

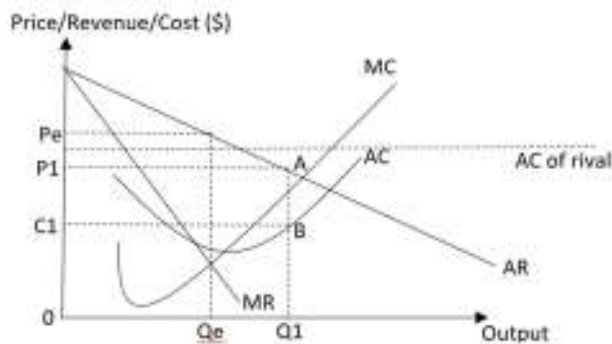
2023 H2 Econ Prelim P1
CSQ 1 Suggested Answers

- (a) (i) Explain why Boeing is concerned about the potential entry of Embraer and COMAC [3]
 into the aircraft manufacturing industry.

The aircrafts manufactured by Embraer and COMAC are considered substitutes to the aircrafts manufactured by Boeing. [1] The demand for Boeing's aircraft may fall thus the AR/MR shifts leftwards as airlines may decide to buy the aircrafts from Embraer and COMAC. [1] Assuming the average cost curve and marginal cost curve are unchanged, the market share of Boeing would fall, reducing the profit. [1]

- (ii) Use a diagram to explain how Boeing could use limit pricing as a strategy to [3]
 discourage the potential entry of Embraer and COMAC.

Diagram [1]



In the above diagram, Boeing may decide to sacrifice some short-run profit by pricing lower at P_1 and producing higher at Q_1 , instead of the profit maximising price (P_e) and output (Q_e). Since P_1 is below the estimated average cost of the potential entrant firm (Embraer and COMAC), this would imply that if Embraer and COMAC enters the market and competes, it may incur significant losses. [1]

Thus if Embraer and COMAC enter the market, it would make subnormal profit. If the firm is rational, it would not enter based solely on the profit consideration. [1]

- (b) Using a relevant example from Extract 1, explain how average fixed cost is affected as an [2]
 aircraft manufacturing firm increases its output in the short run.

Examples of fixed costs are the costs incurred to build factories, assembly lines, hangars and testing facilities. [1]

As the output increases, the fixed cost remain unchanged hence average fixed cost will fall. [1]

- (c) Explain how average total cost will change as an aircraft manufacturing firm expands its [2]
 scale of production in the long run.

As the firm increases its scale of production in the long run, such as building more factories, assembly lines, hangars and testing facilities, these costs are spread over a larger unit of output. The **unit** cost of production would fall due to internal economies of scale hence average

total cost falls. [1] As the scale of production continues to rise and output is produced beyond the minimum efficient scale, internal diseconomies of scale would cause the average total cost to rise. [1]

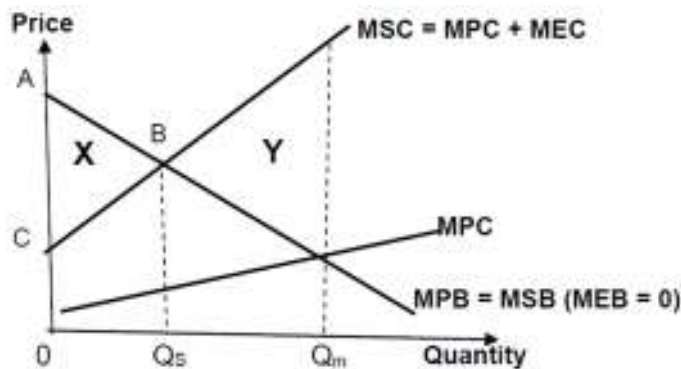
- (d) (i) Explain what is meant by efficient allocation of resources in a free market. [2]

In a free market, assuming there are no external costs to third parties and no external benefits to third parties[1], resources are allocated efficiently at the equilibrium output where $MSB=MSC$ [1].

- (ii) Discuss whether negative externality is the main reason for a government to restrict recreational use of cannabis. [8]

R1: Negative externality in the recreational use of cannabis

Marginal Private Cost (MPC) measures the cost to producers of producing additional units of cannabis such as the cost of raw materials and wages of workers. Marginal Private Benefit (MPB) measures the benefit to consumers from consuming additional units of cannabis.



If recreational use of cannabis is allowed in the free market, it could create external costs to third parties. There are negative externalities in the consumption of cannabis. With reference to Extract 2, those who consume cannabis have low attendance rate at work thus reducing their productivity, creating a loss in output of the employers. Some may turn aggressive and hurt their family members, which would cause their family members to incur medical costs. The third parties who incur the external costs are the employers and family members. Thus $MSC > MPC$, that is, $MSC = MPC + MEC$. The free market equilibrium is at Q_m where $MPC = MPB$ whereas socially efficient equilibrium is at Q_s where $MSC = MSB$. There is overconsumption of $Q_s Q_m$ in the free market, which caused the deadweight welfare loss of Area Y.

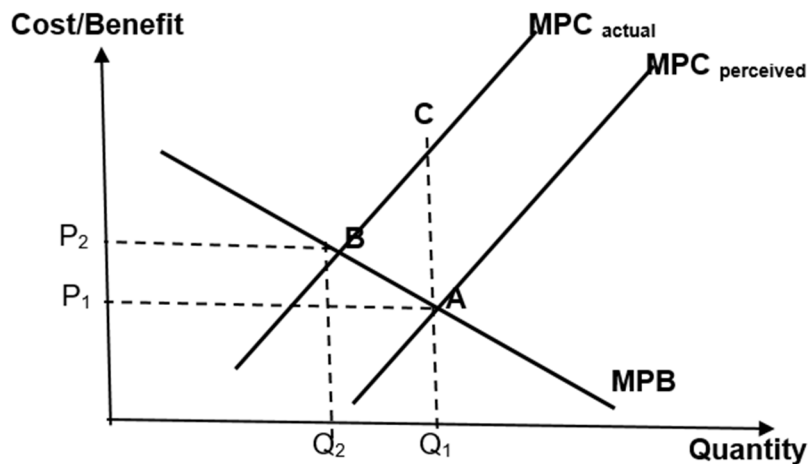
EV1: Recreational use of cannabis may help to revive the tourism industry

With reference to Table 1, the percentage change in total number of drug offences for possession of cannabis has increased by 21.5% which is larger than the percentage change of possession of controlled drugs. This suggests that the extent of the external cost on third parties is very high and the amount of overconsumption is also likely to be very high.

R2: Other reason – Imperfection information in the recreational use of cannabis

Marginal Private Cost (MPC) and Marginal Private Benefit (MPB) measures the cost and benefit respectively to an individual from consuming additional units of cannabis. An individual may underestimate his true marginal private costs from consuming cannabis if he only consider the price of the cannabis. He may be unaware of or underestimate the harm of cannabis to his health.

As mentioned in Extract 2, regular cannabis use increases the risk of developing psychotic illnesses, such as schizophrenia. This health cost of consuming cannabis is not experienced immediately but only over time hence the individual's perceived MPC lies below the actual MPC.



With imperfect information, an individual consumes quantity Q_1 of cannabis where $MPC_{\text{perceived}} = MPB$, thus Q_1 will be the quantity of cannabis that he thinks optimises his welfare. However, at quantity Q_1 , the individual suffers a welfare loss of area ABC as his actual MPC is greater than his MPB. If he had perfect information about the true MPC of consuming cannabis to himself, the optimal quantity of cannabis consumption for him is Q_2 where $MPC_{\text{actual}} = MPB$. Thus there is overconsumption of Q_2Q_1 units of cannabis.

EV2: The optimal consumption of cannabis should be zero

For some individuals, the quantity of cannabis consumed should be zero where $MPC_{\text{actual}} = MPB$. This means it is a welfare gain for them to not only reduce the quantity of cannabis, but to drop the habit altogether or to not even start consuming cannabis.

Summative Conclusion

Negative externality and imperfect information are the two possible reasons why there is over allocation of resources in the free market for recreational use of cannabis. The overconsumption caused by imperfect information is likely to affect the individuals who are not aware of the actual costs. However, negative externality affects the society and as stated in the extract, the third parties identified are the employers and family members. Hence negative externality is likely the main reason as the area of the deadweight welfare loss on society could be very large (Area Y). If Area Y is larger than Area X, a government may even decide to ban it.

- (e) With reference to Extract 3, discuss whether the standard of living of OECD countries [10] would necessarily worsen due to the pandemic.

Real GDP per capita is often used to measure material standard of living while non-material standard of living is measured in terms of the well-being of the individual.

R1: How standard of living is worsened by the pandemic.

During the travel ban, tourist arrivals dropped significantly, which caused the demand for air travel, hotel stays, food and beverages and other related services (Extract 3) to drop significantly. This caused a fall in the net exports (X-M), hence a fall in aggregate demand, and subsequently

a fall in real national output via the reverse multiplier process. The fall in real national output caused a fall in the demand for labour, which is a derived demand, and caused the unemployment to rise, such as what had happened to the countries in Southern Europe. Assuming population remain unchanged, real GDP per capita would also fall which implies a fall in material standard of living.

The level of confidence dropped as there were high levels of COVID-19 infections and deaths (Extract 3). Households preferred to save and decided to cut their spending. Firms revised downwards their marginal efficiency of investment and also decided to cut investment. The further fall in aggregate demand increased the unemployment, which reduced the purchasing power of workers, consuming lesser quantity of goods and services, hence lowered their material standard of living.

The high levels of deaths and infections (for eg, Belgium and Britain) also caused a lot of anxiety and stress which lowered the quality of life hence lowered non-material standard of living.

EV1: Government policy may mitigate the extent of the fall in standard of living.

If there are unemployment benefits or cash vouchers given by the government (for eg, US) to the workers, the fall in purchasing power will be reduced and this would reduce the extent of the fall in material standard of living.

The unemployment benefits may partially reduce the anxiety and stress caused by the loss in income but it is unlikely to improve the non-material standard of living. However the fall in the level of pollution due to the fall in production could improve the quality of air, which could also improve the non-material standard of living.

R2: How standard of living can be improved after the pandemic.

There are opportunities created by the pandemic (Extract 3) such as adoption of pandemic-induced technology. Many firms could conduct more research and development in the race to develop a vaccination. With lower interest rates during the pandemic and the higher expected profit in these industries, the level of investment increased (for eg, US and Denmark) and the real national output increases via the multiplier process and subsequently raise the level of employment.

The fiscal stimulus implemented by government to inject spending into the economy (for eg, US, Britain and Canada) further raise the real national output and increase the demand for labours. If these policies lead to a large increase in real national output that is higher than pre-pandemic level, material standard of living would rise.

With the successful development of vaccines, the restrictions to movement would be gradually removed and non-material standard of living could be restored. If government increased spending on healthcare capacity, the non-material standard of living could improve.

EV2: Standard of living may not reach the pre-pandemic level.

The rise in investment related to the pandemic-induced technology may not be large enough to offset the fall in AD caused by the pandemic (for eg, tourism and related industries) thus the rise in real national output may not reach the pre-pandemic level. Even if the rise in investment is very substantial, there would still be structural unemployment. The use of fiscal policy may not be viable if the government is already having a large budget deficit. Hence material standard of living may still be lower than the pre-pandemic level.

Although there is vaccination for COVID-19, the Omicron variant (Extract 3) would still create anxiety and stress hence non-material standard of living may also be lower than the pre-pandemic level.

Summative Conclusion

If the real national output can at least reach the pre-pandemic level, employment would be restored and material standard of living could remain unchanged or even higher. As stated in Extract 3, the average household income, adjusted for inflation, is above pre-covid level thus it is possible for the material standard of living to rise. If the Omicron variant continues to evolve and government continues to implement strict controls, the non-material standard of living is likely to worsen compared to pre-pandemic level.

Overall Stand: Therefore the pandemic would likely worsen non-material standard of living. The impact on material standard of living would depend on whether the government is able to increase spending to help the unemployed and to implement expansionary fiscal policy, as well as the effectiveness of the fiscal policy to create a large increase in the AD.

2023 Prelim CSQ2 Suggested Answers

- (a) Explain how Table 2 can be used to show that the global economy is experiencing stagflation. [2]

Stagflation is characterised by higher inflation accompanied by higher unemployment, slower growth, and possibly recession (Extract 4). [1]

Table 2 shows that generally there is rising inflation from 2017 to 2021.

AND economic growth has slowed down from 2017 to 2020 **OR** unemployment has increased from 2017 to 2021. [1]

- (b) (i) With reference to Figure 2, explain what the changes in real disposable income in the US and OECD countries suggest about the level of fiscal support measures in these countries respectively from 2020 onwards. [2]

Figure 2 shows that the **US households experienced significantly higher increases in their real disposable income** compared to the OECD countries. [1]

Since disposable income measures the amount individuals have left to spend or save after paying taxes and receiving government transfer payments, this would suggest that the **level of fiscal support measures in the US is higher** than that of the OECD countries.

- (b) (ii) Explain how the differences in the level of fiscal support measures in the US and OECD countries contributed to the difference in inflation rate observed in Figure 1 from 2021 onwards. [2]

With a higher level of fiscal support measures in the US, the **consumers in US have a higher disposable income, leading to a greater increase in (autonomous) consumption (C)**. [1]

Hence, **AD increases more** and general price level increases more, leading to **US having a higher inflation rate** than OECD countries as observed in Figure 1.

Note: If students totally didn't show awareness about "relative" changes, 0m.

- (c) (i) Using a diagram, explain why the 'growing gap in interest rates between Japan and the US is weakening the yen' (Extract 6). [2]

Diagram showing supply of yen increasing. [1]

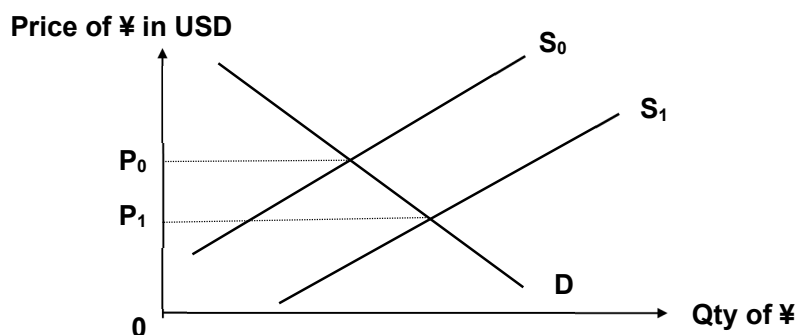


Figure 1(a): Weakening of the Yen

With a **lower interest rate** in Japan, there will be **hot money outflows to the US**, which has a higher interest rate. Hence, **supply of yen increases** (from S_0 to S_1) in the forex market, leading to a **depreciation** of yen against the USD, i.e. weakening the yen. [1]

Alternatively, diagram showing demand for yen falling. [1]

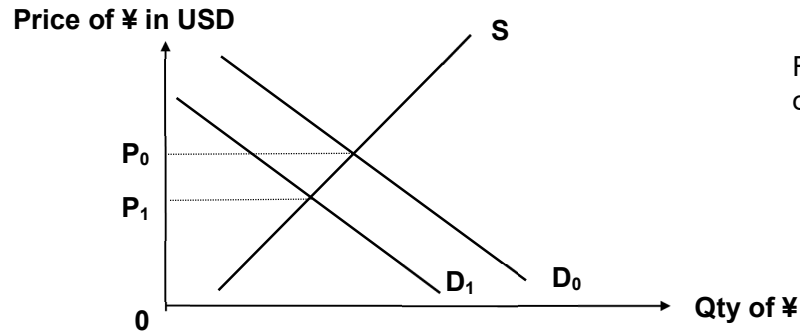


Figure 1(b): Weakening of the Yen

With a lower interest rate in Japan, there will be **less hot money inflows to Japan**, which has a lower interest rate. Hence, **demand for yen decreases** (from D_0 to D_1) in the forex market, leading to a **depreciation** of yen against the USD, i.e. weakening the yen. [1]

Note for diagram:

- y-axis: Accept "price" but need to remind students to label correctly.
- If show price of US\$ in yen $\rightarrow 0m$ for diagram

Note for explanation: Won't deduct mark if no mention about supply increase/ demand decrease but diagram shows correctly that supply increase/ demand decreases

(c) (ii) Explain how a weaker yen may have a positive impact and a negative impact on the economic growth of Japan. [4]

Positive impact on economic growth: With a weaker yen, the **prices of Japanese exports fall in foreign currency**. Hence, foreigners will purchase more exports, leading to an **increase in volume of exports** (Extract 6: weaker yen boosting export volumes). [1] *Optional: The prices of imported goods will also increase in yen, leading to a fall in volume of imports as consumers switch to relatively cheaper domestic substitutes.* Hence, net export ($X-M$) increases, leading to an **increase in AD** and real output increases by a multiple via the multiplier effect, which **increases actual growth**. [1]

Negative impact on economic growth: With a weaker yen, **prices of imported factor inputs increases** (Extract 6: Ukraine war has pushed oil and grain prices sharply higher... Japan heavily dependent on imports of these commodities), leading to an **increase in cost of production**. [1] Hence, **AS falls**, leading to a fall in real output, which **slows down actual growth**. [1]

(d) Discuss whether demand or supply factors have a greater impact on the increase in the price of wheat. [8]

Introduction

Extract 7 mentions that food prices have been skyrocketing. This answer will discuss whether demand or supply factors have a greater impact on the increase in the price of wheat.

Body

R1: Demand factor will increase the price of wheat

- *Extract 7: recovery in food demand from the global COVID-19 recession*
- As economies start to recover from COVID-19, there will be a **rise in income**, leading to increase in purchasing power and demand for **normal goods**, like wheat, will increase from D_0 to D_1 as shown in Figure 2, leading to an increase in price of wheat from P_0 to P_1 , ceteris paribus.

Ev1: Demand factor has a great impact on the increase in price

- **PES<1** due to long gestation period, the **increase in price from P_0 to P_1 will be more than proportionate** to the increase in quantity supplied from Q_0 to Q_1 .

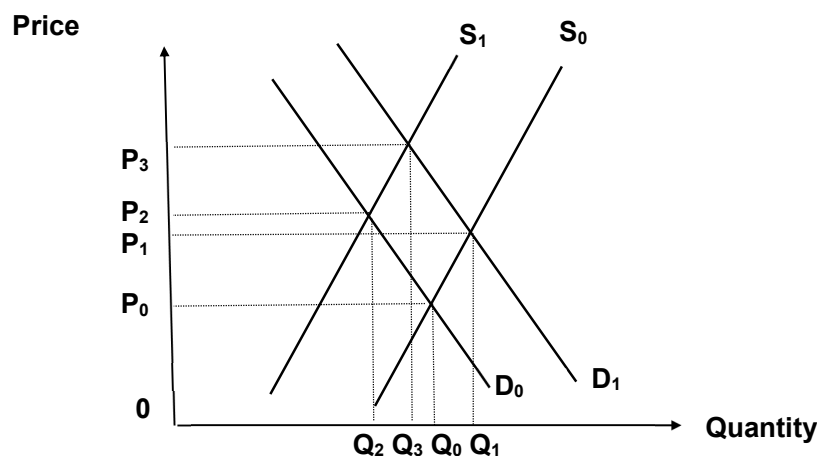


Figure 2: Market for wheat

R2: Supply factor will increase the price of wheat

- *Extract 7: Ukraine-Russia war... Ukraine and Russia account for over a quarter of the world's annual wheat sales...*
- With the ongoing war in Ukraine, there is **supply shock** as the 2 major producers of wheat will not be able to export as much wheat as before, hence supply of wheat will fall from S_0 to S_1 , as shown in Figure 2, leading to an increase in price of wheat from P_0 to P_2 , ceteris paribus.

Ev2: Supply factor has a great impact on the increase in price

- **PED<1** as wheat is a staple food with a high degree of necessity, the **increase in price from P_0 to P_2 will be more than proportionate** to the fall in quantity demanded from Q_0 to Q_2 .

Summative Conclusion

According to Extract 7, "Global stocks of ... wheat ... remain historically high". Hence, in the short run, it is likely that **PES>1 instead of PES<1**, hence the rise in demand may have a smaller impact on the increase in price of wheat, i.e. supply factor has a greater impact on the increase in the price of wheat from P_0 to P_3 .

Note:

If students only use $0 < YED < 1$ (without PES), can accept for Ev1. But full credit will not be given for evaluation because the students missed out the information given in Extract 7 regarding PES.

If mention YED as Ev1 and PES as SC, or vice versa, full credit can be given.

MARK SCHEME:

Level	Descriptors	Marks
L2	Breadth Covers 2 requirements. Explains both demand and supply factors causing price of wheat to increase Depth Applies relevant economic concepts or theories Explains with rigour and details Supports arguments with relevant case evidence	4 - 6
L1	Lacking in any of the L2 criteria	1 - 3

E2	Makes a clear, justified and convincing stand based on both requirements; synthesis arising from analysis of both requirements and prior evaluation with reference to case material where appropriate	2
E1	Evaluation of both requirements with reference to case material where appropriate	1

For tutors' reference when marking:

Level 2	A+A	6
	C+A	5
	C+C, K+A	4
Level 1	A+0, C+K	3
	C+0, K+K	2
	K+0	1

- (e) Discuss **the extent to which** technological innovation helps to avert stagflation in an economy. [10]

Introduction

Define stagflation: characterised by higher inflation accompanied by higher unemployment, slower growth, and possibly recession.

State the two main threats of stagflation are deglobalisation and labour constraints (*Extract 4*).

Body

R1: Technological innovation helps to avert stagflation due to labour constraints

- According to Extract 4, '*demographic ageing ... will continue to reduce the supply of labour, causing wage inflation*' and '*backlash against immigration ... will reduce labour supply and apply upward pressure on wages*'. This would mean a higher cost of production, leading to a fall in AS, and hence higher GPL and slower/negative economic growth (i.e. stagflation).
- Technological innovation results in higher productivity as the same amount of resources would be able to produce a greater amount of output, and labour could be replaced by machines hence helping to solve the shortage of workers that most advanced economies are facing due to immigration restriction and ageing population. This would lead to a fall in cost of production and higher productive capacity, causing AS to increase, which leads to a fall in GPL and increase in real GDP, hence helping to avert stagflation in an economy.
- *Evidence: Extract 4: Technological innovation in artificial intelligence, machine learning and robotics could continue to weaken labour constraints*
- Draw AD/AS diagram

Ev1: Extent to avert stagflation might be limited because

However, the '*impact of technological change on aggregate productivity growth remains unclear in most data*' (Extract 4), likely because there is no guarantee of success in technological innovation and it might not solve the problems of ageing population to a large extent. As suggested in Extract 4, *demographic effects need to be tackled together with higher retirement ages and elderly people tend to spend savings without working, adding to inflationary pressures while reducing the economy's growth potential*. This occurs as AD increases while AS increases at slower rate/ falls, leading to higher GPL and slower/ negative economic growth (i.e. stagflation).

R2: Technological innovation could not help to avert stagflation as it could not solve other causes of stagflation like deglobalisation

According to Extract 4, *there has been a retreat from globalisation and a return to various forms of protectionism... and... production will be misallocated to higher-cost regions and countries*. This means that countries will not be producing according to their comparative advantage. The law of comparative advantage states that trade can benefit all countries if each country were to specialize in producing the goods in which they have a comparative advantage in (i.e. able to produce at relatively lower opportunity costs) and exchange some of these goods for other types of good in which

they have a comparative disadvantage in (i.e. goods in which they can produce at relatively higher opportunity costs). This would mean a higher cost of production, leading to a fall in AS, and hence higher GPL and slower/negative economic growth (i.e. stagflation).

Ev2: Extent of deglobalisation might be limited because

However, according to *Extract 4, 'today's deglobalisation may itself be reversed as regional integration deepens in many parts of the world'*. Countries could sign more regional Free Trade Agreements (FTA) – an agreement between member countries to remove barriers to trade (and often also barriers to investments) amongst themselves while each member retains its own trade (and investment) barriers against other non-member countries – allowing them access to cheaper imported inputs and lower cost of production, helping to avert stagflation.

Alternatively:

R2: Technological innovation helps to avert stagflation due to deglobalisation

- According to *Extract 4, there has been a retreat from globalisation and a return to various forms of protectionism... and... production will be misallocated to higher-cost regions and countries*. This means that countries will not be producing according to their comparative advantage. The law of comparative advantage states that trade can benefit all countries if each country were to specialize in producing the goods in which they have a comparative advantage in (i.e. able to produce at relatively lower opportunity costs) and exchange some of these goods for other types of good in which they have a comparative disadvantage in (i.e. goods in which they can produce at relatively higher opportunity costs). This would mean a higher cost of production, leading to a fall in AS, and hence higher GPL and slower/negative economic growth (i.e. stagflation).
- As analysed earlier, technological innovation results in higher productivity, leading to a fall in cost of production, causing AS to increase, which leads to a fall in GPL and increase in real GDP, hence helping to avert stagflation in an economy.

Ev2: Extent to avert stagflation might be limited because

Technological innovation can help to mitigate rising cost due to deglobalisation but it does not help to solve *'rising geopolitical tensions'* (Extract 4). Instead, according to *Extract 4, 'today's deglobalisation may itself be reversed as regional integration deepens in many parts of the world through FTA'*. Countries could sign more regional Free Trade Agreements (FTA) – an agreement between member countries to remove barriers to trade (and often also barriers to investments) amongst themselves while each member retains its own trade (and investment) barriers against other non-member countries – allowing them access to cheaper imported inputs and lower cost of production, helping to avert stagflation.

Summative Conclusion

In my opinion, technological innovation could help to avert stagflation to a small extent. This is because technological innovation takes time and there is no guarantee of success but the causes of stagflation are more immediate and multi-causal, like labour shortage due to immigration restriction and ageing population, deglobalisation, and loose monetary and fiscal policies that will lead to inflation and eventually slower growth as analysed in part (d). Hence, technological innovation needs to be complemented with other policies like increase in retirement ages, signing FTAs and tightening monetary policy to successfully avert stagflation.

Students can argue otherwise as long as they substantiate their stand.

MARK SCHEME:

Level	Descriptors	Marks
L2	Breadth Covers 2 requirements Explains how technological innovation helps and could not help to avert stagflation Or Explains how technological innovation helps to avert stagflation due to labour constraints and deglobalisation Depth Applies relevant economic concepts or theories Explains with rigour and details Supports arguments with relevant case evidence	4 - 7
L1	Lacking in any of the L2 criteria	1 - 3
E3	Makes a clear, justified and convincing stand based on both requirements; synthesis arising from analysis of both requirements and prior evaluation with reference to case material where appropriate	3
E2	Evaluation of both requirements with reference to case material where appropriate	2
E1	Evaluation of one requirement with reference to case material where appropriate	1

For tutors' reference when marking:

Level 2	A+A	6-7
	C+A	5
	C+C	4
Level 1	A+0, C+K	3
	C+0, K+K	2
	K+0	1