

- 3 (a) Explain how the concepts of incremental benefits and costs are used in decision-making by consumers and producers to maximise self-interest. [10]
- (b) Discuss the factors that determine the effectiveness of government policies in bringing about an efficient allocation of resources in the market for goods and services. [15]

### Suggested Answer (a)

#### INTRODUCTION

- Scarcity arises because people desire more goods and services than available resources can provide. Given that resources are scarce, consumers and producers have to decide how to make use of their scarce resources to maximise their own self-interest.
- Assume maximising self-interest  $\Rightarrow$  consumers seek to maximise utility and producers maximise profits.
- The decision-making process involves the use of the concepts of incremental benefit and incremental cost.

#### BODY

- In the pursuit of self-interest, consumers and producers consider only their private costs and benefits.

#### Consumers

- Constrained by their budget  $\Rightarrow$  rational consumers would consume up to the quantity where the marginal private benefit (MPB) is equal to the marginal private cost (MPC). MPB (incremental benefit)  $\Rightarrow$  benefit enjoyed by a consumer from the consumption of an *additional* unit of the good or service. Example: the satisfaction of consuming an additional can of Coke. MPC (incremental cost)  $\Rightarrow$  cost incurred by a consumer in the consumption of an *additional* unit of a good or service. Example: the price he has to pay for the additional can of Coke.

- With the aid of a diagram, *explain* the equilibrium condition,  $MPB=MPC$ .

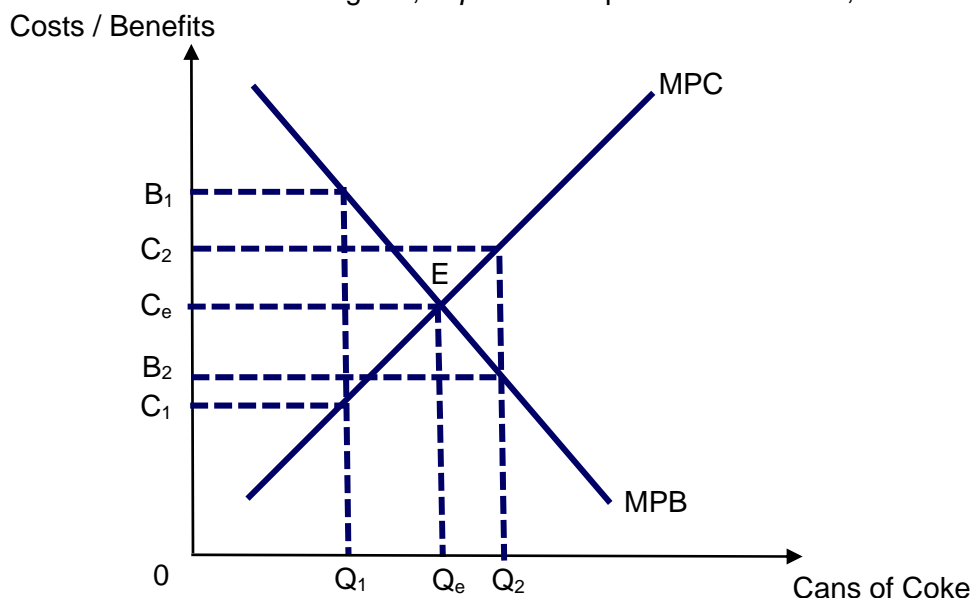


Figure 1: Self-interest maximisation by a consumer

- At  $0Q_1$ ,  $MPB > MPC$ . The last unit of Coke consumed yields an incremental benefit of  $0B_1$  but an incremental cost of only  $0C_1$ , giving a net benefit of  $B_1C_1$  to the consumer. **A rational consumer, attempting to maximize his self-interest**, would therefore consume the additional can of Coke. He would continue to consume more cans of Coke as long as the incremental benefit (MPB) exceeds the incremental costs (MPC). Eventually, at  $Q_e$ ,  $MPB = MPC = 0C_e$  i.e. the incremental benefit derived from the last can of Coke consumed exactly equals the incremental cost incurred by the consumer and no more net benefit can be gained. At this quantity, his optimum level of consumption has been reached, his self-interest is maximised.

If he consumes beyond  $0Q_e$ ,  $MPC > MPB$  e.g. at  $0Q_2$ , as the incremental cost,  $0C_2$  exceeds the incremental benefit,  $0B_2 \Rightarrow$  net benefits fall  $\Rightarrow$  not maximising his self-interest.

## Producers

Explain how producers maximises self-interest (profits) using the incremental benefit and incremental cost concepts.

- Producers produce goods and services because they earn revenue from selling them. *Marginal revenue* is the incremental revenue earned from the sale of an additional unit of output.
- Production incurs costs for the producer. Marginal cost is the incremental cost incurred in producing an additional unit of output.
- To maximise self-interest, i.e. profits, a producer would produce the output where  $MR = MC$ .
- With the aid of a diagram, *explain* the equilibrium condition.  
Price, revenue, cost

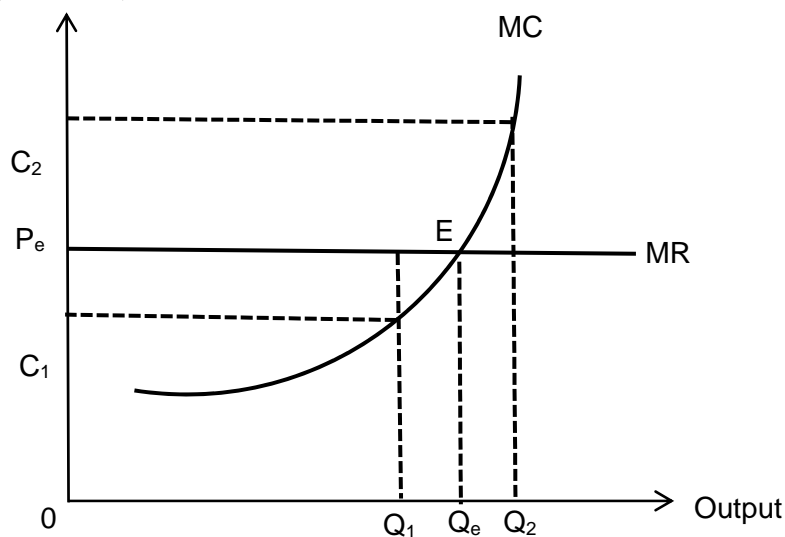


Figure 2: Profit maximisation by a producer

Assume a producer in a perfectly competitive market. At output  $Q_1$ ,  $MR > MC$ , an additional unit of output adds more to TR ( $AQ_1$ ) than to TC ( $BQ_1$ ) i.e. the incremental benefit (MR),  $0P_e$ , exceeds the incremental cost (MC),  $0C_1$ . Hence, a profit-maximising producer would choose to produce the additional unit of output as his total profits would increase (by  $C_1P_e$ ).

At output  $Q_2$ ,  $MR < MC$ , production of an additional unit adds less to TR ( $OP_e$ ) than to TC ( $OC_2$ ). As such, a rational producer would choose not to produce the additional unit as his total profits would fall (by  $P_e C_2$ ).

At  $OQ_e$ ,  $MR=MC$ , the producer has reached his optimal level of output: his profits is maximised.

- Hence, the concepts of incremental benefits and incremental costs guide both the consumers and producers in their decision-making to maximise their self-interest when faced with the problem of scarcity.

Level	Knowledge, Understanding, Application, Analysis
L3 (7 – 10)	For an answer that showed thorough and clear explanation based on sound economic framework of how consumers and producers maximise self-interest.  Decision-making by consumers and producers which involves the use of incremental benefit and incremental cost is well analysed. Simple application to real world is required.
L2 (4 – 6)	For an answer that has gaps in explanation of decision-making. For example, students did not consistently use the concept of incremental benefit and incremental cost in analysing the decision making process. Objectives of consumers and producers were left out. 'Self-interest' is not explained.  One-sided answer (i.e. only consumers or only producers)
L1 (1 – 3)	For an answer that contains answer contains conceptual errors and some irrelevant points or generic explanation without incorporating the concepts of incremental benefit and incremental cost which is a requirement of the question.

### **Suggested Answer (b)**

- (b) Discuss the factors that determine the effectiveness of government policies in bringing about an efficient allocation of resources in the market for goods and services.

[15]

### **Comments:**

This is a challenging question which requires students to zoom out and look at government intervention to correct market failures across different markets for goods and services to distil the factors that influence the effectiveness of government intervention. An assessment of the extent to which the factors influences the effectiveness of government policies in bringing about an efficient allocation of resources is expected.

A possible approach:

- Identify and explain factors
- Explain how these factors affect the effectiveness of government intervention using examples. (side 1)
- Assess the extent to which these factors influence the effectiveness of government policies in bringing about an efficient allocation of resources. (side 2)

## INTRODUCTION

- Brief explanation of why the government need to intervene in the market for goods and services – to achieve efficient allocation of resources. Suggest some possible sources of market failure.
- State the factors which would be discussed in answer.
- Stand: comment on relative importance of these factors.

## BODY

- **Degree of information imperfection**

Side 1:

Explain with examples. Government inaccurate computation of the true value of MEB and MEC in the case of existence of externalities. Question does not require a full explanation of why the market fails when externalities exist. The imperfect information might result in government over/under-taxing in the case of negative externality i.e. externalities are not fully internalised. A good example  $\Rightarrow$  control of road usage / traffic congestion. Over-taxing might result in under-usage of roads resulting in welfare loss due to under-consumption.

Side 2:

The greater the degree of information imperfection  $\Rightarrow$  the less effective the government policies to achieve allocative efficiency.

- **Time lag**

Side 1:

Government's decision to intervene and extent of intervention is based on incremental benefit and cost calculated using past data. But real world market conditions are dynamic. Thus the true incremental benefit and cost (assuming no imperfect information) might change over time. E.g. with rising affluence, road usage increases as more people desire to drive their own cars  $\Rightarrow$  planned policies become less effective in solving the problem of traffic congestion  $\Rightarrow$  likely to under-correct the market failure.

Side 2:

The longer the time lag, the more inaccurate are the predicted incremental benefits and costs and the lower the effectiveness of government policies to achieve allocative efficiency.

- **Government resources**

Side 1:

Is the government able to marshal sufficient resources to enable it to intervene on the scale required to achieve allocative efficiency. E.g. education is grossly under-consumed in poor countries  $\Rightarrow$  requires massive amount of resources to provide education on a sufficiently large scale to ensure allocative efficiency. The insufficiency of government resources (low government reserves / revenue) renders government policies less effective  $\Rightarrow$  unable to provide the required intensity of intervention.

Side 2:

Lack of government resources likely to apply to developing countries and developed countries with huge public debts. Limited government resources coupled with the need to intervene in multiple markets  $\Rightarrow$  these resources are thinly spread across the markets  $\Rightarrow$  unable to eliminate allocative inefficiency in all of these markets.

- **Responsiveness of market to government policies to achieve allocative efficiency.**

Side 1:

Government policies to achieve allocative efficiency  $\Rightarrow$  requires the market to respond as required by the policies to maximise effectiveness. E.g. public education to correct imperfect information e.g. vaccination against infectious disease – requires the public to respond positively to align perceived MPB to true MPB so as to raise consumption to the socially optimal level.

e.g. 2 fines for disposal of chemical waste into water sources. Close monitoring required.

Side 2:

The responsiveness of market to government policies may depend on:

- Target group – e.g. the elderly are less likely to understand the importance of vaccinations  $\Rightarrow$  gap between perceived MPB and true MPB remains  $\Rightarrow$  policy less effective.
- Channels of communication differs with age group  $\Rightarrow$  elderly might require home visit to spread the message while the younger consumers more receptive to message posted on social media.
- For the case of fines  $\Rightarrow$  necessary to back up with legal enforcement and close monitoring to ensure success of policy.

- **Case of more than one source of market failure in the same market**

Side 1:

A challenge to achieve allocative efficiency with just one policy. Government might have to implement more than one policy to ensure achievement of objective. E.g. imperfect information and positive externality – merit good.

Side 2:

Problem can be solved with implementation of multiple policies. Alternatively to prioritise the source of market failure to tackle.

## **JUDGEMENT / CONCLUSION**

- Judgement on which factor is the key determinant of effectiveness of government policies eg

A key determinant of effectiveness of government policies in bringing about efficient allocation of resources is imperfect information. Reasons:

- Extreme information imperfection  $\Rightarrow$  **government failure** i.e. intervention leads to greater allocative inefficiency (larger deadweight) than the free market.

- It affects effectiveness of government intervention in nearly **all** markets for goods & services.

Whereas other factors such as time lag rendering policies ineffective applies to markets which are more dynamic e.g. road usage, addiction to gambling (increase access to online gambling) and less to markets which are relatively more stable e.g. healthcare – less likely to experience rapidly rising / falling demand.

<b>Knowledge, Application, Understanding and Analysis</b>		
<b>L3</b>	For a comprehensive and detailed answer that provides a balanced discussion on the factors which affect the effectiveness of government policies to achieve allocative efficiency and an equally proficient assessment of the extent of this impact.  Appropriate examples incorporated in discussion for depth.  Sufficient scope – at least 2 well discussed factors.	<b>9-11</b>
<b>L2</b>	For an answer that provides a balanced but undeveloped discussion on the factors which affect the effectiveness of government policies to achieve allocative efficiency and an attempt to assess of the extent of this impact.  No attempt to assess the factors – cap at 6 if factors are well elaborated.  At least 2 factors discussed.	<b>6-8</b>
<b>L1</b>	For an answer that is mostly descriptive (unexplained statements), with some inaccuracies or showed some knowledge of reasons why government policies to achieve allocative efficiency in markets for goods and services may not be totally effective. Lacks scope (1 appropriate factor and depth).	<b>1-5</b>
<b>Evaluation</b>		
<b>E2</b>	For a judgment based on economic analysis/ adequately substantiated	<b>3-4</b>
<b>E1</b>	For an unexplained judgment, or one that is not supported by economic analysis	<b>1-2</b>

