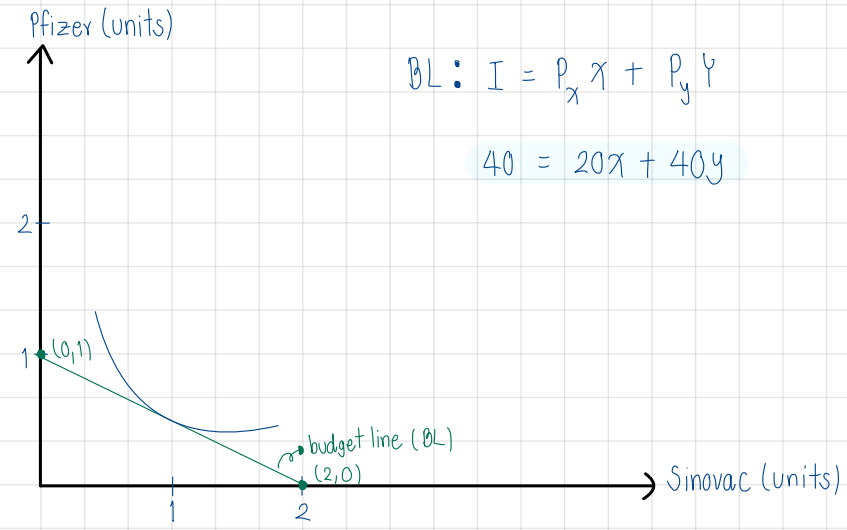
Assignment 3

1. a)



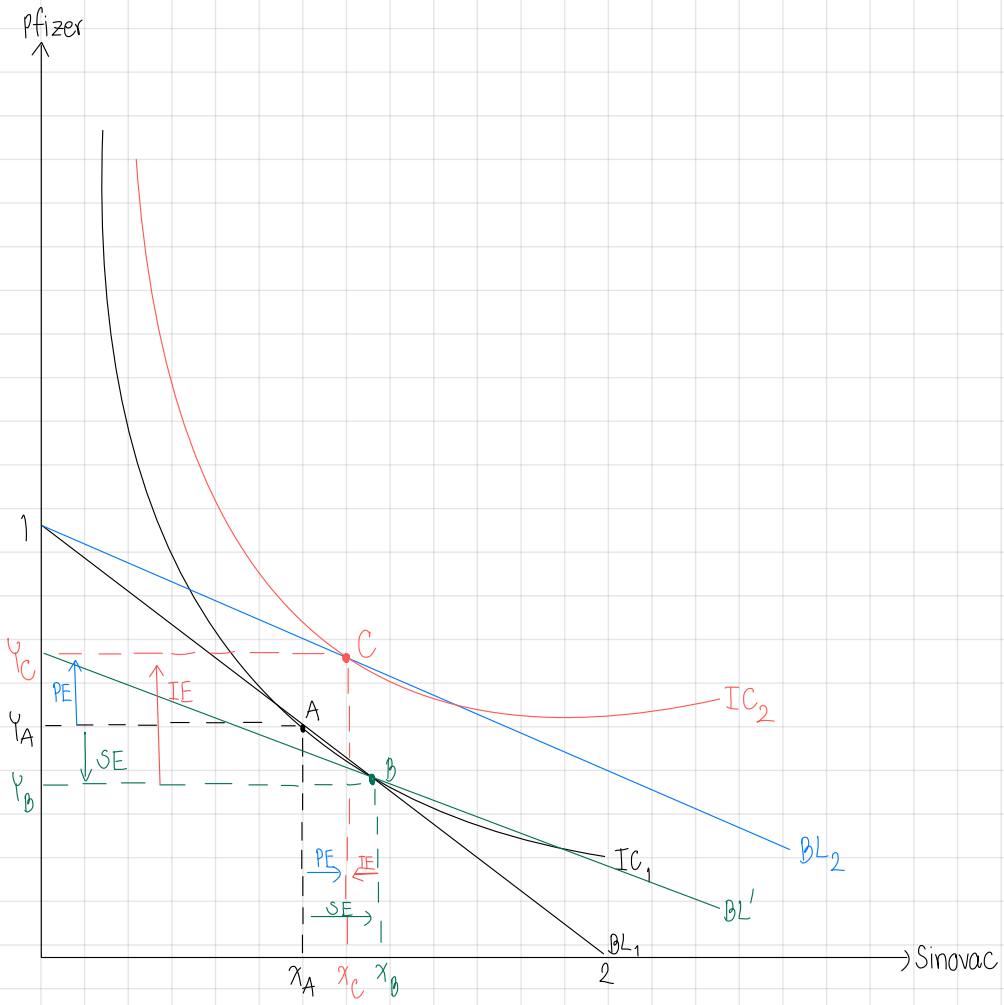
BL : $I = P_x x + P_y y$

$40 = 20x + 40y$

Assume that this Sinovac and Pfizer are not perfect substitution, so the indifference curve will be a convex shape.

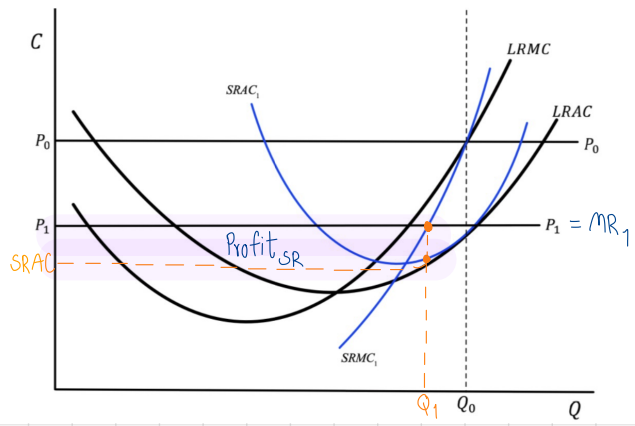
1.b) P_x decrease by half from 20 => 10

$\therefore 40 = 10x + 40y$



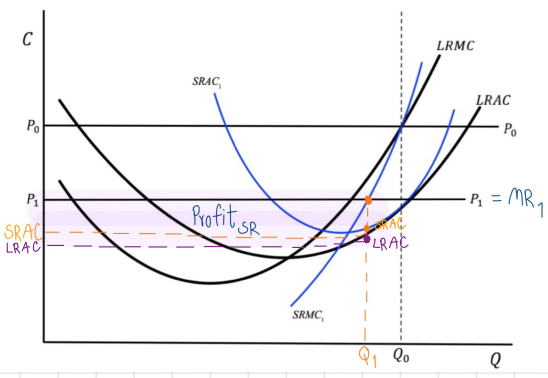
- Substitution Effect : when price of Sinovac decreases, consumers will increase Sinovac and substitute by decreasing Pfizer in order to maintain his utility constant (From A → B)
- Income Effect : when price of Sinovac decreases, the purchasing power will increase from BL' to BL_2. Hence, the consumers will decrease Sinovac due to inferior goods, and increase Pfizer as a normal goods (From B → C)
- Price Effect : when price of Sinovac decreases, the consumers will increase Sinovac as an ordinary goods (From A → C)

2.a)



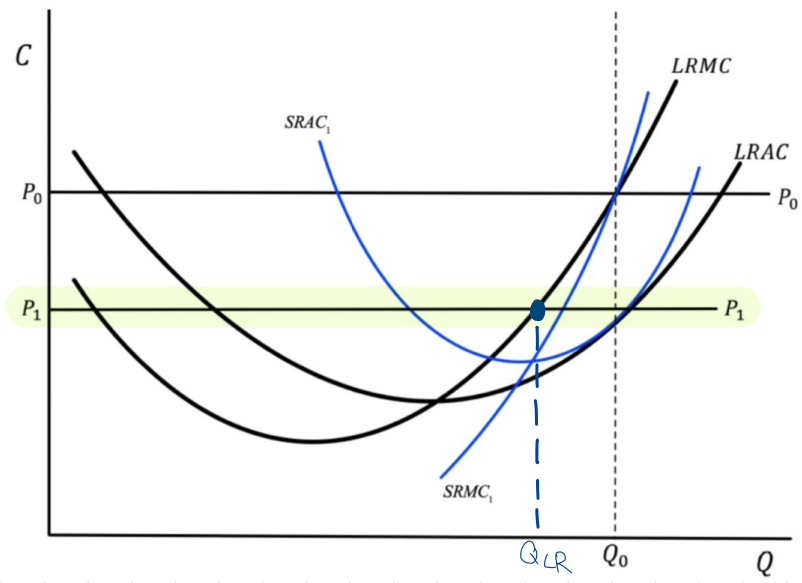
The maximum profit is where $MR = MC$, and $P_1 = SRMC_1$. Thus, $\Pi_{SR} = (P_1 - SRAC_1) \cdot Q_1^*$ #

2.b)

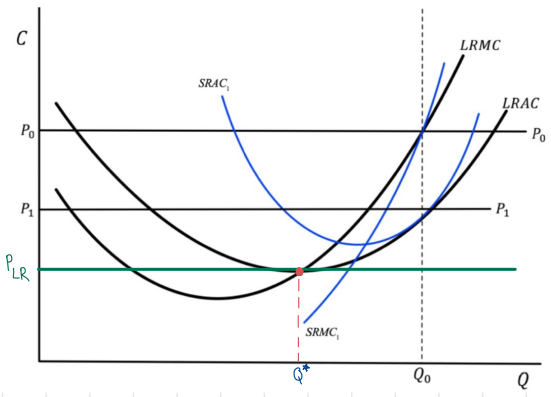


$\Pi_{SR} = (P_1 - SRAC) \cdot Q_1$ and $\Pi_{LR} = (P_1 - LRAC) \cdot Q_1$. Since $LRAC < SRAC$ so $\Pi_{LR} > \Pi_{SR}$ #

2.c)

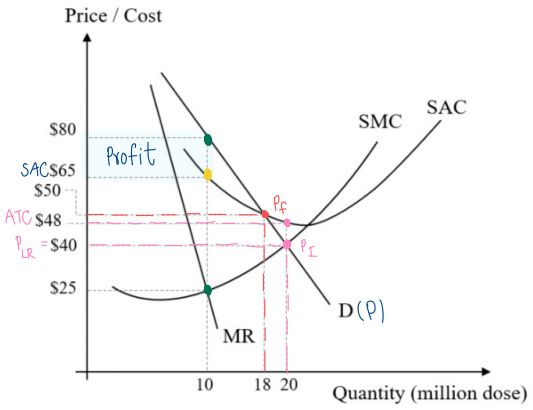


Q_{LR} is Q^* at Long Run P_1 and LR equilibrium is where $P_1 = LRMC$ #



Q^* when no new sellers enter. So LR-equilibrium is where $P_{LR} = LRMC = \min LRAC$ #

3)



3.a) The maximize profit is where the quantity equals to 10 million doses at price $ 80 per doses. #

3.b) $\Pi = (80-65) \times 10 = \$\ 150$ million #

3.c) $P_f^* = \$\ 50$ per doses, and $Q_m^* = 18$ million doses #

3.d) when the government needs $Q^* = 20$ million dose, Monopoly faces loss because ATC > P_I^*

Therefore, the government must subsidize that loss in order to create the incentive for monopoly to produce.

∴ Each person pays at $ 40 #

∴ Subsidize $= (ATC - P) \times Q^*$
$= (48 - 40) \times 20$
$= \$\ 160$ million #