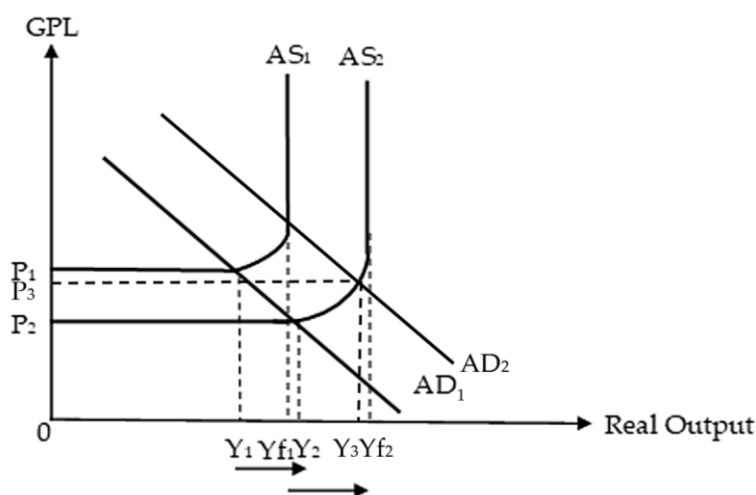
**Body**

**KA1: Explain the workings and limitations/unintended consequences of supply-side policy in achieving inclusive growth**

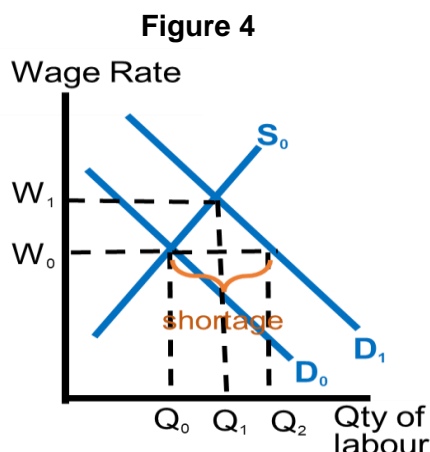
- To achieve inclusive growth, there must be sustained economic growth through the increase in actual and potential growth. This can be attained through supply-side policies to raise productivity in human capital. For example:
  - **Singapore Workforce Development Agency:** Set up in 2003 by the Singapore government to identify the skills and training needs of potential growth industries and develop programmes to help jobseekers acquire skills needed for these new jobs.

- **Workfare Skills Support Scheme (WSS):** Singapore government subsidises employers up to 95% of absentee payroll to support employers to send their workers for training.
- **Continuing Education and Training (CET) Masterplan:** Enables workers to find their niches, seize opportunities in new growth areas and remain employable. Government partners leading training providers that offer high quality and industry-relevant training courses. Singaporeans and PRs get 90% funding support for training programmes.
- **SkillsFuture Credit Scheme:** Developed to encourage individuals to take ownership of their skills development and lifelong learning. Singaporeans aged 25 and above receive an opening credit of S\$500 from January 2016 with periodic top-ups to help Singaporeans finance their skills development programmes.
- *Note: There is no need to include all the above examples in your answer. One to max 2 examples would suffice.*
- The upskilling and reskilling of workers can boost labour productivity, allowing more output to be produced per unit manhour, and increase the quality of labour.
  - The former leads to an economy-wide reduction in the unit cost of production whereas the latter increases productive capacity. Both will increase AS.
  - Diagrammatically, the AS curve will shift downwards and rightwards from  $AS_1$  to  $AS_2$ .
  - There is higher potential growth as the full employment output levels increase from  $Y_{f1}$  to  $Y_{f2}$ .
- At the same time, a more skilled workforce will attract more foreign direct investment (FDI) into the economy. As  $I$  increases, this can lead to an increase in AD from  $AD_1$  to  $AD_2$  and actual economic growth occurs as real output increases by a multiplied amount because of the multiplier effect with successive increase in income-induced consumption, assuming spare capacity.
  - With both AD and AS increasing in tandem, sustained growth, which is long-run non-inflationary growth, is attained. Real output rises from  $Y_1$  to  $Y_3$ , and the GPL falls from  $P_1$  to  $P_3$ .

Figure 3



- One of the root causes of rising income inequality is due to the structural changes that have leave the lower skilled workers worse off.
- Hence, supply-side policies through skills training and upgrading helps the lower-income workers become more productive and more attractive to firms. This increases the demand for labour from  $D_0$  to  $D_1$  in Figure 4. The shortage at the initial wage rate  $W_0$  will drive wages up to  $W_1$ .



- This narrows the income disparity between the high-skilled and low-skilled workers, reducing income inequality.
- With sustained growth and the closing of the income gap, **inclusive growth** is achieved.

### ***Limitations of supply-side policies***

- The effectiveness of supply-side policies such as skills training and upgrading to narrow the income gap largely depends on the mindset as well as receptivity of workers.
  - This is especially for low-skilled and older workers, who may not actively sign up for such retraining and skills upgrading programmes due to their steep learning curve.
- Hence such schemes may not necessarily achieve their intended effects of increasing the skills levels of such workers and hence raising their incomes to reduce the income gap.

OR

- Besides, skills training and upgrading is long term in nature as it takes time to acquire new skills and to be adept at them. Hence the policy may not be as effective in addressing the issue of the income gap in the short run as results will only materialise in the long term.

OR

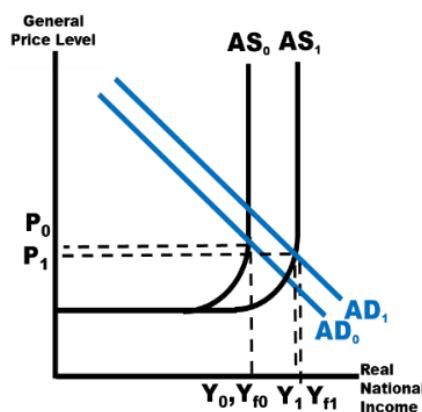
- There may also be the problem of a loss in productivity of workers during training since they will not be at work and this could potentially reduce profits for the firms and hence reduce employers' incentives to send their workers for training, defeating the purpose of such programmes.

### ***KA2: Explain the workings and limitations/unintended consequences of redistributive policies in achieving inclusive growth***

- **Besides supply-side policies, the government can employ other measures like a more progressive income tax system and transfer payments to reduce income inequality to attain inclusive growth.**
- A progressive income tax system is one where the tax rate increases as an individual's income rises. This means that higher income earners pay a proportionately higher tax compared to low-income earners.
- A more progressive income tax rate will increase the tax rate of higher income earners, leading to a fall in their disposable income as they pay a higher proportion of their income in taxes. This will lower their consumption expenditure (C).
- It also reduces the tax rate of lower income earners, allowing them higher disposable incomes which will boost their purchasing power and increase their ability to consume goods and services, increasing their material living standards.
  - Since they have a higher MPC compared to the higher income earners as they tend to save less, C will rise by a larger extent.
- Overall, C rises, causing an increase in AD.

- The government can also increase transfer payments in the form of subsidies to the lower income earners, raising their disposable income and C.
  - An example is the Workfare Income Supplement which is a wage supplement for lower-income workers to enhance their retirement savings and provide additional income support through cash payments and contributions to their CPF accounts.
- The increase in C due to more progressive income taxes and transfer payments to households leads to an increase in AD which will bring about a multiplied increase in real national income and hence actual growth.
- With higher national income, the government can collect higher tax revenue to spend on infrastructural development which will increase the quantity and quality of capital to increase the economy's productive capacity and increase LRAS to achieve potential growth.
- The result is sustained growth with real national income rising from  $Y_{f0}$  to  $Y_1$ , and GPL falling from  $P_0$  to  $P_1$ .

Figure 5



- As the income distribution becomes more even with the reduction in income gaps between the higher-income and lower-income households, there is **greater inclusive growth**.
  - In 2020, Singapore's Gini coefficient which measures income inequality fell from 0.451 before government transfers and taxes to 0.375 after intervention. This shows that it was successful in reducing income inequality, hence achieving greater inclusive growth.

### **Limitations of redistributive policies**

- Higher income taxes for higher income earners can make a country less competitive in attracting top talent, as skilled professionals may prefer to work in regions where they can retain a larger portion of their earnings.
- A more progressive income tax may also incentivise residents to spend more time on leisure and work less as the opportunity cost of leisure has fallen. Productivity will be negatively affected, causing AS to fall.
- (Optional) On the other hand, there is a possibility that low-income workers and their employers may become reliant on these transfers and hence lack the incentive to upgrade their skills so as to raise their productivity and move on to higher paying jobs to raise their incomes and to lower the income gap.

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

- **[Stand]** Supply-side policies are the most appropriate to achieve inclusive growth in an economy.
- **[Magnitude/Situation]** While the effects of the training courses would take time and might be uncertain due to the constantly changing needs of the economy, regular consultation with

industries on the new job demands would help the government to better design training courses that are relevant for the participants, increasing the success of such supply-side policies.

- In reality, structural change will be the new normal for most economies in view of the rapid technological advancements and globalisation. For resource scarce countries that rely on human capital like Singapore, lifelong learning and constant skills upgrading of the labour force regardless of skill level is critical for the economy to maintain her competitiveness and achieve sustained and inclusive growth.
- While redistributive policies and minimum wage increases can help alleviate income inequality and reduce the income gap in the short-run, they have limitations. Excessive income tax hikes risk driving away top talent, while raising the minimum wage can lead to higher unemployment and increased production costs. These effects could ultimately exacerbate income inequality in the long-run, making these measures less sustainable over time.

### Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li>• <b>good scope and balance</b> – explains the workings and limitations/unintended consequences of supply-side policy and one other alternative policy in attaining sustained growth and a reduction in income inequality; and</li> <li>• <b>good rigour</b> – utilises appropriate AD/AS analysis and relevant, well-labelled and accurate diagram(s); and</li> <li>• <b>good application</b> through the support of real-world examples.</li> </ul>	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> <li>• <b>lacks scope</b> – only explain supply side policy; and/or</li> <li>• <b>lacks balance</b> – only explains the workings OR limitations/unintended consequences of two policies; and/or</li> <li>• <b>lacks rigour</b> – there are gaps in analysis and/or explanation is not supported by well-labelled and accurate diagram(s); and/or</li> <li>• <b>lacks application</b> to the real-world context.</li> </ul>	5 – 7
L1	For an undeveloped answer that: <ul style="list-style-type: none"> <li>• is descriptive, lacking in application of economic theory; and/or</li> <li>• contains serious and pervasive conceptual errors; and/or</li> <li>• is largely irrelevant.</li> </ul>	1 – 4
Level	Evaluation/Synthesis	Marks
E3	For a balanced answer that arrives at an analytically well substantiated judgement on whether supply-side policy is the most appropriate to achieve inclusive growth.	5
E2	For an answer that has balance and makes some attempt at a substantiated judgement on whether supply-side policy is the most appropriate to achieve inclusive growth.	3 – 4
E1	For an answer that makes an attempt to provide a counterargument to each policy.	1 – 2

**6 In recent years, the rise of anti-globalisation sentiments has challenged the prevailing consensus on the benefits of global economic integration. With rising trade tensions between major economies, policymakers and citizens alike grapple with the implications of a more insular global economy.**

**(a) Explain why anti-globalisation sentiments have gained momentum in various parts of the world, particularly in developed economies. [10]**

**(b) In view of the rising anti-globalisation sentiments globally, assess the measures that the Singapore government can adopt to sustain its global competitiveness. [15]**

Part (a) Question Interpretation

<b>Command word/phrase</b>	<i>Explain why</i>	Give clear reasons, use examples and explain the economic theory behind the question using relevant economic tools of analysis and concepts.
<b>Content</b>	<i>Anti-globalisation sentiments have gained momentum</i>	To explain why countries are pursuing more self-sufficiency (turning inwards to focus more on domestic factors like C, domestic investments and G to drive their growth) and reducing trade, investment and labour flows with other economies.
<b>Context</b>	<i>Various parts of the world, particularly in developed economies</i>	Apply analysis to developed economies like the US and the UK.

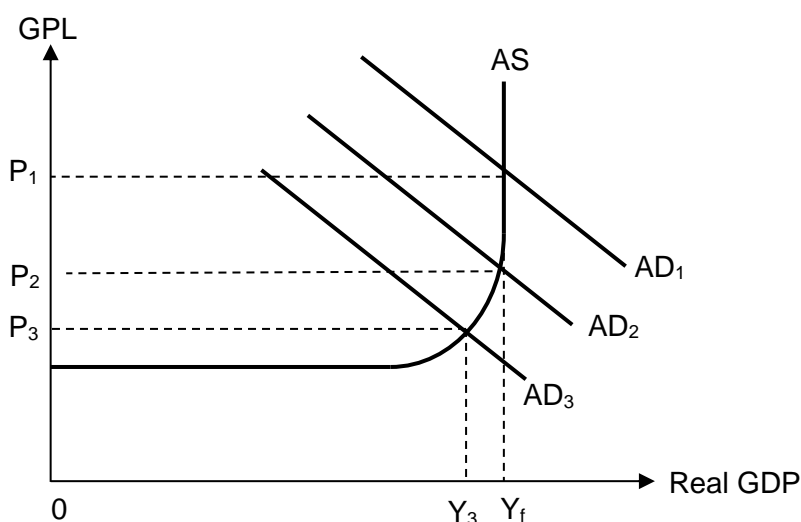
*Students are expected to provide reasons for the rise in anti-globalisation sentiments by analysing the negative impacts of globalisation on developed countries such as the US. The analysis should focus on how different dimensions of globalisation — namely, the increased mobility of goods and services, capital and labour — have undermined the key macroeconomic objectives in these economies, thereby fuelling anti-globalisation sentiments in developed countries.*

**Introduction**

- **[Define key terms and set context]** Globalisation is a process that has caused economies to become more inter-connected due to the increasing flows of goods and services (trade), labour and capital.
- In recent years, traditional views on the benefits of globalisation have been challenged by rising anti-globalisation sentiments which have led to rising trade tensions.
  - An example is the US-China trade war which started in 2018 with the US imposing tariffs on \$50 billion worth of Chinese goods leading to multiple rounds of retaliatory tariffs by both sides.
- OR
- Other examples include Brexit which led to significant trade tension between UK and EU, and the Japan-Korea trade dispute which arose when Japan imposed export controls on key materials used in South Korea's technology industry.
- **[Outline approach]** The rise in anti-globalisation sentiments particularly in developed economies has been driven by growing concerns that globalisation is adversely affecting the key macroeconomic aims of these economies which include economic growth, full employment, price stability and a favourable balance of trade position.

**Body**

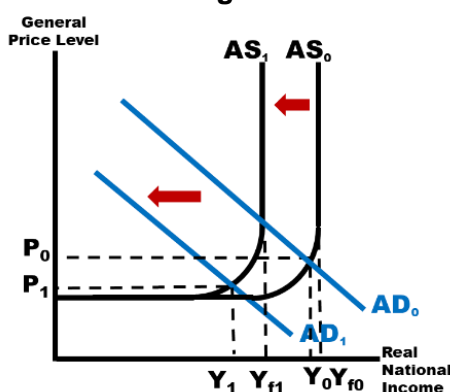
- **KA1: Anti-globalisation sentiments have gained traction especially for developed countries because of the negative impacts of increased trade flows on economies.**
- Globalisation can lead to the loss of comparative advantage through the increased mobility of goods and service (free trade).
- A country has comparative advantage in producing a good or service if it incurs a lower opportunity cost in production compared to another country.
  - One example is the US textile and apparel industry where production shifted to lower-cost countries like China, Bangladesh, and Vietnam due to their abundance of low-cost labour.
  - As the US lost its comparative advantage and hence competitive edge in the production of textile and apparel, the decline in competitiveness the US' domestic and export markets led to a fall in the US export revenue and rise in import expenditure as US households switch to consuming the cheaper imported goods.
- Due to the fall in (X-M), AD falls from  $AD_0$  to  $AD_1$  (Figure 1).

**Figure 1: Fall in (X-M)**

- This initial fall in AD causes an unplanned rise in the firm's inventory. Hence, firms will cut down on production and hence reduce demand for resources such as labour.
- As less labour is hired, they receive less in wages. The purchasing power of the labour force falls. This leads to multiple decreases in income-induced consumption, with each subsequent fall in induced consumption becoming smaller than the previous.
- As AD falls further from  $AD_2$  to  $AD_3$ , the overall outcome is a multiplied fall in real GDP from  $Y_0$  to  $Y_3$ , and economic growth falls. Due to the fall in real output, firms reduce production and the derived demand for labour falls, leading to a rise in demand-deficient unemployment to  $Y_f - Y_3$ .
- At the same time, the fall in X and rise in M leads to a worsening of the US' trade balance.
- The negative effects on the internal and external macroeconomic goals as developed economies lose trade competitiveness to lower-cost and resource-rich developing countries would therefore lead to the rise in anti-globalisation sentiments to protect economic growth and safeguard against job losses.
- (Optional) For added scope: students may choose to explain anti-globalisation sentiments could arise because of the increased vulnerability to external shocks.
  - For example, the 2009 Global Financial Crisis led to a significant contraction in global trade, with world trade volumes declining by over 12% as demand plummeted and financial constraints disrupted international supply chains.

- Supply chain disruptions were also seen during the COVID-19 pandemic, leading to shortages of goods and raw materials, causing rises in the economy-wide unit cost of production which led to imported cost-push inflation.
- **KA2: The rise in anti-globalisation sentiments could also be due to the negative consequences of increased capital and labour mobility on the macroeconomic aims of economies.**
- With increased capital flows such as freer flows of FDI, some industries from developed economies like the US may outsource certain parts of their production process to lower-cost economies such as Mexico and Vietnam where the factor prices of labour and raw materials are relatively cheaper. This will cause the US economy to undergo restructuring as it reduces focus from these traditional sectors that are outsourced to new growth industries. As there might be a skills mismatch between the skills set of the retrenched workers and the jobs in the new growth areas, and the retrenched workers from the declining sectors may not have the relevant skills set to transit to the expanding industries due to occupational immobility, this could result in structural unemployment.
- In addition, rising globalisation could lead to an outflow of FDI, which reduces investment expenditure and cause AD to fall from  $AD_0$  to  $AD_1$  (Figure 2).

Figure 2



- As a fall in FDI also represent a fall in the quantity of capital, this reduces the economy's productive capacity, causing a leftward shift of the LRAS from  $AS_0$  to  $AS_1$  if the rate of capital replacement fails to keep pace with the rate of capital depreciation in the long run.
- The outcome is a fall in actual growth from  $Y_0$  to  $Y_1$  and decrease in potential growth from  $Y_{f0}$  to  $Y_{f1}$ .
- The economy's balance of payments also worsens because of outflow of FDI will worsen its capital and financial account.
- **Rising labour flows from globalisation could worsen income inequality between the higher-skilled and lower-skilled workers.**
- With greater labour mobility, the unskilled workers face stiff competition from foreign workers who are typically willing to work for lower pay than the US worker due to the lower cost of living in their home country.
- With a higher supply of low-skilled workers, the wages for unskilled workers fall.
  - On the other hand, there is a shortage of skilled workers whose supply is limited and the demand for their services is high.
- This situation leads to rising wages for the high skilled workers, leading to widening income inequality.

- *Note: For sufficient scope, just make sure that the negative consequences of increasing trade, capital and labour flows are analysed. There is no need to analyse the impact on all four macroeconomic objectives. Two to three of the macroeconomic objectives would suffice.*

### **Conclusion (optional – link to part (b))**

- The rise of anti-globalisation sentiments would bring about significant challenges for small and open economies that are dependent on trade and raw materials.
  - Hence, the need for governments of these economies to implement policies to sustain their global competitiveness in order to combat the implications of these anti-globalisation sentiments.

### Mark Scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li>• <b>good scope</b> – explains the negative consequences of increased trade, capital and labour flows on economies' macroeconomic objectives; and</li> <li>• <b>good rigour and application</b> – uses relevant AD/AS analysis and diagram(s) where appropriate together with contextually specific examples.</li> </ul>	8 – 10
L2	For an underdeveloped answer that is: <ul style="list-style-type: none"> <li>• lacking in scope – did not explain the negative consequences of the increased trade, capital and labour flows on the economies' macroeconomic objectives; and/or</li> <li>• lacking in rigour – a descriptive answer that does not utilise any tools of analysis and/or has missing gaps in analysis.</li> </ul>	5 – 7
L1	For an answer that shows some knowledge of the negative impacts of globalisation on an economy.	1 – 4

6 In recent years, the rise of anti-globalisation sentiments has challenged the prevailing consensus on the benefits of global economic integration. With rising trade tensions between major economies, policymakers and citizens alike grapple with the implications of a more insular global economy.

(b) In view of the rising anti-globalisation sentiments globally, assess the measures that the Singapore government can adopt to sustain its global competitiveness.

[15]

Part (b) Question Interpretation

<b>Command word/phrase</b>	Assess	To give a balanced analysis by considering the workings and limitations (OWL framework) of two measures before coming to a well-reasoned judgement.
<b>Content</b>	<i>Measures the Singapore government can adopt to sustain global competitiveness.</i>	Examples of measures include trade policies like the signing of FTA (removal of tariffs) and supply-side policies to increase productivity>  Global competitiveness can be analysed in terms of export price and non-price competitiveness and its attractiveness as a FDI destination.
<b>Context</b>	<i>In view of the rising anti-globalisation sentiments globally...  Singapore government</i>	To make reference to these sentiments such as the US-China trade war for e.g. in your response.  Apply analysis to Singapore's characteristics and nature – small and open economy that is trade dependent; import reliant and export oriented

Students are expected to analyse the challenges of rising anti-globalisation sentiments on the Singapore economy and provide a balanced analysis of two policies that the Singapore government can adopt to maintain both export price and non-price competitiveness in the global market. The evaluation would require a weighing of the policies to determine the relative effectiveness to sustain global competitiveness.

**Introduction**

- **[Set the context]** Singapore is a small economy in terms of its small domestic market size and lacks natural resources. Hence, it is highly reliant on trade and very open, with a total trade exceeding 300% of GDP.
- **[Define key terms]** Singapore would need to maintain its global competitiveness for continued economic growth.
  - The global competitiveness of an economy can be analysed in terms of the price and quality (non-price) competitiveness of a country's exports as well as its attractiveness to foreign direct investment (FDI) as an investment destination.
- **[Outline approach]** The rising anti-globalisation sentiments would pose a significant threat to the Singapore economy as Singapore is import-reliant and export-oriented. To remain globally competitive, trade policies and supply-side policies can be employed, but these are not without limitations.

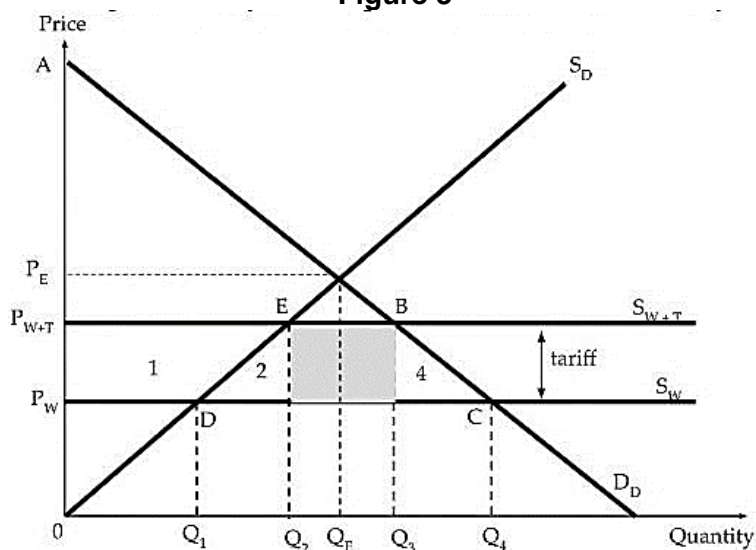
- Note: While the use of depreciation can be a plausible theoretical response, this is NOT practised in the Singapore's context to boost X competitiveness. Singapore's use of exchange rate centred monetary policy is aimed at achieving price stability for the basis of sustained economic growth.

## Body

**KA1: Explain how trade policies (i.e. FTAs) can help Singapore sustain its global competitiveness alongside the limitations**

- While trade may be hindered by growing anti-globalisation sentiments, Singapore can sign more free trade agreements (FTAs) to sustain its global competitiveness.
- These agreements help Singapore maintain preferential access to key markets and diversify its trading partners so that it is less susceptible to global supply chain disruptions or changes in global market conditions that drive up costs.
- FTAs often involve the reduction or elimination of tariffs on goods traded between participating countries.
  - This means that Singapore exporters can enjoy preferential access to partner markets, making their products more price-competitive compared to goods from countries that are not part of the agreement.
- As seen in Figure 3, with the removal of an import tariff, the price will fall from  $P_{W+T}$  back to  $P_W$ .

**Figure 3**



- Singapore exporters can offer their goods at a lower price in the foreign market, increasing its export price-competitiveness compared to non-member countries which will be charging  $P_{W+T}$ .
- **(Optional)** FTAs also provide Singapore exporters with increased access to global markets, without facing the same level of trade barriers compared to non-partner markets.
  - This increased market access can boost demand for Singapore's exports, allowing firms to earn higher profits that can encourage them to expand and potentially reap internal economies of scale, enjoying cost savings in the form of lower average costs.
  - When the lower unit production costs are passed on to the consumers via lower prices, export price competitiveness also improves.

- Signing FTAs would also intensify competition between member countries. With increased competition from the partner country's producers, this can drive Singapore's businesses to become more innovative and efficient. The need to compete on price and quality can lead to domestic firms adopting new technologies, improved processes, and better management practices such that both export price and non-price competitiveness increases.
- FTAs could also enhance Singapore's global competitiveness by increasing her attractiveness as an FDI destination.
  - For example, an MNC from a non-ASEAN country with no FTA with ASEAN may wish to set up production plants in Singapore so that it can export from Singapore to other ASEAN countries to take advantage of the waiver of import tariffs by other ASEAN countries when the good is exported from Singapore due to the ASEAN FTA. This would allow the exported goods to be sold at a lower and hence cheaper, more competitive price, boosting the quantity demanded of its exported goods.
  - If demand for the good is price elastic, the quantity demanded would increase more than proportionally, allowing the MNC to enjoy higher revenue, and potentially, higher profits.

### **Limitations of FTAs**

- FTAs are not exclusive to Singapore and the terms of the agreement depends on our bargaining power. Competitors can also negotiate with our trading partners and clinch a better deal such as greater tariff cuts and preferential customs treatment that can decrease costs, thereby eroding our competitive advantage.
- Also, FTAs which extend the same terms and conditions to all signatory countries may not enhance Singapore's export price competitiveness if our competitors are also a signatory to the same agreement.

OR

- Finally, the FTAs may lead to trade diversion when there is a shift in the production of raw materials away from lower-cost non-member producers to a higher-cost member economy which Singapore's export sector is dependent on. This will reduce Singapore's export price competitiveness as it shifts production away from economies with comparative advantage.

### **KA2: Explain how supply-side policies can help Singapore sustain its global competitiveness alongside the limitations**

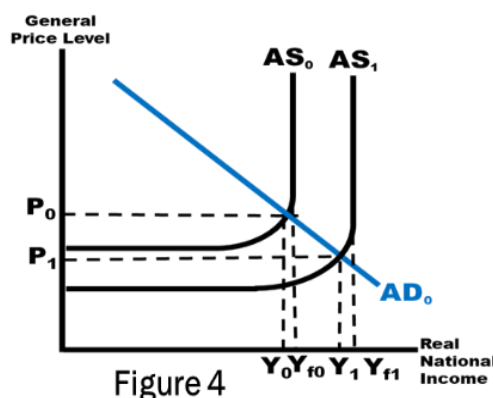
- **Given the rising anti-globalisation sentiments, signing more FTAs may not be sufficient. Singapore can increase global competitiveness through supply-side policies.**
- The government can implement supply-side measures to reduce cost of production to increase export price competitiveness and improve export non-price competitiveness through better quality and variety of goods and services. This could take the form of:
- **Investment in human capital:** The government can invest in education and training programs to enhance the skills and productivity of the workforce. This reduces the unit cost of production and improve the quality of goods and services to boost export price and non-price competitiveness. For example:
  - **SkillsFuture Scheme:** Extends learning credits to Singaporeans to pay for work-related courses to increase their labour productivity.
  - **Productivity Solutions Grant:** Encourages firms to invest in labour saving IT capital to improve productivity.

OR

- **R&D incentives:** The government can offer tax incentives and grants for R&D activities to encourage innovation in products and processes. For example:
  - **Research, Innovation & Enterprise 2025 plan:** Funds R&D in advanced manufacturing, digital economy and urban solutions to drive technological advancements. This can help Singapore firms develop high quality and innovative products which enhances its exports non-price competitiveness.

OR

- **Promotion of innovation and the adoption of technology:** The government can encourage the adoption of advanced technologies and automation. For example:
  - **Advanced Manufacturing & Engineering domain:** Supports the adoption of Industry 4.0 technologies like automation and robotics. This reduces the unit cost of production and improve the quality of goods and services to boost export price and non-price competitiveness.
- These supply-side policies can improve productivity as firms can use less factors of production to produce the same output, leading to a fall in cost of production. At the same time, the quality of labour and capital rise leading to an increase in productive capacity.
  - Hence, AS curve shifts from  $AS_0$  to  $AS_1$  (Figure 4). Firms will then pass the cost savings on by lowering the price of their goods and services, leading to a fall in GPL from  $P_0$  to  $P_1$ . This improves the price competitiveness of exports.



- Having a skilled workforce and enhanced technology also contributes to the production of better-quality products, enhancing our export non-price competitiveness despite the rising anti-globalisation sentiments.
- FDI is attracted by low business costs, a ready pool of skilled labour, and quality infrastructure for business operations. Hence, supply-side policies that invests in human capital, leading to a higher skilled workforce will improve Singapore's attractiveness as a FDI destination as the lower costs from higher productivity will increase firms' expected profitability.

### **Limitations of supply-side policies**

- Acquiring new skills takes time and consistent effort. Employees might resist upskilling due to a fear of change or a lack of interest in learning new skills. Such resistance can hinder the adoption of new skills and limit the potential for innovation, therefore hindering the improvement in productivity and product innovation.
- A limitation of R&D is that it requires significant investment and often takes a long time to yield tangible results. This places a strain on the government budget.

OR

### **Unintended consequences of supply-side policies**

- Supply-side policies to increase global competitiveness hasten the shift towards innovation-driven growth and the use of automation, which could widen the income gap between lower and higher-skilled labour, preventing inclusive growth as the distribution of income in the country becomes more unequal.
  - Workers whose skillsets complement the use of automation and technology, which tend to be the higher-skilled, would enjoy an increase in wages due to the higher demand, whereas lower-skilled workers would face a fall in demand and hence experience lower wages.
- Increased automation of firms' processes may substitute for the need of labour.

- If these retrenched workers lack the relevant skill sets to move to other high-skilled and high value-added sunrise industries, the job-skills mismatch would worsen structural unemployment.

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

- **[Magnitude/Situation]** In light of rising anti-globalisation sentiments, signing FTAs is a crucial strategy for the Singapore government to sustain its global competitiveness by preserving open and free trade with participating countries.
  - FTAs not only counterbalance protectionist trends but also offer significant economic benefits and makes Singapore more attractive to foreign investors. This, in turn, boosts FDI inflows, which bring new technology and knowledge, thereby strengthening Singapore's global competitiveness and economic resilience.
- **[Stand + Time]** However, Singapore must adopt both short- and long-term measures to maintain its competitiveness. While FTAs offer immediate benefits such as enhanced market access and trade opportunities thereby driving short-term competitiveness, supply-side policies are essential for long-term structural improvements that sustain competitiveness over time.
  - A synergistic approach is crucial, as FTAs create opportunities for export-oriented industries, but Singapore must implement supply-side policies to capitalize on these opportunities by improving the quality and cost-competitiveness of its goods and services.
- **[Situation]** Additionally given our reliance in imported raw material, exchange rate appreciation is vital to controlling inflation, thereby maintaining our export price competitiveness.

Mark scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that has: <ul style="list-style-type: none"> <li>• <b>good scope and balance</b> – explains the workings and limitations of two policies to enhance export price and non-price competitiveness, and increase attractiveness as a FDI destination; and</li> <li>• <b>good rigour</b> – utilises appropriate AD/AS analysis and relevant, well-labelled and accurate AD-AS diagram(s); and</li> <li>• <b>good application</b> to the context of Singapore.</li> </ul>	8 – 10
L2	For an answer that: <ul style="list-style-type: none"> <li>• <b>lacks scope</b> – only explains how to enhance export price and non-price competitiveness or increase attractiveness as a FDI destination; and/or</li> <li>• <b>lacks balance</b> – only explains how the workings or limitations the two policies; and/or</li> <li>• <b>lacks rigour</b> – there are gaps in analysis and/or explanation is not supported by well-labelled and accurate AD-AS diagram(s); and/or</li> <li>• <b>lacks application</b> to the context of Singapore.</li> </ul>	5 – 7
L1	For an undeveloped answer that: <ul style="list-style-type: none"> <li>• is descriptive, lacking in application of economic theory; and/or</li> <li>• contains serious and pervasive conceptual errors; and/or</li> <li>• is largely irrelevant.</li> </ul>	1 – 4
Level	Evaluation/Synthesis	Marks
E3	For a balanced answer that arrives at an analytically well substantiated judgement on the relative effectiveness of the measures that the Singapore government can adopt to sustain its global competitiveness.	5
E2	For an answer that has balance and makes some attempt at a substantiated judgement on the relative effectiveness of the measures that the Singapore government can adopt to sustain its global competitiveness..	3 – 4
E1	For an answer that makes an attempt to provide a counterargument by explaining the limitations of the policies.	1 – 2