

# **ECONOMICS**

## **Higher 2**

### **Syllabus 9570**

Examiner's Report  
Year 5 Promotion Examination 2023



# ECONOMICS

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## Y5 H2 Promotion Examination 2022

Paper 9570/01  
Paper 1

### Case Study

- a) Compare the trend in market share between skin care and that of make-up between 2012 and 2018. [2]

#### Markers Comments:

- Many answers lack comparison in terms of a difference.
- Many did not use a suitable comparative word to signpost and reflect the skill of comparison.
- Students need to be more mindful of the time period set out in the question.
- Some students compared the market shares between make-up and skin care at specific points in the time period – this is not the best approach or answer; instead, students should compare the market shares over the overall/entire period.
- Answers who wrote that the market share increased at a faster or greater rate were not accepted as it is inconclusive from the data about the difference in the rate of increase between make-up and skin care; instead students, should be comparing the **amount / extent of increase**.

#### Suggested Answer:

Similarity: Increasing trend in market share for both skin-care and makeup between 2012 and 2018. [1]

Difference: Market share for skin-care is consistently larger than that for makeup OR market share for makeup is consistently smaller than that for skincare. [1]

- b) Using Extract 1, explain why Aether Beauty decided to shut down its operations in the short run during the COVID-19 pandemic. [4]

#### Markers Comments:

- Weaker answers failed to recognise the question is on shut-down condition of a firm and used the market analysis approach instead of the firm analysis approach.
- While majority recognised that Covid-19 pandemic led to a fall in demand for Aether Beauty's products, the explanation was largely descriptive as most students merely copied extensively from case material without making valid inference to which non-price demand factor is affected. It is essential to make linkages of the case evidence to the non-price demand determinant when explaining the fall in demand.
- There were many theoretical answers without application to the case material, thus failed to recognise besides TR falling, TVC was also rising at the same time.
- While many were aware that the shut-down condition is  $TR < TVC$ , the better answers were those that explained how loss is minimised to TFC as a result of shutting down. Weak responses did not grasp the nuances of the shut-down condition and were hence generic in their link to cost (eg. AC, MC, COP)
- The diagram to illustrate the shut-down condition is not required in this answer.

**Suggested Answer:**

COVID-19 pandemic resulted in falling incomes/ recession, leading to fall in demand for Aether Beauty's products/services (given that beauty services are a normal good) and hence falling TR.

OR

COVID-19 pandemic resulted in the implementation of lockdowns and work from home arrangements -> Reduce social interactions and reduce the need to apply cosmetic products or beauty services to enhance one's image -> Taste and preferences shifted away from cosmetics leading to fall in demand for Aether Beauty's products/services, hence falling TR.

From Extract 1, Covid-19 pandemic result in supply chain disruptions, resulting in increase in raw materials and shipping prices -> Rising TVC for Aether Beauty in cosmetics production

Hence with the falling TR and rise in TC, possibly led to subnormal profits where  $TR < TC$  in the SR.

TFC is incurred regardless of whether it produces or not.

- If it continues production, TVC is incurred in addition to TFC.
- Since it is likely that TR which Aether Beauty received cannot cover its TVC, Aether Beauty should reduce its loss by shutting down to minimize its loss to only TFC, since TVC is not incurred when it stops production.

**Mark scheme:**

*2m for how Covid-19 pandemic led to a fall in demand and hence TR, with reference to case material and explanation to a specific demand factor.*

*2m for explaining how Aether's Beauty's shut-down condition from point of view of  $TR < TVC$ , citing evidence from Extract 1 of rising TVC*

c) i) Explain two examples of barriers to entry that exist in the cosmetic industry.

[4]

**Markers Comments:**

- *The weaker answers failed to make use of case material to select examples of BTE and merely regurgitated content from the lecture notes. These answers also lacked application to the cosmetic market context and gave generic application.*
- *Many also did not explain how the BTE deter new entrants into the cosmetic industry. The link to deterrence of potential entrants is the essence behind BTE.*
- *A significant number of students were confused between driving out competitors from the market and that of deterring potential new entrants into the market which was the question requirement.*

**Suggested Answer:**

- Artificial BTE (Statutory): Patents which give cosmetic firms exclusive rights to produce and sell for a given period of time. With patents, the cosmetics firms will be able to act as temporary monopolists in the market for a particular cosmetic product with its unique formula. Potential copycat cosmetic new entrants are deterred from entering the market since they are legally prohibited from producing the same product until patent expires.
- Artificial BTE (Strategic): Brand loyalty from intensive advertising by global giant cosmetic firms helps raise awareness to boost demand for their products as well as to persuade

customers there are no close substitutes for their products. The established brand recognition and trust from consumers means that potential entrants entering the market will find it difficult to entice customers to purchase their products and may need to incur high costs to build brand awareness.

**Mark scheme:**

*For each example of BTE:*

*1m for explanation of an example with reference to case material & how new entrants are deterred as a result.*

*1m for showing application to cosmetic industry.*

ii) To what extent is the coexistence of small cosmetic firms with large cosmetic firms a result of the rise of social media? [8]

**Markers Comments:**

- *This question was not well attempted, as many students misinterpreted the question and gave answers which were irrelevant.*
  - *Many misinterpreted the question as whether the coexistence is made more difficult by social media and wrote extensively on strategies by large firms to drive out small firms and its limitations.*
  - *“Coexistence” requires answers to explain the presence of large firms at the same time.*
- *Many also disregarded the requirements of question and spammed extensively from class test rehearsed answers. These answers lacked application to case material and context of cosmetic industry.*
- *The weaker answers merely copied case material without linking to economic explanation and used the incorrect market analysis framework.*
- *Diagrams were also poorly drawn and wrongly labelled. Very often, the diagram was not explained. Such unexplained diagrams gained no credit. It is important to weave the explanation of the diagram into the analysis, stating clearly what you want the marker to see from your diagram.*
- *Common concept errors:*
  - *Advertisement does not count as form of product differentiation; but it can contribute to imaginary differences of products.*
  - *Fall in TC leads to rise in TR.*
    - *Total cost and total revenue are two different concepts. Rise in TR must be due to revenue/demand reasons.*
  - *TR and Profit concepts were used interchangeably.*
- *Many also failed to see the link between parts ci and cii and did not make the link to how social media lowers barriers to entry in cosmetic industry, making it possible/easier for small firms to enter compared to previously. Students should be more aware of the possible links – questions set as related parts in the form of ai, aii, bi, bii, etc.*
- *Weaker answers showed a lack of scope as they did not consider both cost and revenue reasons in this question.*
- *Evaluation was missing in most answers as most concluded with a summary of the analysis. Evaluation must be drawn from and substantiated based on the underpinning content in the analysis. Students are required to provide a recommendation by assessing the validity of the arguments put forward in the analysis.*

### Suggested Answer:

#### Introduction:

- Clarify key concept: Coexistence refers to the ability to earn at least normal profits when both large and small cosmetic firms can operate alongside each other.
- Frame the issue of the rise of social media by linking to the key concept of reducing barriers to entry in the cosmetic industry which results in lowering of costs and higher revenue for small firms.

#### Analysis:

**Thesis: The Co-existence of small cosmetic firms with large cosmetic firms may be a result of the rise of social media**

#### Explain how social media reduces barriers to entry

- Case evidence: "cosmetics market is no longer limited to global giants like L'Oréal, Estée Lauder, Maybelline, etc." "Anyone can start producing and selling natural cosmetics on Etsy, an American e-commerce company, or any other social media platforms".
- Social media reduces the cost of advertising, as social media offers another platform and means to reach out to consumers at a lower cost -> offering new entrants a chance to advertise more cheaply -> lowers the strategic BTE

#### **Cost Reason: [Any 1 cost reason]**

- Small cosmetic firms can now use influencers to advertise their product on social media at a relatively lower cost compared to traditional means of advertisement on printed media, on TV, billboards in bus-stops.
  - Arguably give rise to a **Saucer-shaped LRAC**.
- Due to the relatively low advertising costs (lower barriers to entry) in the cosmetic market, marketing economies of scale are quickly exhausted at low output levels followed by constant returns to scale which prevail over a large range of output between  $Q_0$  and  $Q_1$  as seen in Figure 1 below.

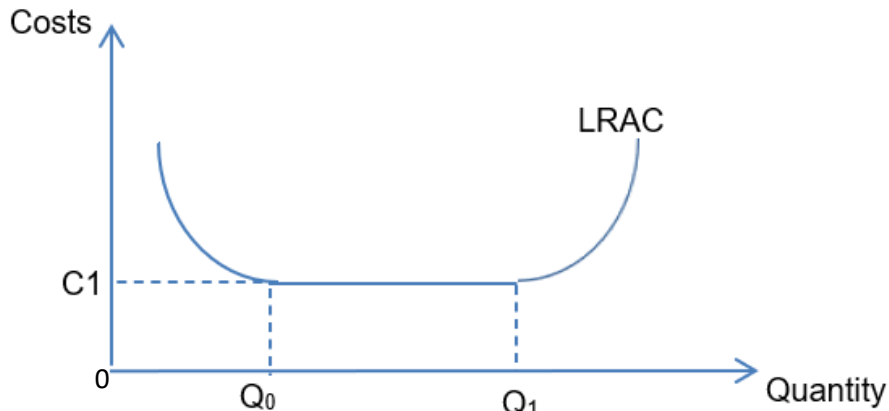


Figure 1

- Firms producing at a low level of output at  $Q_0$  (small firms) or at a high level of output at  $Q_1$  (large firms, eg. L'Oréal, Estée Lauder) face the same unit cost of production of  $C_1$ .
  - accounts for the coexistence of both small and large firms in the same industry as the large firms do not have a cost advantage over the small firms.

OR

- Rise of social media also helps facilitate banding to reap marketing EOS from bulk advertisement on social media. Because of social media, collaboration can be made easier between like-minded small firms (locally, regionally and internationally) due to the ease of information transfer and thus, through banding, tap into bulk advertising.
  - lowers per unit cost of producing cosmetics, lowering their average costs without sacrificing their autonomy.
- small firms are able to enjoy similar cost-advantages as large firms who are able to enjoy marketing EOS from their large scale production
  - explaining the co-existence of both types of firms in the market

OR

**Revenue Reason: [Any 1 revenue reason]**

- At the same time, social media allows greater outreach to targeted audience beyond geographical borders which smaller cosmetic firms were previously unable to do so previously due to lack of financial resources.
- As small firms can now reach out to a larger group of consumers, generating greater demand for their products and hence higher TR.
  - *Case material: Through social media, small firms can "engaging marketing methods to reach out to new, younger audience, especially Gen Z, in a more meaningful way through storytelling and innovative content forms" while the large firms can continue with mainstream marketing on TV and traditional media.*
- Large firms, at the same time, also tap on social media for their advertising to reach out to their consumers, in addition to their traditional means of advertising.
  - Social media thus led to co-existence of both small and large firms.

**Anti-Thesis: The Co-existence of small cosmetic firms with large cosmetic firms may not be a result of the rise of social media**

**[Any 1 revenue reason]**

• **Niche Product**

Co-existence arises due to the niche products small cosmetic firms are offering alongside more standardised and mass-produced cosmetic products by the large cosmetic firms rather than the rise in social media.

- Varying tastes and preferences leading to demand for different types of cosmetic products in the industry i.e. market segmentation
  - Large firms can focus on mass produced items like generic make-up products, sunscreen for consumers who are just looking for basic cosmetic products on a daily basis → capturing consumer demand with cosmetic products that tend to be more price elastic in demand → ability to increase TR by charging lower prices
  - While small firms concentrate on providing customized services and products, for instance, offering skin consultation services to consumers and prescribing cosmetic products suitable for their skin types → increase demand for such niche products with lower price elasticity due to the lower degree of substitutability → ability to increase TR by charging higher prices.

OR

• **Rise in income / Pandemic leading to change in taste & preferences**

From Ext 1, the growth of the middle-class in developed and developing countries OR pandemic could drive increasing demand and taste and preferences for more variation of products like non-toxic, sustainable cosmetic products.

- this allows small firms to leverage on the change in taste and preference to cater to such a new sub-market for non-toxic, sustainable cosmetic products and co-existing alongside large firms as the latter continue to produce mainstream mass-produced cosmetics → increase DD and TR.

### **Reasoned Conclusion/ Evaluation:**

<Weigh up the strengths and weaknesses of the arguments and explain how the decision for the recommendation is made>

### **Explain how the decision for the recommendation is made (substantiated):**

**Social media lower the entry barriers for small firms:** The rise in number of social media platforms offering cost-effective ways for small cosmetic firms to reach a wider consumer audience has certainly helped them build brand awareness and engage with potential consumers. This has undoubtedly facilitated the entry of small cosmetic firms into the market.

### **Large firms' extensive use of social media:**

However, large firms have also harnessed the use of social media to their advantage with even greater extensiveness, given greater financial resources. For instance, they can make better use social media to collect consumers data, conduct surveys on taste and preferences of consumers before launching/ selling their products, as a result, the revenue gains for small firms using social media may be negligible, making it harder for small firms to break even. Larger firms may still dominate the social media space and have more sophisticated marketing capabilities, potentially overshadowing the efforts of smaller competitors.

Or

**Quality vs. Marketing:** Another consideration is that while social media marketing can increase visibility, consumers of cosmetics may ultimately prioritize the quality and effectiveness of cosmetic products. Therefore, the impact of social media marketing efforts on revenue for small firms may be less significant than the product's actual performance which will impact the firm's ability to make normal profits in the long run and thus coexist with big firms.

### **Make the recommendation:**

- While the rise of social of social media has given smaller firms opportunities to enter the cosmetic market, the co-existence of large and small firms is to a large extent not necessarily the result of a rise in social media.

### **Possible insight:**

In the long run. it is more important for small cosmetic firms to consolidate brand loyalty by establishing their brand reputation for product quality, safety, and efficacy via clinical testing of their products to ensure their coexistence with the large established cosmetics brands.

	Knowledge, application / understanding and analysis	
L1	<ul style="list-style-type: none"> <li>• <i>Smattering of points not directly linked to question</i></li> <li>• <i>Descriptive without the use of an analytical framework</i></li> <li>• <i>Conceptual inaccuracies</i></li> <li>• <i>No case material</i></li> </ul>	1-3

L2	<ul style="list-style-type: none"> <li>• Good scope in explaining how social media leads to lower BTE, higher TR for small cosmetics firms and cost/revenue reason for presence of large firms and hence coexistence</li> <li>• Balanced argument in addressing other possible reason for the coexistence of small and large cosmetics firms</li> <li>• Good application of case evidence.</li> </ul>	4-6
	<b>Evaluation</b>	
E1	A well explained evaluative judgement justifying the extent to which the coexistence is due to the rise in social media.	1
E2	A well explained evaluative judgement justifying the extent to which the coexistence is due to the rise in social media <b>AND</b> one recommendation explained.	2

d) Suggest how a cosmetic firm can make use of a cognitive bias in its marketing strategy. [2]

**Markers Comments:**

- Many gave theoretical explanation from notes without application to the cosmetic industry.
- Students are required to explain cognitive bias with reference to a specific type of cognitive bias instead of explaining cognitive bias in general.
- Many students incorrectly explained marketing strategies like production differentiation and building of brand loyalty as a cognitive bias.

**Suggested Answer: (Any 1 response)**

**Explain salience bias:**

Salience bias is tendency for people to focus on information that is more prominent over less prominent but equally relevant pieces of information.

**Suggest the strategy with salience bias with application to cosmetic firm:**

Highlight key ingredients in beauty products that are trendy or known for specific benefits. For example, emphasize use of Vitamin C/ retinol in product names, and packaging to make them more salient to consumers who are seeking to achieve the Korean glowy skin benefits.

OR

**Explain loss aversion bias:**

Tendency to prefer avoiding losses to acquiring equivalent gains.

**Explain the strategy using loss aversion bias with application to cosmetic firm:**

Cosmetic firms can emphasize potential negative consequences of not using their products, such as premature aging or missed beauty opportunities. This plays on the fear of missing out and the potential loss of unique beauty products. Cosmetic firms can also use 'limited time only' promotions for their cosmetic products highlighting how the low prices will be removed once the time period ends.

OR



**Explain sunk cost fallacy:**

Sunk cost fallacy in marketing strategy involves convincing consumers to continue investing in a product or brand based on the resources they've already spent, even when it may not be the most rational decision.

**Suggest the strategy with sunk cost fallacy with application to cosmetic firm:**

Offer personalized skincare or makeup consultations where customers invest time discussing their unique needs and preferences. Over time, customers may feel a sense of commitment to the brand due to the time and information they've already invested.

Mark scheme:

1m for explanation of a cognitive bias.

1m for application of the selected cognitive bias in cosmetic firm's marketing strategy.

- e) With reference to Extract 4, discuss the need for government intervention in the cosmetic market. [10]

**Markers Comments:**

- *This question was not well attempted, as many students misinterpreted the question and did not understand the requirements of this question.*
  - *Many misinterpreted this question as "discuss the government policies in addressing the source of market failure" and wrote extensively on how the policies work and limitations of the policies which were not answering the question.*
  - *Many also changed the question to "discuss the desirability of the acquisition of Tom Ford by Estée Lauder" and hence spammed extensively rehearsed tutorial answers.*
  - *Many students wrote extensively on equity, productive and dynamic efficiency, which was not required, as the question focus is on allocative inefficiency and market failure as clearly referenced to Extract 4 in the question.*
- *This focus of the question is about whether there is NEED for government to intervene. Thus, the thesis should be on 1 source of market failure and the anti-thesis should be on why allocative inefficiency/ market failure may not be severe enough for government intervention.*
- *There was weak application in general to case study material, as many answers were just mere regurgitation from notes without application of context. For instance, the market dominance in this question has to be linked to Estee Lauder's acquisition of Tom Ford. FYI, this acquisition is an example of conglomeration: Estee Lauder and Tom Ford sells different products. The former sells cosmetic, the latter sells fashion items like clothes, sunglasses, bags etc.*
- *Many students did not explain how the acquisition led to increased market dominance and hence increased allocative inefficiency in their analysis. This should be illustrated by rise in AR and fall in PED on their diagram.*
  - *These answers gave a static analysis as shown in the notes, reflecting a lack of understanding and application to case study material.*
  - *For economic rigour, the rise in allocative inefficiency should be explained via underproduction and rise in divergence between price and marginal cost after the merger (ie. larger extent of  $P > MC$ ). This should also be reflected with reference to the diagram drawn.*
- *The weaker answers gave descriptive answers which lacked rigour in explanation. These answers merely stated that higher market dominance led to rise in allocative inefficiency.*
- *Others inappropriately used the concept of loss of consumer and producer surplus to explain the welfare loss.*
- *In general, many answers were either lacking in anti-thesis or lacked elaboration in anti-thesis.*

- *Anti-thesis was lacking as many students ran out of time given over-writing as they attempted to write 2 sources of market failure in thesis.*
  - *As a result of over-writing, neither of the sources was well-elaborated.*
  - *Students need to note that a well-elaborated analysis earns more credit than multiple subpar points.*
- *Evaluation points were either non-existent or were invalid. Many provided a summary of the analysis points and/or weighed-up the benefits and costs of government intervention. Such responses again reflected a lack of grasp of the question requirement.*

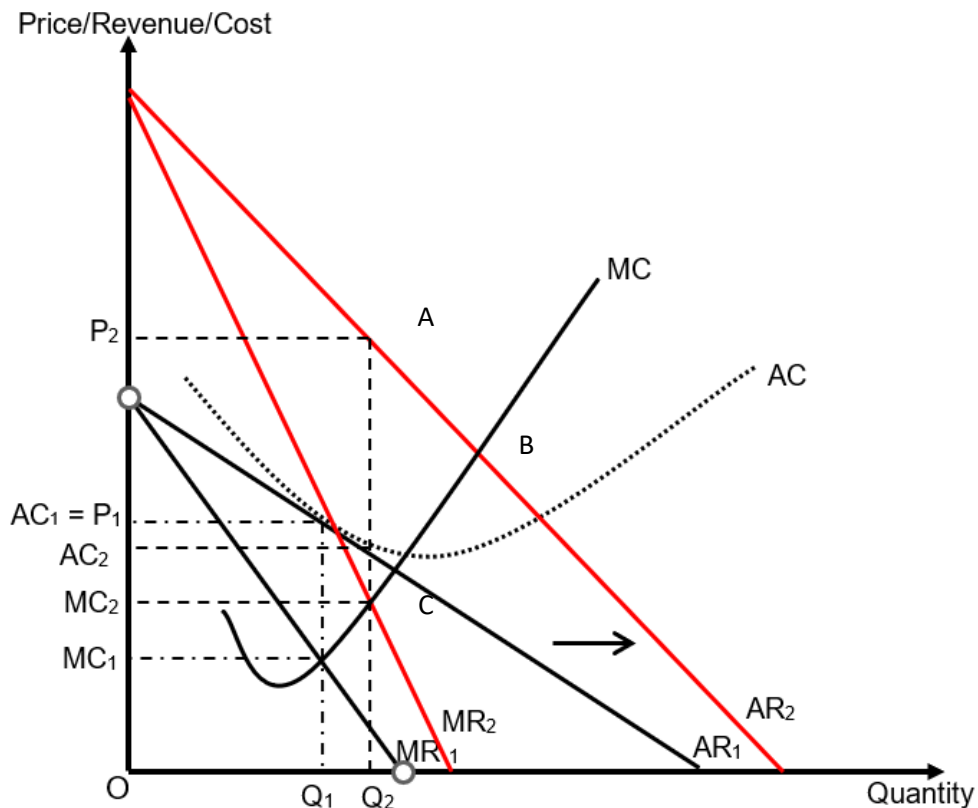
### **Suggested Answer 1: Market dominance**

#### **Introduction**

Government intervention is necessary if there is perceived market failure in the cosmetic market. From extract 4, there is a problem of increased market dominance following the acquisition of Tom Ford by Estée Lauder.

#### **Analysis**

**Thesis: Explain why the government need to intervene in the cosmetic market due to acquisition by large firms, leading to *increased market dominance*.**



- The acquisition of Tom Ford by Estée Lauder increases the consumer base for Estée Lauder. Adding the luxury and high-performing brand (Tom Ford) to its portfolio, expanding the range of products from cosmetics to fashion items, reducing Estée Lauder's substitutability.

- DD for Estée Lauder's cosmetics increases (due to the increase in market share / increase consumer base post-acquisition) and become more price inelastic in demand (due to fall in substitutability of its products)
  - Demand increases shifting AR curve rightwards from  $AR_1$  to  $AR_2$  and becomes steeper in gradient.
- At the firm's new profit-maximising equilibrium where  $MR=MC$ , MC is rising, Estée Lauder sets a higher price ( $P_2$ ) at a higher profit-maximising output level ( $Q_2$ ).
- At  $Q_2$ , the price  $P_2$  is above the marginal cost ( $MC_2$ ) of producing the last unit of output, value of the benefit that the consumers get from the last unit of the output produced is higher than the cost of using the society's resources to produce that unit.
  - society can be better off if more units of the good are produced
    - under-production of the good, leading to allocative inefficiency:  $P > MC$  as the benefit to society (reflected in the price paid) is greater than the cost of producing (society).
- Allocative inefficiency worsens given  $P_2 > MC_2$  is greater after acquisition compared to  $P_1 > MC_1$  before acquisition.
  - Need for government intervention to mitigate the worsening of allocative inefficiency arising from the acquisition.

**Anti-Thesis: Explain why the government may not need to intervene in the cosmetic market**

Consequence of increased market dominance due to the acquisition may not be severe:

- Stiff competition from small firms and rival firms continue to pose threat to the incumbent firms which will spur the incumbents to behave more competitively and have less tendency to exploit their market power for the fear of losing consumers to its rivals. In reality, incumbent firms may not necessarily charge exorbitantly high prices above MC (i.e. divergence between  $P$  and  $MC$  may not very large)
- Consumers have varied taste and preference and do not solely buy from one seller but from across different sellers (Ext 2: "consumers tend to buy across brands...")
  - Incumbent have incentive to price their products competitively so as not to lose their customers

Thus, allocative inefficiency may not be severe, government may not need to intervene

**Reasoned Conclusion/ Evaluation:**

<Weigh up the strengths and weaknesses of the arguments and explain how the decision for the recommendation is made>

**Make the recommendation / Judgement:**

The need for government intervention is largely dependent on the severity of the market failure problem. In the case of market dominance, there may not be a critical need for government to intervene. This recommendation is reached by considering several key factors and weighing alternative arguments:

**Explain how the decision for the recommendation is made (Substantiated):**

**Low Brand Loyalty:** A crucial factor to consider is the presence of low brand loyalty in the cosmetics market. When consumers are not strongly committed to specific cosmetic brands, it suggests that they are more open to switching between products and brands. This can foster competition as firms indicating a higher degree of market contestability and more competitive pricing that is closer to the MC level.

**Degree of Proliferation of Counterfeits:** The existence of counterfeit cosmetic products in the market indicates a certain degree of competition. Counterfeits often emerge in markets where consumers are price-sensitive and seek alternatives to more expensive branded products. The presence of counterfeits can act as a check on incumbent firms, compelling them to price their products more competitively, closer to the MC level.

**Impact of social media:** The rise of social media has facilitated consumer awareness and information sharing. Consumers can now easily compare products and share their experiences, which can expose poor-quality or overpriced products. This transparency can contribute to a more competitive market environment, indicating greater market contestability, forcing firms to price more competitively, closer to the MC level.

**Possible further insights / recommendations:**

- Government should also consider the nature of the good which is underproduced. The urgency to intervene is lesser here as cosmetic products are not considered as essential goods necessary for survival.
- Although cosmetics are not essential goods for survival, they can still have significant public health implications. For example, unsafe cosmetics can lead to skin issues, allergies, or even more severe health problems, this is especially so with the problem of counterfeit products. Government intervention is justified to protect public health, even if the products themselves are not essential.

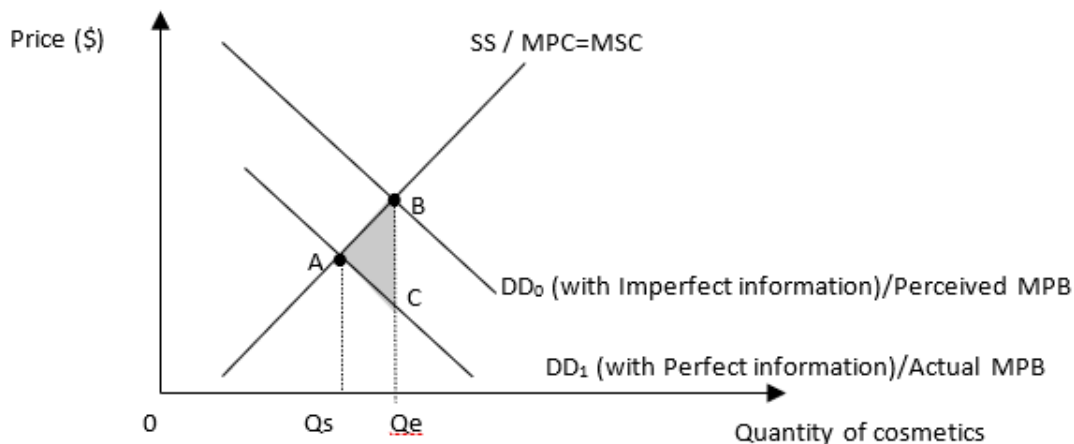
Suggested Answer 2:

**Thesis: Explain why the government need to intervene in the cosmetic market due to misinformation leading to imperfect information problem**

In the pursuit of more profits, cosmetic firms have been found to provide “false and misleading claims” in their advertisement campaigns. These firms exaggerate the benefits of their cosmetic products with no scientific evidence or proof including anti-ageing effects, protection from various harmful rays.

Consequently, uninformed consumers (unaware of the true private benefit of cosmetic products) could be misled to believe the false claims by these cosmetic firms

- Consumers over-estimate their true private benefit of consuming cosmetic products.
- DD with imperfect information ( $DD_0$ ) is greater than the DD with perfect information ( $DD_1$ )



The free market equilibrium under imperfect information occurs at output  $Q_e$  where  $DD_0=SS$ . However, the socially optimal level of consumption and production is at output  $Q_s$  where  $DD_1=SS$ .

- With imperfect information, cosmetic products are over-consumed by  $Q_e$  units and too much resources will be allocated to the consumption and production of it.
- The free market fails to achieve allocative efficiency. A welfare loss represented by area ABC arises from imperfect information will be incurred by the society as the social costs of consuming and producing  $Q_e$  units of cosmetics exceeds the social benefits derived from consuming.
  - Allocative inefficiency due to the overallocation of resources in the production of cosmetics.

**Anti-Thesis: Explain why the government may not need to intervene in the cosmetic market**

Problem of misinformation may not be severe:

- Allocative inefficiency caused by misinformation may not be severe as consumer can rely on reviews / word of mouth / own research to fact check information provided by firms
  - Given that information about other consumers' experience with cosmetics can be easily found online to discern marketing content by firms in order not to fall prey to firms aggressive marketing tactics or misinformation.

OR

- Large and reputable cosmetic firms have a strong incentive to refrain from the use of misleading advertisements so as to protect their own brand image and reputation. Their reputation will be negatively affected if they are caught misleading consumers. -> The prevalence and severity of misleading advertisement may not be dire in reality.

[Reference back to economic framework]

- In reality, demand (imperfect information) may not be too significantly higher than demand (perfect information)
  - DWL may be smaller and extent of allocative inefficiency may be less severe in reality. Government may not need to intervene in the cosmetic market.

**Reasoned Conclusion/Evaluation:**

<Weigh up the strengths and weaknesses of the arguments and explain how the decision for the recommendation is made>

**Make the Recommendation:** Overall, the need for government to intervene is more likely to be low in reality, but the government may want to identify specific segments of consumers for which government intervention is still needed. This is based on a careful consideration of various factors and the weighing of alternative arguments.

**Explain how the decision for the recommendation is made (substantiated judgement): Choose 2.**

- **Educated and Tech-Savvy Consumers:** The first key consideration is the changing landscape of consumer education and technology adoption. In recent times, a significant portion of consumers has become more educated, discerning, and tech-savvy. This demographic shift suggests that the problem of allocative inefficiency stemming from misinformation may not be as severe as it once was. Consumers are now better equipped to differentiate between credible and unreliable sources of information, which reduces the need for government intervention.

- **Impact of Social Media and Consumer Reviews:** The rise of social media platforms and the availability of consumer reviews have played a pivotal role in addressing the imperfect information gap. Consumers can now access real-time feedback and recommendations from their peers, enabling them to make more informed decisions. This increased availability of information empowers consumers and further diminishes the need for broad-scale government intervention.
- **Vulnerable Consumer Segments:** Despite the overall positive trends of information made available and increasing tech savviness of consumers, it's important to acknowledge that not all consumers benefit equally from these advancements. There remains a relatively small segment of consumers, particularly those who may not be tech-savvy, such as the elderly, who are at risk of falling prey to misinformation. This vulnerable group may lack the skills or resources to access accurate information and discern between credible and misleading sources. For this group, government intervention is crucial to protect their interests and prevent potential harm.

**Possible further insight:**

Beyond the extent of imperfect information issue, the government should also consider the nature of the cosmetic product and its health risks in its decision to intervene. For instance, cosmetics which uses natural or organic ingredients may be relatively safer as compared to those which use preservative and active ingredients.

	<b>Knowledge, application / understanding and analysis</b>	
L1	<ul style="list-style-type: none"> <li>• <i>Smattering of points not directly linked to question</i></li> <li>• <i>Descriptive without the use of an analytical framework</i></li> <li>• <i>Conceptual inaccuracies</i></li> <li>• <i>No use of case material</i></li> </ul>	<b>1-3</b>
L2	<ul style="list-style-type: none"> <li>• <i>Good scope and balanced argument in explaining why the government need to intervene and also why the government may not need to intervene in the cosmetics market</i></li> <li>• <i>Good application of case evidence</i></li> <li>• <i>Well-developed explanation supported by diagrammatic analysis</i></li> </ul>	<b>4-7</b>
	<b>Evaluation</b>	
E1	<i>One evaluative point explained</i>	<b>1</b>
E2	<i>Two evaluative points explained or a well-developed evaluation point <b>AND</b> a recommendation explained</i>	<b>2-3</b>

**Essay 1**

a) Explain how rational decision-making by consumers and producers enable prices to act as signals to manage the problem of scarcity in a free market. [10]

b) Lower interest rates on housing loans have caused the average sales price of apartments in affluent Seoul districts to nearly double between May 2017 to May 2021. This prompted the government of South Korea to set a price ceiling on new apartments in these districts.

Discuss the effectiveness and desirability of implementing the price ceiling on the market for new apartments in affluent Seoul districts. [15]

a)

**Introduction:**

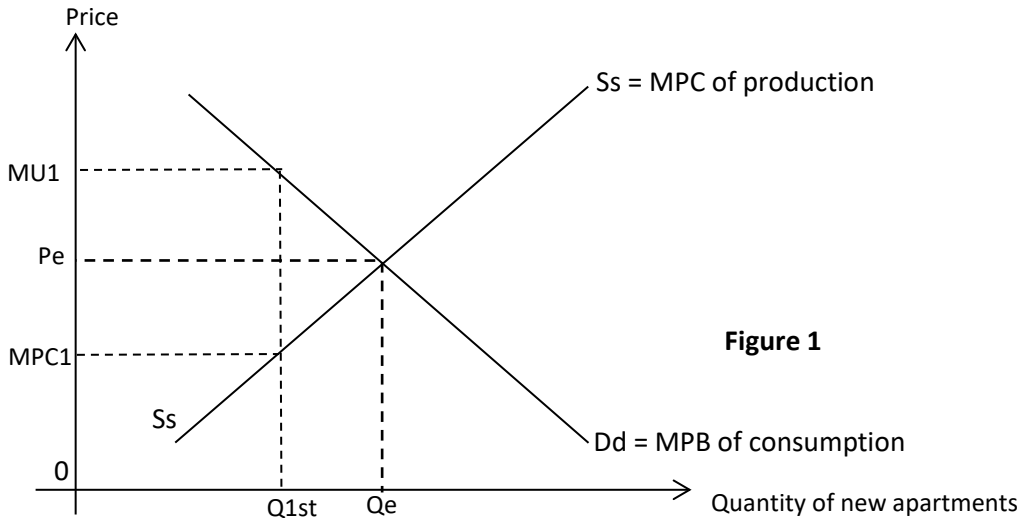
Clarify what is meant by problem of scarcity (limited resources and unlimited wants leading to the problems of what and how much to produce/consume, how to produce and for whom to produce), free market (no government intervention)

**Body paragraphs:**

**R1: Explain how rational consumers and producers make decisions at the margin using the marginalist principle (DM@margin)**

- **Explain how rational decision making by consumers and producers affect what and how much to consume and produce respectively.**
  - Knowledge: Clarify what is meant by rational consumers and producers
    - Pursue self-interests (consumers want to maximise their utility subject to budget constraints while producers seek to maximise their total profits)
    - **Consumers** compare their marginal utility (which is the additional utility they derive from consuming each additional unit of the good) against the marginal private cost of consumption which is the price they pay for each unit of the good they buy.
      - Examples of utility derived from for instance buying a new luxury apartment includes the comfort, amenities and prestige that often come with luxury apartments; such apartments are usually located in desirable properties which tend to appreciate over time resulting in significant financial gains if the consumer choose to sell them in the future.
      - Examples of MPC of buying a new luxury apartment includes the price/expenditure of the apartment that consumers pay, mortgage interest on loans, property tax, maintenance fees.
    - **Producers** compare their marginal private cost of production (MPC) against their MPB of production which is the price they receive for selling each unit of the good.
      - Examples of MPC of producing a luxury apartment include cost of land, construction costs including labour, materials and equipment, architectural and design fees paid to architects and designers to create a unique and luxurious aesthetic appeal, costs associated with site preparation, costs of installing security systems, marketing costs.
      - Examples of benefits derived from producing a luxury apartment include the price or revenue producers receive when they sell the apartment.

- Explanation: Explain the link between marginalist concepts and market demand and supply framework. For simplicity, let's use the market demand and supply framework to determine the optimal level of consumption and production for consumers and producers.



- The market demand curve reflects the max price consumers are willing to and able to pay and this is equal to the marginal private benefit MPB they gain from consuming the good.
  - The market supply curve reflects the minimum price producers must receive and this must be equal to the MPC of producing the good
  - MPB of consumption eventually falls as more units are consumed because of the law of diminishing marginal utility as subsequent units will eventually generate less satisfaction, hence the price consumers are willing and able to pay for subsequent units will fall → downward sloping demand curve.
  - MPC of production increases as more units are produced because of overutilisation of fixed factors (according to the law of diminishing returns) → upward sloping supply curve.
- Clarify that the free-market equilibrium price is determined by market demand and market supply.
    - In Figure 1, the free-market equilibrium price is  $P_e$  where  $D_d$  curve intersects  $S_s$  curve. At  $P_e$ , quantity demanded is equal to quantity supplied at  $Q_e$ .
  - Explanation: Explain the decision-making process of consumers and producers using the marginalist principle
 

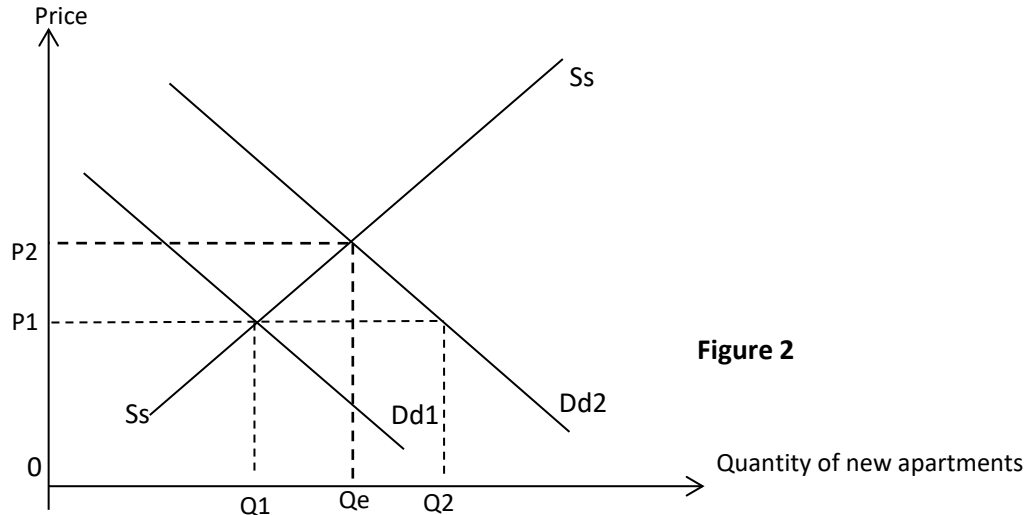
With reference to Figure 1,

    - If the price utility-maximising consumers pays is  $P_e$ , they will consume up till  $Q_e$  which is the output level where MU of consumption equals the price. This is because for units up till  $Q_e$ , like the  $Q_{1st}$  unit ( $MU_1 > P_e$ ), these units will be consumed because consuming these units will add to consumers' total utility more than it will add to consumers' total expenditure. Hence, consuming these units will lead to an increase in total net benefits. Consuming more than  $Q_e$  units, on the other hand, will lead to a fall in total net benefits as MU falls below the price they pay. Hence, total net benefits is maximised at  $OQ_e$  units.
    - Profit-maximising producers will produce up till MPC of production equals the price they receive. At  $Q_{1st}$  unit,  $MPC_1 < P_e$ , that unit will be produced because producing that unit is profitable, hence total profits will increase. If price is at  $P_e$ , they will produce  $OQ_e$  units because the additional revenue generated from these units is greater than and at least equal to the additional costs incurred, which means total profits will increase until they are maximised at  $OQ_e$ . They will not produce beyond  $Q_e$  because units beyond  $Q_e$  incur losses which reduces total profits.



**R2: MAP + 3 functions (signalling, incentivising, rationing) + 3 questions (what and how much to produce, for whom to produce and how to produce)**

- Explain how prices act as signals to address what and how much to produce
  - With reference to Figure 2,



- Assuming initially there is a shortage at  $P_1$ , there will be an upward pressure on price as consumers bid up prices to obtain the limited quantity of goods produced at  $P_1$ .
  - The increase in price **signals** to consumers by informing them that there will be fewer units that will yield  $MPB > \text{price}$  → hence fewer consumers are incentivised to buy new apartments as their **ability** and **willingness** to consume fall. This is because their real income falls (hence less affordable) and substitutes like second-hand or rented apartments are now relatively cheaper →  $Q_d$  falls.
  - The increase in price **signals** to producers by informing them that there will be more units that will yield  $\text{price} > \text{MPC}$  of production → producers are now **incentivized** to increase production **because previously unprofitable units are now profitable** → hence they are more able and willing to increase  $Q_s$ .
  - Shortage is eliminated when market demand (MPB of consumption)/ $D_{d2}$  curve intersects market supply curve (MPC of production)/ $S_s$ ;  $Q_d = Q_s$  at  $P_2$ .
  - At the free market output level, the problem of what and how much to produce is managed efficiently. In the absence of externalities and other sources of market failure, the free market equilibrium output is allocatively efficient (society is producing and consuming the combination of goods and services that maximises society's welfare).
- Explain how prices act as signals to address how to produce and for whom to produce (rationing function)
    - Profit-maximising produces want to minimise MPC of production, meaning produce at any point on LRAC, hence they will choose the least cost method of production (X-efficient). E.g. If the price of machines fall, ceteris paribus, relative price of labour will increase, hence the relative change in prices **signals and incentivises** producers to switch away from labour-intensive methods of production towards capital-intensive methods of production
    - Prices **ration** goods and services according to dollar votes, meaning goods and services are rationed to consumers with effective demand (other than willingness, consumers must have ability to pay).

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L3</b>	<ul style="list-style-type: none"> <li>▪ Clear use of theoretical framework</li> <li>▪ Good scope and depth in explanation</li> </ul>	<b>8-10</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Some conceptual inconsistencies</li> <li>▪ Evidence of economic analysis - but lacking scope and depth in explanation.</li> </ul> <p>No second requirement, max L2=6</p>	<b>5-7</b>
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ For a smattering of points with little economic analysis</li> <li>▪ Glaring conceptual errors</li> <li>❖ Mere stating/superficial explanation of reasons</li> </ul>	<b>1-4</b>

<b>Marking by R (For each R)</b>		
<b>A</b>	<ul style="list-style-type: none"> <li>❖ Detailed explanation of how and why with regards to 1R</li> <li>❖ Step-by-step explanation</li> <li>❖ Rigour and depth in explanation</li> <li>❖ Application of real life examples is provided</li> <li>❖ Explanation is accurate, clear and well-organised (chunky paragraphs which are not too long)</li> <li>❖ Shows ability to discriminate between what's relevant and what's not and ability to recognise unstated assumptions</li> </ul>	<b>6</b>
<b>C</b>	<ul style="list-style-type: none"> <li>❖ <b>Cursory explanation</b></li> <li>❖ Lapses in providing details regarding how/processes and/or why/reasons</li> <li>❖ Explanation is a bit inaccurate</li> <li>❖ Explanation is a bit vague, disorganised, and a bit of irrelevancies</li> </ul>	<b>4</b>
<b>K</b>	<ul style="list-style-type: none"> <li>❖ <b>Answer shows knowledge</b> (recall definitions, formula correctly; understands relationships – positive or negative, describes diagram) only</li> <li>❖ Answer shows knowledge (draw correct diagram without explanation)</li> <li>❖ Listing without explanation</li> <li>❖ Flaws throughout</li> <li>❖ Mostly irrelevancies</li> <li>❖ No Economics Framework (marginalist approach, market demand and supply framework)</li> </ul>	<b>1-2</b>

### **Part b**

**Lower interest rates on housing loans have caused the average sales price of apartments in affluent Seoul districts to nearly double between May 2017 to May 2021. This prompted the government of South Korea to set a price ceiling on new apartments in these districts.**

**Discuss the effectiveness and desirability of implementing the price ceiling on the market for new apartments in affluent Seoul districts.** [15]

**Introduction:** Clarify the problem briefly which is price of apartments in affluent Seoul districts are rising rapidly, making these apartments increasingly out of the reach of the middle income earners.

**Body paragraphs:**

**R1: Effectiveness (E.g. Is it effective in achieving its intended aim(s), e.g. reducing price of new apartments in affluent Seoul districts?) + Limitations + Evaluation**

**Thesis:** Clarify what is meant by price ceiling: A price ceiling is a legally established maximum price to prevent prices from rising above a certain level. It is only effective if it is set below the free market equilibrium price ( $P_{max} < P_0$  in Figure 2).

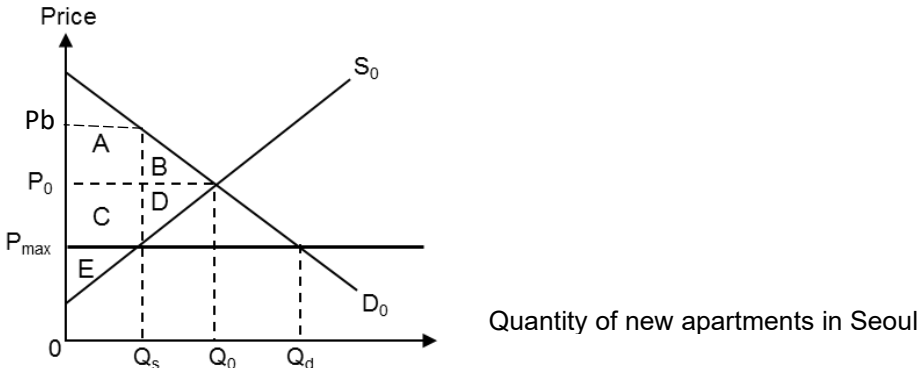


Figure 2: Effect of maximum price (price ceiling) on the market for new apartments in Seoul

- Price ceiling is a form of price control (command and control). It is mandatory, strictly enforced by the government. Producers are legally prohibited from selling above the stipulated price. If they are found guilty of doing so, they will be subjected to penalties. The fear of penalties will disincentivise them from breaking the law.
- The price ceiling is mandatory, producing immediate results with certainty with regards to the price set. Relatively quick way of reducing price to the targeted level.
- The government has implemented this policy to make housing more affordable to the middle-income South Koreans working in the city. By targeting the middle-income, the policy seeks to make luxury housing more affordable to a wider range of people, potentially improving equity.

#### Anti-thesis / Limitations:

- Not effective if a black market emerges.
  - An effective price ceiling, however, results in a shortage ( $Q_s < Q_d$  in figure 2) because the fall in price from  $P_0$  to  $P_{max}$  will reduce quantity supplied to  $Q_s$  because previously profitable units are now unprofitable and increase quantity demanded to  $Q_d$  because real income increases and prices of substitutes like apartments in other less affluent districts have become relatively more expensive.
  - An underground market (or black market) may thus emerge because of the price ceiling, where sellers ignore the government's price ceiling and sell illegally at free market prices. With reference to Figure 2, due to the shortage of  $Q_d - Q_s$  at the maximum price of  $P_{max}$ , some consumers will be willing to pay a price above  $P_{max}$  to get hold of the good. For instance, consumers could be charged  $P_b$  for  $Q_s$ th unit by unscrupulous sellers, which is the maximum price they are willing and able to pay.
  - Putting a price cap can therefore create a market for corruption within the housing market as sellers are incentivised to look for buyers who are willing to circumvent the price cap with "off the books" payment. This can in turn exacerbate inequity by reducing access to these apartments for those who are not able to participate in such illegal activities.
- Not effective in tackling root cause of rising prices which is low interest rates on housing loans and speculative demand but only effective in addressing symptoms which is rising prices. Hence, price ceiling is not an effective long-term measure because once the price ceiling is removed, the price will shoot up again.

**Evaluation:** (make a judgement based on the Thesis and AT in R1 on the effectiveness of price ceiling in achieving its intended aims, and provide contextualisation specific to market for new apartments in affluent districts in Seoul, South Korea) – Note: when starting your evaluation, make it clear that you are doing so by starting from a new paragraph and utilising one of the following phrases: “In conclusion”, “Arriving at a decision”, “As the above analysis has indicated, the obvious recommendation is ...”

- Upon evaluation, price ceiling can be an effective policy if it is accompanied by harsh penalties if anyone is caught violating the law to deter black market formation. Examples of harsh penalties can include jail time or ban from selling or buying an apartment for a specified period. But such penalties are highly politically unpopular as they are deemed to be draconian, hence the government may not be willing to implement them. In addition, monitoring illegal trading in real estate transactions often involve multiple parties, multiple agencies at different levels of government and extensive documentation which make it not only costly and difficult to detect illegal transactions, but challenging to enforce the policy. Given these challenges, the South Korean government should not have implemented the price ceiling.

OR

- For a more effective long run measure, the South Korean government should not implement a price ceiling to reduce prices of housing in Seoul but implement measures that can target the root causes of rising prices as well as ensuring that even when the policy is removed, the price of housing will not escalate overnight. Since one of the root causes is low interest rates, the government should increase mortgage rates (interest rates on buying an apartment in Seoul) to make costs of borrowing higher to dampen demand for housing in Seoul. This can help to eliminate the shortage while maintaining prices at  $P_{max}$ .

**R2: Desirability (is it desirable from the perspective of consumers (CS), producers (PS) and society (efficiency and equity)?**

**Thesis:** Overall desirable for consumers

- Middle-income consumers can better afford to buy an apartment in Seoul after the price ceiling but only if they are able to obtain one considering the possible shortage that will arise due to the policy.
- Consumer surplus for those who managed to obtain OQs units increase because the difference between the maximum price consumers are willing and able to pay, and the price they actually pay has increased. Consumer surplus changes from Area A+B to Area A+C. (Figure 2)
- The welfare of consumers as a collective group can also increase (Figure 2). Even though the quantity of apartments bought has decreased from  $Q_0$  to  $Q_s$  (since only  $Q_s$  will be traded), the fall in consumer surplus due to fall in quantity bought is less than the gain in consumer surplus due to fall in price.

**Anti-Thesis/Limitations:** Undesirable from construction firms' perspective and from society's perspective; undesirable from consumers who do not manage to obtain these apartments.

- The fall in quantity supplied from  $Q_0$  to  $Q_s$  will lead to a fall in producer surplus from Area (C+D+E) to Area E. There is a loss in producer surplus of Area (C+D) because the price producers receive fell, and the quantity of apartments sold decreased from  $Q_0$  to  $Q_s$ .
- The shortage  $Q_sQ_d$  will result in allocative inefficiency → Deadweight loss (Area B + D) arises due to underproduction and hence underconsumption from society's point of view.
  - With reference to Figure 2, assuming the free market equilibrium level of output  $Q_0$  is allocatively efficient, the price floor at  $P_{max}$  results in a shortage  $Q_sQ_d$ , causing allocative inefficiency whereby too few resources are allocated to producing and consuming new apartments in Seoul.
  - Evaluation on size of DWL: Supply for new apartments in these affluent Seoul districts is likely to be price inelastic because the construction of these luxury apartments requires significant investments in land, materials, and skilled labour which contributes to high complexity of production and low mobility of factors of production. This means that the quantity supplied of these luxury apartments will respond less than proportionately to changes in its price, ceteris

paribus. The lower the price elasticity of supply, the smaller the shortage, hence the smaller the deadweight loss and lower the extent of allocative inefficiency.

**Evaluation:** (make a judgement based on the thesis and AT in R2 on the desirability of price ceiling and provide contextualisation)

- Price ceiling should not be implemented because there is a high likelihood that the policy will not benefit the consumers it is targeting – the middle-income. In view of the shortage caused by the price ceiling, a complementary policy must be employed to decide who gets to buy these new apartments. Generally, these complementary policies do not benefit the intended group the price ceiling policy is targeting. E.g.
  - Balloting. But balloting does not seem equitable or fair as balloting does not ensure that these apartments go to the intended group (middle-income). Balloting benefits the lucky ones who might turn out to be rich buyers.
  - Other rationing devices like first-come-first-served benefits those with foresight. Or the producers may discriminate on whatever characteristic they please and there is a high likelihood that they may end up discriminating in favour of the rich in the hopes that the rich may buy more properties from them in other districts.

OR

- Price ceiling should not be implemented because it is not desirable to all stakeholders in the long run. Even though consumer welfare improves overall in the short run and deadweight loss from underproduction and underconsumption is relatively small due to the price inelastic supply, in the long run, consumers are worse off and allocative inefficiency will worsen. This is because:
  - Producers of new apartments that incur and sustain losses will leave the market in the market which will in turn lead to a fall in supply, exacerbating the shortage problem over time. This will in turn lead to a fall in consumer surplus. Producer surplus will fall further, and the deadweight loss will become bigger.
  - Price controls can adversely affect the quality and maintenance of housing units. With limited profit potential, property owners may reduce investment in maintenance, repairs, and upgrades. Over time, this can lead to a decline in the overall quality of housing stock, negatively impacting the living conditions and value of properties.
  - Housing is a significant sector of the economy, and investment in housing projects relies on the expectation of reasonable returns. If a price cap is imposed, developers and investors will lose their incentive to build or invest in housing, particularly in areas where profit margins become restricted.

**Concluding Evaluation / Summative Conclusion:** Take into account R1 and R2 analysis and provide application specific to context (Seoul and market for apartments). E.g.

- In conclusion, price ceiling should not be implemented in the market for new apartments in Seoul because these apartments are luxury apartments. There is no need to intervene in the market for luxury housing as implementing a price ceiling on these luxury apartments will only aggravate inequity since such a policy will end up benefiting those with the effective demand to buy these apartments – the relatively rich. Given the financial and resource constraints faced by the government, the government should instead intervene by increasing the supply of regular or non-luxury apartments which are easier on the pocket of its intended target group – the middle-income consumers. Increasing supply will also not only reduce prices but also increase quantity traded, enabling more middle-income consumers to own a property in Seoul. Given land constraints particularly since Seoul is a densely populated metropolitan city, the government can make more efficient use of its land by building taller residential buildings. Seoul has recently scrapped a policy that limited apartment building height. Given other more superior policies that can achieve the intended aim of a price ceiling and yet overcome its disadvantages, a price ceiling should not be implemented in the market for new apartments in affluent Seoul.

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L3</b>	<ul style="list-style-type: none"> <li>Balanced answer with <b>comprehensive analysis</b> of both the <b>effectiveness and desirability</b> of the price ceiling in the market for new apartments in affluent Seoul districts.</li> <li>Clear use of theoretical framework</li> <li>Good scope and depth in explanation</li> <li>Makes good reference to relevant diagrams (effective use of diagram(s))</li> </ul>	<b>8-10</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>Attempt at balanced answer</li> <li>Some minor lapses in economic analysis of both the effectiveness and desirability of the policies</li> </ul> <p>No second requirement, max 6</p>	<b>5-7</b>
<b>L1</b>	<ul style="list-style-type: none"> <li>Journalistic approach, lacking in economics framework</li> <li>Flaws in economic analysis throughout.</li> </ul>	<b>1-4</b>
<b>Evaluation</b>		
<b>E3</b>	<ul style="list-style-type: none"> <li>Judgements provided for 2 requirements with explanation and contextualisation <b>PLUS</b> a summative judgement in the concluding paragraph</li> </ul>	<b>5</b>
<b>E2</b>	<ul style="list-style-type: none"> <li>Judgement provided for 1 requirement with explanation but no contextualisation <b>PLUS</b> judgement provided for 2<sup>nd</sup> requirement with explanation &amp; contextualisation</li> <li>Judgements provided for 2 requirements with explanation and contextualisation, max 4</li> </ul>	<b>3-4</b>
<b>E1</b>	<ul style="list-style-type: none"> <li>Judgement explained but lack contextualisation specific to the market for new apartments in affluent Seoul districts</li> <li>Judgement provided for 1 requirement only with contextualization, max 2</li> </ul>	<b>1-2</b>
	<ul style="list-style-type: none"> <li>Judgement not explained</li> <li>Pure summary of earlier points/repetition</li> </ul>	<b>0</b>

### **Examiner's Comments**

- Rational consumers seek to maximise total utility subject to budget constraint and not maximise marginal utility. Likewise rational producers seek to maximise total profits (TR-TC) and not maximise marginal revenue or total revenue. Revise the difference between total and marginal concepts again.
- Students need to be clear about the difference between "effectiveness" and "desirability". Effectiveness refers to the ability to achieve the intended aim(s) of the government in implementing the price ceiling while desirability refers to impact on the different stakeholders, trade-offs between the intended aim(s) and other aim(s). For instance,
  - The intended aim of the price ceiling is to lower the price of the new apartments in affluent Seoul so that these apartments will be more affordable to the middle-income consumers (who are the target group of the government), hence achieving a more equitable distribution of resources.
  - Issues pertaining to desirability include impact on consumer surplus, producer surplus and allocative efficiency at the market level analysis.
  - The intended aim of the price ceiling is not to achieve allocative efficiency (maximization of society's welfare) because it does not. Hence, the point on price ceiling resulting in a deadweight loss is not an "effectiveness" issue but a "desirability" issue.

- d. Students should clarify what is the intended aim of the policy, then structure their responses accordingly.
3. Students need to explain why shortages created by the price ceiling are undesirable (by linking to for instance allocative inefficiency due to underproduction and hence underconsumption of the new apartments) and/or why shortages might result in black markets which limit the effectiveness of the policy.
4. Students should go beyond stating an outcome and/or describing a diagram. They need to explain how and why the outcome has come about. For instance,
  - a. These are statements which show only knowledge skills (recall and understanding)
    - i. Consumer surplus refers to the difference between the maximum price consumers are willing to pay and the price they actually pay up to the quantity bought. (Definition is a recall skill.)
    - ii. When a price ceiling is imposed, overall consumer surplus can increase. (Shows understanding but lacks explanation.)
    - iii. When a price ceiling is imposed, consumer surplus changes/increases from area A to area B. (Describes the diagram but no explanation is given).
  - b. The following statement provides evidence of economic analysis. This can take the form of integrating and applying the definition of consumer surplus to explain why there can be an increase in overall consumer surplus. E.g.
    - i. When a price ceiling is imposed, overall consumer surplus can increase because the difference between the maximum price consumers are willing to pay and the price they actually pay has increased. Even though quantity bought has fallen, as long as the gain in consumer surplus brought about by the fall in actual price paid is greater than the loss in consumer surplus brought about by the fall quantity consumed, consumer surplus will increase.
5. Do not spend too much time on discussing alternative policies because it is not the focus of the question.
  - a. Compare the question “Discuss the effectiveness and desirability of a price ceiling on new apartments in affluent districts in Seoul” with the question “Discuss whether a price ceiling is the most effective and desirable policy to be implemented in the market for new apartments in affluent districts in Seoul.” Is there a difference between the two questions? For the second question, students must discuss an alternative policy in depth and must compare it with price ceiling. For the first question, however, students can raise an alternative policy and while there must be must explanation, the explanation does not need to have the same depth as the second question.
6. Each evaluative point must be made based on the discussion of effectiveness and on desirability. The evaluative point must be explained and contextualized. Contextualisation must be specific to the country and market given by considering the characteristics of South Korea and the market for new apartments in affluent districts).
7. Some students suggested that indirect subsidies should be used to complement the price ceiling without explaining why. If indirect subsidies can achieve a reduction in price like price ceiling and also increase quantity traded which price ceiling can't, why not replace price ceiling with indirect subsidies.

2. Brompton bicycles are expensive because they are fully customisable, and their frames are hand-built in England from premium steel. Recently, the CEO of Brompton has announced that the British folding bike company will seek to make acquisitions as part of its growth strategy.

(a) With reference to both revenue and cost factors, explain why bicycle manufacturers of hand-built customisable brands charge higher prices than manufacturers of mass-produced standardised brands. [10]

(b) Discuss whether such a growth strategy will benefit the British bike manufacturer and consumers. [15]

a)

### Introduction

- Identify that higher prices are due to revenue factors, and cost factors

### R1: Cost factors

- Manufacturers of mass-produced bicycles may face lower variable costs due to having relatively lower quality materials / components compared to Brompton → Brompton's cost of producing each bicycle is higher → MC is higher for Brompton
  - E.g., Brompton uses premium steel while mass-produced bicycles are likely to use standard quality steel), which is likely to cost more (since it either uses more material, or requires more labour to produce)
  - E.g., Building customized bicycles requires skilled workers that know how to adjust the components based on the customers requirements / physical attributes, and such skilled labour has lower supply → wages are higher. Compared to the use of machinery or low skilled labourers in mass produced bicycles, which will result in a lower unit cost of production.
- Mass-produced bicycles can exploit a greater extent of available internal economies of scales (IEOS)
 

Technical IEOS OR Marketing EOS are accepted

  - Technical IEOS: since mass-produced bicycles have standardized design and build, manufacturers of such bicycles are better able to exploit technical IEOS → lower LRAC for the mass-produced bicycles compared to the customized Brompton bicycles
  - Any one type of technical IEOS as illustrated below, well-explained is sufficient

### **Factor Indivisibility**

Some inputs are of a minimum size and cannot be divided into smaller units i.e. they are indivisible. Purchasing such factors of production may not be feasible if a firm's output is small as it means operating below the factor's maximum capacity. For example, the manufacturers of mass-produced bicycles can make use of automatic assembly and welding machinery, which can significantly improve output and reduce average costs of production. The cost of such machinery can be spread the large range of output that they produce. Brompton reaps less of such IEOS as each bicycle is customized, less able to use such machinery, and even if they do, is spread over a lower range of output.

### **Law of Increased Dimensions (the "container principle")**

The equipment that is used to contain materials, for example, the containers used to store the bicycle frames or parts, will tend to cost less per unit of output the larger its size. This is linked to the cubic law where doubling the height and width of a container leads to a more than

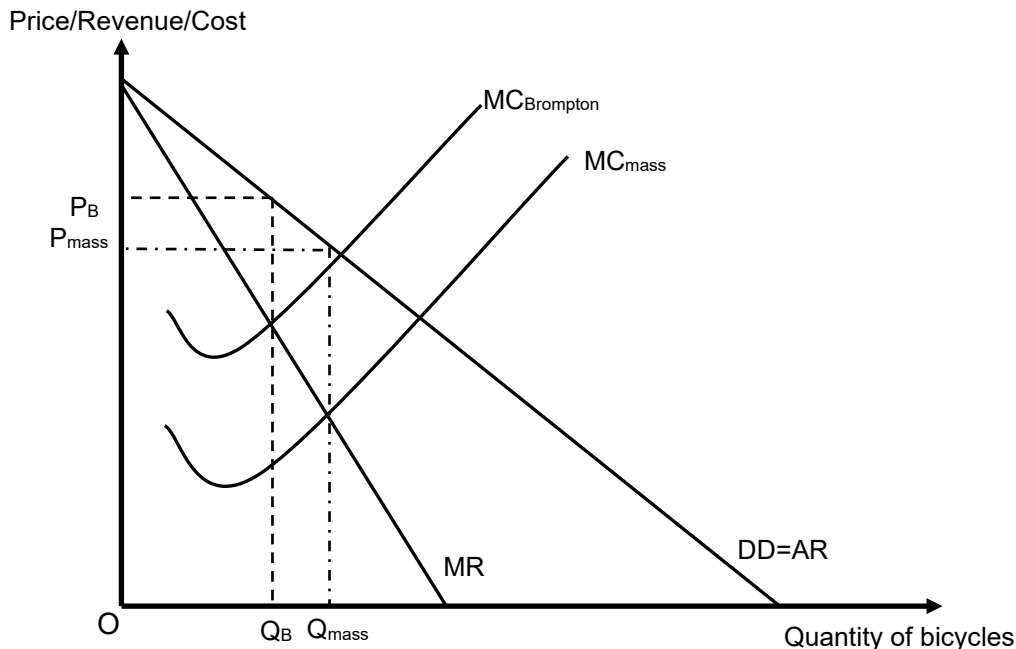


proportionate increase in the cubic capacity. Hence, a greater increase in capacity results in the average cost of containing and transporting the bicycles will fall as scale increases.

### Specialisation & Division of Labour

Workers working in the manufacturing of mass-produced bicycles can be assigned to do specific and more repetitive jobs, such as the installation of the wheels. With this specialisation and division of workers, less training is needed. Workers also become more efficient in their particular job, and less time is lost in workers switching from one operation to another. Workers better at performing each of these tasks can thus focus solely on them, resulting in higher output per worker. This gain in productivity in turn helps to lower unit cost of production for the firm. Brompton reaps less of such IEOS as they need to customize each bicycle differently based on customers' requests / needs → lower output per worker and thus higher unit cost of production.

- Marketing IEOS: as the mass-produced bicycles are produced in large quantities, the bicycle manufacturers can purchase raw materials such as steel or tyres / components in bulk. This gives them a bargaining advantage and may be accorded preferential treatment by their suppliers, allowing them to dictate their requirements regarding price, quality and delivery more effectively → overall cost of raw materials lower → variable cost / marginal cost lower for mass-produced bicycles. Brompton being smaller with customized parts reaps less of such IEOS.
- Overall, in the long run, firms producing mass-produced bicycles can reap more iEOS, hence they have a lower MC compared to Brompton, since the cost of producing one additional unit of bicycle is lower. As profit-maximising firms produce at a point where their  $MC=MR$ , ceteris paribus, Brompton would charge a higher price of  $P_B$ , producing a quantity of  $Q_B$ , compared to the lower price of  $P_{mass}$  for mass-produced bicycles as shown in the diagram below.



**R2: Revenue factors**

- PED for Brompton likely to be less than 1 while that of mass-produced standardised brands likely to be more than 1 → Due to the higher MC, when Brompton raises its price → see a less than proportionate fall in  $Q_{dd}$  → TR rises, ceteris paribus, profits increase. Mass produced bicycles manufacturers, facing a price elastic demand will likewise find that reducing its price will lead a more than proportionate increase in  $Q_{dd}$ . This rise in TR can lead to a rise in profits (holding cost unchanged).

Explain the difference in PED:

- Brompton: hand-built, able to customize to suit needs of individuals → fewer close substitutes
- Brompton: cyclists who purchase Brompton are likely to be loyal to the brand, and already with a certain level of income → habitual consumption or relatively small percentage of income for the target consumer group
- Mass produced bicycles: many other brands that provide a similar product, likely to have little brand presence and hence little brand loyalty → more close substitutes available in the market.

**Conclusion**

Thus, with higher MC and lower PED, Brompton is able to charge higher prices than those of mass-produced bicycles.

**Mark scheme**

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L3</b>	<ul style="list-style-type: none"> <li>▪ Clear use of theoretical framework</li> <li>▪ Good scope and depth in explanation</li> <li>▪ Consistent reference and application to examples relevant to the bicycle industry</li> </ul>	<b>8-10</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Some conceptual inconsistencies</li> <li>▪ Evidence of economic analysis - but lacking scope and depth in explanation. This can include:               <ul style="list-style-type: none"> <li>▪ Lacking in depth in the explanation of the reasons for differences in costs</li> <li>▪ Some attempt to apply examples to answer, but not consistently done</li> </ul> </li> </ul>	<b>5-7</b>
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ For a smattering of points with little economic analysis</li> <li>▪ Glaring conceptual errors</li> <li>▪ Mere stating / superficial explanation of reasons</li> <li>▪ Lack of application – No examples given at all</li> </ul>	<b>1-4</b>

**Examiner's Comments**

- This question was not attempted well and the length of answers on average tended to be too short with little elaboration and show of economic analysis.
- Majority of responses failed to use the correct framework of firm analysis and how firms set prices (i.e., profit-maximizing output at  $MC=MR$ , and prices determined by the firm AR curve at the corresponding output level), and instead incorrectly used the demand-supply framework.
- Many responses did not provide a detailed analysis of the cost or revenue factor, merely stating briefly. E.g., many responses simply stated that the demand for Brompton bicycles was price inelastic, as they had fewer close substitutes, without explaining why this was the case. Similarly, many responses simply stated that Brompton can enjoy less IEOS without explaining why.

- Many responses failed to provide a comparison between the cost and revenue of the 2 different types of firms, and instead provided an analysis that was in terms of shifts, or in subjective terms e.g., “high cost”. Your answer should compare the costs incurred by the 2 different types of firms, i.e., which has higher / lower cost.
- For answers that provided diagrams, many were either not explained fully, or the diagrams were incomplete.

**b) Discuss whether such a growth strategy will benefit the British bike manufacturer and consumers.**

### **Introduction**

- Identify the growth strategy: merger and acquisition; can take the form of horizontal (same stage of production) or vertical integration (different stage of production, can be either backward or forward integration)
- Identify “benefits” for Brompton: impact on profits (due to impact on cost and revenue)
- Identify “benefits” for consumers: impact on prices, quantity, variety (choice) and quality.

### **R1: Impact on Brompton + Limitation + Evaluation**

#### **Thesis: Potential positive impacts**

##### Horizontal integration: Cost benefits

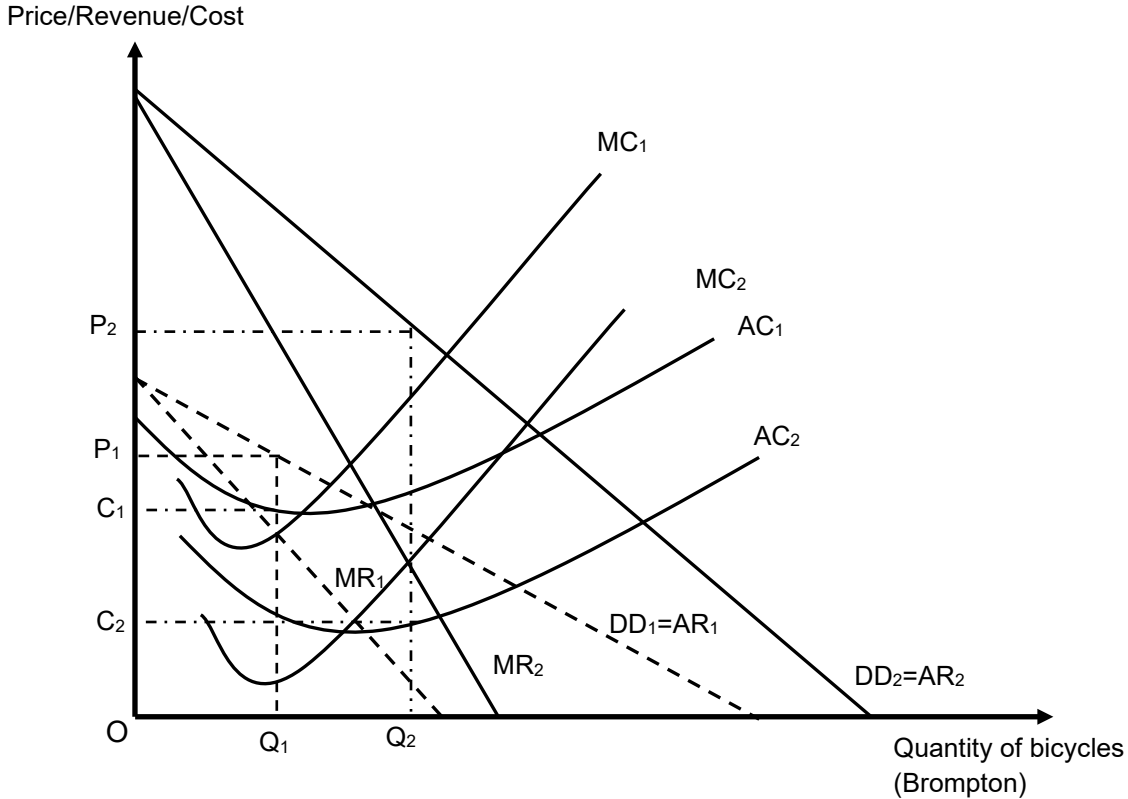
Horizontal integration occurs when a firm combines with or takes over a similar firm at the same stage of production to form a single entity, e.g. Brompton merging with Winspace or Birdy. With the larger merged firm, the joint production capacity might allow the “new” firm to be able to more fully exploit available internal economies of scale such as technical or managerial and reach its minimum efficient scale (MES). This results in lower average costs and higher profits.

- Briefly explain one internal EOS
- Movement along the LRAC towards the right OR downward shift of the SRAC → lower MC

##### Revenue benefits

Furthermore, with a larger firm, there is a reduction in competition and hence, it will enjoy an increase in demand as the firm now faces the combined demand of the 2 merged firms, which increases its market share. It will also increase its market power which makes its demand less price elastic due to fewer substitutes in the market, hence increasing its ability to raise price, ceteris paribus, increasing its total revenue and in turn its profits.

As shown in the diagram below, the impacts of horizontal integration can result in lower marginal cost, thus MC shifts from  $MC_1$  to  $MC_2$ . Furthermore, the positive effects on the firm’s revenue shift the firm’s demand curve from  $DD_1=AR_1$  to  $DD_2=AR_2$ . Thus, the firm earns more revenue, from  $P_1Q_1$  to  $P_2Q_2$ . As the firm faces lower short run average costs from the EOS ( $AC_1$  to  $AC_2$ ), the firm now earns greater supernormal profit of  $(P_2 - C_2) \times Q_2$ , an increase from  $(P_1 - C_1) \times Q_1$ .



*Note: Students are not required to draw the diagram showing the combined effects of the rise in AR and fall in MC. They should, however, illustrate with a diagram, one of the impacts.*

#### Long term benefits from mergers and acquisitions

- With higher profit levels, in the long run, the firm has a greater ability to conduct strategies such as advertising and R&D, both process and product innovation. Advertising can create perceived differences between Brompton and other brands, thereby increasing its demand and reducing PED. Product innovation through bicycle designs that better fit consumers' lifestyles also increases demand for Brompton's products and reduces its PED, thus able to increase Brompton's revenue and thus profits further. Process innovation, through finding better ways of building the bicycles, can help Brompton further reduce costs, thus also increasing its profits in the long run.

#### **Anti-thesis / Limitations: Potential negative impacts**

##### Cost disadvantages

- Internal diseconomies of scale are increases in costs (average costs) that occur to a firm as a result of the expansion of the firm, which is the result of the firm's own policies and actions. This occurs beyond the MES along the upward sloping portion of the LRAC curve → higher (unit) cost → lower profits

##### **Examples of internal diseconomies of scale**

- Monitoring the productivity and the quality of output from thousands of employees in big, complex corporations is imperfect and expensive – this links to the concept of the principal-agent problem i.e. the difficulties of shareholders monitoring the performance of managers.

- Management problems of co-ordination may increase as the firm becomes larger and more complex. Larger firms often suffer poor communication because they find it difficult to maintain an effective flow of information between departments, divisions or between the head office and its subsidiaries. Time lags in the flow of information can also create problems in terms of the speed of response to changing market conditions. For example, Brompton may become less responsive to changing tastes and trends than previously, and thus, may incur more costs to make the change faster. Other examples could be how Brompton's acquisitions may mean coordinating production of parts or bicycles in multiple factories across the world.
- When firms become too large, relationships tend to become impersonal. Workers in large firms may develop a sense of alienation and loss of morale. The relationship between management and employees is important for maintaining productivity and efficiency. A long chain of authority in large firms may lead workers to feel that they are 'only a small cog in a very large machine', and therefore do not consider themselves to be an integral part of the business. Their productivity may fall leading to wastage of factor inputs and higher costs.

### **Evaluation: Impact on Brompton**

- Overall, the impact on Brompton is likely to be positive since Brompton is a relatively smaller firm → less likely to incur diseconomies of scale with the expansion, more likely to enjoy more IEOS; thus the firm's management is also more likely to be able to manage the transition of the two firms into a slightly larger firm
- The benefit will be greater if the form of the merger is of backward integration, since Brompton focuses on high quality components, this is likely to form a large proportion of their costs.
- Even with horizontal integration, there are many other brands in the market, including those from China → Brompton has the incentive to behave competitively and ensure productive efficiency → less likely to see negative impacts on their costs.

### **R2: Impact on consumers + Limitations + Evaluation**

#### **Thesis: Potential positive impacts**

- **Cost savings:** Due to the lower costs incurred by Brompton from either backward integration or IEOS from horizontal integration → can pass on cost savings to consumers → lower prices and greater quantity produced (diagrammatically shown as a shift down and right of the MC curve) → greater consumer welfare.
- **Innovation:** Brompton's growth due to mergers and acquisitions will likely give it a greater level of profits. With that, comes greater ability to engage in R&D.
  - With more process innovation (e.g. finding better ways of building the bicycle, shorten production time): also lowers unit cost and has the same effect as above (reduction in price, increase in quantity).
  - With more product innovation: Brompton's R&D could also result in better quality products coming out of their production line (e.g. better design, greater convenience, lighter and more durable materials etc.) and possibly greater variety → greater consumer welfare.

#### **Anti-thesis / Limitations: Potential negative impacts**

##### **Impact due to firm's higher cost**

- May face higher prices if Brompton incurs diseconomies of scale instead → higher costs passed on to consumers.
  - Briefly explain one example of diseconomies of scale, e.g. low morale of employees due to lack of sense of belonging → less productive at work → higher unit costs

- With greater market share: Brompton may have little competition and hence incentive to be productive efficient may become X-inefficient (where the firm produces at a point above its LRAC) higher costs higher prices.
- Lack of incentive to conduct R&D due to dominant market power and lack of competition → Brompton becomes complacent → little or no improvement in production techniques → costs do not fall as quickly → consumers pay higher prices than with more R&D

#### Impacts due to firm's greater price-setting ability

- With higher market share and price-setting ability → consumers pay higher prices instead
- Lack of incentive to conduct R&D: may not see improvement in products → stagnation in quality, lack of choice

#### Evaluation of impact on consumers

- Overall, the impact on consumers is likely to be positive since Brompton is a relatively smaller firm → less likely to incur diseconomies of scale, and there are still many other brands in the market, including those from China → Brompton has the incentive to behave competitively and pass on cost savings to consumers
- Brompton also clearly looking for growth → has the incentive to do product innovation to capture market share in a rather competitive bicycle market.
- In the long run, however, if Brompton continues with a growth strategy mainly through mergers and acquisitions, consumers may start to see less benefits if it moves towards becoming a monopoly

*Note: A discussion of the impacts on other forms of integration (such as vertical integration) is also accepted, but the analysis of both consumers and producers should be based on the same form of integration.*

#### Final Evaluation / Summative Conclusion

- Ultimately, the impact on Brompton and consumers depends on the type of merger and acquisition that occurs, which is in turn dependent on Brompton's purpose.
- As a general strategy, Brompton is more likely to consider vertical (in particular backward) integration first, to consolidate its supply chain and minimize costs. Horizontal integration is more likely for the future, for the purpose of stronger brand presence and greater market share.
- Hence in the short run, Brompton is likely to benefit, however it will be at the expense of consumers in the long run.
- However, in the event that consumer welfare is significantly affected, anti-trust laws such as breaking up the merged firm, taxes on the firm or other forms of regulation may be implemented, which will reduce the negative impact on consumers, and reduce the benefits that Brompton enjoys.

#### **Mark scheme**

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L3</b>	<ul style="list-style-type: none"> <li>▪ Balanced answer with <b>comprehensive analysis</b> of the impact on Brompton (with coverage of both cost and revenue effects) and consumers</li> <li>▪ Clear use of theoretical framework</li> <li>▪ Good scope and depth in explanation</li> <li>▪ Makes good reference to relevant graphs</li> </ul>	<b>8-10</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Attempt at balanced answer</li> <li>▪ Some conceptual inconsistencies</li> <li>▪ Evidence of economic analysis - but lacking scope and depth in explanation. This can include:</li> </ul>	<b>5-7</b>

	<ul style="list-style-type: none"> <li>▪ Lacking in depth in the discussion of the impacts</li> <li>▪ Some attempt to apply examples to answer, but not consistently done</li> </ul>	
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ For a smattering of points with little economic analysis</li> <li>▪ Glaring conceptual errors</li> <li>▪ Mere stating / superficial explanation of reasons</li> <li>▪ Lack of application – No examples given at all</li> </ul>	<b>1-4</b>
<b>Evaluation</b>		
<b>E3</b>	<ul style="list-style-type: none"> <li>▪ Judgements provided for 2 requirements with explanation and contextualisation <b>PLUS</b> a summative judgement in the concluding paragraph</li> </ul>	<b>5</b>
<b>E2</b>	<ul style="list-style-type: none"> <li>▪ Judgements provided for 2 requirements with explanation and contextualisation</li> </ul>	<b>3-4</b>
<b>E1</b>	<ul style="list-style-type: none"> <li>• Judgements lack explanation and/or contextualisation</li> <li>▪ <b>OR</b> judgement provided for only 1 requirement with explanation and contextualisation</li> </ul>	<b>1-2</b>

### Examiner's Comments

- Very few responses had a clear intro that identifies the criteria / yardstick of measurement when discussing impact on consumers and producers. The lack of such an introduction often resulted in vague, unclear impacts that were not well explained in the answer.
- A common mistake was explaining and using a few different types of integration in the answer – this took too much time, resulting in students not having sufficient time to discuss the impacts on consumers and producers in detail. What is required is to briefly state the type of integration used as an assumption in the introduction, and the discussion of impacts should be based on that type of integration. At any single point in time, a firm is likely to only undergo a single form of M&A.
- It seemed to be that time management had a significant impact on the quality of answers for this question. The detained explanation of the impacts was mostly brief and not well explained, while others simply listed many impacts without any explanation at all. Along the same vein, evaluation was mostly missing for majority of answers, or the evaluation lacked application to the context / were too vague.
- Conceptually, many responses correctly identified internal EOS as a benefit to the firm, however explained this as a downward shift of AC. To be more precise, this should be a downward shift of the SRAC, and a movement along the LRAC. While both approaches are accepted, very few responses identified the specific AC curves correctly and left it vague.
- Another common mistake was to mention other strategies that the firm can adopt in the answer. This is not the focus of the question – the question is focused on one single strategy, and the impacts of such a strategy. Candidates who used this approach in their answer scored poorly.

**3) Although e-cigarettes do not generate as much second-hand smoke, it is highly addictive, and creates a heavy burden on the healthcare system. Some countries have completely banned them, while others have imposed a tax on its production.**

**a) Explain why the market for e-cigarettes fails to achieve efficient allocation of resources. [10]**

**Introduction:** Market failure is failure of the free market to allocate resources to produce an optimal quantity of goods which maximises social welfare.

(Note that the attainment of other objectives such as equity is no longer included in the definition of market failure, under the revised H2 Economics syllabus.)

**Body paragraphs:**

**R1: Negative consumption externalities are disregarded/ignored by consumers of e-cigarettes (know but don't care)**

1. Identify source of market failure:

- Consumption of e-cigarettes by e-cigarette smokers generate negative externalities in consumption which are negative spillover effects on 3<sup>rd</sup> parties not involved in the consumption & production of e-cigarettes. These come in the form of exposure to nicotine and second-hand vapour which contain ultrafine particles that could increase the risk of shortness of breath and bronchitic symptoms as well as cardiovascular diseases for non-smokers.

2. State the divergence ( $MSB < MPB$ ) and explain reason for the divergence:

- From the perspective of consumers of e-cigarettes, in the pursuit of self-interests, utility-maximising consumers only consider their MPB of consumption, for example, the sense of calmness and relaxation/stress reduction that is achieved through deep inhalation of the nicotine in e-liquids; and their MPC of consumption, which is the price that they pay for e-cigarettes and the possible expenses they would have to pay from receiving healthcare services.
- From the perspective of the producers of e-cigarettes, in the pursuit of self-interests, profit-maximising producers would only consider their MPC of production, which include the price of factor inputs like aerosol generators, batteries and nicotine-containing solution cartridges and ingredients as well as flavouring agents used in e-liquids and their MPB of production, which is the free market equilibrium price that they receive for the sale of e-cigarettes.
- External costs are inflicted upon 3<sup>rd</sup> parties (ie. Increased medical expenses incurred by these non-smokers due to exposure to nicotine and second-hand vapour that are not compensated for by e-cigarette smokers). The presence of these external costs/negative MEB create a divergence between MPB and MSB, such that  $MPB > MSB$  ( $MSB = MPB + MEB$ ;  $MEB < 0$ )

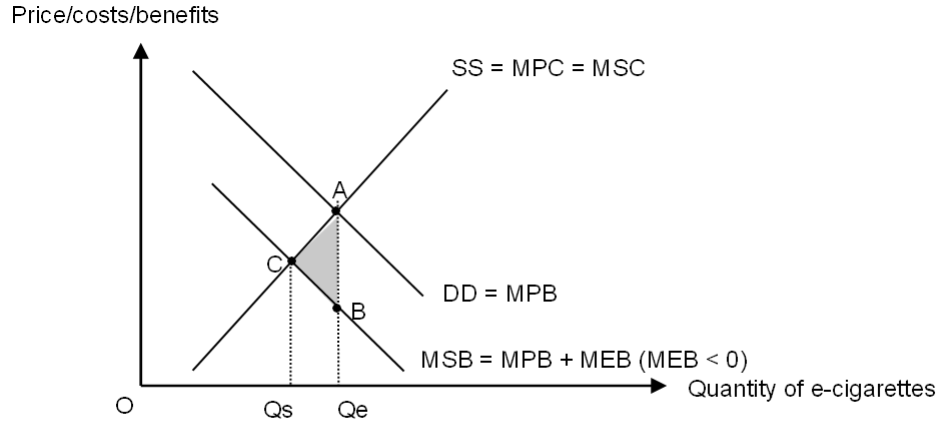
3. Explain the derivation of free market and socially optimal levels of equilibrium:

- Assuming no production externalities (since it is a negative consumption externality generated from e-cigarette smoking),  $MPC = MSC$
- In the free market, the pursuit of self-interests by economic agents results in consumers and producers making decisions based on private benefits and private costs. The free market equilibrium will be at  $Q_e$  where MPB of consumption ( $D_d$ ) = MPC of production ( $S_s$ ). Negative MEB inflicted on 3<sup>rd</sup> parties will be ignored by self-interested consumers.
- However, the socially optimal output level which maximises society's welfare occurs at  $Q_s$  where MSB of consumption = MSC of production.
- Since  $Q_s < Q_e \rightarrow$  overconsumption (which also means overproduction) of e-cigarettes observed in the free market  $\rightarrow$  too much resources are allocated to the consumption and production of e-cigarettes  $\rightarrow$  allocative inefficiency has occurred i.e. Free market has failed in its allocation of scarce resources.



4. Explanation of DWL with reference to Figure 1:

- A deadweight loss ABC is incurred from the overconsumption because  $Q_e > Q_s$  as the opportunity costs of the resources used in producing  $Q_e$ s  $>$  benefits gained by society from consuming  $Q_e$ s. Society is better off if cigarette consumption is reduced by  $Q_e$ s amount. The overallocation of resources to the consumption and production of e-cigarettes as well as the resultant DWL warrants government intervention in the e-cigarette market.



**Figure 1: Negative Consumption Externality**

**R2: Imperfect information about MPB reaped from consumption of e-cigarettes**

1. Identify the source of market failure:

- Unlike traditional cigarettes, e-cigarettes/vapes do not contain tobacco since they are battery powered devices with a heating element and a cartridge that contains liquid. Compared to traditional cigarettes, in which smoking involves burning the tobacco that produces smoke, tar and carbon monoxide that the smoker inhales, e-cigarettes appear harmless since puffing on the device heats the liquid, which produces only vapour. However, like traditional cigarettes, many e-liquids contain nicotine, which is a toxic substance that raises the smoker's blood pressure and spikes the adrenaline hence raising heart rates and the likelihood of heart attacks.
- Due to the lack of perfect information, e-cigarette smokers may not be fully aware of the health harms generated by vaping as mentioned above. They may also be misled by articles that state that vaping is less harmful than traditional cigarette smoking. As a result, they tend to overestimate their private benefits (MPB) that they can gain from vaping due to the undervaluation of harmful health effects/conditions such as high blood pressure and heart attacks which can cause death.

2. Explain the divergence:

- As a result of the overestimation of MPB from vaping, the value that e-cigarettes smokers place on e-cigarettes is higher under imperfect information than if they were to possess perfect information regarding the health harms posed to themselves. Hence,  $D_d$  for e-cigarettes under imperfect information  $>$   $D_d$  for e-cigarettes under perfect information as seen in Figure 2.

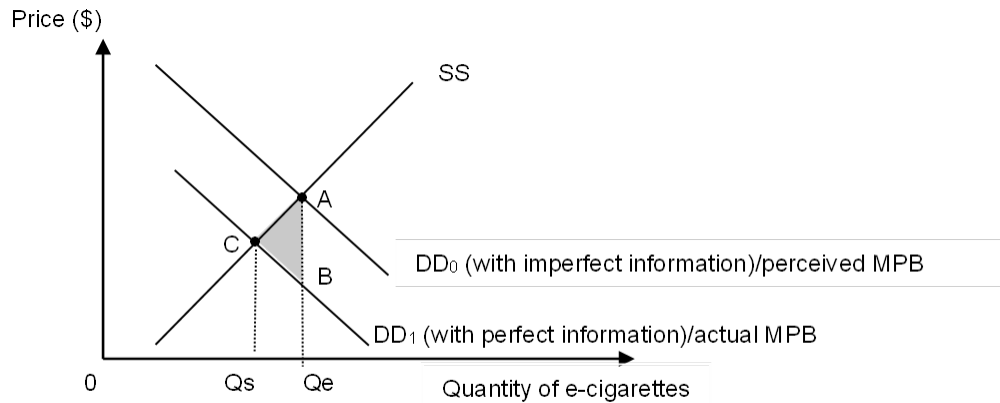
3. Explain the derivation of free market equilibrium and socially optimal levels of consumption:

- With reference to Figure 2, consumers will make decisions based on the imperfect information of MPB they possess. Hence, the market demand curve is  $DD_0$ . Free market equilibrium where self-interested economic agents make decisions considering only private benefits and private costs will result in the consumption of e-cigarettes at  $Q_e$ , where  $D_d$  under imperfect info =  $S_s$ .
- However, if consumers had perfect information about the harms associated with e-cigarette smoking, market demand will be  $DD_1$ , and free market level of consumption of cigarette will be at  $Q_s$ , where  $D_d$  under perfect info =  $S_s$ .
- Since  $Q_e > Q_s \rightarrow$  overconsumption (and hence overproduction) of e-cigarettes observed in the free market  $\rightarrow$  too much resources are allocated to the consumption and production of e-

cigarettes → allocative inefficiency has occurred and the free market has failed in its allocation of scarce resources due to imperfection of information.

4. Explain DWL with reference to Figure 2:

- As previously explained, a deadweight loss ABC is incurred from the overconsumption because  $Q_e > Q_s$  as the opportunity costs of the resources used in producing  $Q_e$  are > benefits gained by society from consuming  $Q_e$ . Society is better off if cigarette consumption is reduced by  $Q_e$  amount. Hence, the overallocation of resources to the consumption and production of e-cigarettes as well as the resultant DWL warrants government intervention in the e-cigarette market.



**Figure 2: Market for e-cigarettes (Imperfect Information)**

Knowledge, Application, Understanding, Analysis		
<b>L3</b>	<ul style="list-style-type: none"> <li>▪ Clear use of theoretical framework</li> <li>▪ Good scope and depth in explanation</li> </ul>	<b>8-10</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Some conceptual inconsistencies</li> <li>▪ Evidence of economic analysis - but lacking scope and depth in explanation. This can include: <ul style="list-style-type: none"> <li>❖ Lacking in depth in the explanation</li> <li>❖ some <u>attempt to apply examples to answer</u>, but <u>not consistently done</u></li> </ul> </li> </ul>	<b>5-7</b>
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ For a smattering of points with little economic analysis</li> <li>▪ Glaring conceptual errors</li> <li>❖ Mere stating/superficial explanation of reasons</li> <li>❖ Lack of application to e-cigarette market</li> </ul>	<b>1-4</b>

**Examiners' Comments:**

- Despite this being the more straightforward part of the question, students generally performed below expectations, scoring an average of L2: 6m for an easy question.
- Some common errors include:
  - A lack of understanding and hence confusion between the analysis of imperfect information vs negative externalities in consumption as sources of market failure. Students who made this error tend to combine the analysis of the 2 sources of market failure, for eg. Claiming that "MPB enjoyed by e-cigarette smokers exceeds the MSB due to the presence of negative externalities in consumption as e-cigarette smokers are unaware of the potential health problems they may face with prolonged vaping" when it should be a case in which  $MPB > MSB$  due to presence of **negative external benefits in the form of higher healthcare expenses incurred by 3<sup>rd</sup>**

*parties who breathe in the vapour when the e-cigarette smoker vapes. The latter ignores the presence of the negative MEB that is imposed on 3<sup>rd</sup> parties rather than being unaware of the 3<sup>rd</sup> party effects, in the analysis of negative externalities in consumption.*

- *Failure to distinguish what caused the market failure problem in the context of the different sources of market failure. For example, when analysing the determination of free market equilibrium in the case of negative externalities in consumption, it is the **pursuit of self-interest that results in utility-maximising consumers to ignore the existence of external costs** in the determination of equilibrium at  $Q_e$ , where  $MPC = MPB$ . However, in the case of imperfect information, the determination of free market equilibrium,  $Q_e$ , where  $MPB_{perceived} = MPC$  arises due to **rational decision making by consumers under imperfect information**.*
- *Errors in diagrammatic illustrations, in particular, relating to the derivation of DWL.*
- **Lapses in analysis:**
  - *Mere lifting of “heavy burden on healthcare system” from the preamble in accounting for the external costs imposed on the society by e-cigarette smokers, without clear explanation/reference to 3<sup>rd</sup> party monetary costs incurred. These students should elaborate on how the healthcare system is funded by tax revenues and the medical bills incurred due to e-cigarette smoking might not be fully borne by the smokers only since the healthcare sector is heavily subsidised by the government with tax revenue from all taxpayers → hence incurring 3<sup>rd</sup> party costs.*
  - *Mere statement of “imperfect information” in accounting for the over-valuation of private benefits from e-cigarette smoking, without clear explanation of what the imperfection of information entails, which in this case, is the lack of awareness of potential health problems such as high blood pressure or heart attacks over the long term, hence causing smokers to over-estimate their private benefits from e-cigarette smoking in the SR → resulting in a higher demand for e-cigarettes as seen from  $MPB_{perceived} > MPB_{actual}$ .*
  - *Lack of precision in analysing the determination of free-market equilibrium level of consumption vs that of socially optimal level in the context of both sources of market failure.*
  - *Mere reference to the diagrams drawn in accounting for the welfare loss/deadweight loss from over-consumption, without clear explanation of how it is derived.*
  - *Only one source of market failure presented in the answer despite an awareness of the grading criteria which includes at least 2 requirements in analysis.*

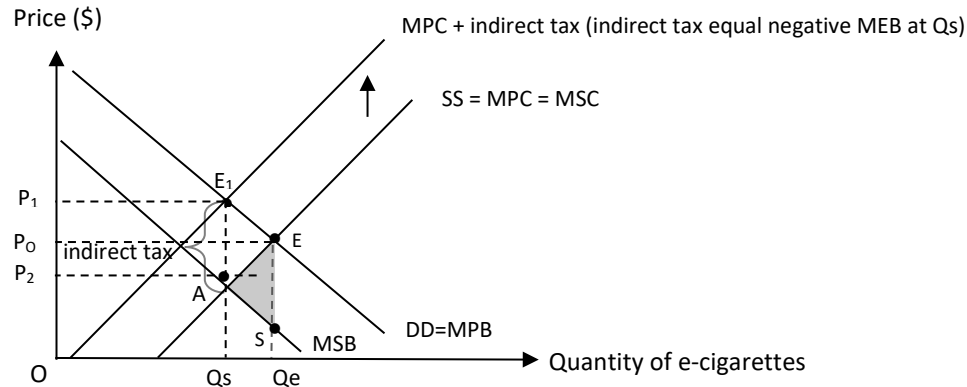
**b) Discuss the approaches taken by different governments in the market for e-cigarettes. [15]**

**R1: Discuss why some countries implement tax on production ie. indirect taxes on e-cigarettes**

**Thesis:** Explain why some countries implement indirect taxes on e-cigarettes to address the market failure problem of overconsumption of e-cigarettes (eg. China)

1. Explain how market-based policies such as indirect taxes on e-cigarettes work to reduce overconsumption in the market:
  - Indirect taxes are levied on e-cigarette producers and they have the effect of increasing COP → shift MPC curve upwards by the amount of the tax (refer to Figure 3) → assuming that tax = negative MEB at  $Q_s$  → the tax increases the post-tax price that consumers pay (reduce willingness and ability to buy because real income falls and substitutes like chewing gum become relatively cheaper) since producers tend to pass on the rise in costs to consumers as higher prices. At the same time, the tax reduces the post-tax price and revenue retained by producers (reduces willingness and ability to sell because less profitable after tax) → the implementation of indirect tax will result market equilibrium  $Q$  at  $Q_s$ . This coincides with the socially optimal level of consumption  $Q_s$  where  $MSB = MSC$ .
  - Hence, indirect taxes compel the consumers and producers to take into account of the negative consumption externalities → internalise external costs involved in e-cigarette smoking.

- Since  $Q_s$  is the level of consumption of e-cigarettes after implementation of the indirect tax, the market failure problem of overconsumption (and hence overproduction) is corrected → allocative efficiency is attained and the DWL of ABC is eliminated with the intervention.



**Figure 3: Correcting overconsumption from negative consumption externality**

**Anti-thesis:** Limitations of indirect taxation as a market-based policy to correct the market failure problem of overconsumption of e-cigarettes

- Limited effectiveness in achieving  $Q_s$ 
  - Imperfect knowledge about negative MEB on the part of the government results in difficulties faced in assigning a “right” amount of tax to implement. This is because negative MEB is hard to quantify in reality since it is hard to put a monetary value on the costs imposed onto 3<sup>rd</sup> parties as the negative effects on health of 3<sup>rd</sup> parties arising from the exposure to second-hand vapour and nicotine only arises over a long period of time. Hence, if the indirect tax is too little or too much →  $Q_s$  will not be achieved → misallocation of resources remains a problem and AE is still unattained → ineffective government intervention to correct the overconsumption problem.
- Undesirable effects from implementation of indirect tax on e-cigarettes (from other stakeholders’ point of view or tradeoffs between objectives)
  - Given that demand for e-cigarettes is price inelastic since it is just as addictive/habitually consumed as traditional cigarettes, smokers are generally unresponsive to price changes. Hence, it takes a very high tax in order for  $Q$  to be reduced, since a given increase in price results in a less than proportionate decrease in  $Q_d$  → this creates unintended consequences that are undesirable since too high a tax on e-cigarettes may cause e-cigarette smokers to turn to traditional cigarettes (which are even more harmful to 3<sup>rd</sup> parties) instead.
  - Given that consumers of e-cigarette come from all income stratas, the indirect tax is regressive. It constitutes a greater proportion of the low-income consumer’s income than those with high incomes → leading to inequitable outcomes → hence, allocative efficiency is achieved at the expense of equity.
  - Producers of e-cigarettes are made worse off as the indirect tax reduces the post-tax price and revenue as well as producer surplus (a proxy for industry’s profits) retained by producers.

**Evaluation R1:** Justification for countries’ choice of indirect taxation (set in context of countries like China that implements it) to correct negative consumption externalities caused by e-cigarette smoking:

- Despite limitations in effectiveness due to the government’s imperfect knowledge regarding the value of the negative MEB, it is still a move in the right direction as long as the overconsumption problem is reduced and deadweight loss is reduced. The fact that taxation is flexible and easily adjustable when the negative MEB changes lends the policy credit since governments can easily adjust the tax amount to reduce consumption of e-cigarettes when information becomes more readily available or more accurately calculated with the use of advanced statistical methods over time.

- In addition, there are advantages associated with indirect taxation in terms of generation of tax revenue for governments, justifying why some countries may choose to implement indirect taxation. In the case of China, a sizable portion of its recent growth is attributed to capital investments that has made the country more productive. Tax revenues from e-cigarettes market provide the Chinese government with the funds it needs to invest in development, relieve poverty, deliver public services and build the physical and social infrastructure for long-term economic growth. Hence, developing countries might choose to utilise indirect taxation due to the draw of large tax revenues that help to bolster the government's budget.
- Taking a macroeconomic perspective, implementing an indirect tax is a better policy than a ban for China because it is the world's biggest manufacturer of e-cigarettes, according to the China Electronic Cigarette Chamber of Commerce. A ban will lead to a significant rise in unemployment and fall in economic growth in China, while an indirect tax will have more muted effects on its economy given that it has less adverse impact on producers and employees in the market for e-cigarettes.

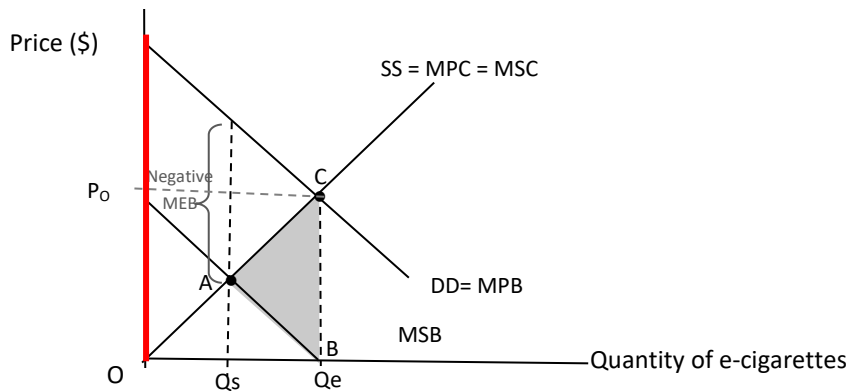
## **R2: Discuss why some countries choose to implement a ban on e-cigarettes**

**Thesis:** Explain why some countries choose to implement a ban on e-cigarettes to address the overconsumption of e-cigarettes (like Singapore):

1. Explain how a ban on e-cigarettes work to reduce overconsumption in the market:
  - A ban is seen to be a non-market-based policy ie. Legislation/Prohibition → it displaces the workings of the price mechanism by restricting equilibrium output to zero via legal action. This can be achieved through harsh penalties in the form of large fines (max S\$10,000) or a 6-month imprisonment imposed on the sale and importation/distribution of e-cigarettes as well as heavy fines (S\$2,000) levied on the possession and use of e-cigarettes.
  - Theoretically, a ban tends to be effective in reducing consumption and production of e-cigarettes to zero. Even if consumers ignore the negative consumption externalities, the fear of facing harsh penalties of S\$2,000 fine for breaking the law will compel/force them to not consume e-cigarettes → reduce the MPB derived from e-cigarette consumption → shifting it to the left and moving it to MSB. e-cigarette producers fearing the large fine and imprisonment for breaking the law will not be willing and able to sell e-cigarettes since the MPC of putting up e-cigarettes for sale will increase → shifting MPC leftwards. Ultimately, the quantity of e-cigarettes consumed and produced will be at 0 level of output as intended by the ban. This is the level of e-cigarette consumption where the government deems to be socially optimal, hence, the overconsumption problem alongside the DWL is eliminated → making the ban effective at achieving its intended objective.

**Anti-Thesis:** Limitations of the Ban as a non-market-based policy to address the overconsumption of e-cigarettes (like Singapore):

2. Limited effectiveness in achieving Qs
  - If it were effectively enforced, a ban would drive down production & consumption to 0 → leading to underconsumption of e-cigarettes, especially in the case where the negative MEB of e-cigarette consumption were not as large as the government had assumed. In the event that  $Q_s > 0$ , AE will not be achieved with the ban → welfare loss will then arise from the imposition of a ban due to the under-consumption of e-cigarettes. With reference to Figure 4, the DWL associated with the ban is P0AO. In the event that P0AO is greater than the initial DWL of ABC arising from the over-consumption of e-cigarettes, then the ban is both ineffective at achieving AE and undesirable since it results in a greater welfare loss.



**Figure 4: Ban in correcting negative consumption externalities**

- In reality, a ban is not necessarily enforced effectively and there is no guarantee that consumers and producers will abide by the legislation despite the harsh penalties involved. Such banned substances tend to result in large unregulated black markets where e-cigarettes are traded at high prices illegally. In the context of Singapore that has imposed a ban on e-cigarette sale and consumption, there is a plethora of digital avenues eg Telegram, Carousell and even Lazada and Shopee, to access illegal vaping devices and accessories. The potential development of a black market in which e-cigarettes continue to be sold and consumed makes such a ban ineffective at correcting the market failure of overconsumption. Such black market trade also creates undesirable effects on the society due to the negative consumption externalities as well as a loss of potential tax revenues for the government.
- 3. Undesirable effects of a ban on e-cigarettes (from other stakeholders' point of view)
  - As mentioned above, banning the sale and consumption of e-cigarettes can potentially result in an underground black market for e-cigarettes in which the negative consumption externalities continue to plague the society → undesirable for 3<sup>rd</sup> parties. In the event that the harsh penalties involved in the ban on e-cigarettes disincentivises e-cigarette smokers to consume e-cigarettes but switch to traditional tobacco cigarettes, the ban could present an even more undesirable outcome as traditional tobacco cigarettes pose even more deadly effects on smokers and 3<sup>rd</sup> parties than e-cigarettes.
  - Bans are generally undesirable because they are seen as draconian measures that are politically unpopular. In addition, governments also tend to lose potential sources of corporate tax revenues from banning e-cigarette production → detrimental to government's budget.

**Evaluation R2:** Justification for countries' choice of a ban (set in context of countries like Singapore that implements it) to correct negative consumption externalities caused by e-cigarette smoking:

- Despite the limitations of a ban, the fact remains that it is a policy that helps achieve immediate effects in the market for e-cigarettes and that the outcome of a ban is certain unlike indirect taxation (which depends largely on the government's accuracy at estimating the value of negative MEB) → hence it is effective at addressing overconsumption regardless of imperfect information or negative externalities in consumption.
- It is a move in the right direction if the government deems the value of the negative MEB or the extent of imperfect information to be so significant and that the socially optimal level of consumption should be 0 or close to 0. To that end, the government will choose to implement the ban given that a DWL arising from the implementation of the ban will still be smaller than the DWL created by the overconsumption in the free market → justified to ban e-cigarettes.
- In the case of Singapore, there is a rule-abiding culture such that majority of Singaporeans have been ingrained with the importance of following rules and regulations, making Singapore one of the countries with the lowest crime rates → hence, a ban is likely to be effectively enforced in Singapore, justifying the government's choice of policy.

- Furthermore, unlike China, Singapore lacks natural resources and its most precious resource is its labour force → hence, it is important to ensure that Singaporeans do not get addicted to vaping along with its negative health implications on e-cigarette smokers as well as on 3<sup>rd</sup> parties. This is so despite e-cigarettes being marketed as a healthier alternative to traditional tobacco cigarettes. The fact that vaping has been marketed as more attractive and hence more appealing to youngsters, possibly result in more youths starting to vape at a younger age. This justifies the Singapore government's choice of a ban since it discourages Singaporeans from even trying to vape in the first place → hence, despite its political unpopularity, the ban remains the policy choice for countries like Singapore whose healthcare resources are increasingly burdened from an ageing population.

#### Concluding Evaluation / Summative Conclusion:

- Different countries/governments undertake different approaches in addressing the overconsumption of e-cigarettes in the free market due to reasons such as differences in the valuation of negative MEB which could stem from different levels of e-cigarette consumption, differences in ability to access information which is in turn dependent on the availability of advanced statistical methods or data collection methods, the size of the government budget etc.
- In the case of China (which implements an indirect tax) and Singapore (which imposes a ban), the different approaches to e-cigarettes consumption arises due to differences in the type of industries present in the country and differences in their factor endowments as explained in previous paragraphs.
- Ultimately, both approaches have been implemented and have met with success in the respective countries. Hence, it is more likely than not that the governments have studied and weighed the costs (including the costs of regulation for countries that have industries closely linked to vaping) and benefits of each of the policies to their specific context.
- The approaches towards vaping lie on a spectrum from extremely punitive (in the case of a ban), to fairly light-handed (such as mere warnings on packaging), and the policies of indirect taxation and ban are but 2 options out of the many. As a relatively new product / trend, it is still early to determine the exact extent of the health costs to individuals and society from prolonged vaping, and as the situation evolves over time, governments must be open to adjusting and calibrating their approaches towards correcting the market failure problem of overconsumption of e-cigarettes.
- It is likely that a combination of policies needs to be implemented in the market for e-cigarettes because there is more than one source of market failure involved. It is important to note that banning or taxing e-cigarettes does not effectively address the root cause of overconsumption if the root cause is imperfect information. Hence, countries may consider implementing education and campaigns in addition to the ban or the tax, to provide their own residents with more accurate information about the potential harmful effects e-cigarettes can have on their health.

Knowledge, Application, Understanding, Analysis		
<b>L3</b>	<ul style="list-style-type: none"> <li>▪ <b>Balanced</b> answer with <b>comprehensive analysis</b> of <b>both indirect tax and ban in the market for e-cigarettes in different countries</b>.</li> <li>▪ Clear use of theoretical framework</li> <li>▪ Good scope and depth in explanation</li> <li>▪ Makes good reference to relevant graphs</li> </ul>	<b>8-10</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>▪ Attempt at balanced answer</li> <li>▪ Some minor lapses in economic analysis</li> </ul>	<b>5-7</b>
<b>L1</b>	<ul style="list-style-type: none"> <li>▪ Explanation of policy/ies lacks rigour in economic analysis.</li> <li>▪ Weak rigour or flaws in economic analysis throughout.</li> </ul>	<b>1-4</b>
Evaluation		
<b>E3</b>	<ul style="list-style-type: none"> <li>▪ Judgements provided for 2 requirements with explanation and contextualisation <b>PLUS</b> a summative judgement in the concluding paragraph</li> </ul>	<b>5</b>

<b>E2</b>	<ul style="list-style-type: none"> <li>▪ Judgement provided for 1 requirement with explanation but no contextualisation <b>PLUS</b> judgement provided for 2<sup>nd</sup> requirement with explanation &amp; contextualisation</li> <li>▪ Judgements provided for 2 requirements with explanation and contextualisation, max 4</li> <li>▪ Judgement provided for both requirements with no contextualization <b>PLUS</b> a concluding EV, max 3</li> </ul>	<b>3-4</b>
<b>E1</b>	<ul style="list-style-type: none"> <li>• Judgement explained but lack contextualisation for 1R, max 1m</li> <li>▪ <b>OR</b> judgement provided for only 1 requirement with explanation and contextualisation, max 2</li> </ul>	<b>1-2</b>
	<ul style="list-style-type: none"> <li>• Judgement not explained</li> <li>• Pure summary</li> </ul>	<b>0</b>

### **Examiners' Comments:**

- Majority of the students did not score well for the evaluation component of this question as they lack the ability to distinguish between different question requirements. Students need to learn to grasp the intent of/requirements of different question types. In this case, many students had misinterpreted this to be a question that called for a comparison between the 2 different policies given in the preamble – indirect taxation and a ban on e-cigarettes. However, this question's intent was for students to justify **why different countries would choose to implement different policies in addressing the market failure problem of over-consumption of e-cigarettes.**
- Nevertheless, it is nice to see that a good number of students were not just plainly regurgitating content knowledge of the tax and the ban but were able actively compare the 2 policies in terms of yardsticks such as the ease of implementation, effectiveness in attaining the socially optimal level of consumption across different time periods ie SR vs LR, desirability in terms of unintended outcomes of tax revenue collection vs high cost of monitoring involved in bans; even though this was not the question's intent.
- **Common errors with regards to analysis of the ban:**
  - Lack of economic analysis in explaining how the ban works to increase MPC and/or to reduce MPB due to the harsh penalties involved. Majority of the students plainly stated that the ban results in output at 0 level without any explanation of how such an outcome can be achieved with a ban.
  - Analysis that is off-focused – many students merely stated that the ban results in a 0 level of e-cigarette consumption and continued off with an overly-lengthy analysis of the positive consequences of a ban on the society.
  - Misinterpretation of a ban – a good number of students incorrectly mistook a ban for a production quota that restricts consumption and production of e-cigarettes to the socially optimal level of Qs, which is not correct. Students ought to understand that a ban is a prohibition of the production and consumption of e-cigarettes which leads to 0 level of consumption/production.
  - Anti-thesis of the ban was underdeveloped, with many students merely describing how it is costly for a government to prevent a black market rather than explaining how a black market might arise because of the ban and how society could be worse off because of the black market.
- **Common errors with regards to analysis of the indirect tax:**
  - Gaps in analysis observed in many scripts with students failing to explain how a tax on production i.e. indirect tax on producers would have the effect of raising cost of production for e-cigarette producers, hence raising the MPC incurred in producing e-cigarettes from MPC to MPC + tax. This results in a cut in production/SS of e-cigarettes, hence raising



*prices of e-cigarettes in the free market and forcing consumers to internalize the external costs of consumption.*

- *A good number of students also failed to specify the size of the indirect tax which should ideally be the size of negative MEB at socially optimal level,  $Q_s$ .*
  - *Slipshod analysis in the determination of free market equilibrium and socially optimal level of consumption and how these consumption levels are derived.*
  - *Lack of explicit reference to the yardsticks used in assessing taxation in the Anti-thesis. For eg. Effectiveness at achieving objective of reducing e-cigarette consumption to  $Q_s$ , desirability/unintended consequences from taxation and feasibility of implementation etc.*
  - *Conceptual errors in analysing indirect tax – mistaking indirect tax on producers as direct taxes on consumers by shifting MPB/Dd rather than MPC/Ss, incorrectly shifting the MPC rightwards with an indirect tax, incorrectly stating that it is the MSC that has shifted with the implementation of the indirect tax, when it should be the MPC.*
- *While education & campaigns is not given in the preamble and hence the expectation is that **students fully utilize the information given in the preamble in their essays to focus on analysing indirect taxation and a ban on correcting the market failure problem**, students who had written education and campaigns as the 2<sup>nd</sup> requirement generally provided a good analysis of how the policy could help address the lack of awareness/imperfect information amongst e-cigarette consumers hence resolving the over-estimation of MPB and reducing the MPBperceived to MPB actual.*
- *Some students penalized themselves by analysing 3 policies in their essays (rather than 2), with plenty of gaps in analysis for each policy, hence compromising their scores. These students should be more aware of the grading criteria for essays and to focus more on the depth in analysis for each requirement.*

\*\*\*\*\*END\*\*\*\*\*

“Success is the sum of small efforts, repeated.” ~ R. Collier