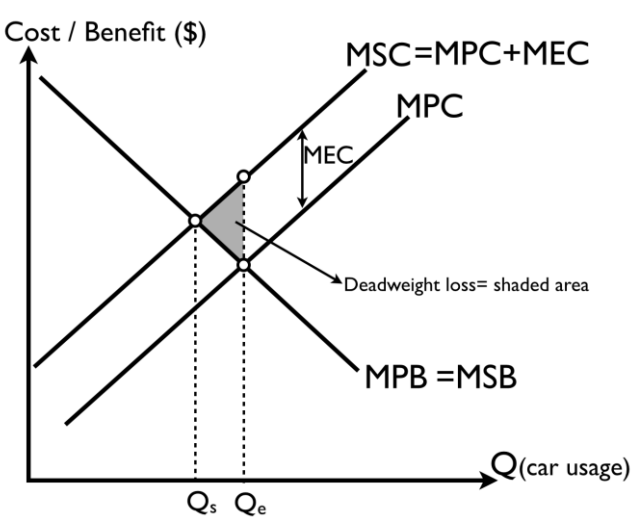


2014 PJC H1 Prelim Suggested Answer for Case Qn 1: Battling with congestion – a tale of 2 cities

a)	Consider whether the information in Tables 1 and 2 suggests that there is a stable relationship between GDP growth and growth in passenger car registrations.	[2]
	<p><u>Suggested answer:</u> In most years, there is a direct relationship (1) Except UK 2011 there is an inverse / negative rship (1) Thus there is a stable direct rship in most years for both countries (1).</p>	
b)	i) Describe the change in passenger car registrations in China from 2011 to 2013.	[2]
	<p><u>Suggested answers:</u> Change for passenger car registration increase at increasing rate.</p>	
	ii) Despite the implementation of government policies to control car ownership in major cities, growth of passenger car registrations remains positive. Using demand and supply analysis, examine the reasons for the above change in passenger car registrations from 2011 to 2013.	[4]
	<p><u>Suggested answers:</u> Possible factors that led to an increase in DD: 1. Increase in income due to rising economic growth → increase in purchasing power → cars are a normal good → increase income → an increase in DD for cars. 2. Increase in population → DD increase for car ownership</p> <p>Possible factors that led to a change in SS: 1. Govt policies → restrictions placed on car growth → fall in growth of passenger car registrations → fall in SS 2. Opening up of new car manufacturing plants China → increase in production of cars → increase in SS.</p> <p>Hence, overall DD increase > fall in SS → increase in qty of passenger cars or that DD increase + SS increase → increase in qty of passenger cars</p> <p>Explain why increase <u>at increasing rate</u> → need to explain the limits of the govt policy to curb car growth → Govt policies restricted to a few cities → SS may not have fallen but increase at a slower rate → combine with increase in DD, Qty of cars → thus increase at increasing rate.</p>	
c)	Explain how, for the UK, ‘the efficient movement of people and commerce across our road networks is essential to fostering a healthy, vibrant economy.’	[4]
	<p><u>Suggested answer:</u> (Possible approaches) Efficient movement of people and commerce (deliveries) reduces travel and delivery costs for firms, boosts productivity and reduces cost of production. –COP / + labour pdty → AS shift down + right → reducing cost-push inflation (firms pass on cost savings) → eqb GDP+, Yf+ (boosts actual and potential growth)</p>	

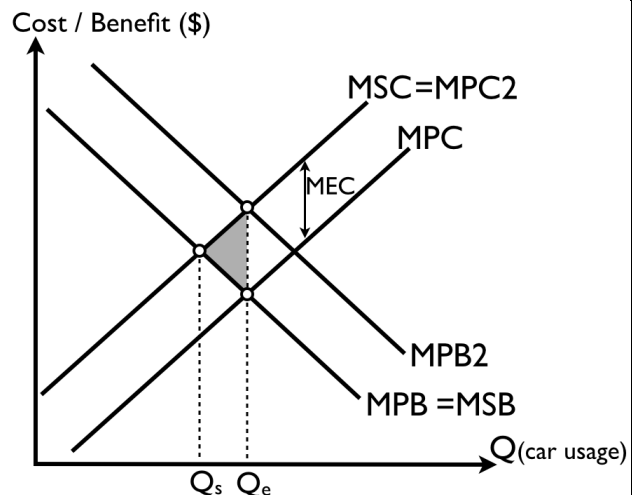
	<p>→ X more competitive (P fall) → $+(X-M)$ → AD+ → actual growth / reduce UnN → improve current acct → improve BOP</p> <p>→ attract FDI with lower COP (+profitability) → I+ → AD+ (SR), AS+ (LR) → Actual and potential EG.</p>	
d)	<p>ii) Explain the likely value of price elasticity of demand for cars in China given that customers have “limited earnings relative to the car prices”.</p>	[2]
	<p><u>Suggested answers:</u> Identify that PED >1 for demand of cars. PED >1 → cars large proportion of their income</p>	
	<p>iii) Explain how the knowledge of PED is useful to a car manufacturer such as GM</p>	[2]
	<p><u>Suggested answers:</u> When PED >1 → reduce prices → more than proportionate increase in quantity demanded → higher sales revenue for the car manufacturers.</p>	
e)	<p>Explain the rationale for government intervention in the use of car in cities.</p>	[6]
	<p><u>Suggested answer:</u> When using cars, drivers / car owners only consider their own marginal private costs (MPC) and marginal private benefits (MPB). The MPC include fuel costs and MPB to the driver is the convenience and being able to get to work (in the city of London). Thus they use cars at Q_e, where $MPC=MPB$ to maximize their own welfare.</p> <p>Drivers ignore the marginal external costs (MEC) from the use of cars, where air and noise pollution and congestion affects 3rd parties, such as those living near the congested roads (health costs rise with pollution) or those taking buses (time costs rise with congestion). The presence of MEC causes a divergence between MPC and MSC as $MSC=MPC+MEC$.</p> <p>The socially optimal level occurs where $MSC = MSB$, at Q_s, and since Q_s is less than Q_e, there is an overconsumption of cars (too much car usage in cities), and society's welfare can be improved and maximized if less cars are used, and there is a deadweight loss of the shaded area. Due to this market failure, the government should intervene in this area.</p> 	
f)	<p>Based on the experience of London and Singapore, discuss the policy options Beijing should adopt to reduce congestion?</p>	[8]

Suggested answer:

Intro

Traffic congestion is a problem due to the overuse of cars in cities (as explained in c (i)), and the Chinese government can implement a variety of policies that shift demand or supply of road usage in Beijing. The UK government has used a variety of policies and we will examine the policy options in this essay.

Beijing can use market based policies, such as the congestion charge, where drivers must pay the congestion charge in order to drive into the city, and this increases the MPC faced by drivers in the use of their cars on city roads. The MPC shifts upwards to MPC2 and will coincide with MSC (MPC2=MSC), assuming the congestion charge is exactly equal to MEC. Drivers now will consider MPC2=MPB and use cars up to Q_s , which is the socially optimal level. Thus a congestion charge can help to reduce the deadweight loss and bring about efficiency, reducing traffic congestion.



However, the experience of UK suggests that there are other factors affecting the demand for road usage that could cause congestion to worsen again. With a rising population and rising income, more people in China and Beijing are buying cars since cars are normal / luxury goods and the demand rises with a rise in income. The rise in the number of car owners will increase the demand for car and road usage in cities. Graphically, this means a rightward shift of MPB (dd) to MPB2, and the new equilibrium where $MPB2=MPC2$ will be at Q_e , showing again the problem of overuse of cars in cities, resulting in congestion again. That said, this policy can raise revenues for the Chinese government, allowing her to spend on other policies which could influence the demand for road usage by cars, such as developing the bicycle network or developing the public transport network further.

By investing in public transport, or bicycles (non market based policy), like the UK and Singapore, China can ensure there are alternatives (substitutes) that commuters can utilize to get to work in Beijing. With a greater number of substitutes, and if these substitutes are made more convenient and pleasant (i.e. no need to squeeze in trains), commuters will be more willing to switch to use public transport or bicycles (with ample parking spaces, and a cheap and convenient shared bike network). This reduces the demand for car / road usage in cities, hence shifting the MPB leftwards from MPB2 back to MPB. This can help to alleviate the traffic congestion since a fall in demand reduces the social equilibrium quantity and with less road usage, congestion can be reduced in Beijing. While this may create a burden on the government budget, given that the amounts of money spent will likely be large, the cost savings to the Chinese economy may be significant enough to warrant such spending, and it may boost the economy of China, helping to generate more tax revenues for the government to offset this spending.

Conclusion:

Beijing must use a combination of policies to manage both the cost as well as the

	<p>demand for using cars on city roads, as London's example shows that a congestion charge is not enough, and even with alternatives, congestion is still a problem. She must weigh the various policy options and approaches.</p> <p><i>Alternative: *if candidates choose to bring in the COE system in that Singapore implemented.</i></p> <p>Beijing can choose to improve the current measures that it has implemented. Beijing has implemented a quota system to curb its growth of cars but yet has failed to effectively curb the desire for cars. This might be due to the fact the quota system only limits the number of cars on the road but does not allow consumers to internalize the cost that congestion occurs to others. Thus, potential car owners may continue to bid for a car permit without taking into account of the cost it incurs to others. Hence, to effectively curb the demand for cars, the Beijing government can choose to implement the COE system where the true cost of car ownership is being taken into account. Under the COE system, car permits are awarded to the highest bidder thus only consumers that are most willing and able to consume are able to afford a car. Through bidding of the car permits, consumers are also taking into account of the cost of congestion, thus raising the cost of car ownership. This would shift MPC towards MSC and thus reduce car usage to the social optimal level.</p>	
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