Raffles Institution

Nurturing the Thinker, Leader & Pioneer

ECONOMICS

Higher 2

Syllabus 9757

Examiner's Report

Year 5 Promotion Examination 2018

TEL: 65 6419 9888 ● FAX: 65 6419 9898
http://www.ri.edu.sg ● One Raffles Institution Lane, SINGAPORE 575954

ECONOMICS

Y5 H2 Promotion Examination 2018

Paper 9757/01
Paper 1

Case Study

(a)(i) Define Consumer Price Index. [1]

Suggested Answer:

The Consumer Price Index (CPI) measures the weighted price of a fixed basket of goods and services commonly purchased by a typical household relative to a base year.

Mark Scheme

- *For accurate definition of CPI – 1m*

Examiners' Comments

- *Relatively straight forward question on the definition of CPI but most students did not know the precise definition.*
- *Some incorrectly expressed definition in their own words and used: 'total value placed on', 'measure of the basket of g/s', 'expenditure', 'fixed quantity of g/s' instead of the price of a fixed basket of goods and services*
- *Some incorrectly stated that CPI measures the change in price of the basket of g/s → that is known as the inflation rate*

(a)(ii) With reference to Figure 1, explain the relationship between rental prices in the UK and the consumer price index between 2006 and 2014. [2]

Suggested Answer:

- There is a positive relationship between rental prices in the UK and CPI → From Figure 1, a rise in rental prices correlated to a positive inflation rate → an increase in CPI
- As rent forms a component of the basket of goods considered in the CPI → Rental Prices and CPI are positively related

Mark Scheme

- *State relationship (Positive/Direct) with supporting evidence from Figure 1 – 1m*
- *Link rental to basket of goods and service in CPI – 1m*

Examiners' Comments

- *Poorly attempted question: many incorrectly interpreted the data and stated that both CPI and rental prices fell when they increased. Take note that the data shows rate of change – when rate of change is positive, both values are increasing.*
- *Many students did not explicitly state the relationship between the 2 variables and merely described the trend. Students are reminded that there is a need to clearly answer the question: direct/positive relationship*

- *Some were confused between cause and effect. i.e. an increase in CPI leads to an increase in rental prices. That is incorrect.*

(b) Explain 1 possible reason for each of the following:

(i) why rental prices are rising. [2]

Suggested Answer:

- "The global financial crisis brought about tightened credit conditions, particularly affecting deposits, forcing people to rent for longer." (Extract 1) ➔ decrease availability of credit for purchasing houses. As rental service and housing are substitutes ➔ increase in DD for rental
- "default option for the increasing number of people who could not afford to buy nor qualify for social housing." (Extract 1) ➔ as rental service and social housing are substitutes ➔ increase in DD
- "renting may be a desirable choice for its flexibility" (Extract 1)➔ changes in taste & preferences ➔ increase in DD
- "Pressure on housing stock… affected more by population" (Extract 3) ➔ Increase in population ➔ increase in DD
- "rising popularity of homesharing websites such as Airbnb" which "removes housing units from the overall supply – units that might otherwise be available for rent." (Extract 1)➔ competitive SS ➔ fall in SS
- The increase in DD for rental OR fall in SS of rental housing will cause prices to increase.

Mark Scheme:
- *Quote from CSQ + link to correct determinant of DD/SS – 1m*
- *Link to change in DD/SS and rise in equilibrium price - 1m*
- *Max 1m if didn't use case material/did not explain quote fully*

Examiners' Comments

- *Unnecessarily detailed response given the mark allocation e.g. diagram/full-adjustment process not necessary for 2m*
- *Incorrectly used the quote "the number of households in the private rented sector has more than doubled… from 2.3 million to 5.4 million" → this does not represent an increase in demand but an increase in equilibrium quantity, and a result of the increase in DD and not the cause of it.*
- *Applied elasticity concepts unnecessarily to account for an increase in rent → elasticity is not very relevant in this case as they isn't a need to comment on the magnitude of change in P and/or Q*

(ii) why "soaring rents" is a cause for concern. [2]

Suggested Answer:
- From Extract 2, "soaring rents, particularly in London, can swallow salaries." The average private renter in the U.K. capital spent 40 percent of their income on housing between 2013 and 2015, compared with 28 percent in the rest of Britain, according to the Institute for Fiscal Studies.
- This increase in rent will reduce the ability to rent housing especially the lower-income families, and because housing is essential → inequitable outcomes
- This increase in rent will lead to lower real income and fall in ability to consume other goods and services → lowered material standard of living

Mark Scheme:
- *Identify correct quote in CSQ + linked to rising proportion of income - 1m*
- *Analyse 'concern' in terms of macro/micro economic aims → focus on affordability – 1m*

- *1m if only linked to CS/TE but not affordability*

Examiners' Comments

- *Many correctly identified the quote from the CSQ but did not explain it fully*
- *Many linked the concern to a fall in consumer surplus, which isn't the most pressing concern of the government*
- *Some failed to link to economic effects and focused too much on social effects such as being homeless*

(c) Discuss whether rent control is more desirable than supply side measures in addressing the challenges faced in the housing rental market. [10]

Students are expected to discuss the 2 measures in response to the challenges faced, and to compare its desirability against each other.

Suggested Answer:

Introduction:

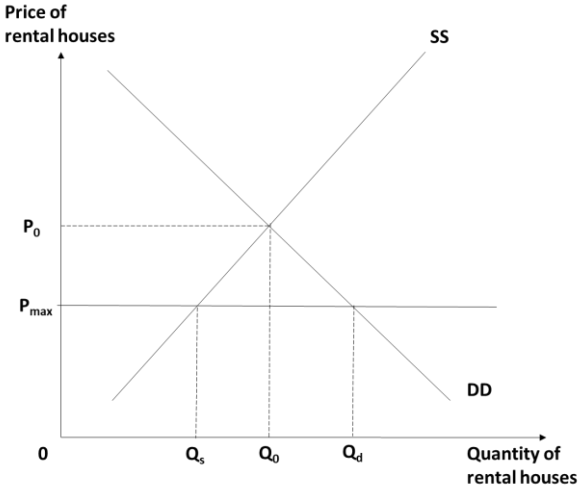
- The challenges faced in the housing rental market include 'soaring rents' and limited quantities of rental units
- Rent controls refer to "capping of rent rises", a maximum price/price ceiling imposed on rental services
- Supply side measures refer to ways to increase the supply of rentals through "converting old offices into flats"

Body: Discuss the possible responses and its limitations

1. Rent Controls

Thesis – Rent controls are desirable to address the challenges

- Maximum Rent → legally established to prevent rent from rising above a certain level
- **Set below equilibrium rent (P_0) to be effective**



- Overall, result in lowered rent and consumers "would see a big fall in their rent and that would be a really good thing for those struggling to afford their rent" → fall in eqm Price from P_0 to Pmax → Improves equity and affordability

Anti-Thesis: Limitations of Rent Controls

- **Primary issue** ➔ However, max rent creates shortage as Qd > Qs hence **undesirable** for certain individuals who are unable to obtain units
- **Secondary issues/limitations**:
    - **Creates even larger shortage in the long run:** If landlords decide that they cannot make a satisfactory rate of return by selling rented properties in the market because of the maximum price, they might decide to withdraw some properties from the market.→ "a reduction in housing supply caused by buy-to-let landlords selling their properties or struggling to get mortgages"
    - Landlords get a smaller return from upgrading and maintaining their houses - they spend less on their properties ➔ **deterioration in the quality** of the rented housing stock
    - **Black market arises** (illegal rents)
    - **DWL** and welfare lost to society (inefficient allocation of resources)

2. Supply Side Measures

Thesis: Supply-side measures

- Increase SS of rental flats through "converting old offices into flats"
- Price adjustment process (surplus) → lowered rents & greater availability of rental units (increase in Q)
- Illustrate diagrammatically

Anti-thesis: Limitations of supply-side measures

- However, takes time to build housing & costly to convert offices
- Factor immobility: "skill shortages in the housebuilding sector"
    - ⇨ All these factors may impact the extent of increase in SS which in turn would affect the extent of fall in rents and/or increase in available units

Conclusion and Evaluation

- Supply side measures are a more desirable measure than rent controls in the long run as this addresses both the challenge of high rents and the lack of rental units in the market
- Supply side measures can be more desirable to the extent that it addresses the root cause of soaring rents and can be more sustainable over time:
    - From CSQ, "main problem for tenants is a lack of supply in the housing market, meaning it does not meet demand"
- Rent controls may be more desirable in the short run, and SS side will not work in the SR
    - Rent controls should only be used in the SR as they do not deal with this problem at its root cause; they merely seek to address a symptom of the problem. Moreover, it may cause an unintended consequence of worsening the shortage in rental homes

Mark Scheme

Knowledge, Application, Understanding, Analysis		
L1	▪ *Gaps in analysis* ▪ *Lack or incorrect use of appropriate economic framework* ▪ *Limited use of case evidence* ▪ *An answer that is largely irrelevant, incomplete and incorrect*	***1 - 3***
L2	▪ *Balanced answer (both policies well explained and their limitations)* ▪ *Good scope: both policies tackled* ▪ *Use of DDSS framework, showing clearly how each policy reduces equilibrium price* ▪ *Application of case evidence/context*	***4 - 7***
Evaluation		

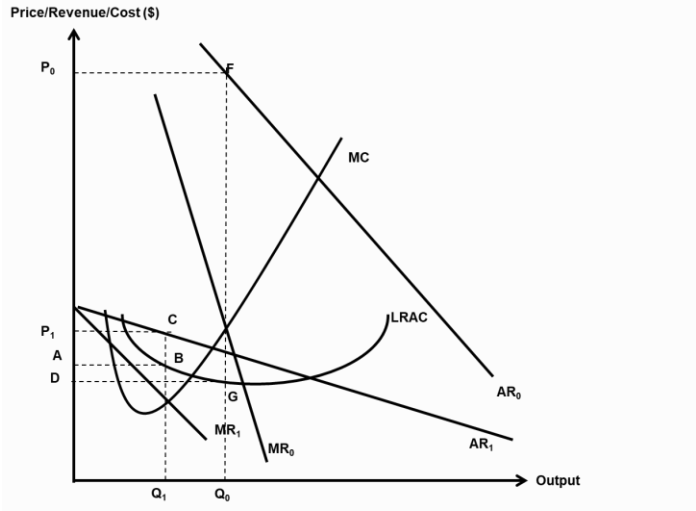
E1	*An unexplained judgement ➔ An unexplained evaluative conclusion (e.g. chose 1 policy but did not give reasons for it being more desirable)*	***1***
E2	*Evaluative assessment supported by economic analysis, linking to the relative desirability of the policies ➔ comparison of both policies with reasoned judgement*	***2 - 3***

Examiners' Comments

- *Many students failed to address/raise the challenges faced from CSQ material. A rare few even identified the wrong issue.*
- *Most students were aware of the need to provide a balanced response to the question through explaining the policy, how it works and its limitations*
- *However, what distinguished better responses was the ability to contextualise the limitations to the context given in the case. Another distinguishing factor was the depth of elaboration of the policy in terms of economic analysis.*
- *There were a good number who did not use economic framework in analysis and lacked depth of elaboration. E.g. there was no use of DD/SS framework to explain the workings of rent control and supply side measures.*
- *Students are reminded that they should make strong reference to the case material provided when suggesting policies. Some students failed to use case material and proposed their own policies instead, and some gave purely theoretical responses without context.*
- *A worrying number of students merely lifted case evidence without accompanying economic analysis.*
- *Common conceptual errors:*
    - *Maximum price is always set BELOW existing equilibrium price to limit the extent to which prices can rise. This shouldn't be confused with a minimum price which is set ABOVE existing equilibrium price*
    - *A maximum price would reduce the ability and willingness of landlords to let out their units, thus causing a fall in QUANTITY SUPPLIED (not supply) of flats. Similarly, a maximum price would increase QUANTITY DEMANDED (not demand) of rental flats*
    - *Some students were unsure of where the deadweight loss area in the diagram for maximum price was*

(d) With the aid of a diagram, examine the extent of change in a hotel's profits with the emergence of Airbnb. [5]

Suggested Answer:



- From Extract 5, Airbnb has been "keeping hotel rates in check" as they are substitutes that satisfy the same want for short term accommodation
- As the price of Airbnb rentals fall, consumers switch to relatively cheaper substitute → demand falls and causes DD/AR curve of the hotel to shift leftwards
- At the same time, the number of substitutes to a hotel's services increases make demand for its services relatively more price elastic
- Overall AR/MR shifts from AR_0 and MR_0 to AR_1 and MR_1 respectively
- At profit max equilibrium Q where MR=MC and MC rising, P and Q falls from P_0 to P_1 and Q_0 to Q_1. Overall, profits have fallen from area P_0FGD to area P_1CBA
- However, "effects on hotels, will likely become less pronounced" due to "creative ways" hotels use to distinguish their products and promote greater brand loyalty (E.g. HHonours Rewards) and the prevalence of Airbnb in a city

Mark Scheme:

- *Relationship between Airbnb & Hotel → substitutes – 1m*
- *Fall in DD for a hotel's services (no need to link to substitutability explicitly) – 1m*
- *Explain shift in AR curves & changes in equilibrium P,Q*
- *Clearly identify changes in profit areas in diagram*
- *Evaluative Comment on extent of change*

Examiners' Comments

- *Most students were able to correctly explain that the emergence of Airbnb would cause a fall in demand for hotel services as they are substitutes*
- *However, some used the DDSS framework instead and incorrectly analysed the effect on the demand for the market for hotel services. The most appropriate framework to analyse the effects on a single firm's profits is the firm's analysis.*
- *Most students did not realise the need to 'examine the extent' of change in profits by providing an evaluative comment on whether or not profits will fall by a large extent.*
- *Other errors:*
    - *Incorrectly shifted the AR and MR curves which results in output of hotel increasing. There should be a clear leftward shift of both curves whereby AR_0 and AR_1, MR_0 and MR_1 do not overlap at all.*
    - *Profit maximising equilibrium Q not clearly indicated*
    - *LRAC curve missing – how to show profits without AC?*
    - *Profit area incorrectly labelled: read off MC curve instead of AC curve to derive profits*
    - *Mistook TR = P x Q area as profit area (forgot to consider costs)*

(e) Discuss whether the Singapore government should deregulate Airbnb. [8]

Suggested Answer:

Introduction:

- The Singapore government is concerned with society's welfare, achieving efficiency & equity and achieving macroeconomic aims
- Currently, "the authority will take enforcement against anyone found responsible for letting out property for short term accommodation" → government imposes a ban on Airbnb in Singapore
- Deregulation refers to lifting government intervention in the Airbnb market → i.e. undo the ban
- There are reasons both for and against deregulation in the Airbnb market in Singapore

Thesis: Singapore government should deregulate AirBnB (should not intervene)

Explain the BENEFITS OF AIRBNB

T1: Benefits to macroeconomic aims

- "Airbnb also contributes to the local economy, helping to drive S$324 million of economic activity in Singapore in 2016."
- Airbnb → lowers prices of accommodation and accessibility to accommodation → attracts tourists since the price of travel to Singapore is lowered.
- Tourists will also spend on other related goods and services in the tourism industry thus generating greater income in other sectors as well
- Contributes to economic growth and lowered unemployment → achieve macro goals
- Overall, as real GDP rises, assuming population size remains constant, real GDP/capita increases → rise in material standard of living
- Singapore context: tourism is important sector in the Singapore economy

T2: Greater allocative efficiency

- Increase in competition in the short term accommodation industry benefits consumers in terms of allocative efficiency and lowered prices
- Define AE , achieved where P = value of the last unit of the good placed on by society is equals to MC = opportunity cost of producing the last unit of the good
- As explained in part (d), "competition from Airbnb may have forced the hotel to lower its rates for those rooms." ➔ from diagram divergence between P & MC decreases ➔ firms are more allocative efficient
- Lowered prices benefit consumers: "During busy travel times, guests enjoyed an average "consumer surplus" of $57 per night." ➔ link to area in diagram; also more variety and choice of accommodation options

T3: Greater productive efficiency

- Define PE
- Reduces extent of supernormal profits
- Firms cannot be complacent and would have to produce at a point closer to the LRAC curve → more productive efficient

T4: Greater dynamic efficiency

- Competition incentivises firms to be more dynamic efficient to remain competitive and gain greater market share
- Better quality services and accommodation → "better accommodation at more reasonable prices", "important for hotels to find creative ways to compete"

Anti-thesis: Singapore government should not deregulate AirBnB (continue to intervene)

Explain the COSTS OF AIRBNB

AT1: Negative externalities of consumption

- Creates MEC, 3rd party costs that are not considered by holiday sojourners →"Airbnb guests, filled with the holiday spirit, can be noisy and inconsiderate neighbours. Worse, they say that as apartments are scooped up by investors to be rented out on a short-term basis, residents are forced out of town", "unsociable behaviour of lessees"
- Divergence of MPB and MSB
- Qe > Qs → overconsumption of Airbnb → thus government should intervene and not deregulate
- Context of Singapore – high population density

AT2: Pushing up rents

- Creates "a lack of residential housing" (competitive supply) → issues of inequity
- Context of Singapore – land scarcity

Conclusion and Evaluation:

- Whether or not Singapore should deregulate AirBnB depends on the cost vs benefits of deregulation.
- Given that the benefits of Airbnb to both microeconomic and macroeconomic outcomes are quite significant, there is good reason for the government to lift the ban on Airbnb.
- To manage the costs associated with externalities that will arise → government should allow Airbnb to operate but legislate and take steps to ensure that the MEC generated are minimised. For example, Airbnb may be allowed in private housing rather than public housing, fines for noise after a certain time etc.
- Any other well substantiated judgement.

Mark Scheme

Knowledge, Application, Understanding, Analysis		
L1	▪ *Stated rather than explained effects* ▪ *Many gaps in analysis* ▪ *Lack or incorrect use of appropriate economic framework* ▪ *Limited use of case evidence* ▪ *An answer that is largely irrelevant, incomplete and incorrect*	***1 - 3***
L2	▪ *Balanced answer (gave reasons for why government should/should not deregulate)* ▪ *Use of appropriate economic framework to justify regulation/deregulation Strong application of case evidence/context*	***4 - 6***
Evaluation		
E1	*An unexplained judgement → An unexplained evaluative conclusion/comment e.g. stated whether should/should not deregulate but did not explain why*	***1***
E2	*Evaluative assessment supported by economic analysis → deregulate/regulate and why e.g. weigh the relative significance of effects (for SG, MEC may be large as a large proportion of Singaporeans live in densely populated public housing)*	***2***

Examiners' Comments

- *Many students did address the question directly and were confused by the term 'deregulation'.*
- *Airbnb is currently regulated (banned) in Singapore and deregulation would mean that the government lifts the ban on Airbnb. The reasons for and against deregulation refer to the benefits and costs of Airbnb respectively.*
- *A large majority did not clearly define the interests of the government and thus struggled with crafting a coherent response to the question.*
- *Some merely lifted issues from the extracts without applying economic framework or linking to a wider economic concern of the government. Students are reminded that linking to consumer welfare is insufficient and repetitive – and importantly, who are the consumers of hotels? Should the governments be concerned about their welfare?*
- *Some misunderstood Airbnb as a monopoly and argued that regulation is important so that to reduce the monopoly power of Airbnb. Airbnb is not a firm but a platform which provides homeowners the possibility of renting out their homes as short term accommodation. Thus, monopoly power is not relevant to this context.*
- *A surprising majority did not identify the issue of externalities of consumption generated from the consumption of Airbnb units as a key reason for keeping the ban. Some were also confused between externalities of consumption and production.*

Paper 9757/02
Paper 2

Essays

Question 1

Income has been rising in Australia. However, butter production has dropped by 18 per cent between 2016 and 2017 due to the diversion of milk fat towards production of more profitable dairy products such as cheese and cream.

Assess how consumers and producers in the market for butter and its related markets might be affected by these events. [25]

Suggested Answer

Introduction

- Interpret the question
  - Yardsticks to measure impact on "consumers" - Price, Quantity, TE, CS, quality
  - Yardsticks to measure impact on "producers" - Price, Quantity, TR, , profits, PS
  - "related markets" – substitutes, complements, joint SS, competitive SS, derived DD

Body

A. Market for cream and cheese

- Rising income → rise in purchasing power of consumers → increase in dd for cream and cheese by more than proportionate → cream and cheese are luxurious dairy products (YED >1) → large extent of rightward shift of dd curve to D1
- In SR, SS of cream and cheese is likely to be price inelastic (PES<1)
  - Production of cream and cheese requires high level of milk fat (vital ingredient)
    - but long time period taken by cows to produce milk fat
- Illustrate a right shift in DD, holding SS constant.

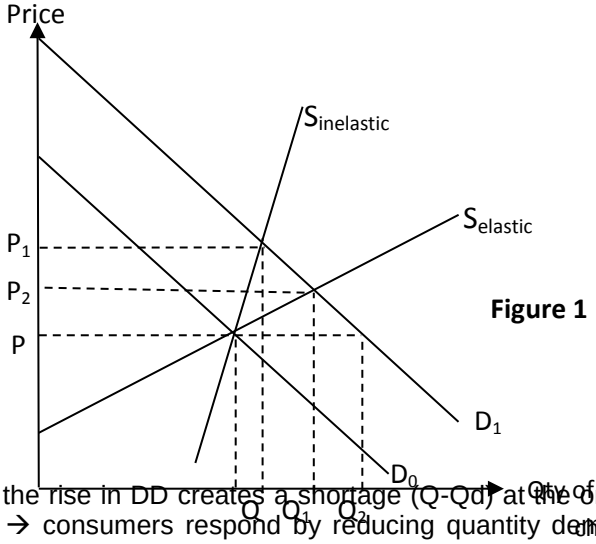


Figure 1

- Explain the effect: the rise in DD creates a shortage (Q-Qd) at the original price level P. Upward pressure on price → consumers respond by reducing quantity demanded while producers are incentivized to increase quantity supplied.

- State the effect from Fig1: rise in equilibrium price & quantity. Sharp rise from P to P1 of cream and cheese & less than proportionate rise in quantity from Q to Q1.
- Impact on producers of cream & cheese
  - TR rises from area PxQ to P1xQ1→ cream & cheese producers benefit → greater TR and implies more profit, assuming no change in total cost.
  - The area of producers' surplus (PS) also rose. Producers are better off. PS is the difference between minimum price the seller is willing to accept and the actual price they receive.
- Impact on consumers of cream & cheese
  - Consumers= households or bakeries which use cream & cheese in production of baked goods/pastries
  - Total Expenditure (TE = PxQ) rises
    - For households → CS rises → indicating more people had been willing and able to pay a higher price and had willingly bought greater quantities, hence more consumers had their wants satisfied.
    - For bakeries → may mean their COP rises, potentially eating into their profits → may suffer due to rise in cream & cheese prices
      - **Ev**: Extent of the rise in COP depends on proportion of cream & cheese required in production of baked goods

Evaluation: In the LR,

- Supply of cream & cheese may become more price elastic (PES>1) → more time available in reallocation of resources in breeding cows suitable for milk production that is high in fat content or technological advancement that allows speedier production of cream & cheese → leading to greater ability of cream & cheese industry to be more responsive to increasing qty supplied as DD rises.
- Assume that DD for cream & cheese still increase with continual rise in income. Effect: Rise in price will be lower as compared to SR where PES < 1.
- Consumers of cream & cheese (eg bakeries) may face smaller increase in COP over time.

B. Market for butter (goods in competitive supply with cream & cheese)

- "Diversion of milk fat towards production of more profitable dairy products such as cheese and cream" → butter & cream & cheese competing for the same resource in production, i.e. milk fat → decrease in milk fat supply towards butter production → fall in supply of butter → leftward shift in SS curve to S1
- Rising income → rise in purchasing power of consumers → increase in dd for butter by less than proportionate → butter are considered necessities in Western diets (0< YED <1) → rightward shift of DD curve to D1 by relatively small extent

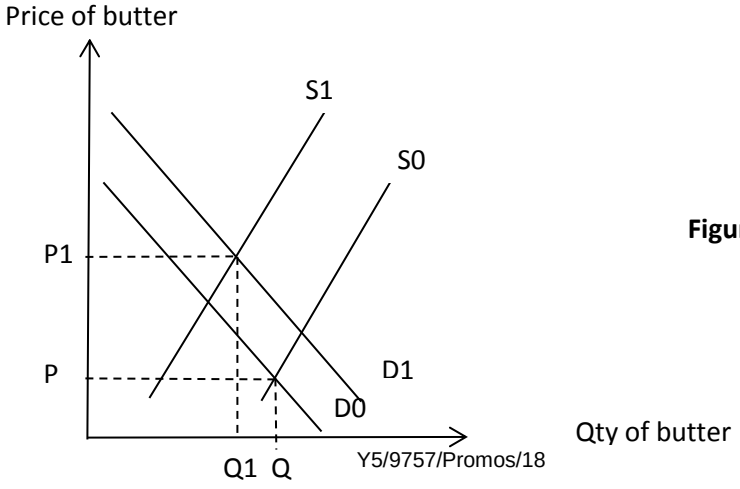


Figure 2

- Assuming fall in supply > rise in demand → explain market adjustment process briefly using Figure 2
- Effect: Qty falls to Q1 with a rise along in price to P1. TR rises since revenue gained from rise in price is larger than revenue loss from fall in qty. Producers of butter may benefit from higher profits, assuming costs constant.
- TE rises and consumers of butter may be worse off as CS falls given rise in price and fall in qty available for consumption

C. <u>Market for baked goods/pastries</u>

- Butter is an essential ingredient in production of baked goods/pastries → rise in COP for bakeries → fall in supply → leftward shift in SS curve to SS1.
- Explain market adjustment process briefly using Figure 3→price rises to P1 and qty falls to Q1.
- Effect on TR for bakeries depends on PED for baked goods/pastries.
- PED for baked goods may be less than 1. Reason: low proportion of income spent.

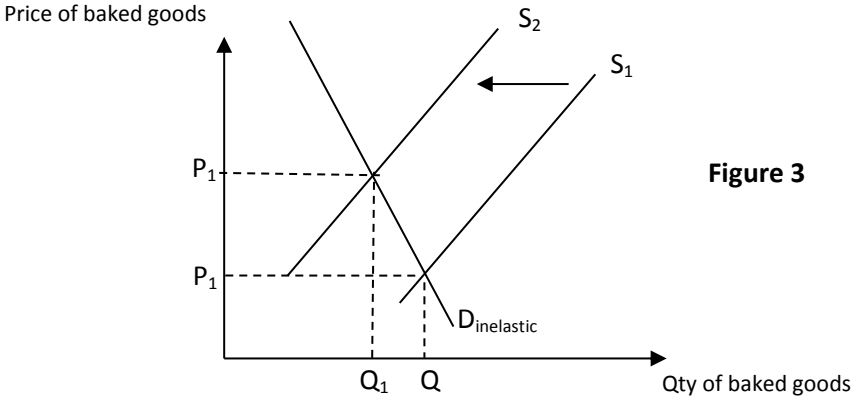


Figure 3

- Price rises while qty falls less than proportionately. Since the rise in TR due to rise in price is greater than the fall in TR due to fall in Q → overall TR rises → producers gain
    - **Ev:** BUT effect on profits of bakeries depends on
        - Whether rise in COP due to higher butter prices is smaller or larger than rise in TR
        - Bakeries gain if TR rises more than that of TC
        - Extent of the rise in COP depends on proportion of butter required in production of baked goods
- Effect on consumers of baked goods: TE rises → fall in CS given rise in price and fall in qty available for consumption. Consumers worse off.

D. <u>Market for margarine (butter's substitute)</u>

- Rise in butter prices leads to increase in dd for margarine which is deemed as a substitute in bread spread, baking and cooking.

<u>2 scenarios (choose either 1):</u>

- If consumers perceive margarine to be a close substitute to butter (for eg., resembles butter in taste etc), demand for margarine rises by more than proportionate (CED > 1) → rightward shift in DD curve to a large extent.
    - Draw diagram and explain market adjustment process → explain effects on TE, TR CS and PS.

OR

- If consumers perceive margarine to be a weak substitute to butter (for eg., high trans-fat content, not suitable to be used in cooking etc), demand for margarine rises by less than proportionate (CED < 1) → leftwards shift in DD curve by small extent to D1.
- Explain market adjustment process using Figure 4

- price rises to P1 and qty rises to Q1
- TR & PS rises for margarine producer, since both price & qty rise. Producers benefit.
- TE & CS rises for consumers, indicating more people had been willing and able to pay a higher price and had willingly bought greater quantities, hence more consumers had their wants satisfied.

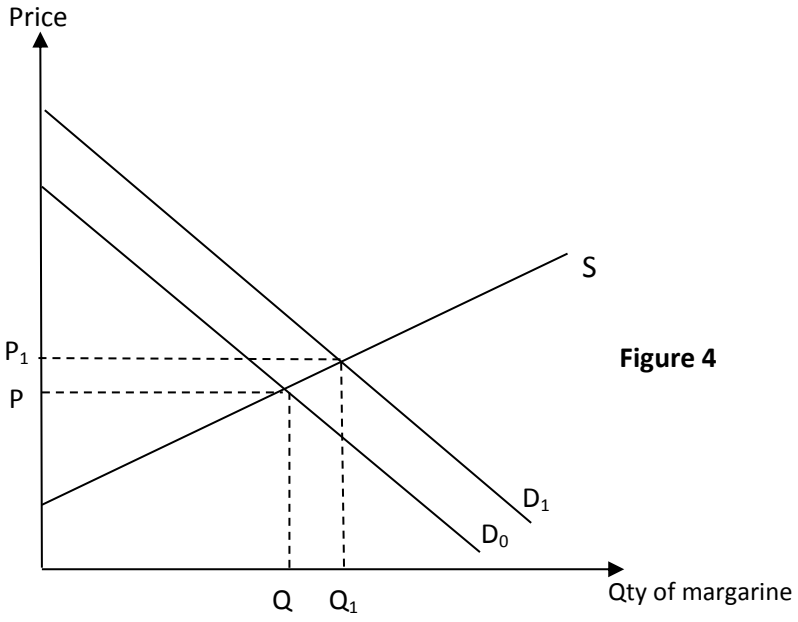


Figure 4

Conclusion and Evaluation

- Effects on consumers & producers in the butter and its related markets will differ in the SR and LR:
- For the bakeries
  - In the immediate SR, they may not be affected by the rise in butter prices due to contracts signed with butter suppliers → may still be able to purchase butter at the previous prices → consumers may not be worse off.
  - Some bakeries may choose not to pass on higher COP to consumers so as to remain competitive if their rivals choose to absorb the higher butter prices → consumers may not be worse off.
  - In LR, if bakeries are able to find substitutes to butter, for example margarine → bakeries might be able to mitigate extent of rise in COP.
  - However, bakeries need to consider whether substitution of butter is feasible in production of baked goods as margarine may not replicate the same taste as butter, affecting quality & taste of baked goods.
- Whether butter prices would continue to rise or ease in LR and hence affecting its related markets depends on ability of cow farmers to raise milk fat production.
  - If milk fat production can be increased significantly, then butter prices would likely fall → easing the negative effects on consumers of butter and baked goods.
- On the whole, if butter prices do not ease, consumers in the butter and baked goods market will be worse off, whereas producers benefit from higher TR in the butter and margarine market.

Mark Scheme

Knowledge, Application, Understanding, Analysis		
L1	- *A few valid points* - *Answer is mostly irrelevant or inaccurate, with basic errors of theory* - *Answer shows some knowledge*	***1 – 8***

	Meaning of question not properly grasped	
L2	- *Accurate but undeveloped explanation of facts and theory* - *Limited ability at recognizing unstated assumptions, implications of a hypothesis or organization of ideas* - *'Piecemeal' explanations eg single shifts → not developed to give sound overall effects for markets where simultaneous 'developments' are present.* - *Important assumptions/conditions not stated* - *Consider only effects on P & Q* - *Answer relevant to the question but theory is incompletely explained* - *Some ability at graphs with incomplete explanation* - *Answer only discussed effects on effects on price, output and did not relate to the impact on consumers and producers.* - *An attempt to determine impacts on consumers and producers with proper yardsticks but is under-developed, and with lapses* o *Evidence of DD/SS shifts, showing an awareness of ceteris paribus assumptions. Able to explain impact on TE/CS, PS/TR, extent of changes in P & Q etc* o *For an answer that is sound eg when to shift 1 but not the other, and where relevant & necessary, shows ability to analyse with simultaneous shifts* o *Some attempt to apply elasticity concepts*	***9 – 11*** ***12 - 14***
L3	- *Thorough knowledge and excellent ability to explain facts and theory in a precise, logical and reasoned manner in at least 3 markets* - *Good use of clear analytical economics framework with explanation of market adjustment process* - *Good effort to recognize/uncover important assumptions/conditions* - *Good use of elasticities concepts.* - *Clear diagrams that are well-utilized to address question.* *Consistent effort in relating to yardsticks to address effects on both consumers and producers (eg TR/PS, CS etc)*	***15 - 20***
Evaluation		
E1	*Unsupported evaluative statement(s) or judgement(s)*	***1***
E2	*Some attempt at evaluation or a summative conclusion* *Relevant to the question but does not explain the judgement or base it on relevant analysis*	***2 - 3***
E3	*Critically evaluates alternative theories, contemporary issues, perspectives and policy choices* *Evaluates relevance of unstated assumptions* *Synthesizes economic judgements to arrive at well-reasoned judgement and decisions*	***4 - 5***

<u>Examiners' Comments</u>

- *It is important to plan first before attempting such questions involving various markets. The best scripts are those which considered the different elasticity concepts that could be adopted in the different markets, resulting in good coverage and scope in terms of content. In addition, these scripts also displayed clear organisation of ideas and concepts. The weaker scripts tend to be those with haphazard and poor organization of ideas, often product of lack of planning prior to writing. Bear in mind "If you fail to plan, you plan to fail".*

- *To 'assess' the impact on producers and consumers, certain yardsticks should be referred to. Most students are able to relate to yardsticks like TR, CS, PS or Profits.*

- *Lack of depth of analysis*
    - *A minority of students did not do well because they related only to price and quantity changes in the markets without addressing the impact on producers and consumers. There were also a few who touched on effects on TR and TE only without assessing whether or in what way that effect is positive or negative.*
    - *Explanation of market adjustment process was poorly done. This explanation is important as it provides the rigour to the explanation on how price and quantity change leading to subsequent effects in the market.*

- *Poor scope of discussion*
    - *About 20% of scripts discussed only 2 markets. Discussion of 3 markets is necessary to score the full range of marks.*
    - *The choice of markets is also important as it determines the scope of the analysis. Some students chose to discuss cheese as the second market and cream as the third market without realising that the effects on cream and cheese are similar and repetitive, hence limiting the scope of their analysis.*
    - *The weaker scripts also failed to explain the relationship between butter and the selected markets, i.e. substitutes, complements, competitive supply, etc. The question clearly stated "butter and its related markets", hence it is important to establish and explain the relationship between butter and the selected markets.*

- *Other errors:*
    - *Some scripts had very small or messy diagrams which are often poorly labelled. For such DD-SS questions, diagrams are vital and there should be indications on the axes which good the market shows. Alternatively, a title could be given to each diagram since discussion of 3 different markets is required for this question.*
    - *For the discussion on the impact on consumers, some students are unable to make sound and accurate judgement. For example, some markets showed the effect of a rise in price and quantity. Hence the area of consumer surplus has increased on the graph. But quite a handful of students wrote that 'due to higher price, CS fell'. This comment is inaccurate when the diagram clearly reflected a bigger CS since quantity traded rose too. A bigger CS here implies that quantity purchased has risen, despite a higher price. This implies consumers had willingly bought more units despite higher price, perhaps due to a higher DD for the good, which also would imply consumers place higher valuation of the benefit from consuming it. So a higher price may not necessarily mean consumers are worse off.*
    - *Many were clearly confused with the concept of joint supply. Some even wrote that beef and butter are in joint supply as more cows would be slaughtered when more butter is being produced. Cows need to be killed in order to obtain milk fats for butter production. This is extremely flawed as in the first place, there is no need for farmers to kill the cows to extract milk fats! If the cows are killed, there would be no production of milk fats. In addition, different cows are reared for different purposes – cows reared for their milk and cows reared for their beef.*
    - *While most students did use elasticity concepts to analyse the impact on the market, the quality of application of the concepts differed significantly. There were students who used wrongly applied PED to explain the effects of changes in DD due to income changes. PED should not be applied here as the use of PED assume only price has changed (as result of change in supply) and all other factors (including income) remain constant. So students should apply PES in the case of a DD change instead.*
    - *There are also a few who made use of firm's revenue and cost diagrams. This is not the best approach, since the question is clearly about 'markets'.*

- *Weak evaluation*

- *The command word 'Assess' implies that judgement is required on whether the overall impact on producers and consumers is positive or negative, and quite a number of students did not make any stance in their conclusion.*
- *Many students did not address overall impact on consumers and producers, nor did they explore how markets may change in the short-term versus the long-term, or how the impact on the market may depend on other factors other than those stated in the preamble. As such, many students were awarded E1/2 marks.*

Market for cream and cheese

- *Majority were able to relate to a rise in demand for cream & cheese due to rising income. By using the clue given in the preamble "more profitable', students were able to infer that YED value for cream & cheese is greater than 1 and that cream & cheese are luxurious dairy products. A handful are still confused between the determinants of PED and YED and often explained that cheese is a luxury good, so PED is greater than one*
- *However, many made the mistake of explaining the increase in supply of cream & cheese due to the diversion of milk fats away from butter production (competitive supply concept). This is flawed as the competitive supply concept is about how change in the price of a good in competitive supply leads to change in supply of the other related good. In this case, it is the rise in price of cream & cheese (due to rising demand) leading to decrease in butter supply as milk fats are diverted away from butter production. The diversion of milk fats towards cream & cheese result in increase in quantity supplied, not supply.*

Market for butter

- *Majority of students were able to identify the relationship between butter and cream & cheese – competitive supply but many did not explain and merely stated the concept.*
- *The weaker answers confused the concept of joint supply with competitive supply.*
- *Most were able to identify supply and demand changes in the butter market and explain how the relative changes in demand and supply affects the final outcomes in the butter market. A handful still failed to analyse the combined effects.*

Market for margarine

- *Majority of students chose margarine as one of the related markets. The weaker scripts, however, failed to explain the relationship between margarine and butter which was the focus of the question. As a result, these scripts often use YED concept to analyse the effects in the margarine market instead of CED concept.*
- *Many also explained how the fall in quantity of butter leading to increase in demand for margarine. This is erroneous as it is the change in price of butter affecting the demand for its substitute, margarine. The demand factor involved is price of butter. The same mistake is also extended to the complements of butter like bread. Many wrote that the fall in quantity of butter leads to fall in demand for bread. Again this is conceptually incorrect as the demand factor affecting demand for bread is the price of butter!*

Question 2

In some markets, many small firms co-exist with large firms. While big coffee joints such as Costa Coffee, Starbucks and Coffee Bean and Tea Leaf continue to expand, smaller independent coffee shops sellling artisan coffee are also seeing a sales boon. In other markets, there is dominance of large firms.

(a) Explain possible reasons why some markets comprise of only large firms while in other markets, small firms can co-exist with large firms. [10]

(b) Discuss whether consumers might win or lose when a market becomes dominated by a few large firms. [15]

Part (a)

Introduction

- The size of a firm can be measured in terms of the quantity of output sold or in terms of value (price x qty) of output.
- In some markets, possible reasons for co-existence of large and small firms include different demand as well as supply reasons resulting in their co-existence while in other markets, barriers to entry explains the existence of only large firms.

Body

Reasons for co-existence of large and small firms:

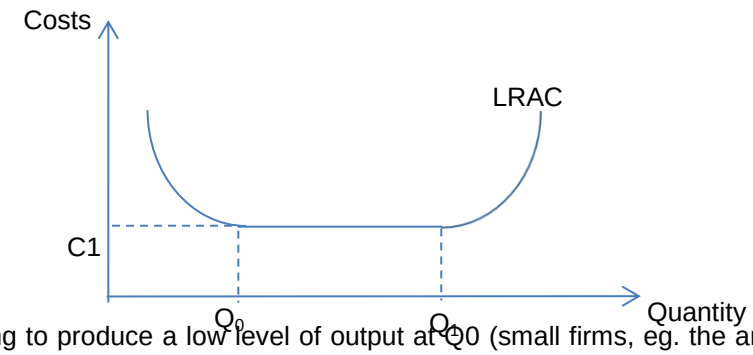
In some markets, there exist a range of firms of varying sizes in the industry. Eg. in the fast food market, there exist both large fast food chains like McDonalds and KFC, as well as hawkers selling Western food which operate out of a single location while in the coffee retail market, as mentioned, there exist both large coffee retail chains as well as smaller independent coffee shops.

Supply-side Reasons

1. Cost Conditions favour co-existence of large and small firms → Saucer-shaped LRAC

- It can be argued that due to the relatively low fixed costs (lower barriers to entry) in the coffee retail market (rental, coffee making equipment) or in the fast food industry (rental, kitchen equipment like ovens, stoves and refrigerators), technical (internal) economies of scale are quickly exhausted. This is then followed by constant economies which prevail over a large range of output between Q0 and Q1 as seen in Figure 1 below.
- The LRAC is thus saucer shaped where economies of scale are quickly exhausted (minimum efficient scale (MES) occurs at a low output level, Q0), followed by constant costs over a wide range of output.

Figure 1



- Firms choosing to produce a low level of output at Q0 (small firms, eg. the artisan coffee shops) or a high level of output at Q1 (large firms, eg. Starbucks) face the same unit cost of production at C1. This therefore accounts for the existence of both small and large firms in the same industry as the large firms do not have a cost advantage over the small firms

2. Banding

- Large coffee retail chains like Starbucks, Coffee Bean are able to reap marketing economies of scale by purchasing ingredients eg. purchase of coffee beans in bulk and this helps to lower the per unit cost of raw food thus lowering their average cost. However, smaller firms eg, independent coffee shops have the ability to band together and purchase coffee beans / milk in

bulk. This enables them to enjoy lower average costs without sacrificing their autonomy. Thus, small firms are able to enjoy similar cost-advantages as large firms hence explaining the co-existence of both types of firms in the market.

Demand-side Reasons (differences in demand for products of large and small firms)

1. **Small Market Size (Niche Markets)**

- Small firms tend to have a smaller demand due to the nature of their product which is personalized, such as customized coffee flavours or preparation which have personalized orders, and which the masses may not demand. It could also be due to the uniqueness of the product eg. handroasted coffee which only appeals to a small group of people. Thus, due to the small demand, the demand for such types of products could be too low to support a larger firm size. In addition, given a more price inelastic demand for their services, these firms can increase price to increase TR (% increase in price is greater than % fall in qty demanded) and co-exist alongside large firms which gain from cost savings due to larger scale production.

2. **Large market Size (Standardized / mass produced product)**

- For consumers who do not prefer the specialization and niche tastes that small firms provide, this explains the large demand for large firms which generally have a standard menu across restaurants, across countries. For instance, it is easy to find a standard Starbucks drinks such as frappes across different countries because there is a large worldwide demand for such foods and drinks that Starbucks produces.
- Hence, the extent of the demand of different food and beverages in the industry accounts to a large extent of why small and large firms can co-exist, due to the varying tastes and preferences present within the population.

3. **Other Possible Reasons**

- Alternative objectives of small firms: Owners prefer to keep themselves small for reasons not related to the profit motive unlike large firms who may wish to expand abroad and gain greater profits. The owner could value independence or may want to maintain control among family members and be contented with a reasonable income from the domestic or localised market and is thus unwilling to take increased risks associated with expansion.

Reasons for existence of large firms:

- In other markets, there are only few dominant firms / sole dominant firm relative to market size. For example, in Singapore, the rail industry comprises only 2 rail companies, SMRT and SBS Transit, the media and the newspaper industry is provided by Singapore Press Holdings (SPH) and the petrochemical industry in Singapore comprise of large firms such as Esso, Caltex, Shell and SPC. Any new entrant will not be able to have a large enough demand to sustain normal profits. This is due to the significantly high barriers to entry (such as high start-up costs and substantial economies of scale) in the market.

1. **Substantial IEOS where long run average cost (LRAC) for the firm falls over a very large output.**

- The rail industry in Singapore is a natural monopoly (defined as one where the market demand is large enough to support only one large firm operating efficiently). For eg. the rail routes that the companies (SMRT and SBS) provide and is no direct competition between the firms for the same route.
- In a natural monopoly, substantial economies of scale can arise due to the huge capital outlay incurred eg. rail infrastructure such as train tracks / stations. Hence, LRAC falls continually over

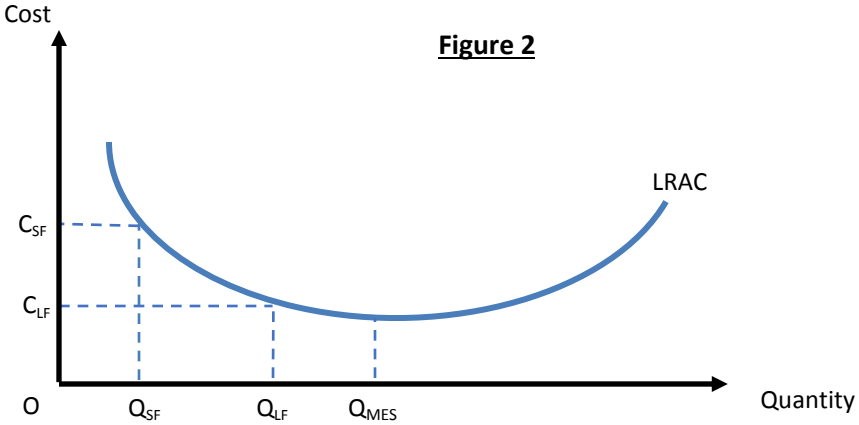
a very large output, resulting in a very large minimum efficient scale (MES) relative to market demand for the existing firm. Hence, the market demand cannot support more than 1 firm. Potential new entrants tend to begin operation on a smaller scale, and incur a higher unit cost of production initially, and are thus large firms are able to price the smaller firms out of the market. The operator is the sole provider for the route so as not to end up with a duplication of routes by competing firms, resulting in wastage of resources. [can also make reference to natural monopoly diagram]

- *Alternative explanation: due to substantial IEOS, the industry may not support more than 1 producer as if there were 2 firms, each supplying half the industry output and charging the same price, they would face subnormal profits as there is no price that can enable them to cover cost, hence, the LRAC falls continually over a very large output, resulting in a very large minimum efficient scale (MES) relative to market demand for the existing firm.This is particularly likely if the market is small such as the electricity transmission market in Singapore.*

2. <u>High startup costs (& high barriers to exit) in industries restricts the number of firms possible in the industries as few firms are capable of affording the capital needed to join the industry.</u>

- For example, the high cost of setting up and operating oil refineries due to the complex equipment and technology explains why the petrochemical industry comprise of large firms operating in Singapore and also globally while in the media and newspaper industry in Singapore, it comprises solely of SPH, as large and complex printing and filming equipment have to be employed as well as incur huge cost in securing exclusive rights to TV content.
- This also means that the firms' MES of production can only occur at a high output level as firms can exploit significant IEOS and achieve lower average cost and operate under decreasing cost conditions because of their large output level. This allows incumbents to charge lower prices for to their goods. Entrants, with a higher unit cost of production due to their small scale of production are unable to charge a low price and compete with the incumbents. If they were to charge a low price, they may make subnormal profits and leave the industry.
- Figure 2 illustrates the cost advantage a large firm has over a small firm. Thus, a large firm producing at Q_{LF} will have a cost advantage over a small firm producing at Q_{SF} allowing the large firm to price the goods above C_{LF}, but below C_{SF}, thus causing the small firm to make subnormal profits and leave the industry.

<u>Figure 2</u>



- Hence, given the large minimum efficient scale (MES) relative to market demand where IEOS is only exhausted at large output levels, this explains why firms in the such markets can only accommodate limited / small numbers of firms (concentrated market structure) and these firms' size are generally large.

Conclusion

- Industries in Singapore are varied. While some are dominated by large firms, there are also many that include both large and small firms. The different sizes probably arise due to the different cost and revenue conditions in the different submarkets.

Mark Scheme

Knowledge, Application, Understanding, Analysis		
L1	– *Little / non-existent use of economic theory / answer that is largely descriptive knowledge with little or no economic framework applied.* – *Glaring conceptual errors* – *No examples given* – *An answer that does not show that meaning of question is understood*	***1 – 4***
L2	– *Use of economic theory that explains reasons for co-existence as well as presence of large firms but:* – *Depth lacking in some areas and some conceptual errors* – *Lacking scope of analysis* – *Some reference made to examples*	***5 - 7***
L3	– *Excellent use of economic theory* – *Sufficient depth with few conceptual errors* – *Good use of examples to aid explanations* – *Accounts for both co-existence and large firms* – *Considers both supply-side and demand-side reasons for co-existence and reasons for large firms only.*	***8 - 10***

Examiners' Comments

- *The quality of answers for this part of the question varies. The weaker answers show a lack of understanding of the meaning of the question and tend to give a descriptive explanation of the characteristics of large and small firms without application of relevant framework.*
- *A number of students skipped the introduction and started immediately on their analysis. It is important for students to spend a little bit of their time on introduction as it provides the platform for them to define key terms in the question. For instance, it is good to explain briefly how firm's size is determined, what is considered a large firm and small firm which was not elaborated upon by a majority of the students.*

- *The very good responses show good organization of demand and supply factors to explain the co-existence of both large and small firms. These students consistently linked their points back to the question asked and made use of relevant examples in their answers such as supermarkets vs grocery stores or in the case of the context coffee shops in highlighted small and large firms' existence. In the case of large firms, good scripts made reference to concepts of BTE that was significant and extended their analysis to the concepts of IEOS, LRAC and MES to substantiate their point.*

- *Some of the students did not understand the meaning of co-existence of large and small firms and answers were simply geared to how small firms can survive or made reference to the monopolistic competitive market structure in their analysis. Others used wrong terminologies such as collusion instead of banding for supply side reasons for co-existence. These students also regurgitated from the lecture notes on the survival of small firms without realizing that the analysis should be on <u>co-existence of large and small firms.</u> Such answers tend not to fare as well as they failed to address the significance of co-existence.*

- *While the better responses were able to recognize that the saucer-shaped LRAC explains the co-existence of both large and small firms, some of the answers were mainly descriptive. Those who understood the concept of the saucer-shaped LRAC were able to explain how firms choosing to produce a low level of output (small firms) or a high level of output (large firms) face the same unit cost of production and hence accounting for their co-existence due to IEOS being exhausted at lower levels of output followed by constant economies of scale over a large range of output.*

- *Some of the weaker scripts highlighted the co-existence of small and large firms using the barriers to entry argument by explaining how the low barriers to entry allow small firms to enter the food and beverage / coffee industry while the large barriers to entry allow large firms to enter the industry and block out other entrants so they could remain large <u>or</u> how there was a difference in cost structure between small and large firms. For the former, this is incoherent as the explanation would mean that there is no way for small firms to enter at all if there are differences in the barriers to entry between the 2. For the latter, the explanation must be geared such that there is similar cost advantage to small firms in the sense that their cost of operation are low given smaller scale operation as compared to large firms who can keep cost low due to significant iEOS reaped.*

- *A significant number of students used the concept "natural monopoly" in their answers to explain the existence of large firms, but the quality of the answers varies. For those who attempted to explain the concept, weaker scripts had flaws in their diagrammatic illustration or explanation where no corresponding explanation was referenced to the LRAC and LRMC curves or they explained with respect to upward sloping LRAC and LRMCs and made reference to supernormal profits reaped, hence, the emphasis of why markets comprised only large firms were underdeveloped. Better scripts correctly highlighted the diagrammatic illustration for a natural monopoly where the LRAC and LRMC curves fall relative to market demand and MES occurs at a high output level relative to market demand such that it makes it difficult for smaller firms to compete on cost.*

- *A common error seen in the analysis was the description of significant <u>fixed</u> cost in BTE which result in MES occurring at a large output level or iEOS to be reaped. This is technically flawed as <u>fixed</u> cost is a short run concept but iEOS is a long run concept. It would be better to use the phrase start-up cost which does not hint at short or long run.*

Part (b):

<u>Introduction</u>:

- Clarify few large firms: market structure of oligopolies.
- Define oligopolies: A few large/dominant firms relative to market size where which arises from the high barriers to entry (and exit) and products sold can be differentiated or homogeneous. Firms are mutually interdependent (and will consider the reactions of rivals to its price, non-price and output decisions) so they can choose to behave competitively or collude to reduce output and raise price.
- Yardsticks to assess consumer welfare include prices (& output), choice and quality.

<u>Thesis: Consumers might win</u>

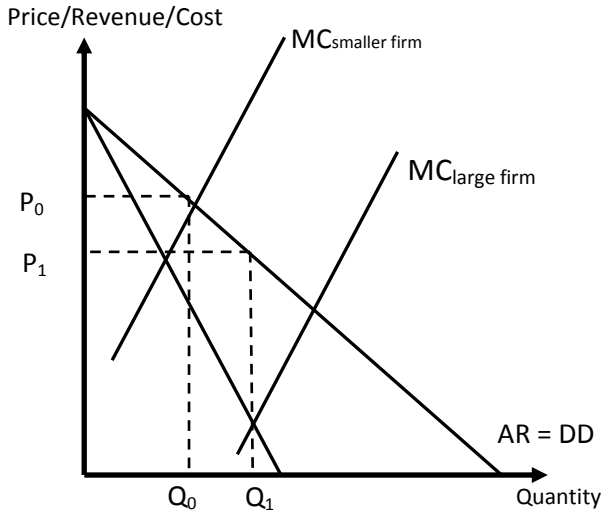
1. **Lower prices for consumers due to:**

i) Ability of large oligopolistic firms to exploit available internal economies of scale (IEOS)
- Greater ability of large (oligopolistic) firms to exploit available IEOS given larger scale production which leads to lower prices for consumers if the cost savings are passed on.
- Firms that operate in industries with high barriers to entry are better able to reap IEOS such as managerial and marketing IEOS, and thus have a lower MC curve [**as seen in Figure 3**] This means

that its MC of a larger firm, could be lower than that of a smaller firm. For a given DD, lower MC will give rise to lower prices at P_0 and this may in turn increase consumer surplus.

- Eg. Marketing iEOS are enjoyed by supermarkets in Singapore where they are able to buy supplies / raw materials in bulk and enjoy bulk discounts or are able to spread their advertising expenditure across several branches / outlets, substantially lowering per unit cost.

Figure 3



ii) Price Discrimination

- Dominant firms have significant market power eg. cinema operators or public transport operators and have greater ability to engage in non-uniform pricing i.e 3rd degree price discrimination and charge lower prices and higher quantities to certain groups (eg. price sensitive consumers with more price elastic demand) which may benefit these segment of consumers relative to less price sensitive group of consumer. Eg. of such 3rd degree PD practice include student vs adult movie tickets prices or student vs adult fares for public transport. Hence, these large firms being able to practice price discrimination, may be able to provide certain goods and services at lower prices that consumers would otherwise not be able to enjoy especially those from the lower income group.

iii) Market contestability (in competitive oligopolies)

- In industries where it is competitive, the threat of entry by competitors due to market contestability will also cause these dominant firms to be price competitive and so pass on cost savings to society. They will also likely be more productive efficient (from firm's point of view) and they may not abuse their market power that much, thus operating closer to the allocative efficient outcome, resulting in lower prices than not.

iv) Price Wars (acceptable depending on how it is analysed but a weak point)

- In some instances, price wars do occur in oligopolistic market structures as firms compete aggressively to take over rivals' market share. Due to high rival consciousness & mutual interdependence between oligopolistic firms and long run super normal profits, if 1 firm lowers price below prevailing market price, other firms are likely to follow suit as they anticipate a large fall in their mkt share, resulting in lower prices for consumers.
- **However**, these outcomes are likely to be short-lived or enjoyed by a small number of consumers for a limited time period because price undercutting is usually not sustained.

It is also acceptable that lower prices of goods and services will arise due to process innovation from R&D.

2. Greater product variety / quality of products due to:

i) LR supernormal profits

- Ability to engage in research and development (R&D) because of long run supernormal profits leads to better products or better production techniques (dynamic efficiency). Larger firms have greater market power/higher industry concentration which would give them greater pricing ability. They can raise total revenue / gain market share by reducing output and increasing price and also have more resources to invest in R&D in product and service innovation such as better fuel efficiency for cars, more superior resolution for cameras, larger storage capacity and faster processing speed for smart phones, thus differentiating their product from that of the other manufacturers in these oligopolistic markets. *This is particularly important in view of changing taste and preference of consumers and increasing competition.*
- Furthermore, due to the mutual interdependence between firms, oligopolistic firms have incentive to differentiate themselves from their rivals and often resort to non-price competition to further increase their price-setting ability and thus greater market share, hence, these firms have the incentive to channel any supernormal profit earned to innovate / product differentiate on their products, leading to further increase in their profits yet increasing welfare of consumers due to increased product diversity or quality.
- For example, in the automobile industry which is oligopolistic, different companies such as BMW have introduced new safety mechanisms to improve the safety of drivers and passengers and improved engine systems to enhance fuel efficiency, leading to greater consumer welfare.
- Or in the smartphone industry, Apple has improved the features of its smartphone and added fingerprint detection features or improved camera features for the latest iPhone models as well as different models of the iPhone.

ii) (Possible) Threat of contestability

- In addition, if there is the threat of contestability from foreign firms, it will also spur the firms to conduct R&D to increase the barriers of entry to prevent foreign firm from entering the market. This is especially evident in the smartphones market where Samsung was able to penetrate the market of the Apple iPhones, forcing the former touchscreen smartphone maker to conduct in aggressive R&D.

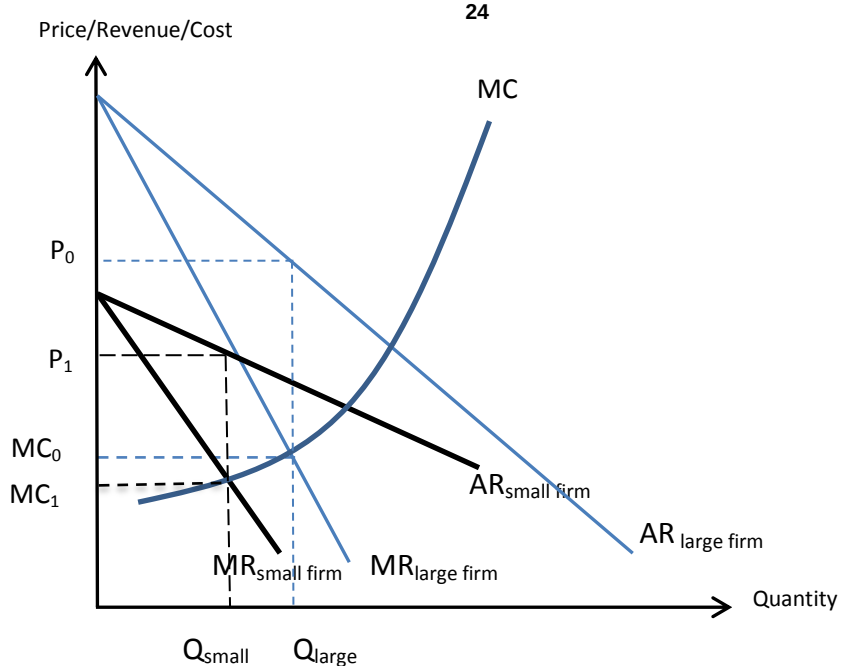
Anti-thesis: Consumers might lose:

1. Higher Prices for consumers due to:

i) greater market dominance

- Oligopolistic firms have greater price setting ability and face a more price inelastic demand which gives it more power to exploit consumers by charging a much higher price.
- Larger firms have more market power / dominance and so face a relatively higher and more price inelastic demand. This is represented by the different AR curves facing a large firm versus a small firm. Assumed firms are profit maximizing, they will product at an output at which MR=MC but as observed from diagram, the large firm's output will occur where price is significantly more than prices of small firms with lesser market power as seen in Figure 4, comparing Price P_0 and P_1.

Figure 4



- For eg. in the telecommunication market, pay TV providers such as SingTel and Starhub have the exclusive broadcast rights exclusive rights to screen WorldCup matches resulting in high subscription rates that consumers could be charged.
- *Alternatively, with less competition in the market, oligopolistic firms may reduce output and raise prices to increase profits since PED<1) →increased allocative inefficiency (increased mark up of price above MC).*

ii) Wastage of resources & greater productive inefficiency (firm's point of view)

- Dominant firms might engage in extensive advertising to gain greater market power. This would lead to wastage of resources, which could have been better channeled to other productive uses. Advertising costs would lead to higher long run average costs of production for the firm, which might then pass on the higher costs to consumers in terms of higher prices.
- E.g. In the sports apparel industry, consumers pay higher prices for large firms such Nike / Adidas apparels as a result of these firms paying big sums of money to celebrities to endorse their product.
- In addition, due to high BTE, these firms can effectively deter entrants, and can retain large amounts of supernormal profits in the LR. Hence, with less competition faced, they may have less incentive to innovate due to complacency. If oligopolistic firms are lax in cost control and suffer from X-inefficiency, these higher costs may be passed on to the consumers in terms of higher prices and these could be in the form of example, higher delivery fees or online sales charges in the supermarket/ fast food industry.
- *Alternatively, due to extensive product differentiation / innovation undertaking by the oligopolistic firms, this may in the long run result in a greater demand and a more price inelastic demand for the firm's products, resulting in higher prices for consumer.*

iii) Collusion and Price Fixing

- Due to mutual interdependency, some oligopolies may seek to reduce the likelihood of uncertainty between firms and exploit their market power further by colluding to set high prices. Price and output can be set via a formal collusive agreement or informally, via tacit collusion. Eg. when firms adopt the price leadership model where other firms often follow suit when a dominant firm / leader increases prices. The price leader will therefore select the price and output combination which will maximise its own profits and the resultant higher price and output set in the market will be similar to that in a monopoly or formal collusion, hence, enabling these dominant firms to earn higher profits at the expense of the consumers who have to pay higher prices for petrol.
- Eg. Tour coach agencies in Singapore were accused of fixing the prices of express bus tickets to Malaysia or Petrol oil retailers such as Shell Petrol, Exxon Mobile are able to tacitly collude.

2. Less consumer choices (in terms of producers)

- With a few dominant firms in the market as opposed to many small firms, this would mean that there would be less consumer choice in terms of brands to choose from in the industry. On the other hand, due to the large number of sellers in monopolistic competitive markets, each firm will try to differentiate their goods from one another so that the demand for their good would be more price inelastic. Therefore, consumers have a variety and range of choices of in terms of both sellers and products to choose from.
- For example, the different hawker stalls in Singapore sell a variety of different cuisine and food however for oligopolies, there are only few firms to choose from such as SingTel, Starhub and M1 for mobile plans in the telecommunications market.

3. Inequity (in terms of distribution of income).

- Due to a lack of competition in the industry and the presence of high barriers to entry, oligopolies are able to make and retain supernormal profits, into the long run and this is made worse with collusion which results in a less than equitable income distribution as there is seen to be an accumulation of wealth by the minority (producers) at the expense of the majority (consumers), making society worse off. The long run supernormal profits leads to a transfer of surplus away from the consumers to the producers.
- Hence, large firms are able to earn supernormal profits in the long run at the expense of consumers who pay high prices, which may be viewed as exploitation.
- Eg. Dominant firms such as Microsoft in the operating software market due to patent rights would tend to charge consumers a high price for the use of Microsoft software even though they may enjoy a lower marginal cost
- In addition, by engaging in price discrimination (PD), there is a greater loss of consumer welfare that is transferred to producers in the form of profits as compared to uniform pricing. While PD may benefit certain low income groups (that face a price elastic demand and are charged a lower price) in the market, the purpose of price discrimination is still to raise producers profits and therefore worsen overall consumers outcome as firm is able to capture greater consumer surplus by charging different / different groups of consumers different prices based on their values placed on the good.

Conclusion and Evaluation:

- In conclusion, few large firms / oligopolies may bring about both benefits and costs to consumers. Although benefits are reaped in terms of greater innovation and greater economies of scale enjoyed resulting in lower prices, there is a trade-off in terms of potential abuse of market power and greater inequity.
- It would also depend on the nature of the industry / type of product sold, whether the industry is contestable or degree of openness of the country to foreign competition. For eg, industries such as the pharmaceutical sector in which R&D is crucial, such dominant firms would be more beneficial due to the supernormal profits enjoyed which provides firms with the ability to carry out R&D. This would then benefit consumers in terms of improved quality of products. Also, in industries where there are substantial economies of scale to be reaped, it would be more desirable to have a few dominant firms instead of many small firms.

- In addition, the limitations of large firms can be addressed using government policies such as price regulations (MC/AC pricing) to limit the abuse of market power or lump sum taxes to address the issue of inequity. Similarly, markets are opening up due to liberalization of industries and these government policies have allowed a greater threat of competition, which may harness the benefits of large firms (iEOS, innovation), while removing the key problems of overcharging consumers and lack of choices.
- Furthermore, especially for small and open economies like Singapore, large firms such as oligopolies are essential in helping to achieve the wider and macroeconomic goals of greater economic growth and lower unemployment as the cost savings enjoyed by large firms are needed to maintain our export competitiveness against other countries.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	– *An answer which merely lists and describes why dominant firms are desirable/not desirable to consumers.* – *Little / non-existent use of economic theory / framework in terms of relevant yardsticks for consumers discussed.* – *Glaring conceptual errors*	***1 – 4***
L2	– *An undeveloped but balanced answer which explains why dominant firms are desirable and not desirable to consumers with some use of examples. Gaps in explanation (Depth lacking in some areas / some small conceptual errors).* – *A undeveloped but largely one-sided explanation in terms of scope of analysis* – *Some use of examples*	***5 - 7***
L3	– *A balanced and well-developed answer with precise and correct application of concepts, explaining clearly why dominant firms are desirable and not desirable to consumers. Good use of examples.*	***8 - 10***
Evaluation		
E1	*An unexplained judgement ➔ An unexplained evaluative conclusion/comment*	***1***
E2	*Evaluative assessment supported by economic analysis ➔ Substantiation of an evaluative comment and/or conclusion*	***3 - 4***
E3	*Able to give in depth or well explained insights.*	***4- 5***

Examiners' Comments:

- *Most students provided a balanced discussion of the economic benefits and costs of having large firms in the context of consumers. The conclusions provided were also well thought and covered a range of issues. However, many scripts failed to provide any examples in their answers and so did not attain the highest level of marks. It is important to have examples in your answers and not just provide a theoretical answer. A few scripts went with a completely theoretical analysis on this and that will constrict the answer to a Level 2 grade. In such questions, whereby application to real world industries are easily found, relevant examples are an excellent way to showcase the different ways in which oligopolies have been harmful as well as beneficial to consumers (e.g. when discussing R&D or price setting ability or price discrimination).*

- *A number of students provided underdeveloped or incomplete development of their explanations. While they recognized that market power leads to a downwards sloping demand curve for large firms as in the case of all imperfectly competitive firms, and hence the profit optimizing output level will occur where P > MC, they did not make further reference to the context of oligopolies clearly, such as making reference to smaller less dominant firms in the their answer such that the price charged will be higher.*

- *It is also important to highlight that the ability of large firms to do R&D is because they earn long run supernormal profits due to high barriers to entry (and not due to market power). This is crucial as all market structures are able to earn supernormal profits in the short run (even perfect competition). Also, R&D which will lead to new and improved production techniques does not improve productive efficiency. Productive efficiency refers to producing on the LRAC for a given state of technology. The reduction in costs of production due to improvements in production techniques is part of dynamic*

efficiency. Given that the context is oligopolies, they should also make reference to both concepts of ability and incentive of oligopolies, instead of simply highlighting how oligopolies can R&D etc.

- *Students are reminded that they are expected provide economic explanations for their answers. The failure to do so will only lead to partial credit. There were a handful of scripts that merely provided descriptive explanation of the benefits and costs of having oligopolies to consumers, without making reference to relevant framework or provided a more rigourous and detailed explanation. For example, there were a handful of scripts that highlighted how oligopolies are able to reap IEOS and hence, pass cost savings to consumers as lower prices, however, application to relevant framework and with use of examples were lacking.*

Question 3

(a) Using examples, explain why markets might fail where there is imperfect information and where there is asymmetric information. [10]

(b) Evaluate the policies that governments may adopt to correct for both these types of market failures. [15]

Part (a)

Students are required to use any 3 distinct examples to explain how lack of information and asymmetric information will cause the free market to fail.

A. Market failure due to lack of information

(i) Explain how lack of information leads to under-consumption of good/service (merit good)

- Some parents may not be fully aware of the benefits that their children might derive from a formal education. They might under-estimate the benefits in terms of how social skills, work ethics and values can be inculcated to help individuals integrate more easily into the working world and society as a whole. The making of a wholesome individual and the learning of knowledge is a slow ongoing process which takes many years to bear fruits and may not appear obvious to these parents in the short-term. This is especially so in the less developed countries where the long-term gains of higher potential earnings over one's working life may be under-estimated too.

- With reference to Diagram 1 below, if left to free market forces where consumers pursue self-interest to maximize their own welfare, demand for formal education under imperfect information is lower (demand curve DD_0) because of the under-estimation of the personal benefits of education. The demand curve, if they had the accurate information about private benefits accrued should be higher at DD_1. Free market equilibrium occurs at output OQe (with imperfect information, DD0). However, the socially optimal level of consumption is at output OQs (with perfect information DD1). Hence, with imperfect information, too little resources will be diverted to the education sector. A welfare loss represented by area ABC arises as the benefits lost in not consuming QeQs units of education exceed the resources saved in not producing QeQs units of education.
- Hence, when left to the free market, education will be under-consumed from society's point of view.

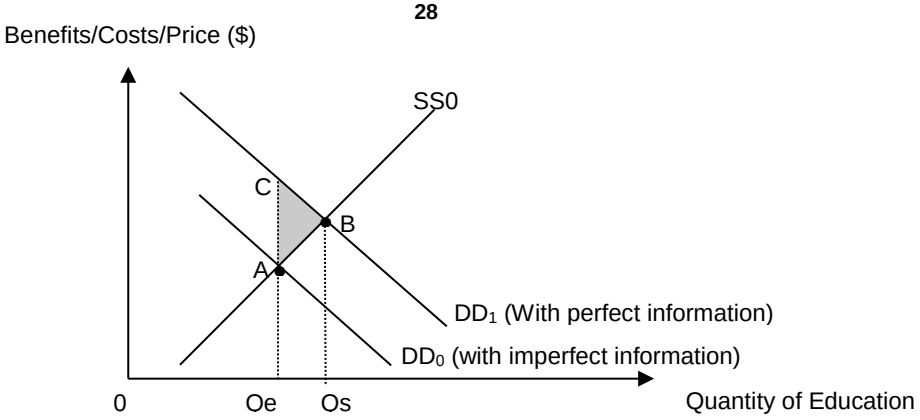


Figure 1: Market for Education

(ii) Explain how lack of information leads to over-consumption of good/service (demerit good)

- Individuals may not be fully aware of the extent of damage that smoking has on their health (eg a much higher chance of contracting many types of cancer, especially lung cancer, respiratory illnesses and heart-related diseases too. Smoking might also worsen existing ailments like diabetes). Young smokers may think the health risks associated with smoking will not apply to them as they are young and healthy and it is 'cool' to have a cigarette on the hand. As a result of imperfect information, smokers overvalue their private benefits from smoking.
- If left to free market forces, consumers' demand for cigarettes when they lack the necessary information (DD_0) is higher than the demand (DD_1) when they have accurate information on the negative effects of smoking on their health → free market equilibrium output OQ_e.

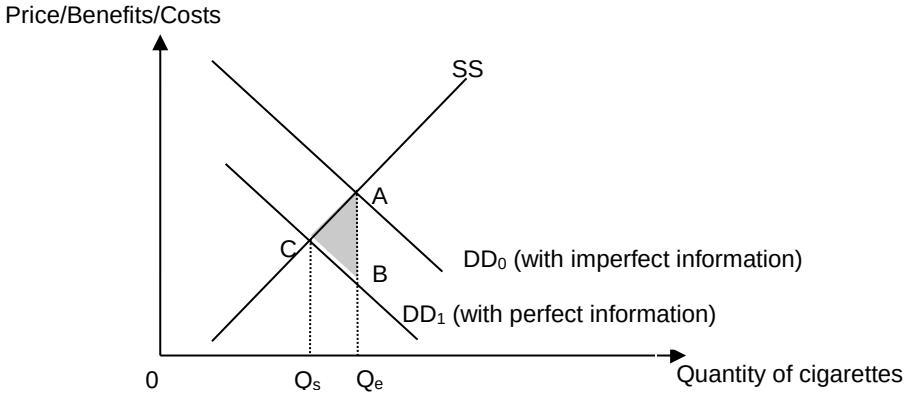


Figure 2: Market for Cigarettes (Imperfect Information)

- The socially optimal level of consumption is, however, at output OQ_s. Hence, if left to the free market, over-consumption of cigarettes will result in a welfare loss to society represented by area ABC as the benefits gained in consuming Q_sQ_e units of cigarettes is less than the cost of resources used in producing them.

B. Market Failure due to Asymmetric Information

Asymmetric information is a situation in which one party has more information than the other when making decisions and transactions. Due to information asymmetry, adverse selection and moral hazard problems can arise bringing about market failure.

(i) Explain how adverse selection (due to hidden attributes unknown to one party before the transaction) leads to market failure

- Adverse selection may arise when the seller knows more about some attributes of the good than the buyer. As a result, the buyer runs the risk of being sold a product of low quality. For example, in the market for used cars, sellers know their vehicles' defects (hidden attributes) while buyers do not. Since buyers have less information on the quality of the car, they are likely to offer a lower price, which discourages sellers of high quality cars to enter the market. Consequently, this gives rise to a market for 'lemons', in which only low quality products ('lemons') are offered for sale, while the market for good cars ('gems') dissipated. The market ends up adversely selecting against the higher quality used cars in favour of the lower quality ones. This represents market failure since quality used car are under-represented, while defective used cars are over-represented in the free market. In the long run, this could lead to a missing market and welfare will not be maximised as second hand cars are desirable to certain consumers. Consumers' welfare will also increase if good quality used cars are available in the market.

(ii) Explain how Moral Hazard (change in behavior of one party after transaction) leads to market failure

- In economic theory, moral hazard is a situation where the behavior of one party may change to the detriment of another after the transaction has taken place. Moral hazard tends to arise when one party has both the incentive and the ability to shift costs onto the other party.

- Health insurance market is an example in which moral hazard problems may arise. This is because of the lack of information about the insured's future behavior after the purchase of the health policy. Moral hazard occurs when the behavior of the insured party changes in a way that raises costs for the insurer, since the insured party no longer bears the full costs of that behavior. Because individuals no longer bear the cost of medical services, they have an added incentive to ask for pricier and more elaborate medical service, which are otherwise not necessary. This leads to over-consumption and misallocation of resources. In the extreme scenario, the excessive hefty insurance claims make it no longer profitable for such insurance firms to operate → the market fails.

OR

- Using another example in the theft insurance market, if your bicycle is insured against theft, you may be less bothered to chain up your bicycle each time you leave it. If the bicycle is indeed stolen, the costs of your lax behaviour will not be borne by you but by the insurance company and indirectly, others who purchased the insurance. Individuals who are insured against loss generally will take less care to prevent that loss than they would in the absence of insurance. In this way, theft insurance leads to fewer locked bicycles, a greater incidence of theft and higher insurance costs for everyone. Costs to society increases, leading to market failure.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	- *No theoretical framework or economic reasoning on how the free market fails due to lack of information and asymmetric information.* - *Smattering of random points* - *Glaring conceptual errors.*	***1 – 3***
L2	- *Sound economic analysis with relevant framework on how the free market fails due to lack of information and asymmetric information.* - *Some use of examples to explain the relevant sources of market failure.* - *Depth and rigour can be improved.* - *Lack of scope - either lack of info or asymmetric info is addressed – max 6*	***4 - 7***
L3	- *Well-developed economic analysis with relevant framework on how the free market fails due to lack of information and asymmetric information.* - *Excellent application.*	***8 - 10***

	- *Scope covers 3 distinct examples (both lack of info and asymmetric info included) to explain the relevant sources of market failure.* - *If only 2 distinct examples (covering both lack of info and asymmetric info) are explained – max 8m*	

Examiners' Comments:

Part (a) of essay is relatively well done with many scoring L3. Some areas of improvement include:

- *In using the MPB/MPC (or demand and supply) diagram to explain how market fails due to lack of information, there is no need to explain divergence between MPB and MSB because there are no externalities involved. Students should instead refer to the 2 different MPBs (perceived and actual benefits) OR the 2 demand curves (with perfect info and without perfect info). Students should also make a <u>very brief</u> explanation of the deadweight loss area; for example, for demerit good like cigarettes, that area represents loss of society welfare because the marginal cost of producing the excess cigarettes is greater than the marginal benefit to society.*

- *Healthcare includes a very broad range of services, from health-screening, and vaccination to hospital care. Many students, in the use of healthcare as an example of a merit good, are very vague in the explanation of the type of information that is lacking. Their explanation might be clearer if a specific type of healthcare like health-screening is cited.*

- *Many scripts explained well, using examples, how asymmetric information leads to market failure. However, it seems that some are unclear that asymmetric information leads to adverse selection and moral hazard differently. Adverse selection arises due to the asymmetric information about the traits (quality) of the good/service, before the transaction. Moral hazard arises due to the change in behaviour of one party after the transaction.*

- *Many students wrote long theoretical introduction of how markets may fail at the expense of precious time needed for in depth explanation in the main body using the diagram. Introduction should be kept very brief.*

Part (b)

Students are required to use discuss <u>3 policy measures</u> to correct the market failures explained in (a).

Introduction:

The government can intervene in various forms to correct market failure in the due to lack of information and asymmetric information in various markets through:

- Education/Campaigns
- Regulations
- Direct provision
- Others?

Body:

<u>To correct market failure due to lack of information</u>:

<u>Context of demerit goods</u>:

1. <u>Advertising and Campaigns</u>

- To address lack of information leading to over-consumption of cigarettes, the government will need to disseminate information about the negative impact of smoking. This has an effect of reducing the demand for cigarettes when smokers review the reduced benefits. Referring to Figure 2 in (a), the demand curve shifts down from DD_0 to DD_1 and a new equilibrium is reached at a lower consumption level, therefore removing the deadweight loss.

Limitations:

- The effectiveness of education initiatives to correct market failure caused by imperfect information is uncertain as it depends on the clarity and persuasiveness of the education campaign.
- There can be campaign fatigue.
- The fall in demand may be to a small extent because smoking is addictive and it is very difficult to kick such a habit. And even though smokers may be aware of the negative impact on their health, they have difficulty in kicking the habit in the short term. So, demand may fall only to a small extent.

2. Regulation

- Legislation of compulsory warning display on cigarette packs of smoking leading to diseases like lung cancer. This provides information and reminder to smokers of the health risks and might influence them to reduce smoking. Ref Diag 2, the demand curve shifts down from DD_0 to DD_1 and a new equilibrium is reached at a lower consumption level, therefore removing the deadweight loss.
- This is likely to be more effective in terms of how every smoker receives a reminder each time he opens up a pack of cigarettes.

Limitations:

- However, this policy suffers the same limitation as public education because smoking is addictive and smokers have difficulty in kicking the habit in the short term.

Note: Students can bring in secondary policies like tax or subsidies BUT these should be couched as supplementary to campaigns in terms of how they can have immediate effect while campaigns take a longer time to take effect.

To correct market failure due to asymmetric information

Context: second-hand goods market (adverse selection)

3. Legislation of the Lemon Law

- Lemon Law – law to protect consumers against defective goods that fail to conform to contract, or meet satisfactory quality or performance standards at the time of purchase. Under the law, sellers are obliged to refund or repair the defective good. This ensures that buyers are able to seek compensation even though they lack information about the quality of the good at the point of transaction and that the sellers are not likely to use the asymmetric information at the expense of the buyers.

Limitations:

- It is sometimes difficult to determine whether the defect existed at the point of or after the transaction. A government agency needs to be set up to manage and rule where disputes cannot be settled between the buyers and sellers. This is again a strain on governmentt manpower and resources and incurs an opportunity cost.

Context: Health insurance market (Adverse Selection and Moral Hazard)

4. Legislation and Regulation of co-payment/deductibles

- To correct market failure caused by moral hazard which arises from asymmetric information, government can pass regulations requiring insurers to only offer health insurance with deductible and/or co-payment components.
- Deductible refers to the first $x of health insurance claims which must be paid by the insured. Co-payment refers to the % of health insurance claims which must be paid by the insured.
- Deductibles and Co-payments require the insured to pay a portion of their medical costs.
- This decreases their financial incentive to seek unnecessary additional treatments and reduce the over-consumption of medical treatments. OR, in the case of theft insurance, it reduces the "risky" or careless behaviour of the insured which in turn reduces the additional costs to the insurers and society.

Limitations:

- However, the effectiveness of regulations mandating deductible and co-payment components depends on:
    - The ability to set an optimal deductible and co-payment quantum. Deductibles and co-payments which are set too low do not sufficiently mitigate the moral hazard problem.
    - The ability to enforce such a regulation and prevent insurers from circumventing it.
- Since co-payment is needed for any insurance claim, it also impacts those who need to make claims for necessary and needed medical treatment and who may not be able to afford the out of pocket co-payment. This might lead to inequity issues.

5. Mandatory health insurance

- To correct market failure caused by adverse selection which arises from asymmetric information, government can legislate and directly provide basic health insurance to all citizens. For example, MediShield Life is a hospitalisation insurance plan administered by the CPF Board, and made available to all Singapore citizens with no opt-out option.
- Universal health insurance schemes such as MediShield Life overcomes the problem posed by adverse selection as all individuals - less healthy and healthy, are insured. It corrects the market failure due to the under-consumption of insurance by healthy individuals.
- Universal health insurance schemes also pool the health risks of the entire population, fully reaping the risk-pooling benefits of insurance.
- Direct provision also supplements what is available in the private sector by increasing the supply of health insurance which in turn will lead to a fall in the price of insurance. The fall in price will make it more affordable for the lower income individuals to consume health insurance, improving equity.

Limitations:

- However, the effectiveness of legislation and direct provision of universal health insurance depends on:
    - The ability of the government to price such a scheme appropriately, such that it is sustainable in the long run while remaining affordable.
    - The ability of the government to fund low income citizens who are unable to afford paying for it.
    - The receptivity of individuals of towards such a mandatory insurance scheme. If a significant number of individuals are resistant to such a scheme, it may become politically impracticable to implement.

- The government will also have to monitor for production inefficiencies in the administration of the universal health insurance as it does not operate with a profit maximisation objective.

Conclusion and Overall Evaluation:

- Possible synthesis points (any 2 well substantiated points):
- Different policies should be used to address the many variant sources of market failure. Any policy used should address the root cause of the problem, as discussed above. Where there are limitations, then supplementary policies may be used to address the relevant issues from different perspectives. For example, where the use of campaign to provide full information on damages to smokers' health takes a long time to kick in, an indirect tax may be used simultaneously to reduce consumption in the immediate term.
- Though market failure justifies govt intervention, it is important to note that govt failure may occur too, where the govt has imperfect information to the point where the intervention leads to an outcome that is worse than before. For example, the govt may set too high a minimum portion of co-payment needed for insurance claims which result in the inability of the lower income group to pay.
- The efficiency and effectiveness of a govt also determines the extent to which market failure can be corrected. For example, in a country where corruption is common, then the enforcement by government officers of ban on smoking in many public places may not be effectively carried out.
- In reality, government intervention, at best, leads to an outcome that is closer to the optimal.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	– *No theoretical framework or economic reasoning on how each policy works to correct the relevant source of market failure.* – *Smattering of random points* – *Glaring conceptual errors.*	***1 – 4***
L2	– *Somewhat balanced answer with economic analysis using relevant framework on how each policy works to correct the relevant source of market failure. Depth and rigour of explanation can be improved.* – *Scope covers only policies to address market failure due to either lack of information OR asymmetric information.* – *One-sided unbalanced answer – max 6m*	***5 - 7***
L3	– *Well balanced answer with rigorous economic analysis using relevant framework on how each policy works to correct the relevant source of market failure.* – *Scope covers 3 distinct policies to address market failure due to both lack of information and asymmetric information.*	***8 - 10***
Evaluation		
E1	*An unexplained judgement ➔ An unexplained evaluative conclusion/comment*	***1***
E2	*Evaluative assessment supported by economic analysis ➔ Substantiation of an evaluative comment and/or conclusion*	***3 - 4***
E3	*Able to give in depth or well explained insights.*	***4- 5***

Examiners' Comments:

- *Most students scored L2 (6-7marks) because the anti-thesis points (limitations of policies) were mainly theoretical regurgitation without attempt to use contextual examples to illustrate.*

- *Some students abruptly brought in extensive discussion of legislation and tax / subsidies to correct for lack of information. This is not wrong per se, but should be introduced only after the use of public education and campaigns, which should be the primary policy because it tackles the root cause. Alternative policies, like taxes/subsidies, should be couched as a measure to correct the market failure in the short run, relative to the long time for effects of campaign to kick in. Too many scripts brought in taxes/subsidies or legislation without attempt to explain the rationale for doing so. Further, many scripts had extensive discussion of taxes and subsidies at the expense of needed policies to correct for asymmetric information in the second half of the answer.*

- *Students are reminded of the need to explain clearly, with examples and diagrams, how each measure works to correct the relevant source of market failure. For, example, in the use of campaigns, possible ways that campaigns may be carried out should be explained – " anti-smoking campaigns : extensive advertisements through the main media like TV and radio, through social platforms frequented by youths (eg Spotify) or visits by health personnel to schools to conduct talks. These will influence the demand through the provision of the necessary information and shift the demand curve down as shown in diagram…etc…then to use the diagram to show how quantity consumed will be reduced…leading to correction of market failure"*

- *Majority of the anti-thesis points to this question comprise mainly memorised regurgitation from the lecture notes without attempt to contextualise in the relevant markets. For example, in raising a limitation of using campaign/public education, many wrote that campaigns are very costly without providing any substantiation. They could have reasoned that campaigns are typically very large scale to cover the whole nation and typically stretched over a long period of time and therefore are likely to strain government resources.*

- *Similarly, majority of the scripts were lacking in providing a well substantiated synthesis which is relevant to the question, meaning they are lacking in terms of substantiated judgements, insights or further evaluation. Most students scored only E2 - 2 marks when they briefly stated a need for a mix of policies that work in the short run and long run, or simply stated a possibility of government failure without going into details.*

"Strive for progress, not perfection." (Unknown)

********END********