

Instructions

- (1) Please read the instruction carefully. Also take this habit with you into the exam room.
- (2) Please read each question carefully and answer the questions straightforwardly. Always provide economic reasons at least a paragraph for your analysis, or a graph when necessary, even when the question does not indicate so.
- (3) Handing and submitting assignments are only available via BE Moodle.

Answering the questions and preparing answer sheets

- (1) Answers are to be handwritten, in either digital or analog form, in a blank canvas or any clean paper. Make sure that your handwriting is clearly visible and readable.
- (2) There is no need to rewrite the question. Just indicate the question number clearly for each of the answer, such as 1.a).
- (3) When done, for the digital case, collage all the pages into a single PDF file. For those who write on sheets of paper, take photo of all pages then convert all of them into a single PDF file as well.
- (4) **Name your PDF file as StudentID_YourNickname, such as 640123456_Bo.**

Submitting your answers

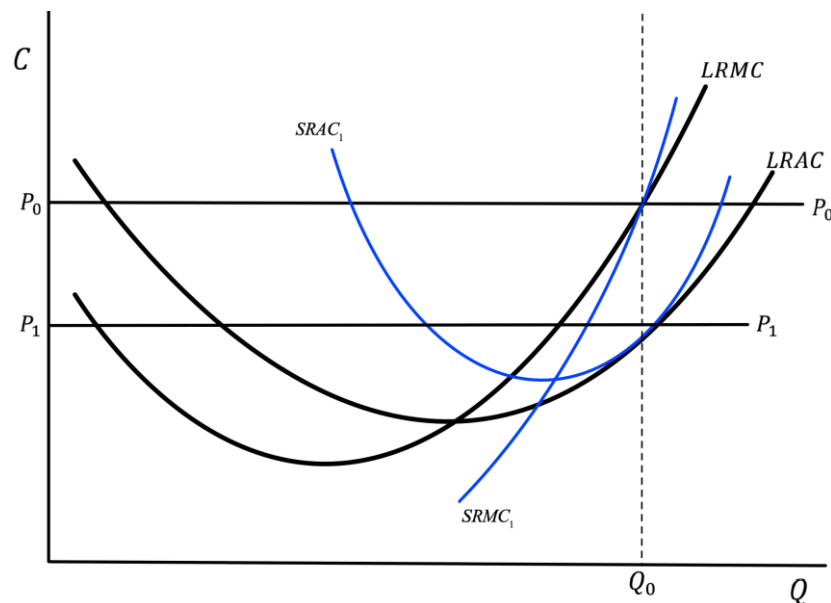
- (1) Make sure your file does not exceed 10MB. This is the maximum file size for BE Moodle upload.
- (2) Login to BE Moodle, head into the course, then the assignment topic.
- (3) Choose your file to submit. Done. There will be timestamp for your upload date and time, so please make sure to not submit later than that.

1. Two COVID-19 vaccines are available in Thailand, Sinovac and Pfizer priced at \$20 and \$40 respectively. Assumed that both vaccines are substitutes, answer the following questions clearly.

1.a) Draw a budget line for these two when a consumer has \$40 and indicate all the essential information on the graph, given that Sinovac is displayed on the horizontal axis while Pfizer is on the vertical axis.

1.b) If a consumer sees that Sinovac is an inferior good while Pfizer is a normal good and Sinovac price is slashed by a half, analyze how consumer's equilibrium changes disaggregating price effect into substitution effect and income effect and explain.

2. In a perfectly competitive market, suppose that every firm is in a long-run equilibrium where each firm receives an excess profit at a market equilibrium price P_0 and produces Q_0 as shown in the graph below.



2.a) If the market equilibrium price decreases to P_1 , in the short run according to the given Short-Run cost curves $SRAC_1$ and $SRMC_1$, find the new Short-Run equilibrium quantity Q_1 and profit of the firm. State the equilibrium conditions.

2.b) Show that at the new Short-Run equilibrium quantity Q_1 , the profit earned according to the Long-Run cost curves $LRAC$ at Q_1 and price P_1 is higher than the profit in Short-Run found in 2.a).

2.c) According to the Long-Run cost curves $LRAC$ and $LRMC$, find the equilibrium quantity the firm wants to produce at the new lower price P_1 , when there is no new seller entering the market. State the equilibrium conditions.

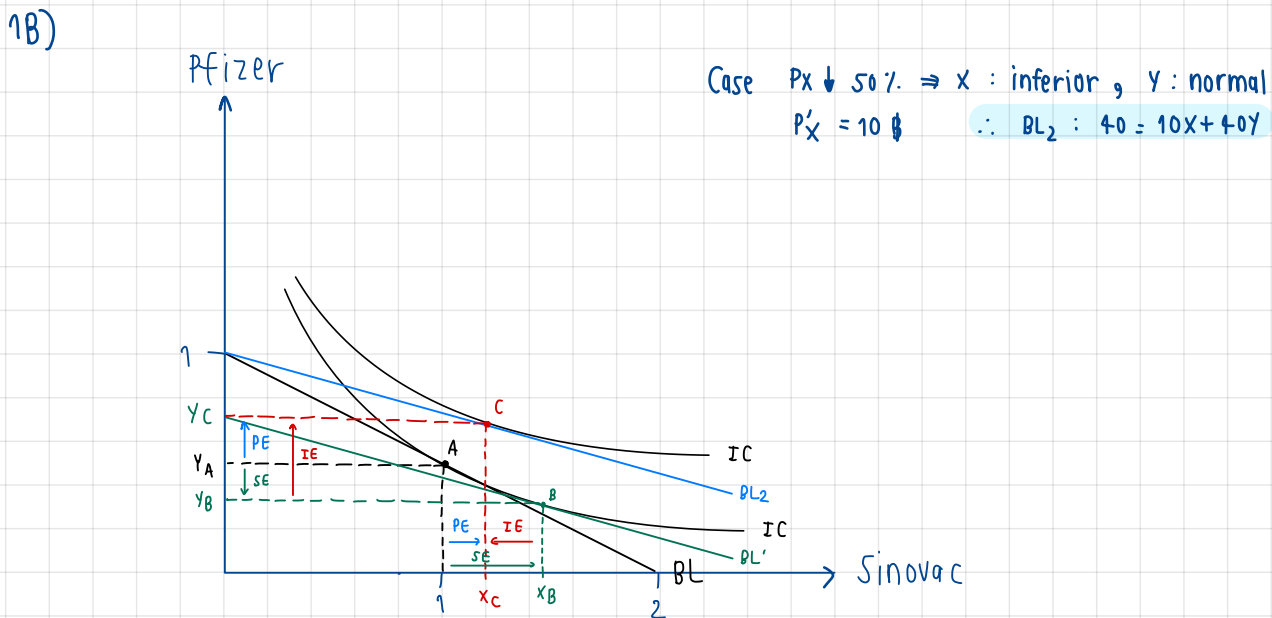
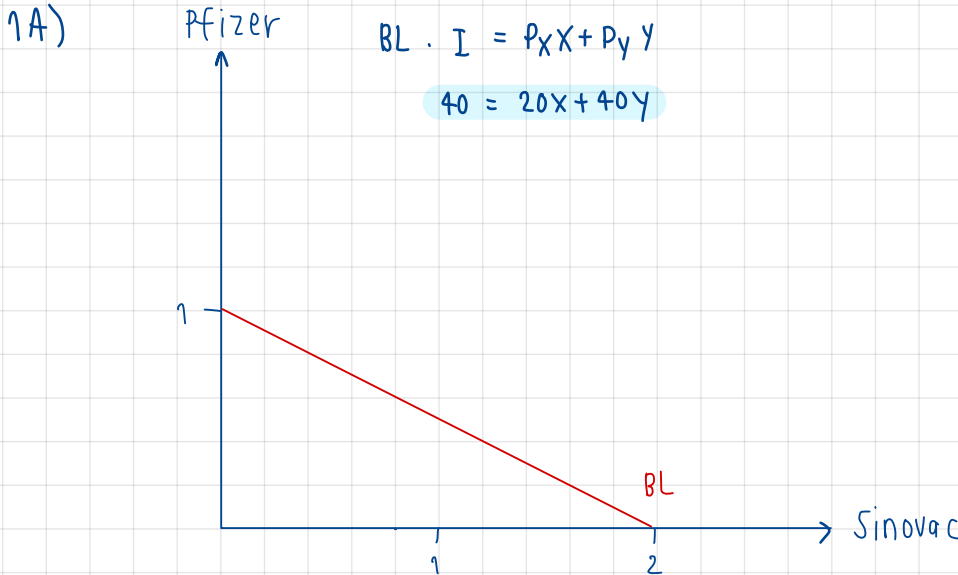
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$I \uparrow Q \downarrow$

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1.b) If a consumer sees that Sinovac is an inferior good while Pfizer is a normal good and Sinovac price is slashed by a half, analyze how consumer's equilibrium changes disaggregating price effect into substitution effect and income effect and explain.

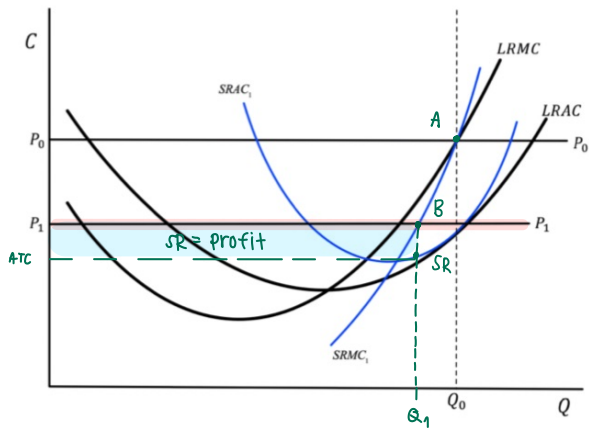


(1) SE : when $P_x \downarrow$: consumer \uparrow X substitute by \downarrow Y unit \cup constant

(2) IE : when $P_x \downarrow$: purchasing power \uparrow ($I \uparrow$) \Rightarrow X \downarrow (inferior goods)
 \Rightarrow Y \uparrow (normal goods)

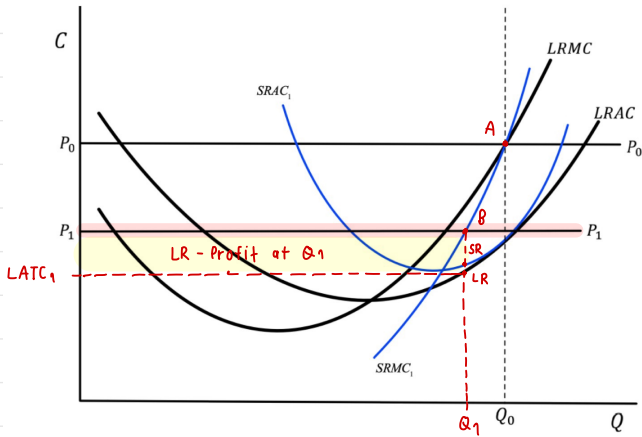
(3) PE : when $P_x \downarrow$: consumer will \uparrow X as an ordinary goods
 \uparrow Y as a complement goods of X

2A)



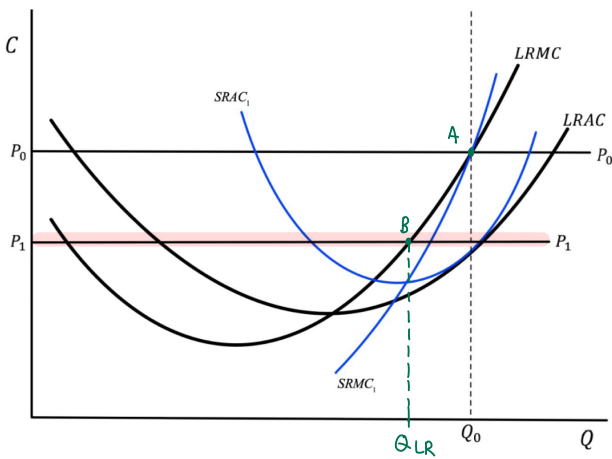
Condition : $MR_1 = P_1 = MC$

2B)

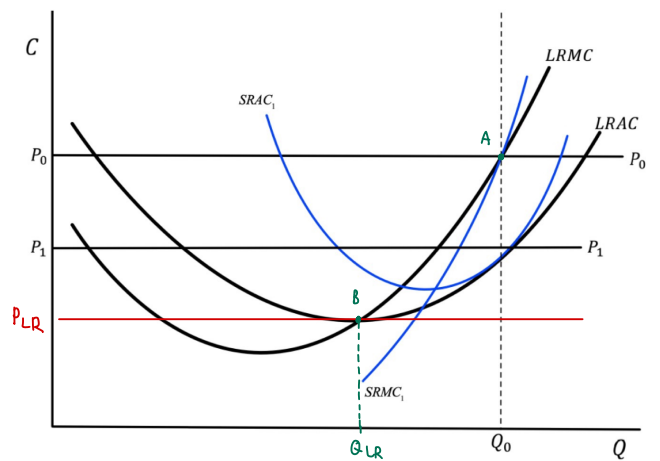


2C)

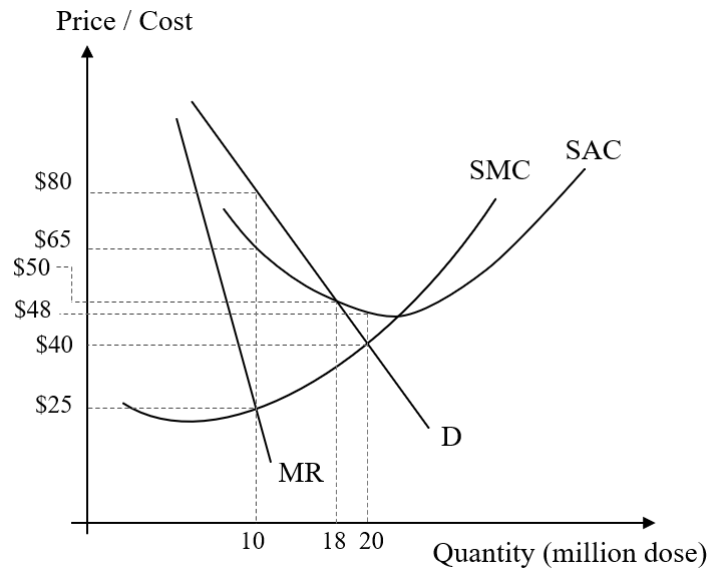
LR-equilibrium at P1



PLR when no firm enter the market

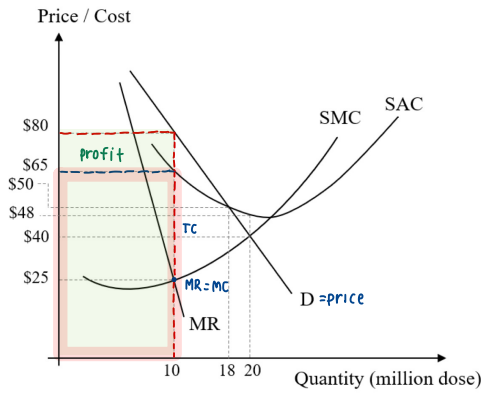


3. Thai government decides to import vaccines from J&J through the Government Pharmaceutical Organization (GPO). Supposed that GPO can act as a private monopoly firm, demand, revenue and cost of importing are displayed in the following graph in USD. Note that a single dose of J&J vaccine is sufficient to immunize COVID-19. Answer the following questions clearly.



- 3.a) If GPO wants to maximize profit, how many million doses should they import and at which price can be sold for each dose?
- 3.b) According to 3.a), how much is the total profit that GPO receives in million USD?
- 3.c) If the government decides to intervene and set a fair price, how many million doses GPO needs to import and how much the price to be set?
- 3.d) To achieve herd immunity with a new strategy, the target number of people privately vaccinated is 20 million people. How much **for a dose** that each person pays for the vaccine and how much does the government should subsidize **in total**?

3A)



MR=MC (maximize profit) $Q=10$, $P=10$

↳ 10 million dose, price 80 dollars

3B)

$$TR = P \cdot Q$$

$$TR = 80 \times 10$$

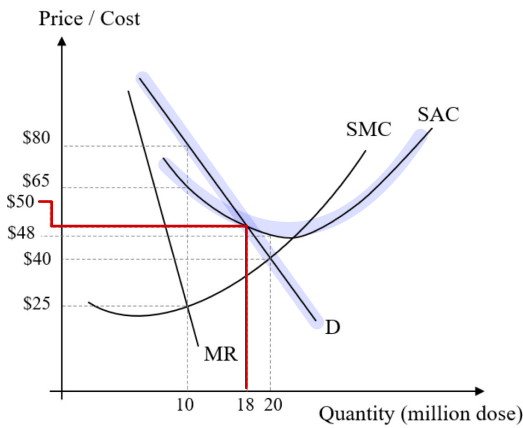
$$TR = 800 \text{ M}$$

$$AC = 65 \text{ \$ per unit}$$

$$TC = 65 \times 10 = 650 \text{ M}$$

$$\therefore \text{Profit} = 800 - 650 = 150 \text{ M} *$$

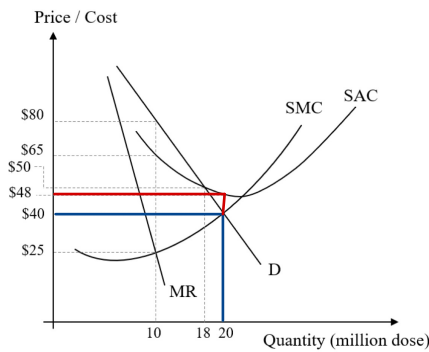
3C)



\therefore Fair price = 50 dollars

18 million doses *

3D)



$P=40$ dollars

$AC=48$

$$\text{margin} = 48 - 40 = 8 \text{ \$ /dose}$$

\therefore subsidize for $8 \times 20 = 160$ million dollars *