2023 JC1 H1 Economics Promotional Examination
Suggested answers and Markers' comments

CSQ Question 1 Suggested Answers

(a)	**With reference to Extract 1 and a diagram, explain two possible impacts of increased digitalisation on Singapore's production possibility curve.**

Suggested response

Impact 1

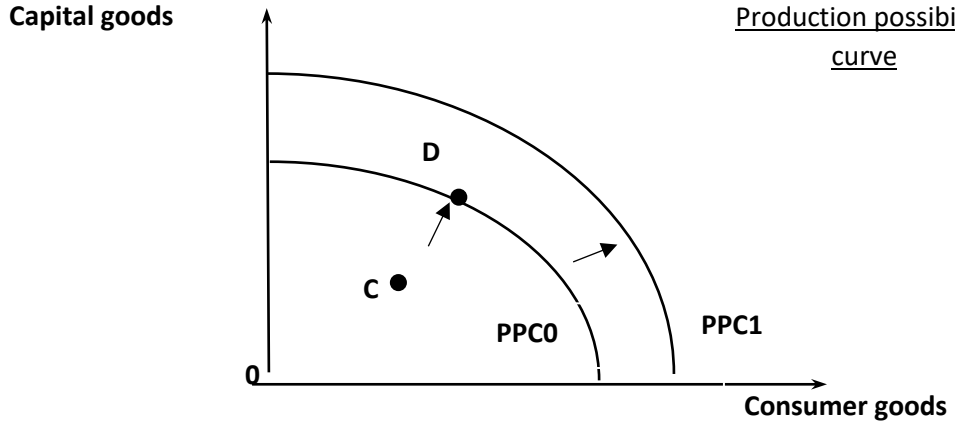
- Increased digitalisation leads to a rise in e-commerce and e-commerce firms need to hire more workers with software development skills to develop and manage their online platforms and mobile application. The creating of more jobs and hiring of more workers with technology-related skills lead to greater employment of resources since labour is also a factor of production.
- Assuming that the economy is originally producing at a point within the production possibility curve (PPC) with unemployment of resources, the greater employment of labour could be shown as a movement from a point under the PPC (point C) to a point on the PPC (point D) as previously unemployed resources are now fully employed. Refer to diagram 1 below.

Impact 2

- With digitalisation, such as the rise of e-commerce and online platforms for sales of goods and services, could include the use of online ordering systems and accounting systems to keep track of orders and payment. This is a form of technological enhancement which would increase the productivity in the economy. This enhances the economy's productive capacity.

- This means that the country can produce more capital and consumer goods. The PPC would shift outwards from PPC0 to PPC1 assuming that the higher quality labour is equally suited for the production of both food and machines. Refer to diagram 1 below.

<u>Diagram 1:</u>
<u>Production possibility curve</u>



Marker's Comments

- General comments:
  Most students did well for this question, getting 3 marks and above.

	- Some students explained the impact of increased digitalisation on either (1) an outward shift of the PPC or (2) a movement from a point within the PPC to another point nearer to the PPC or on the PPC. The question requires an answer that considers both actual (illustrated by 2) and potential growth (illustrated by 1).
	- In general, students are better able to explain the impact of increased digitalisation on the PPC due to potential growth as compared to actual growth. The stronger responses explicitly explain how digitalisation resulted in an improvement in quality of resources or quantity of resources or improvement in technology which lead to potential growth.
	- Some students did not provide a fully labelled diagram. These students omitted the labelling of the PPC curve/s or axes. - Some students labelled the axes incorrectly, often providing price and quantity on the 2 axes. Students are reminded that they are supposed to provide 2 different goods/services on the 2 axes since the assumption is that an economy only produces 2 goods/services as represented by a PPC. Please review this definition of the PPC: The production possibility curve shows all the possible combinations of **two goods** that a country can produce within a specified time period, with all its resources fully and efficiently employed and at a given state of technology. - Many students were not able to provide a well-explained answer on how digitalisation brings about actual growth. These students did not explain how digitalisation creates more technology-related jobs and in turn reduces unemployment of labour.
AP	- Some students explained that digitalisation will cause a pivoted shift, specifically favouring the production of capital goods rather than consumer goods with no explanation. This could be because students relate the idea of digitalisation to only increase in the productive capacity of capital goods such as machines and not consumers goods which are the final goods and services. However, digitalisation which is about developing processes and changing workflows to improve manual systems are relevant for many different types of goods and services, regardless of whether they are capital or consumer goods.

(b)	**With reference to Extract 2 and using the marginalist principle, explain how a rational consumer decides whether to pursue adult education. [4]**
	Suggested response

- Rational consumer considers the marginal private benefit of pursuing adult education such as having the required skills/ refreshed skills to fit into a new role or a new job in a field (Extract 2) after attending the adult education programmes. This could enable consumer to obtain a better job with higher pay.
- Rational consumer also considers the marginal private cost of pursuing adult education such as the opportunity cost measured in terms of the forgone income (Extract 2) if they were to take time away from work to attend adult education courses. OR Rational consumer also considers the explicit marginal private cost of pursuing adult education such as the course fees for training (Extract 2), and transport costs.
- The rational consumer aims to maximise satisfaction/utility/net benefit.
- The rational consumer will pursue adult education if the MPB exceeds the MPC.

Note: We will also provide the same credit to responses which use the terms marginal benefits and marginal cost.

Marker's Comments

- General comments:

Majority understood the question requirements as that related to marginal benefits and costs. The difference is in terms of quality of the explanation. The sharper answers interpreted the information from the extract while the weaker answers simply copied wholesale from the extract resulting in lengthy answers without much quality nor reflecting any thinking skills. Students must avoid doing this.

QA	A small number of students misinterpreted the question as the entire decision-making process. They could have avoided this mistake by first defining what is the marginalist principle which sets out the 2 main components required for the question. Likewise, some mistook this as a market failure question with diagrams drawn to show deadweight loss. A few also explained using a demand and supply diagram which is not required as this is not a question about whether to consume an additional unit of adult education but whether to enrol for the adult education i.e to consume or not to consume a good.
CK	Answers showed a lack of knowledge of cost concepts. Some mistook explicit costs to be implicit costs. Even when the definition of opportunity cost is correctly given, answers failed to reflect what is the alternative forgone.
AR	Descriptive answers were most common. Students described at length without using economic terms. Majority of students who wrote about marginal benefits lifted entire materials from the extract without any interpretation. There are some who also did that for marginal costs. It ended up with the markers reading exactly what is in the extract. Students must take note that their answers should reflect that they processed the information and value add to their answer.
AP	Most have difficulties with the concept of marginal costs. Although they recognised that there are both explicit and implicit costs or opportunity costs, most cannot or did not give an example of explicit costs or even if they did, they got it wrong. This is most surprising.

	Many interpreted the voucher given by the government as a marginal benefit of pursuing adult education. This is incorrect. See below.

What you wrote:	What it should be:
A marginal benefit of pursuing adult education is the $500 voucher given to workers. An example of marginal cost is " .. likely to have heavier obligations taking care of both parents and children …"	The $500 voucher from the government helps to reduce the marginal costs of pursuing adult education. An example of a cost incurred by working adults is opportunity cost which is the next best alternative forgone. The time used to pursue the adult education course would mean that there is less time spent with the family. Thus, what is being forgone is the bonding time with family. (Or it could be forgone income as the time used for attending the adult course would mean that he may have to work fewer hours and therefore less income)

(c)(i) **Using Figure 1, compare the median starting salary for graduates from the computer science programme with that for graduates from the architecture programme from 2019 to 2022. [2]**

- Similarity: **Both** experienced a rise in the starting salary.
- Difference: The starting salary for graduates of the computer science programme increases more/ rises faster/ increased at a higher rate **as compared to** that for graduates of the architecture programme. OR The starting salary for graduates of the computer science programme is always higher **than** that for graduates of the architecture programme.

Marker's Comments

- Most students did well for this question, getting the full 2 marks.
- Many students stated the absolute difference in the wage for graduates from the computer science and architecture programmes, which is a less favoured response. E.g. The difference in the wage for graduates from the computer science programme and the architecture programme became larger from 2019 to 2022. Students are reminded that the difference in rate of change is more meaningful for the comparison of the change in the median starting salary over the years.
- Many students stated that the median starting salary for graduates from the computer science programme is higher than the in median starting salary for graduates from the architecture programme. This statement did not explicitly mean that the comparison is for the entire period. Students should write in a more precise manner by stating that 'the median starting salary for graduates from the computer science programme is always higher than the median starting salary for graduates from the architecture programme from 2019 to 2022'.
- Some students identified the trend of the median starting salary for graduates from the architecture programme to be generally decreasing. Students should note that the

	question is for the entire period of 2019-2022 and hence the overall general trend of the median starting salary for graduates from the architecture programme is still considered to have increased. • Some students only provided ONE comparison and hence these students are only awarded 1 mark. • A few students stated the changes in median starting salary for graduates from the computer science programme and median starting salary for graduates from the architecture programme in separate sentences. These students are merely describing the changes in median starting salary for both without comparison (i.e., not using comparative words such as: both, higher/lower than, however, but, on the other hand).
(c)(ii)	**With reference to Extract 1 and Extract 2 and using demand and supply analysis, discuss whether the salary trend for computer science specialists will continue in Singapore. [8]**
	Requirement 1: Future increase in demand for computer specialist is likely to further push up the salary for the computer science graduates in Singapore. • From extract 1, the growth in our e-commerce sales is expected to reach S$19.6 billion by 2027. Since demand for e-commerce is forecasted to increase futher, the demand for labour with the specialist IT skils would continue to rise as e-commerce firms will need workers with deep IT skills to manage and create the e-commerce online shopping platforms and mobile applications. The demand for labour is a derived demand where it is demanded not for itself but used as inputs in the production of other goods/services. This would lead to a continued increase in demand for computer specialists who have the necessary deep IT skills. • A further increase in demand for computer specialists would lead to a shortage of such workers and an upward pressure on their wage rate in the future. Salary of computer science specialist is likely to continue to rise in the future. **Requirement 2: Future increase in supply of computer specialist is likely to push down the wage rate/salary for computer science graduates in Singapore** • From extract 2, there will be an increase in the SkillsFuture course offerings from 2023, in areas like software development. The SkillsFuture scheme provides training voucher of S$500 for Singaporeans aged 25 and above, which can be used to cover training costs including digital technology. This would reduce the explicit cost of attending SkillsFuture courses in digital technology and software development and adults are likely to pursue such courses. This could lead to a future increase in supply of computer specialists. • A future increase in supply for computer specialists would lead to a surplus of such workers and a downward pressure on their wage rate in the future. Salary trend of rising salary for computer science specialist is unlikely to persist in the future. **Summative conclusion [2 evaluation marks]** • Overall, it is likely that the increase in demand will far exceed the increase in supply of computer science specialists.

- (EV for R1) It the rise in demand for computer specialist due to rise in e-commerce sale is likely to be significant as continued digitalisation in the Singapore economy is likely to bring about further growth in demand for computer specialist as other industries beyond e-commerce like banking and finance.
- (EV for R2) From Extract 2, SkillsFuture credit are used by mid-career workers, but due to existing financial commitments (e.g. need to pay for children's education or elderly parents' healthcare), such workers will find it hard to take time away from their current job and forgo their existing income to attend the SkillsFuture courses related to deep professional IT skills. As such, we expect a small increase in supply of computer specialists (from S0 to S1) relative to the large future rise in demand (from D0 to D1).
- Overall, there is likely to be shortage for computer specialists in the future leading to an upward pressure on their wage rate/salary. Their salary is likely to continue to rise in the future.

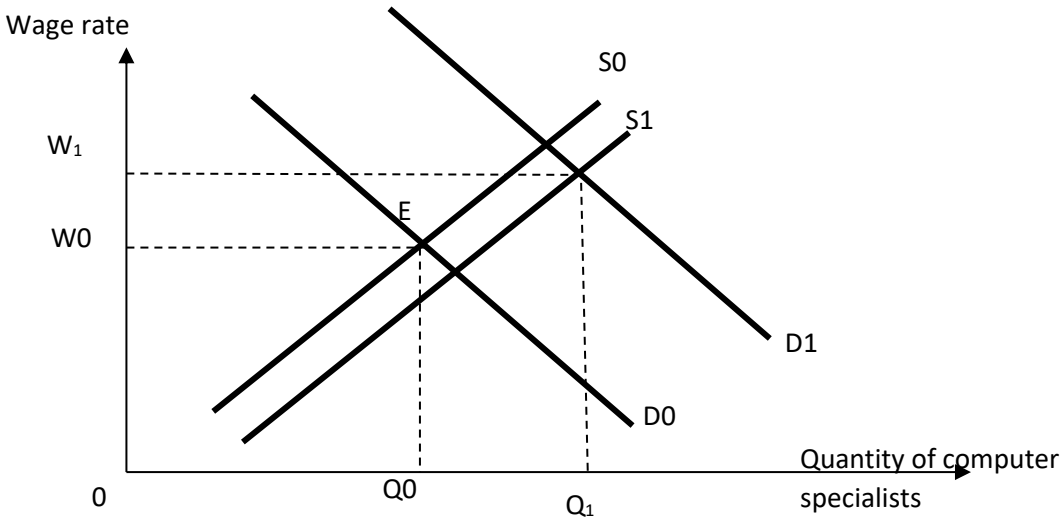


Diagram 1: Future outcome in the market for computer specialists

[Alternative] Summative conclusion [Evaluation of 2m]

- (EV for R1) Based on recent post-covid employment trends, there has been massive layoff of computer specialists such as programmers and software developments by many technology firms worldwide due to falling investment level in the technology sector and such layoffs might continue in the future. Overall, the demand for computer specialists might only rise to a small extent (from D0 to D1) in the future.
- (EV for R2) From Extract 2, the extensive outreach campaigns to promote SkillsFuture courses coupled with the SkillsFuture credit to offset the course fee is likely to encourage many more workers to take up computer specialisation related SkillsFuture course. We would expect a large increase in supply (from S0 to S1) in the future.

- Overall, there is likely to be surplus for computer specialists in the future leading to a downward pressure on their wage rate. Their salary is likely to fall in the future, hence the salary trend of rising salary is unlikely to persist in the future.

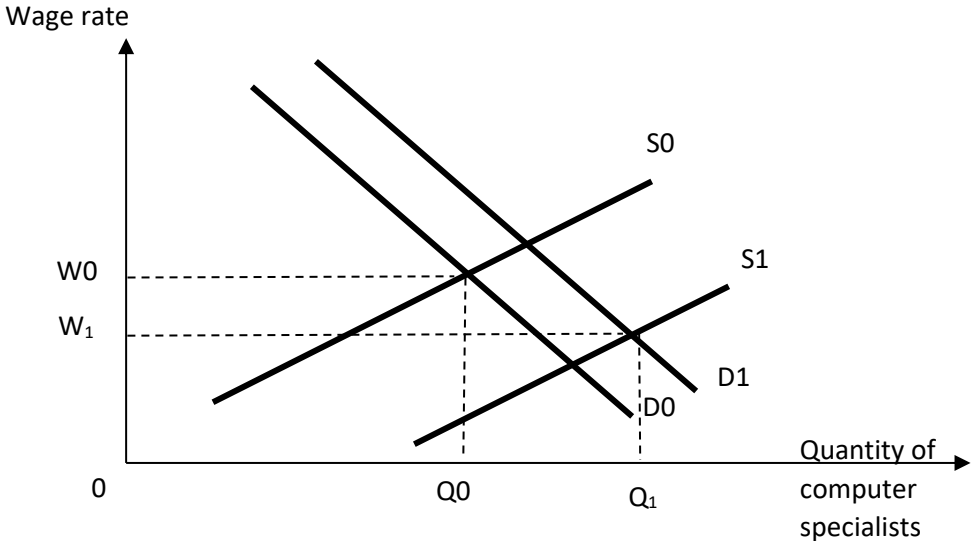


Diagram 2: Future outcome in the market for computer specialists

Mark Scheme

Knowledge, Application, Understanding and Analysis		
L2	Answers in this level will provide detailed explanation on how changes in demand and supply of computer specialist would affect the salary of the computer specialist in the future.	4-6
L1	Answers in this level will have some limited explanation on how changes in demand and/or supply of computer specialist would affect the salary of computer specialist in the future.	1–3
Evaluation		
E	Evaluation marks will be awarded for a comment on whether the salary for computer specialist is likely to continue to rise in the future. The comment needs to weigh and synthesise both future demand and supply factors.	1-2

Marker's Comments

QA	Students understood the question and fulfilled both demand and supply aspects as well as included an evaluation on whether the salary trend will continue.
CK	Many students did not link the demand factor to derived demand for computer specialists. For the supply factor, some explained lower cost of production given the SkillsFuture vouchers which is incorrect as the question is about the labour market, not the product market.

	AR	Some merely lifted from the Extracts or stated that there was an increase in demand and supply without explaining the factors. Price adjustment process was elaborated with some inaccurate annotation of the shortage/surplus in the diagrams.
	AP	Students were able to use the given Extracts to explain the demand and supply factors.
	EV	Some commented on only future demand/supply factors instead of both. Others presented 2 possible scenarios without finally concluding which factor is likely to have a greater impact on future wages.

(d) **With reference to Extract 3, comment on whether the use of online learning platforms will increase the price elasticity of supply of adult education programmes. [6]**

Suggested Answer

- Price elasticity of supply measures the degree of responsiveness of quantity supplied of a good/service to a change in its price, ceteris paribus.
- **Without the use of online learning platforms, the price elasticity of supply of adult education programmes is likely to be inelastic.**
    - When education institute conducts in-person lessons, the availability and mobility of factors of production is low. To increase the supply of their programmes, they need to hire more teachers to conduct the lessons and it would take time to train such new teachers. For example, when there is an increase in price, the programme provider can increase the quantity supplied of the education programme by hiring teachers from other programmes such as secondary school educators or even to train professionals from the industry without teaching experience so they could convert into adult education trainers. The relatively low availability and mobility of teachers would limit the extent of increase in the quantity supplied of adult education programmes when there is an increase in the price. Hence, the supply curve is likely to be relatively price inelastic (i.e. 0<PES<1) without the use of online learning platforms.

- **With the use of online learning platforms, it would increase the price elasticity of supply of adult education programmes.**
    - As mentioned in the extract, adult education providers can develop online learning platforms as a substitute for in-person lessons. Such online learning platforms can be time consuming and costly to set up at the start. The education provider will need to work closely with teachers and platform providers to tailor the learning platforms so it can meet different course requirements for example some courses require online lab simulations. Once such technological infrastructure is in place, it can be scaled up quickly, for example, due to excess capacity in the platform, they can increase the number of student accounts so more students can access the lessons and learning materials concurrently online. When there is an increase in the price, this could allow the adult programme provider to increase their quantity supplied of their programmes more

than proportionately. Hence, once such online learning platforms are available, the supply is likely to become more price elastic.

Overall Stand (EV): No, the use of online learning platforms would not increase the price elasticity of supply of adult education programmes which require hands-on skills. Such training, such as nursing programmes, often requires practical sessions in authentic settings (e.g. practicing on patients in hospitals). Hence the usability of the online learning platforms might be limited. Even when there is an increase in the price of such adult education programmes, there is likely to be a less than proportionate increase in the quantity supplied due to limited venues and teachers to monitor practical sessions.

Mark scheme

Up to 4 marks	Explain the price elasticity of supply of adult education programme without and with the use of online learning platform.
Up to 2 marks	Explain the price elasticity of supply of adult education programme without or with the use of online learning platform.
Evaluation (2m)	For an appropriate comment on the most likely effect on the price elasticity of supply

Marker's Comments

General comments:
This question proved to be challenging for many students because they were not sufficiently prepared for this topic on price elasticity of supply (PES) and its determinants.

QA	
CK	• Many incomplete and incorrect attempts at defining PES. • A large number confused the determinants of supply with determinants of PES. Eg, weaker responses mentioned how lower costs of production of adult education led to increase in PES. • A significant handful of responses were confused between PES>1 and PES<1. • A large number of responses mentioned about mobility of factors of production. However, they were either not clear about the meaning of this or got the understanding wrong. This was largely a result of unclear or incomplete understanding of PES determinants.
AR	Many lifted large chunks from para 2 and 3 of extract 3. There was hardly any explanation of how these affected PES of adult education.
AP	Quite a large number applied PED and demand when they should have used PES instead. This stemmed from a lack of understanding of PES.
EV	The majority of responses did not provide a comment and hence the evaluation mark could not be awarded. When the command word is 'comment', please take note that up to 2 marks is allocated to an appropriate comment on the most likely effect on the price elasticity of supply.

(ei) **With reference to Extract 4 and with the aid of a diagram, explain one source of market failure in the market for adult education.** **[5]**

Assuming a perfectly competitive market, the demand curve reflects the marginal private benefit (MPB) of consuming an additional unit of adult education such as better career prospects and earnings for the person consuming it while the supply curve reflects the marginal private cost (MPC) of producing education which includes the labour costs such as wages for teachers.

Adult education generates positive externality from consumption in the form of third party benefits as mentioned in Extract 4 that lifelong learning generates incidental benefits such as firms/employers experience fewer absenteeism rates and increase productivity for the firms. This can raise profit level for firms, who are the 3rd parties that did not pay for the benefits.

Due to positive externality arising from adult education, there is a **<u>divergence</u>** between MSB and MPB, where MSB is the sum of MPB and MEB

Since private individuals, driven by aim of maximising profits (for producers) or maximising satisfaction (for consumers), consider only private costs and benefits, thus they will produce/consume up to **Qe** where **MPB=MPC in Diagram 1**. However, socially optimal output is at **MSB=MSC** where output should be at **Qs.**

Since **Qe<Qs**, the equilibrium output in a free market is less than the socially efficient output ➔ underconsumption by Q_eQ_s amount**. Explain DWL: Additional units of QeQs** consumed would add more to society's benefits (MSB) than cost (MSC) ie. **MSB>MSC.** However, **society is <u>not</u> consuming beyond Qe** →loss to society is the loss of potential gain if society were to consume beyond Qe ➔ Total welfare loss to society of area ABE when QeQs is underconsumed. Therefore there is inefficient allocation of resources (partial market failure).

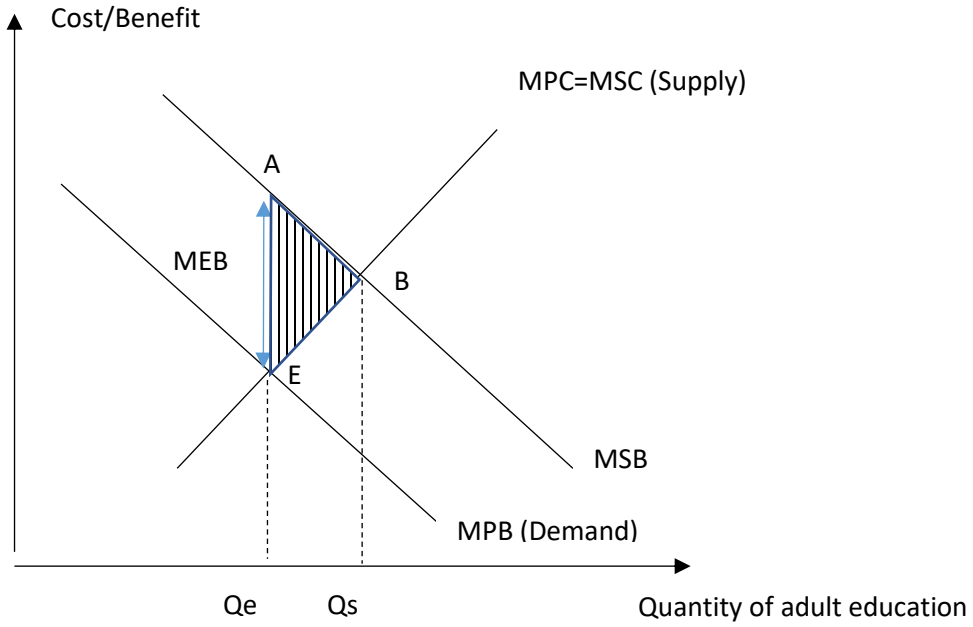


Diagram 1: Underconsumption due to positive externalities

<u>Alternative Response (imperfect information)</u>

In addition, there is an element of imperfect knowledge as consumers and producers of adult education underestimate the true benefits that adult education brings for the private individuals as well as for the society. For example, while they are aware of the increase in income, the consumers do not know the true extent of the benefits of lifelong learning. Some may not be aware of the various courses that are provided and how they could enhance their career prospect. Moreover, the rise in income and job opportunities may only happen in the longer term and consumers tend to discount and underestimate the benefits. This causes the MPB perceived to be lesser than the MPB actual in Diagram 2.

Instead of consuming at Qs where MPB (actual) = MPC, consumers will actually only consume at Qe, where MPB perceived=MPC. Since Qe is less than Qs, there is underconsumption. **Explain DWL: Additional units of QeQs** consumed would add more to society's benefits (MSB) than cost (MSC) ie. **MSB>MSC.** However, **society is <u>not</u> consuming beyond Qe** →loss to society is the loss of potential gain if society were to consume beyond Qe ➔ Total welfare loss to society of area ABE when QeQs is underconsumed. Therefore there is inefficient allocation of resources (partial market failure)

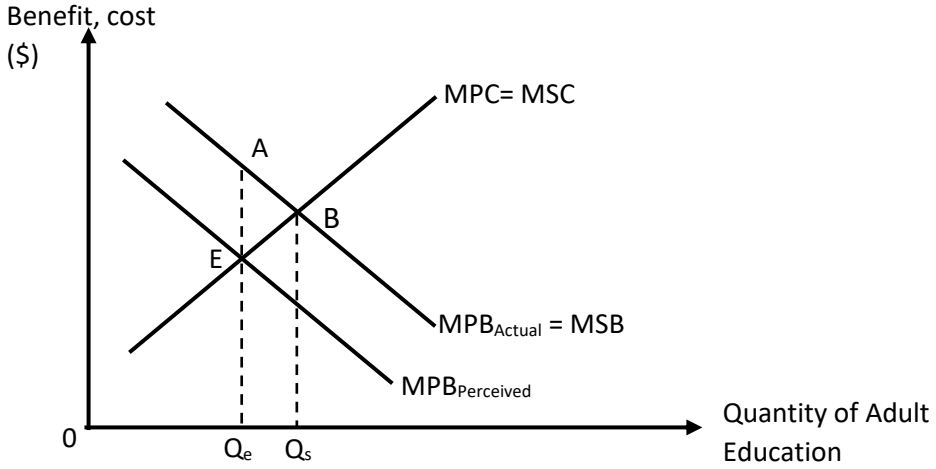


Diagram 2:
Underconsumption due to imperfect information

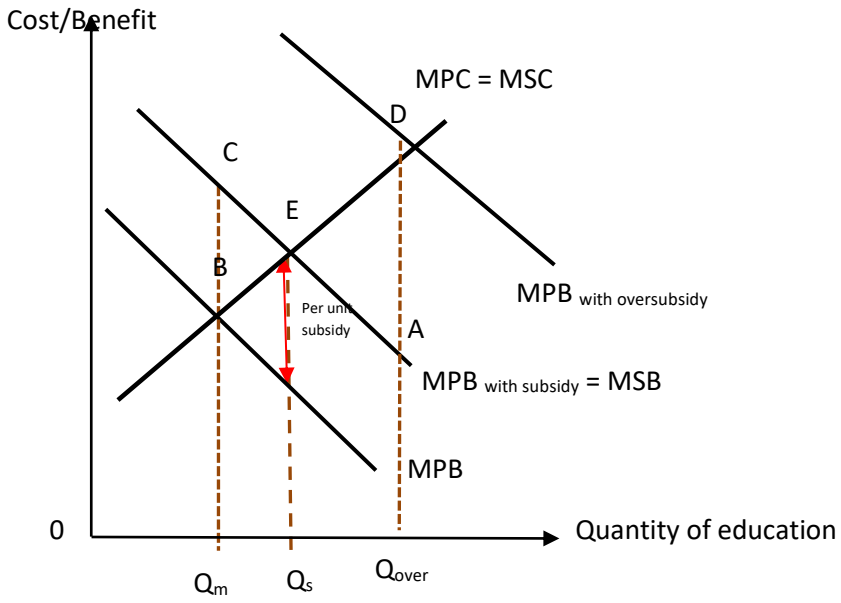
Marker's Comments

QA	Most students knew what the question was asking for.
CK	1. Some students talked about the imperfect information that governments face in the market for adult education. However, as this question asked about failure of the **free market**, students should only be talking about the imperfect information that economic agents **in the free market** face. The government is not part of the free market. 2. Quite a number of students did not identify the right DWL area.

		3. A small number of students drew a downward-sloping MPC and upward-sloping MPB curves. This is wrong. MPC should always be upward-sloping while MPB curve should be downward-sloping.
	AR	Among students who brought in the 5-step market failure analysis, a common step that was left out was the derivation of the socially optimum level of output.
	AP	1. In their example of positive externality, many students said that the firms benefit from having workers who are more skilled/productive after the workers consume adult education. Although this is credited in this exam, in future, students need to elaborate a little more. For example, students should continue to say that 'when productivity of the firms increases, their cost per unit of output would fall and hence **profitability increases'**. 2. There is a common misinterpretation of the following information in the extract: "…learning later in life helps to delay the onset of dependency among rapidly ageing populations." A handful of students **wrongly** mentioned that the ageing population are the third party. What is meant by the extract is that if the ageing population consume adult education, they would remain longer in the labour force and hence will be less dependent on their families and the government. So the 3rd parties are the governments and family members who benefit from spending less on financial/social support for the elderly. 3. Some students didn't clearly identify the third party in their examples of positive externality.
(eii)	**Discuss the view that subsidy is better than provision of information to correct market failure in the market for adult education. [10]**	
	Requirement 1: *Explain subsidy to correct market failure due to positive externalities in the market for education* ***Requirement 2****: Explain provision of information to correct market failure due to information failure in the market for education* ***Evaluate:*** *Intermediate EV for R1 and R2 and summative conclusion with synthesis based on clear criteria.* **Introduction** The Singapore government uses subsidy and the provision of information to tackle the problem of allocative inefficiency caused by underconsumption of adult education in Singapore. Whether efficiency is ensured depends on effectiveness and certain assumptions. ***Requirement 1:*** *Explain subsidy to correct market failure due to positive externalities in the market for education* One of the key policies that Singapore government uses is the provision of subsidy for adult education. As mentioned in Extract 2, "the Singapore government kickstarted SkillsFuture with the aim of retraining	

Singapore's workforce. This initiative introduced a training voucher of S$500 for Singaporeans aged 25 and above, which can be used to cover training costs of one or several courses ranging from digital technology to business management."

Singapore government provides a subsidy per unit of output that is equal to the marginal external benefit at Qs to the consumers. The subsidy increases the purchasing power for consumers and this will increase their ability to pay and hence the demand for adult education will increase. The MPB shifts to the right from MPB to $MPB_{with\ subsidy}$. As a result, the market equilibrium quantity of adult education, where MPC=$MPB_{with\ subsidy}$, will increase to the socially optimum quantity, Qs. Thus, the subsidy corrects the market failure.



Subsidy can be an effective policy for Singapore because it can be adjusted to reflect the different level of MEB. For example, the subsidy amount for adult education can vary across the different level, as seen from the Opening SkillsFuture Credit of $500 given to all Singaporeans aged 25 and above, followed by a one-off top-up of $500 to further encourage Singaporeans to take timely action to reskill and upskill to seize opportunities in the future economy. There is also an additional credit for those age 40 to 60 to improve their access to career transition programmes, reflecting the extent of MEB. Thus, overall, the society can consume the optimal amount of adult education.

In this case, it is important to provide a subsidy that is greater than MEB in this case as the consumers also suffer from imperfect information. This will help the society to achieve the optimal output level.

Intermediate EV for R1

However, Singapore government can suffer from imperfect information as it is difficult to estimate the MEB. If subsidy exceeds the MEB, it could lead to overconsumption. If subsidy is lower than the MEB, underconsumption could persist. For example, a deadweight loss of ADE could be incurred if

	consumption increases too much to Qover and this is larger than the original deadweight loss of CBE without government intervention. Society's welfare might be worsened. **[Situation]** For example, there are many different adult courses in Singapore. Different adult courses have different marginal external benefits. Some courses are more relevant to Singapore position of a trading and financial hub, while others may not be so relevant. Moreover, it is also difficult to predict the MEB as we are open to foreign direct investments and it would take some time for the foreign firms to decide to move to Singapore and the extent of investment and job creations would differ. As such, Singapore government is likely to estimate the MEB wrongly. In the event that it underestimates MEB, it could under subsidise and this would lead to underconsumption of education, Qu, and a deadweight loss of ADE could persist. Even though the extent of market failure is reduced, the market is still not allocatively efficient if it is difficult to accurately estimate the MEB of different types of education. ***Requirement 2****: Explain provision of information to correct market failure due to information failure in the market for education* Another policy that Singapore implemented is the provision of information. For example, as mentioned in Extract 2, the Singapore government actively promoted SkillsFuture courses through campaigns at shopping malls and community centres. The government continues with community outreach to help Singaporeans understand the benefits of lifelong learning to address the information failure. This information can tackle the root cause by eliminating the divergence between perceived and actual marginal private benefit. As consumers are aware of the true benefits, they will change their taste and preferences, leading to a rise in demand for adult education services and a rise in market equilibrium quantity consumed such that it reaches Qs. This will also eliminate the deadweight loss. **Intermediate EV for R2** While this policy can be effective as it addressed one of the root causes, it may be costly such as advertising cost to maintain the provision of campaign and information to the public as these information needs to be advertised over a long duration of time. **[Situation]** For example, in the context of Singapore, dissemination of information is easier such we are all connected via the internet and the government could disseminate the information about the benefits of the various courses through social media platforms. On top of the campaigns at shopping malls and community centres, the outreach through the online platforms could also help to be greater and faster as compared to face-to-face outreach events with limited capacity. This could reduce the advertising costs. **Conclusion** A **combination of policies** with subsidy and provision of information is needed to target *[STRAW Criteria: root cause]* **different root causes of market failure**. If citizens are not consuming adult education due to tight finances, a policy which could address the root cause and reduce the cost to consumers would be suitable. One example is subsidies which could work by making courses affordable for certain groups of people, especially those with family responsibilities

and financial commitments, as it serve to reduce the cost to individuals if they were to enrol in the courses.

If market failure arises from imperfect information, provision of information is essential to address the root cause of the problem which is the information gap. It would make people aware of the actual long-term private benefits of going for such courses. Given that each policy targets a different root cause, both policies are therefore important.

[Alternative]

A **combination of policies** with subsidy and provision of information is needed to address the problem effectively in both the *[STRAW criteria: time period]* short term and long term.

Subsidy is suitable in the short term as it can bring down prices quickly and increase consumption by incentivising consumers. Hence, the effects on the market, in terms of higher consumption of adult education, can be felt quickly. However, subsidy itself does not have a lasting effect as consumers are merely incentives to pursue more adult education without fully appreciating the rationale.

Provision of information is suitable in the long term. It may take time to change people's mindset but once such a mindset shift has taken place, the knowledge about the value of adult education stays with the recipients and such knowledge will continue to influence their consumption patterns to be more in favour of adult education even in the long term.

Mark Scheme

Knowledge, Application, Understanding and Analysis		
L2	Answer that shows developed analysis of the working of 2 policy to correct the above market failure. To score: Candidates must have answer that is relevant to the question with good use of well-explained theory. Answer is written with clear explanation that is supported by a tool of analysis such as a diagram.	4-7
L1	Answer that shows knowledge with understanding of the working of at least 1 policy to correct the above market failure. The explanation of the policy tends to be cursory and descriptive.	1–3
Evaluation		
E	Evaluation marks will be awarded for a realistic assessment of the difficulties faced in Singapore or other countries. A conclusion must be provided.	1-3

	To achieve E3 (3m): Candidate are required to synthesise arguments and make evaluative judgements and consider the extent of appropriateness leading to a decision based on judgements. One developed evaluative decisions/judgements that is well explained and reasoned. An evaluative judgement or decision that is supported by the arguments presented in the answer and is link to the context of the question. This may involve a summative conclusion.	

Evaluation	
E2 (2-3)	Candidates are to come to a well-reasoned decision on which policy or combination of policy is the best
E1 (1)	Judgment provided but no substantiation.

Marker's Comments

- General comments:

Question was generally well attempted. However, many provided descriptive answers, lacking analytical rigour.

QA	Many students omitted the part on HOW each policy works and only wrote on the strengths and limitations. Even amongst those who wrote strengths/limitations, most only stated the strengths and limitations instead of elaborating it with reference to the context.
CK	Quite a number of students **wrongly** identified MEB for the divergent of between MPB_{actual} and $MPB_{perceived}$. MEB is measured as the divergence between MSB and MPB at output level of Qs. A few students **wrongly** shifted MSC with the implementation of the subsidy. The MSC and MSB curves do not shift with subsidy. The subsidy given to producers will shift the MPC to producers while subsidy given to consumers will shift the MPB to consumers.
AR	Many students omitted the part on HOW each policy works and only wrote on the strengths and limitations. Even amongst those who wrote strengths/limitations, most only stated the strengths and limitations instead of elaborating it with reference to the context.
AP	Most students failed to recognise that a direct subsidy was provided in the case context. In the context, it was mentioned that Singaporeans are given a

		S$500 SkillsFuture training voucher. This is a form of direct subsidy as it is a cash voucher given by the government to the intended recipient in this case, the consumers, for use on adult education courses. This would increase consumer's ability to pay and hence the demand for adult education courses will increase.	
	EV	Students ought to decide which is the best approach based on a given STRAW criteria such as severity of the situation, time period, root cause, assumptions or by weighing costs against benefits. Some students merely repeated the strengths/limitations, which is not considered as expression of judgment.	

H1 CSQ 2 – The UK Economy

(a)	**Using Table 1, describe what has happened to the rate of inflation and the price level in UK between 2018 and 2020. [2]** Rate of inflation had fallen but the price level had continued to rise.
	Marker's comment • Most students could score at least 1m for this question. • This question tests their interpretation and understanding of inflation rate. The data given is presented in the same unit/ format as the question, thus there is no need to convert the data for the first part. Students should be able to gain the first mark, just by referring to the direction in the data. As for the second part, students should recognise the relationship between inflation rate and the price level, and do a mathematical conversion from the relative value to absolute value. • Some students misinterpreted the data by referring to Gross Domestic Product (GDP) annual growth rate (%) data for price level. • Some students wrote the answer for the whole duration (2018 to <u>2022</u>) as presented in the table, but the question requirement is from 2018 to <u>2020</u>.
(b)	**State one component of aggregate demand. [1]** Consumption expenditure, Investment expenditure, Government expenditure or Net Exports/ Exports revenue
	Marker's comment • Most students could score for this question.
(c)	**Using AD-AS diagram, explain the impact of an increase in government spending on green technology on the UK economy** **(i) in the short run. [4]** **(ii) in the long run. [3]**

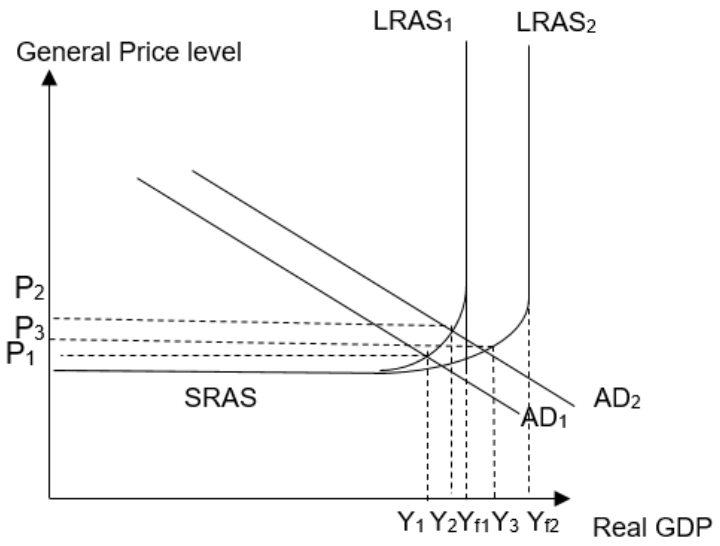


Figure 1

(i) <u>Short run effect</u>

In the short run, increase in government spending on green technology causes aggregate demand (AD) to increase as G is a component of AD. This is represented by a rightward shift from AD1 to AD2 (Fig 1).

Assume that the economy is operating near full employment where there is limited FOPs in the short run. The rise in AD causes a **shortage** of goods and services and firms will step up production. However, due to limited factors of production available as the economy is approaching full employment, there are supply 'bottlenecks' and firms will be required to use more inefficient factors of production, resulting in rise in cost of production. This rise in cost of production translates to **higher general price level** of final goods and services from P1 to P2.

At the same time, with the increase in prices, the firms will increase production due to higher profits. **The rise in production triggers the multiplier process whereby the increase in AD causes a multiplied increase in real national output from Y0 to Y2**. This is known as actual economic growth. However, this multiplier effect is dampened due to the increase in GPL, resulting in a smaller increase in the level of real national output and hence real GDP from Y1 to Y2. **This increase in real GDP is known as actual economic growth.**

(ii) <u>Long run effect</u>

In the long run, increased government spending on green technology improves **the quality/ quantity of resources** through discovering more sources of energy (Extract 5) **and increase the productive capacity of the economy**. Thus, the **AS curve shifts rightwards from LRAS1 to LRAS2** (Fig 1). **Real national output/ Real GDP rises further** from Y2 to Y3. The **full employment level of output/ potential output increases from Yf1 to Yf2.** The **general price level falls** from P2 to P3 as the capacity of the economy increases and ease inflationary pressure. The country will experience both **actual and potential economic growth**.

Marker's Comments

General comments:

QA	• Most students showed some understanding of AD-AS analysis and thus could score some marks. • A minority did not understand the question requirement and explained using generic explanation. Some did not understand the required endpoints which are RNY/ GPL/ Yf.
CK	• Some students drew the wrong AS curve. They shifted the SRAS curves instead of LRAS curves. • Some students labelled green technology on the axis (e.g. quantity of green technology) which is what we might do for micro market analysis. This is incorrect as we do not do this for macro analysis.
AR	• Some students did not explain the price adjustment process/ multiplier process. • When explaining the shift in the LRAS, students should explain how the trigger (spending on green technology) cause an increase in one component of the QQT, which eventually led to an increase in productive capacity, instead of linking the trigger to the LRAS directly.
AP	• Those who showed some understanding of AD-AS analysis applied the right factor [i.e. AD for part (i) and LRAS for part (ii)].