J1 June Intensive Revision 2014

# Type II – CSQ Test Question

**Car population and pollution**

**Extract 1: Road pricing makes good economic sense. But voters hate it**

Britain’s sclerotic roads learned that the recent global financial catastrophe had slightly improved their lives: traffic volume has fallen by about 3% since the start of the recessions. But the Confederation of British Industry (CBI), warned drivers that it would not last: traffic has risen remorselessly and a return to growth seems inevitable as the economy recovers. Congestion does more than irritate drivers. It makes employees and deliveries late, it snarls up modern “just-in-time” supply chains and it clogs up labour markets by making commuting difficult. The cost of all this is almost impossible to measure. But a big review of transport put the cost between £7 billion and £8 billion a year.

To fix the problem, the CBI offers a couple of ideas. First, it wants to see more flexible working, with employees staying at home or staggering their hours, spreading the traffic load over more hours in the day. Second, it wants to see more money spent on building new roads and widening existing ones. Third, it wants to encourage better use of existing roads. All these will help, but at best they merely chip at the edges of the problem. The CBI's big idea is to match supply with demand using a system of nationwide road tolling. To economists the case for road charging is simple. The problem is not a lack of capacity, but a failure to allocate it properly. A system of charges would be fairer than the current means of paying for roads from a mixture of fuel duties and general tax revenue. For the politicians, though, road charging is lethal. The public's first suspicion is that pricing would be just another tax, an interpretation that would seem plausible with today's eye-watering budget deficits.

*Source: The Economist,* 15 March 2010



*Source: Land Transport Authority, Singapore*

**Extract 2: Panic over likely quota cut sends COE prices north**

Premium for commercial vehicles hits 10-year high. Making a dash before a foreseeable and sizeable cut in quota size next month, bidders sent certificate of entitlement (COE) premiums higher across the board again yesterday.

Motor traders said the anticipation of a reduction in COE supply from next month was the main cause of yesterday's price spikes. The number of bids submitted rose by only 6.5 per cent to 4,753, a sign that sales in hand had not risen by much since two weeks ago. Motor traders said the premium increase in COE for cars up to 1,600cc remained modest because bidders in this segment typically have thinner margins. Rising demand from businesses on the back of an improving economy drove the commercial vehicle premium to its highest level in a decade.

*Source: The Straits Times, 11 March 2010*

**Extract 3: COE, ERP and the question in between**

It is not often that Singaporeans hear of differences in opinion within the highest ranks of Government, but there was a hint last week. Senior Minister Goh Chok Tong was at a dialogue with Marine Parade residents when he revealed an interesting divide over transport policy. He said Minister Mentor Lee Kuan Yew was in favour of making car ownership very expensive so that fewer people would own cars hence, leading to less congestion on the roads. Prime Minister Lee Hsien Loong, on the other hand, wanted more people to be able to own cars and to control congestion by applying more stringent usage measures like Electronic Road Pricing (ERP).

The PM believes it's fairer if you can spread car ownership. Philosophically, the PM is right. In a practical sense, the MM is right,' he said. 'But then the problem is, the middle class can't own cars, only the rich can. So the PM is right philosophically, and I think it's the fairer approach. But then, more road congestion, and so ERP.'

It has always been a tricky balance, getting the right mix of ownership and usage measures to work, to ensure not just free-flowing traffic but also meet the growing aspiration of people to have their own set of wheels. Which is the more effective method for Singapore? Which is the fairer? Is it possible to be both effective and fair? This is not just a matter of transport policy. It is also highly political nature, especially when questions of fairness are raised. Or to put it bluntly, as SM Goh did, should only the rich be able to own cars? You cannot get more political than that.

*Source: The Straits Times, 5 September 2008*

**Extract 4: Centre mulls over pollution permits**

In what could be the first step towards a market-based system of pollution permits, the government plans to roll out a Rs.500-crore online pollution monitoring system across 6,000 industrial sites across the country. The Central Pollution Control Board (CPCB) has been asked to prepare a national action plan for online pollution monitoring based on the model being implemented in Tamil Nadu, according to Union Minister of State for Environment and Forests Jairam Ramesh.

The Tamil Nadu Pollution Control Board launched its Care Air Centre last month to assess real time emissions from factories in the Manali industrial area. Censors have been put in place in the smokestacks, as well as to measure the ambient air around nine plants at Manali, to measure the levels of sulphur dioxide and nitrogen dioxide. The data is transmitted every ten seconds to the Care Air Centre. Mr. Ramesh said that while the system would cover 202 sites in Tamil Nadu by the end of the year, it will be expanded across the country to cover the entire organised industrial sector. It is still being debated who will pay the Rs. 500 crore cost of setting up the system.

However, this system could then be used to power a system of pollution permits, the Minister said. "An inspection-based system is simply not sustainable," said Mr. Ramesh. "If we think we're going to create more and more laws, and put in more and more inspectors on the field and expect companies to comply, it's just not going to happen. In my view, a market-based system is the only solution in the long run."

Michael Greenstone, an Economics professor at the Massachusetts Institute of Technology, suggested that giving companies permits for allowable amounts of pollution and allowing them to trade it would result in much larger reductions at much lower costs. "Since some industries face much higher costs of reducing pollution, they can buy pollution permits in the market from other industries that have a lower cost," he said.

*Source: The Hindu, New Delhi, 24 July 2010*

**Questions**

(a) (i) Using Figure 1, compare the trend of COE prices for Category A and Category B between June 2009 and April 2010. [2]

(ii) With the help of a diagram, explain the impact of the imposition of COE on the price of cars. [4]

(b) With reference to Extract 1, using economic analysis, comment on how traffic congestion affects the allocation of resources within Singapore. [6]

(c) With reference to the data where appropriate, assess the effectiveness of the different policies implemented to solve the problem of traffic congestion and the possibility of government failure in implementing these policies. [10]

(d) With reference to Extract 4, discuss whether Singapore should adopt Michael Greenstone's suggestion to address pollution. [8]

**Suggested Answers**

**(a) (i) Using Figure 1, compare the trend of COE prices for Category A Category B between June 2009 and April 2010. [2]**

Both categories are having an upward/increasing trend.

Cat B is rising faster than Cat A

Note: The fastest period for growth was Jan to Apr 2010 will not be accepted as there's a need to compare a difference.

**(a)(ii) With the help of a diagram, explain the impact of the imposition of COE on the price of cars. [4]**

Imposition of COE will cut the SS of cars being able to be sold.

Since COE is a form of quota it will result in a vertical upper portion of the SS curve

P1

Q0

Q1

P0

Qty of cars

SS0

DD

SS1

Price of cars

**(b)With reference to Extract 1, using economic analysis, comment on how congestion affects the allocation of resources within Singapore. [6]**

Congestion leads to market failure - negative externality

PMB - getting to destination

PMC - petrol, personal time used

PMB=PMC - personal equ 🡪 Qp

SMB= PMB (EMB=0)

EMC = irritate drivers, makes employees and deliveries late, it snarls up

modern "just-in-time" supply chains and it clogs up labour markets by making

commuting difficult. (Ext 1)

SMC = PMC + EMC

SMB=SMC - societal equilibrium 🡪Qs

P0

Qty of Road Usage

Cost/Benefit

QS

QM

SMC

PMC

SMB

DWL

The supply curve reflects only the marginal private cost (PMC). However, there is a negative externality generated from the production of the good. This is reflected as the marginal external cost which is the vertical distance between the PMC and SMC.

As a result of the marginal external cost, the marginal social cost is the higher than the marginal private cost at each output.

The demand curve reflects only the marginal private benefits (PMB) of consumption. Assuming that there is no marginal external benefit (EMB), PMB = SMB.

The allocative efficient or socially optimum quantity, however, is Qs where marginal social benefit is equal to the marginal social cost (SMB=SMC).

In a free market economy driven by self interest and does not consider externalities. Producers thus produce up to the point whereby PMB=PMC, i.e. Qf. As a result, the good is overproduced by QsQf amount under free market forces.

At any output between Qs and Qf, the marginal social cost exceeds the marginal social benefit, and we denote the shaded area to be the deadweight loss (welfare loss).

Analysis 🡪 Over usage of cars 🡪 Welfare Loss of between £7 billion and £8 billion a year. (Ext 1)

**(c) With reference to the data where appropriate, assess the effectiveness of the different policies implemented to solve the problem of traffic congestion and the possibility of government failure in implementing these policies. [10]**

Different policies implemented to solve the problem of congestion in Singapore:

* From Extract 2, para 1, the implementation of a quota system, the Certificate of Entitlement (COEs) - focus is on car ownership.

Analysis of the Problem:

* Volatility in prices - a result of fluctuating demand, changing supply and anticipation by motor traders.
* If the COE prices become too high, then equity issue comes in as the middle class may now find owning a car less affordable and only the rich can own cars 🡪 this may have social and political repercussion
* Compared to the ERP, there is more certainty to the solution of the problem as the government is able to control the supply of COEs or quotas of cars on the road.

Explanation of government failure: Some economists believe that even with good intentions governments seldom get their policy application correct. They can tax, control and regulate but the eventual outcome will be a deepening of the market failure or even worse a new failure may arise.

Possibility of government failure:

* Figure 1 shows that between Jan 2010 and April 2010, there was a sharp rise in prices of COEs (approx. 125% ↑) - implying a lack of proper monitoring of prices by the government, this may lead to equity problem or the power of "special interests" where the government institutions may be responsive to the rich and the welfare of the middle-class is over-looked.

Or

* A tendency to look for short term solutions to economic problems rather than making considered analysis of long term considerations to address structural problems.
* From Extract 4, para 1, line 7, the use of Electronic Road Pricing – a focus on the control car usage.

Analysis of the Problem:

* this is a fairer system, as it allows more people to own a car. (with elaboration)
* but less definite in effect. If PED<1, then the higher cost of ERP at certain gantry may not reduce the number of cars along those roads and hence, not a solution to the congestion problem there.

Possibility of government failure:

* lack of perfect information, poor estimation of the congestion problem at the different places, inaccurate pricing that does not reflect the externalities involved which may cause a deepening market failure, where the congestion may not be eliminated but shifted to other areas.

Evaluative Conclusion:

An assessment of the two policies used would suggests that the best policy for Singapore has to one that involves getting the right mix of ownership and usage measures to work, to ensure that while the congestion on roads is reduced, the inspiration of the people to own cars is not jeopardize.

**(d) With reference to Extract 4, discuss whether Singapore should adopt Michael Greenstone's suggestion to address pollution. [8]**

With reference to the extract discuss whether Singapore should use pollution permits to address market failure in Singapore.

Define tradable pollution permits, system of control by govt that uses both regulations and market-based system to address market failure.

Explain how the govt allows firms to pollute till a particular point, therefore if they exceed said amt of pollution they must buy from the market the "right" to pollute.

1. For firms "Michael Greenstone, an Economics professor at the Massachusetts Institute of Technology, suggested that giving companies permits for allowable amounts of pollution and allowing them to trade it would result in much larger reductions at much lower costs/' This indicates that market system would suit firms as it may allow larger drops in pollution which benefit society as well as lower costs than outright tax which benefit firms

2. Reduce negative externalities – trading allows firms who are naturally pollutive to internalize the externality so they will strive to find ways to keep pollution low if they want to avoid costs to production.

3. Also from extract " It is still being debated who will pay the Rs. 500 crore cost of setting up the system/' In Singapore finite size of industrial size means costs would be lower and govt may use pollution permits to bankroll cost of monitoring set up, very similar to COE for cars

Regulated market means govt can manage and control process so no indiscriminate pollution takes place-some management over nature of pollution.

However,

4. A condition for the system to work is that the permits need be very high and costly. So may affect revenue of firms here-given open nature of economy may stifle competitiveness and attraction for foreign firms

5. May lead to concentration of pollution in certain areas-hazardous to land scarce Singapore esp if close to urban centres i.e. Jurong etc

6. Pollution legislation affected by political process, may not be case in diff election cycle. Singapore govt may not be keen to signal cost hikes to firms

Evaluative Conclusion

Pollution permits would definitely address the problem but the state must be mindful that the pros outweigh the cons of the permits. Simultaneously govt should also use other policies in conjunction with permits to reduce market failure to ensure best mix of policies is used.