Quiz 1

(5 points)

Time: 10 September 2021 at 15:00-15:30 (30 minutes)

There are 2 questions. You need to answer all questions. Please **submit** your answers in a PDF file with a file name "**Quiz1_StudentID_Name**" via BE Moodle class before **15:40**.

Question 1 (3 points)

Case A: The production of a plastic factory 'K Chemical' is located nearby a house village 'Dreamland'. If the production of the plastic factory reaches a certain level at Qm, it will release air pollutions to the level that destroy clean air around the Dreamland village. However, if the production of the plastic factory does not exceed Qm, it will create no significant impact for people living in the Dreamland village.

Case B: In Thailand, the CO_2 emissions from oil consumption in transport sector increased from 51 million tons of CO_2 in 2008 to about 63 million tons of CO_2 in 2018.

Please answer the following questions for both Case A and Case B above

i. Does an externality exist? If so, classify the externality type (e.g., positive vs. negative, costs vs. benefits) and explain how inefficiency problems could arise in this case.
ii. If an externality exists, could the Coase Theorem be applied to solve market inefficiencies in this case? Please explain your answer (Hint: is it possible to use property right rules and solve the problem?)
iii. If the Coase Theorem does not apply, what the government could do to solve the problem?

Question 2 (2 points)

Suppose an investor is considering a wind farm project to produce electricity. The wind farm will create noises that affect people living in a house village Dreamland.

i. How could you estimate the compensation amount for people living in the Dreamland to approve the wind-farm construction? (Hint: Choose WTP vs. WTA question, methods to estimate WTP and WTA).
ii. What should be considered in the cost-benefit analysis to decide if the wind farm project should be built or not?

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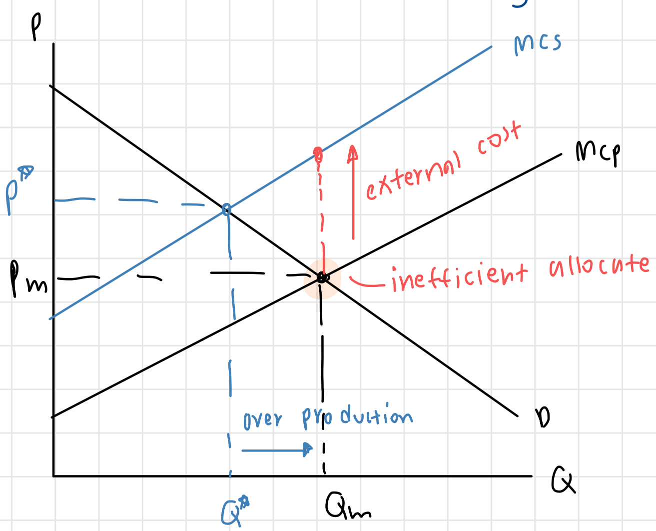
i.) In case A

If plastic factory produces at Qm, it will create external cost to to the society, which is destory clean air around the Dreamland village.

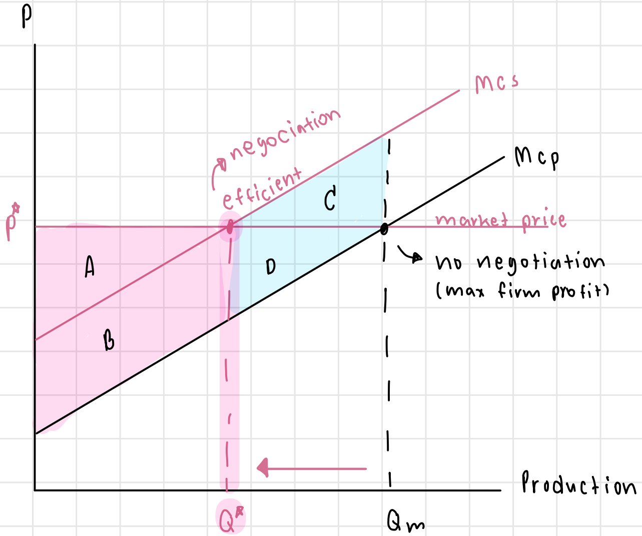
In case B

With the higher level of CO_2 emissions increase, it will create external cost to the society as well.



ii.) I will use property right rule! (in both case)

↳ if the property right is assigned to plastic factory



* Plastic factory can release the air pollution

↳ the Dreamland village need to negotiate with Plastic factory that Dreamland village will pay compensate to Plastic factory C + D, so Plastic factory will reduce the production from Qm to Q^*.

- If Plastic factory accept the negotiation cost.
  ↳ produce at Q^*, it will get producer surplus A + B and also C + D for compensation.
- If Plastic factory not accept
  ↳ get only A + B + D ⟶ loss C! (worse off)

∴ No matter the right belong to but after the negotiation, the efficient level will be achieved

iii). Putting a cap : restrict production of both firms!
Putting a price : Impove tax on both firms.
Establising rules : separate production area.

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ii. What should be considered in the cost-benefit analysis to decide if the wind farm project should be built or not?

i.) Use Stated - preference approaches (SP)

- contingent valuation method (CVM)

→ Ask respondents (people in Dreamland village directly about WTA.
ex. what are WTP if we plan to produce more electricity.

ex. would you accept X amount ?

sum of benefit every period

sum of cost every period

ii.) NPV factor !

$$NPV = \sum_{t>0}^{n} \frac{\text{Benefit}}{(1+i)^t} - \frac{\Sigma \text{ cost}_t}{(1+i)^t}$$

If NPV > 0 project will accept ✓

If NPV < 0 project will not accept ✗