

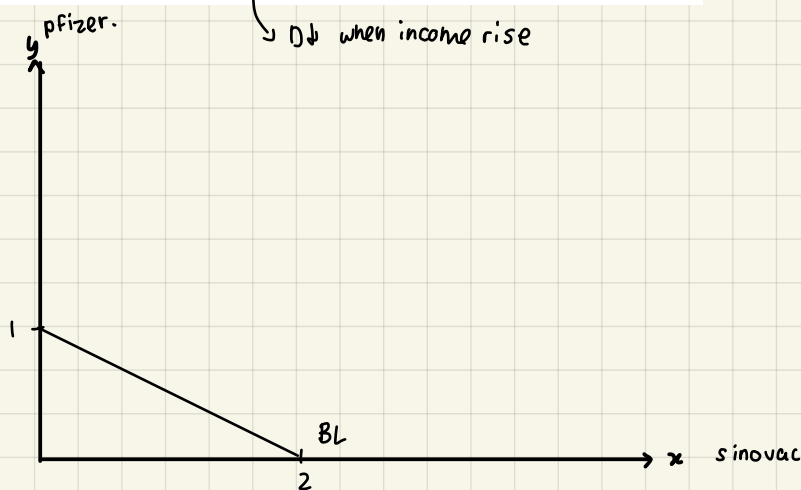
1. Two COVID-19 vaccines are available in Thailand, Sinovac and Pfizer priced at \$20 and \$40 respectively. Assumed that both vaccines are substitutes, answer the following questions clearly.

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.

Sinovac \$20
Pfizer \$40

① a)



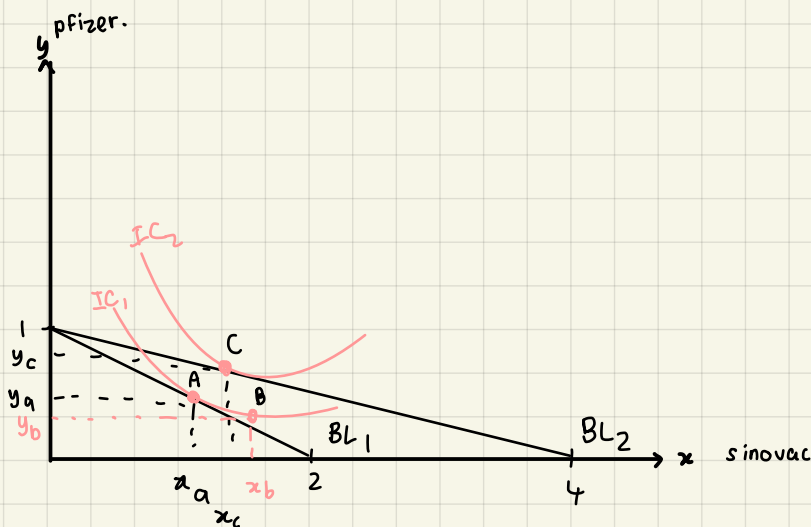
$$I = P_x \cdot x + P_y \cdot y$$

$$40 = 20x + 40y$$

If $x=0$; $y=1$
 $y=0$; $x=2$

b)

$P_{\text{Sinovac}} \downarrow \10



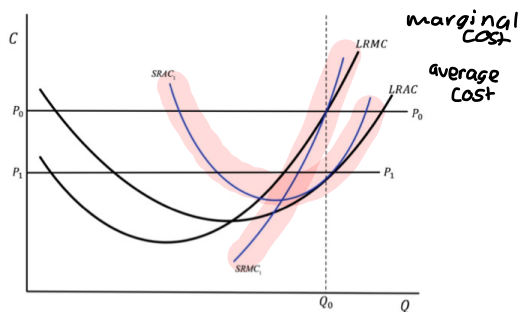
$$40 = 10x + 40y$$

$x=0$; $y=1$
 $y=0$; $x=4$

	x	y
SE	$x_a \rightarrow x_b (+)$	$y_a \rightarrow y_b (-)$
IE	$x_b \rightarrow x_c (-)$	$y_b \rightarrow y_c (+)$
PE	$x_a \rightarrow x_c (+)$	$y_a \rightarrow y_c (+)$

The 2nd budget line will be extended in x axis from 2 to 4.
the consumer equilibrium will be move towards the upper right.
The SE must be larger than IE and IE must be negative for Sinovac.
In terms of income effect, the consumer is considered to be richer as the price of Sinovac drops because they gain purchasing power.
Therefore, the consumer will buy less of Sinovac.

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.



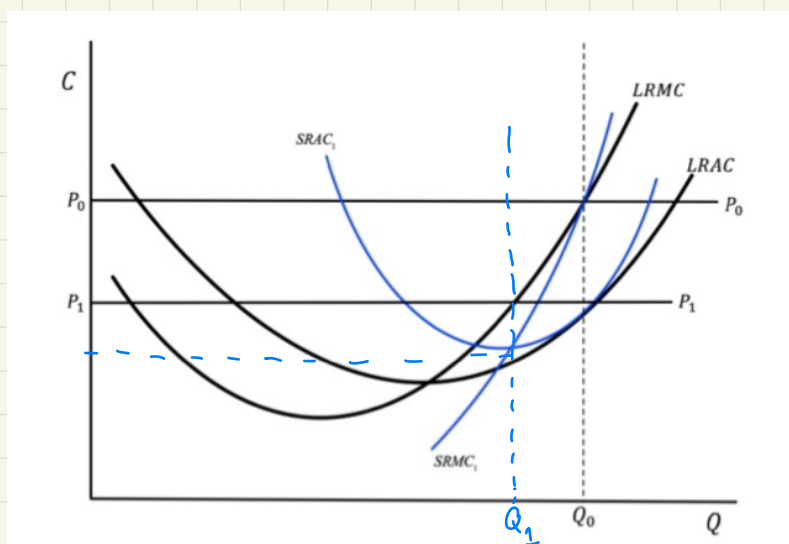
2.a) If the market equilibrium price decreases to P_1 , in the short run according to the given Short-Run cost curves $SRAC_1$ and $SRMC_1$, find the new Short-Run equilibrium quantity Q_1 and profit of the firm. State the equilibrium conditions.

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.

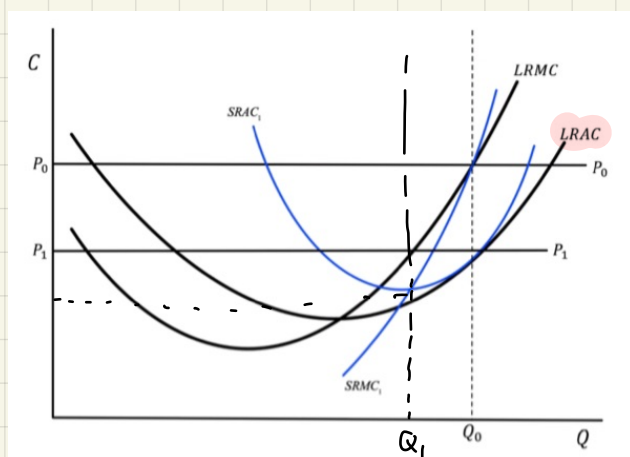
②

a)



short-run equilibrium quantity Q_1 is when $SRAC_1$ and $SRMC_1$ intersect or equals to each other.

b)



3a)

$MR = MC$

GPO should import 16 million doses for \$25 each