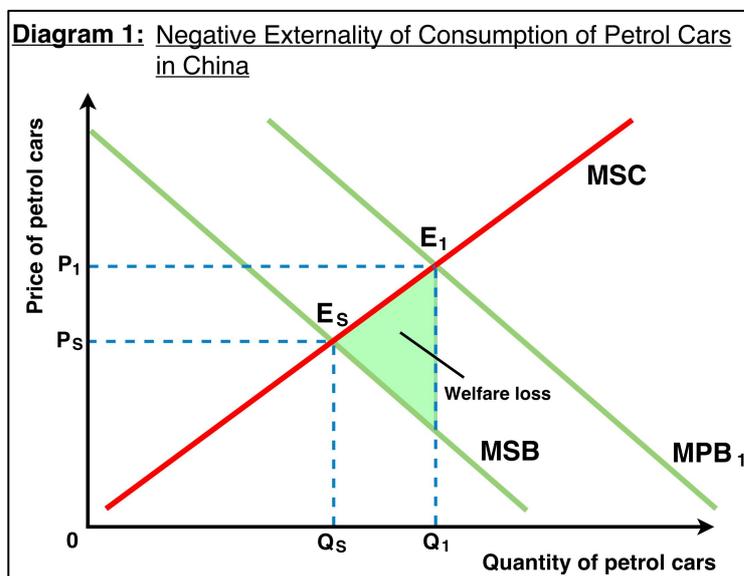


## Commentary 1<sup>1</sup>: “China looks for blue-sky solutions as smog worsens”<sup>2</sup>

In China smog, the pollution of the air, is getting worse and worse. “Beijingers are once again choking as smog levels hit ‘heavy or even worse’ levels in the capital”<sup>3</sup>. This is mainly caused by the negative externalities of production of coal-burning factories and the negative externality of consumption of driving a car. A negative externality of production (or consumption) occurs when producing (or consuming) a good creates external costs to a third party. In this case the third party is firstly the environment and secondly the local people who suffer diseases due to the air pollution. Therefore Beijing is trying to reduce that problem by putting subsidies on electric vehicles. A subsidy is a payment made by governments to firms to encourage an increase in output and a decrease in price. The commentary focuses on the syllabus section 1.4.

The negative externality of consumption of petrol cars, shown by the gap between marginal social benefit (MSB) and marginal private benefit (MPB), is shown on Diagram 1.



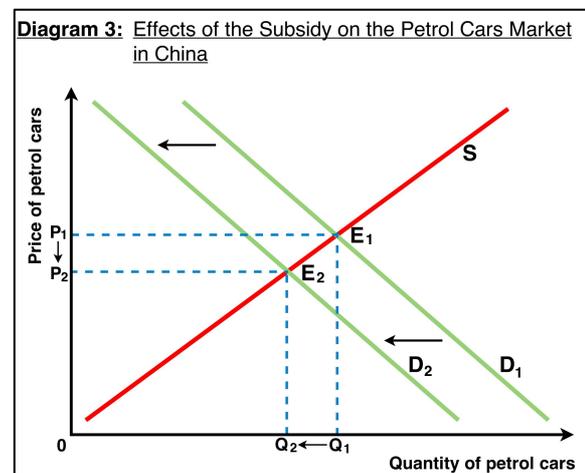
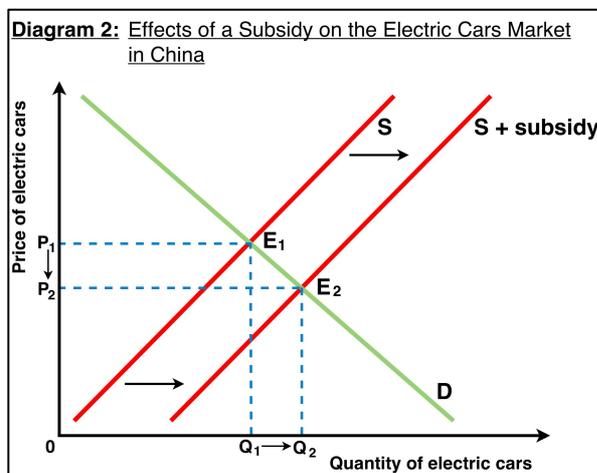
<sup>1</sup> This IA was awarded 14/14 marks: A=3 B=2 C=2 D=3E=4. Total awarded by IBO 42/45 (Raw = 43/45).

<sup>2</sup> McKirdy, Euan. "China Looks for Blue-sky Solutions as Smog Worsens - CNN.com." *CNN*. Cable News Network, 25 Feb. 2014. Web. 06 Mar. 2014.  
<http://edition.cnn.com/2014/02/24/world/asia/beijing-smog-solutions/>

<sup>3</sup> Ibid. p.3

People who are driving their car are creating external costs to the environment and to local people suffering diseases as “heavy smog routinely blankets the capital, all but blotting out the sun and forcing residents inside”<sup>4</sup>. The existence of a free market leads to the consumption of quantity  $Q_1$ , where  $MSC$  (marginal social cost) =  $MPB_1$  at which consumers maximise their private utility. However, the socially efficient level of output is  $Q_s$ , which means there is an overconsumption of  $Q_1 - Q_s$ . There is a welfare loss to society, which is shown by the green triangle. Welfare loss is defined as the costs to society created in imperfect markets.

To reduce the welfare loss and the negative externality of consumptions of petrol cars, the “government has also improved the case for electric vehicles (EVs) by granting subsidies”<sup>5</sup>. A subsidy on the electric cars market, would lead to a shift in supply to the right as shown on Diagram 2, since more cars can be supplied at every price *ceteris paribus*. This means there is a new equilibrium at point  $E_2$ . At this equilibrium, there is a decrease in price from  $P_1$  to  $P_2$  and an increase in quantity from  $Q_1$  to  $Q_2$ , which leads to a decrease in demand for petrol cars, because electric cars and petrol cars are substitutes. This is shown on Diagram 3. Now less petrol cars are demanded at every price, since more people buy electric cars. Therefore a new equilibrium has been reached at  $E_2$ . The quantity of petrol cars has decreased from  $Q_1$  to  $Q_2$ .

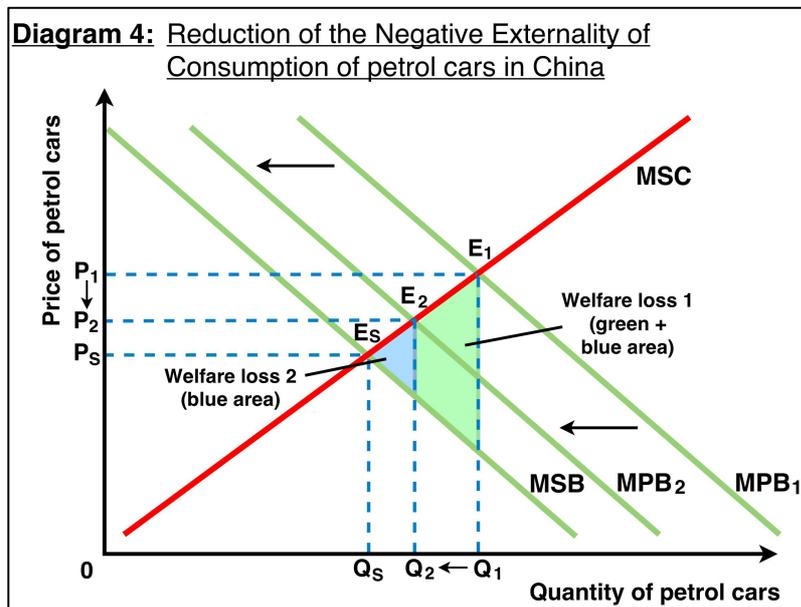


This shift in demand can also be shown on a social diagram for petrol cars (Diagram 4). The  $MPB$  lines represent the demand curves on a market diagram. The shift of the  $MPB$  line from  $MPB_1$  to  $MPB_2$  caused a new equilibrium  $E_2$ , at which the quantity  $Q_2$  is lower than the previous quantity  $Q_1$ . The welfare loss has also been decreased from the blue and green area (Welfare loss 1) to just the blue area (Welfare loss 2). This decrease of the quantity and the

<sup>4</sup> Ibid.

<sup>5</sup> Ibid. p.5

reduction of the welfare loss is the reason the government is planning on putting subsidies on electric cars.



There are also some disadvantages of the decision to subsidise the electric cars market. Firstly, the government has less money to spend on things such as health care or education, which is also necessary in China. Secondly, the firms selling petrol cars are losing revenue and therefore also profits. As a consequence, they might fire some of their workers to lower the firms' costs and increase their profits.

An evaluation of the plan to put a subsidy on electric cars shows it is an effective way to reduce air pollution because the subsidy decreases the output and the negative externality of production of petrol cars without having many disadvantages. Externalities are an effective economic theory to analyse the external costs on the environment and local people, since they clearly show the decrease in welfare loss. However, putting a subsidy on electric cars alone is not enough to effectively reduce smog. If the government does not want an air pollution index "of over 400"<sup>6</sup>, then it must look for ways to reduce air pollution coming from factories. This could be done for example by taxing the polluting firms. This way the firms' private costs rise and the output and therefore also the pollution level falls.

Word count: 742

<sup>6</sup> Ibid. p.3

