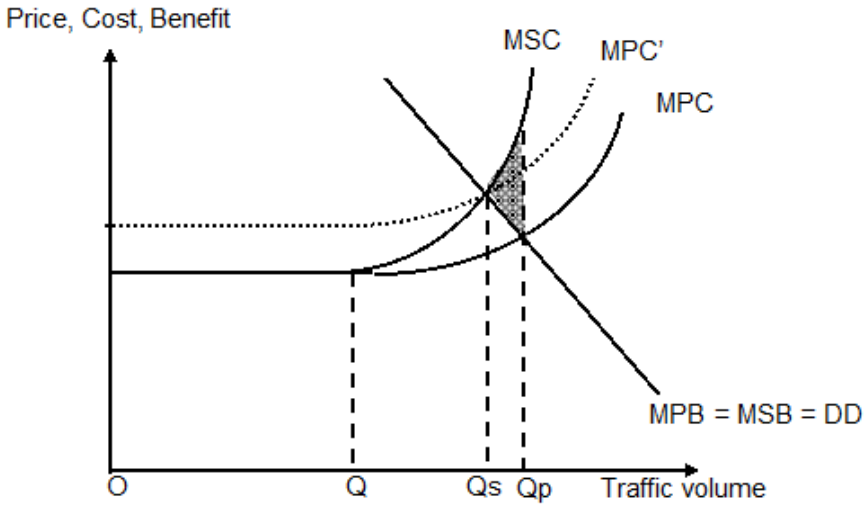
(a) Explain whether public transport in Singapore is a public good. [2]

- Public transport in Singapore is not a public good as it is excludable. If commuters do not pay the corresponding fares, they can be excluded from consuming public transport services. [1]
- Public transport in Singapore is not a public good as it is rival in consumption. The consumption of public transport services by one commuter reduces the number of seats or space available for another commuter. [1]

(b) Using a diagram, explain why there is need for the government to intervene in the market for private transport 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 Qp where MPB = MPC, while the socially efficient outcome where MSB = MSC is at Qs.
- From Qs to Qp, as MSC > MSB, the deadweight loss of the shaded area is

generated.
- Since Qp > Qs, 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) Analyse the impact of higher 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) Discuss whether rail fares charged by public transport operators in Singapore should be regulated. [8]

Question interpretation

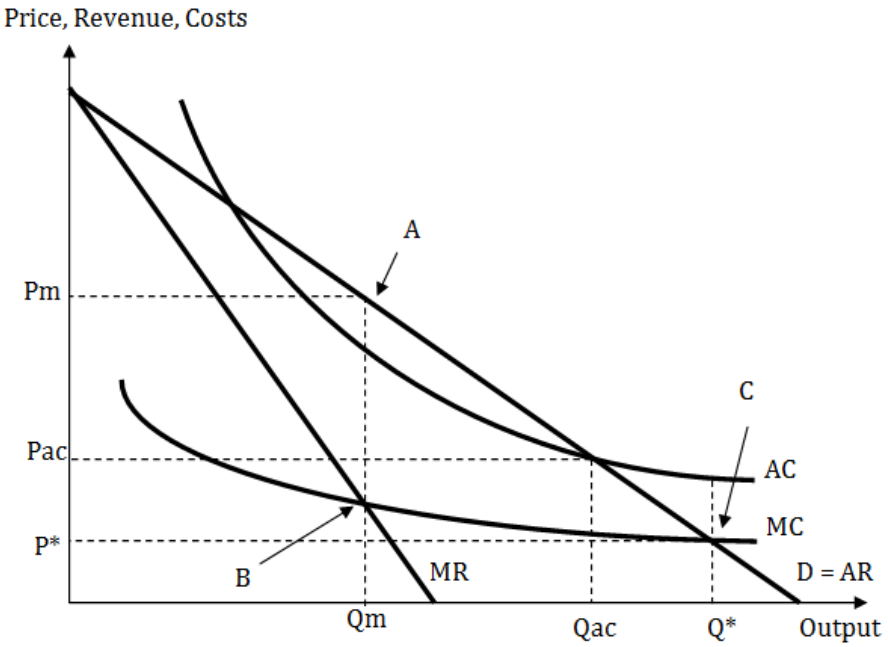
- *What is the relevant market structure for rail services in Singapore?*
- *What are the reasons for and against rail fare regulation in Singapore?*
- *Should rail fares in Singapore be regulated?*

Introduction

- The market for rail services in Singapore resembles that of a natural monopoly, which refers to a situation where a single firm can supply the entire market at a lower cost than two or more firms.
- This essay aims to analyse the reasons for and against regulating rail fares in Singapore before evaluating the need for such regulation

Reasons for regulating rail fares in Singapore

- Due to the high cost of setting up the rail infrastructure e.g. the network of tracks, tunnels & stations, the fixed costs are probably much larger than the variable costs (cost arising from the fuel used and wear and tear incurred from taking an additional passenger).
- Thus AC follows the shape of AFC, which is always falling with output.



- If left to the free market the monopolist will produce Qm, where MC=MR and charge a price Pm. However, the allocative efficient price and output occurs at P* and Q* where P=MC or DD = MC.
- With Pm being much higher than P*, this means many consumers will find rail fares being too costly and thus refrain from taking trains, resulting in Qm, which is very much lower than Q*.
- There will be substantial under consumption of rail services, which will cause a large loss of potential welfare that is equal to area ABC, hence the free market will be highly allocatively inefficient.

- Extract 2 mentions that Singapore' public transport operators do not need to cover the fixed cost of building the public transport infrastructure as this is fully borne by the government,
- This means that they do not need to cover the entire AC (which includes AFC) but only need to cover the operating costs i.e. AVC (which is equal to MC if MC is assumed to be constant).
- Thus, MC pricing can be employed to achieve the allocatively efficient outcome without causing public transport operators to suffer losses.

Reasons against regulating rail fares in Singapore

- Regulation of rail fares means that private rail operators will only earn normal profits in the long run.
- They therefore lack the ability to engage in costly upgrading of rail mechanics or extensive maintenance of the rail system.
- This could have led to the repeated service disruption and severe breakdowns mentioned in extract 3.
- Without supernormal profits, private rail operators also lack the incentive and ability to improve service standards that could encourage the population to make the shift from private to public transportation.

Conclusion

- Given the severe market failure arising from a natural monopoly,

governments arguably need to intervene in public transportation, therefore, my view is that rail fares should be regulated in Singapore
- However, instead of MC pricing, the price should be set higher so that the cost of upgrading and maintaining the rail system is accounted for.
- Alternatively, MC pricing could still be used if the government is willing to also bear the cost of upgrading and maintenance of the rail system.

L1: Recognise that rail transport in Singapore is a natural monopoly. [1]
L2: Explain the reasons for regulating rail fares in Singapore. [2-5]
L3: Analyse the reasons against regulating fares in Singapore. [6-7]
E: Evaluate whether rail fares in Singapore should be regulated. [+1]

For L1+ L2 the max marks allocated for the different approaches are:
- *Equity argument or answers with little or no economic analysis [max 2]*
- *Positive externalities argument [max 3]*
- *Generic market dominance argument [max 4]*
- *Natural monopoly argument [max 5]*

L3 and E marks are awarded independently from L1+L2

(e) Discuss the extent to which factors influencing price elasticity of demand are relevant to the Singapore government in encouraging the switch from private to public transport through policies mentioned in Extract 1. [10]

Question interpretation

- What are the policies mentioned in extract 1?
- What is price elasticity of demand and how does it affect the effectiveness of these policies?
- What are the factors affecting PED of private transport in Singapore?
- Which is the more relevant elasticity factor?

Introduction

- The policies mentioned in extract 1 are the COE, ARF and ERP schemes
- This essay aims to first explain the meaning of PED and how it affects the effectiveness of these policies in curbing traffic congestion before analysing the factors affecting PED of private transport in Singapore
- It concludes by assessing which factors are more relevant in influencing the effectiveness of these policies.

How does PED affect the effectiveness of COE, ARF and ERP?

- Price elasticity of demand (PED) refers to the responsiveness of quantity demanded when the price of the good changes, ceteris paribus.
- It is measured by taking the percentage change in quantity demanded of a good over the percentage change in its price.
- With a higher PED, raising ownership and usage costs of private cars through these policies will curb the demand for private cars more substantially, thus helping to reduce traffic congestion more effectively

What are the factors affecting the PED for private transport?

- The first factor is availability and closeness of substitutes

- An increase in the availability and/or closeness of substitutes for a good will result in an increase in its PED
- Extract 4 mentions of new buses and trains being put into operation and new rail lines being constructed
- This should improve the quality of public transport in terms of comfort, accessibility, frequency and reliability, thus making it a closer substitute to private transport, thereby raising the PED of private transport

(Instead of availability and closeness of substitutes, an answer which frames the above points under the factor degree of necessity is also acceptable)

- The second factor is the time period
- As people need time to factor in and respond to a price change, the PED of a good tends to increase with time
- Time is required for private transport users to respond to higher COE prices, ARF rates and ERP charges before switching to public transport.
- In the short-run, policies aimed at raising private transport costs may have limited effectiveness as most users may be unable or unwilling to change their travel pattern or modes.
- However, such adjustments can be made in the long run so the demand for private transport is likely to become more price elastic over time.
- For example extract 4 mentions of Mr Giam making the decision to give up his private car after using it for many years.

(Higher COE prices causing the cost of owning a car to form a larger proportion of income is not applicable in this context)

Conclusion

- Table 1 shows commuters consistently ranking travel time, waiting time and reliability as being the most important attributes of public transport
- This suggests that making public transport a closer substitute to private transport is <u>arguably the more important</u> factor

OR

- Extract 4 suggests that drivers often only decide whether to switch transport modes after their existing COE has expired
- This <u>arguably</u> suggests that the time period could instead be the <u>more important</u> factor

L1: Define PED and identify the relevant policies [1-2]
L2: Explain how PED affects the effectiveness of these policies [3-4]
L3: Analyse the factors affecting the PED of private transport [5-8]
E: Evaluate the relative importance of these factors [+2]