Question 1:

Suppose that the demand curve derived from marginal benefit associated with a consumption of chocolate is 360 – 4Q and the marginal cost of chocolate production is 6Q. The marginal damage from pollutions generated by chocolate production is 2Q

a) Find the social optimum or efficient production level (P*, Q*)
b) Find the private equilibrium price and quantity when external costs could be ignored by firms
c) What tax level should be set to achieve the efficient/social optimal
d) Calculate deadweight loss from externalities in this case
e) Drawing a graph to illustrate the result from a) to d)

$D = 360 - 4Q \qquad MC_p = 6Q \qquad MC_s = 6Q + 2Q = 8Q$

a) $P = MC_s$

$360 - 4Q = 8Q$

$360 = 12Q$

$30 = Q^* \#$

$P^* = 360 - 4(30) = 240 \#$

b) $P = MC_p$

$360 - 4Q = 6Q$

$360 = 10Q$

$Q_p = 36 \#$

$P_p = 360 - 4(36) = 216 \#$

c) $tax = (MP_s - MP_c)$

$= (8Q - 6Q)$

$= 2Q$

$= 2(30)$

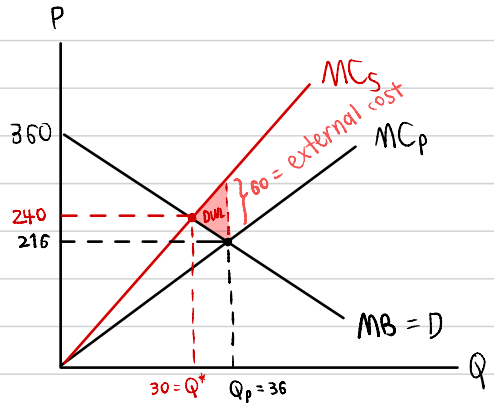
$= 60 \#$

d) $DWL = \frac{1}{2} \times base \times height$

$= \frac{1}{2} \times 60 \times 6$

$= 180 \#$

e)



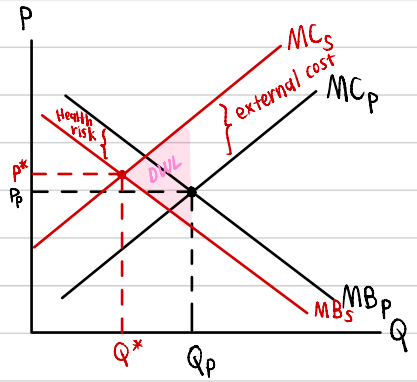
Question 2:

The production of cigarettes increases water pollutions while the consumption of cigarettes can put their neighbors at health risks (Hint: Impact on social marginal benefits as a whole)

a) Explain how externalities in this case create inefficiencies in the cigarette market and draw a graph to illustrate your explanation, including the market equilibrium for cigarettes at i) socially optimal level, P* and Q*; ii) private optimal level (P_p and Q_p) when externalities are not internalized by both firms and consumers and; iii) the deadweight loss area.

b) What policies could be considered to reduce deadweight loss in this case and describe the effects of such policies in the cigarette market.

a)



In this case of cigarettes market, the firm produces at Qp with price at Pp because it doesn't consider the externalities to society as water pollution. However, if we take negative external cost of water pollution into account, the MCp will shift to the left to MCs. As for the consumption, consumers don't consider about the health risk, so it causes MBp shifts left to MBs. Therefore, to achieve social optimal allocation, the firm should produce at Q* and set the price at P*. The deadweight loss to the society is the pink area on the graph.

b) To reduce deadweight loss, the government should impose tax on cigarettes, leading to reduce production and consumption because the cost to produce will be higher as well as the price to sell.

Members

Narawadee	Sittipanya	6404640390
Panthita	Akesirikulsub	6404640614
Rattapin	Chandrubeksa	6404640960
Patcharaluck	Chaowut	6404640689
Apichaya	Suputhayothin	6404640028
Nuttarika	Chatratichart	