

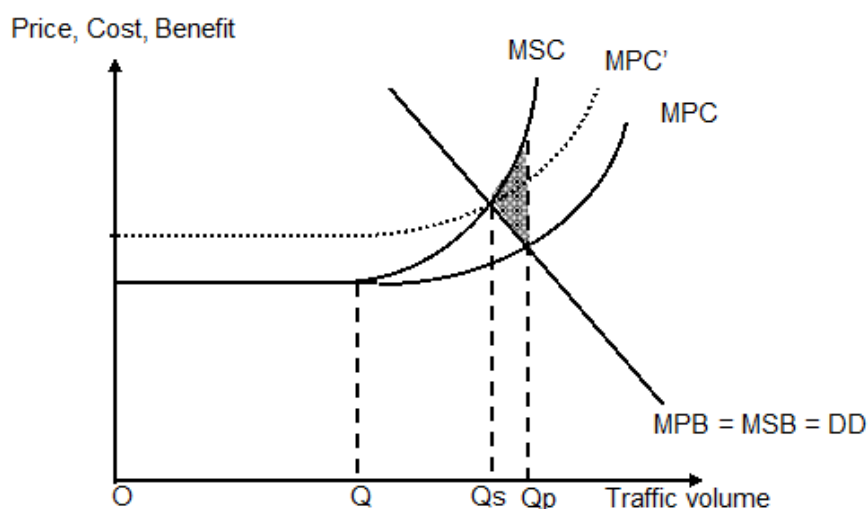
**(a) Explain whether public transport in Singapore is a public good. [4]**

- A public good is a good which is non-excludable and non-rival in consumption [1]
- Public transport is excludable because commuters who do not pay for the train or bus fares can be prevented from boarding the train or asked by the bus driver to disembark [1]
- Public transport is also rival in consumption as a commuter who boards a bus or train may deprive another commuter of a seat or space to board. [1]
- Since public transport is both excludable and rival in consumption, it is not a public good but a private good. [1]

*(An answer which looks at public transport as being a quasi-public good because it is excludable but possibly non-rival in consumption before congestion sets in i.e. when all the seats or space has been taken up, is also acceptable)*

**(b) Using a diagram, explain why there is need for the government to intervene in the market for private transportation in Singapore. [6]**

- The consumption of private transportation in Singapore generates negative externalities in the form of traffic congestion, which refer to the adverse spillover effects imposed on third parties from the production or consumption of a good.
- When a person drives his car during peak periods on a busy road, he slows down traffic and causes delay to other road users. The cost of such delays is then borne by third parties like their employers as their workers turn up late for work and the delivery of their goods are delayed.
- As traffic congestion disrupts economic activity hence adversely effects economic growth, curbing such congestion “could reduce a country’s potential for creating prosperity” (extract 1)



- In the above diagram, there are no traffic jams and hence no external

costs generated up to OQ. Thus MPC and MSC are identical.

- Beyond OQ, congestion sets in and worsens, so the MPC for each driver rises as he wastes increasingly more time and fuel being stuck in a worsening traffic jam.
- With increasing delays imposed on employers and businesses, MEC also rises, causing the MSC to diverge more and more from the MPC.
- Assuming that there are no positive externalities or merit good effects, the demand curve DD which is also the marginal private benefit (MPB) curve will be equal to the marginal social benefit (MSB) curve.
- Without intervention, the free market traffic volume is  $Q_p$  where  $MPB = MPC$ , while the socially efficient outcome where  $MSB = MSC$  is at  $Q_s$ .
- From  $Q_s$  to  $Q_p$ , as  $MSC > MSB$ , the deadweight loss of the shaded area is generated.
- Since  $Q_p > Q_s$ , the road is over consumed so there is a need for the government to intervene to reduce the traffic congestion

L1: Identify the relevant source of market failure. [1]

L2: Explain how private transportation generates negative externalities [2-3]

L3: Analyse how negative externalities lead to market failure [4-6]

*Full marks will also be awarded for candidates who utilise generic negative externalities diagram.*

**(c) (i) Using Table 2, describe the trend in COE prices. [2]**

COE prices are generally increasing [1] at a decreasing rate [1].

**(ii) Analyse the impact of the above trend in COE prices on the market for public transport. [4]**

- Rising COE prices translate to higher car prices and thus higher cost of private car ownership. As public and private transport are substitutes, rising cost of private car ownership should raise the demand for public transport, thus causing public transport fares and volume to rise [2]
- However, as fares are regulated by the Public Transport Council (extract 2), public transport fares may remain unchanged. [1]
- Also, as car ownership is directly limited by the COE quota, rising COE and thus car prices may have no impact on the demand for public transport. [1]

*Candidates with correct application of elasticity concepts will be awarded one bonus mark.*

**(d) (i) Explain how the price elasticity of demand of private transport affects the usefulness of the anti-traffic congestion policies mentioned in Extract 1 [6]**

- The policies mentioned in extract 1 are the COE and ERP.
- Price elasticity of demand (PED) refers to the responsiveness of quantity demanded when the price of the good changes.
- The higher the magnitude of PED, the flatter the demand curve.
- For a given tax imposed, the flatter the demand curve the greater the fall in the quantity demanded.
- Since ERP is like a tax on road usage, the higher the PED for private transport, the greater the fall in use of private transport, hence the greater the reduction in traffic congestion.
- A higher PED thus makes a policy like ERP more effective.
- The COE system is actually a quota that is being placed on the amount of new cars being sold
- For a given reduction in the COE quota, the higher the PED the smaller the rise in COE prices, the less politically unpopular the policy will be.
- Hence a higher PED makes a policy like the COE quota system more politically acceptable.

L1: Define PED and identify the relevant policies. [1-2]

L2: Explain how the PED of private transport affects the usefulness of ERP. [3-4]

L3: Analyse how the PED of private transport affects the usefulness of COE. [5-6]

**(ii) Assess which factors are more important in influencing the extent of the price elasticity of demand for private transport in Singapore [8]**

Question interpretation

- What are the factors affecting PED?
- How do these factors affect the size of the PED?
- Which factors are more important in influencing the extent of the PED of private transport in Singapore?

Introduction

- The factors affecting PED are the availability and/or closeness of substitutes, the degree of necessity and the time period.
- The answer aims to explain these factors before analysing how they influence the PED of private transport.
- It concludes by assessing the relative importance of these factors.

Availability and/or closeness of substitutes

- The higher the availability and/or closeness of substitutes, the more price elastic is the demand.
- By making public transport more frequent and comfortable with introduction of 450 new buses and 99 new trains (extract 3), this causes public transport to become a closer substitute to private transport, thus enabling the demand for private transport to become more price elastic.

#### Degree of necessity

- The higher the degree of necessity, the lower the price elasticity of demand.
- By expanding the public transport network (extract 4) to cover areas which were previously less accessible by public transport, this reduces the necessity of using private transport to travel to such places, thus making the demand for private transport more price elastic.

#### Time period

- The price elasticity of demand generally increases with time because it takes time for buyers to recognise and respond to a price change.
- Should the cost of owning or running a car rise, it will still take time for people to make the switch to taking public transport because existing car owners in Singapore like Mr Walter Lim and Mr Giam (extract 4) tend to wait for their existing COE to expire before they decide to stop driving.

#### Conclusion (relative importance of the factors)

- Table 1 shows that public transport users consistently rank travel time above waiting time as an attribute of public transport.
- This suggests that reducing the necessity of private transport is arguably more important than improving its substitutability.
- Nevertheless, as extract 3 suggests that it may take a long time for higher COE and ERP prices to take effect, time period could arguably be the most important factor determining the PED of private transport in Singapore.

L1: Identify the factors affecting PED [1]

L2: Explain these factors affecting PED [2-3]

L3: Analyse how these factors affect the PED of private transport in Singapore [4-6]

E: Evaluate the relative importance of these factors in determining the PED of private transport in Singapore [+2]