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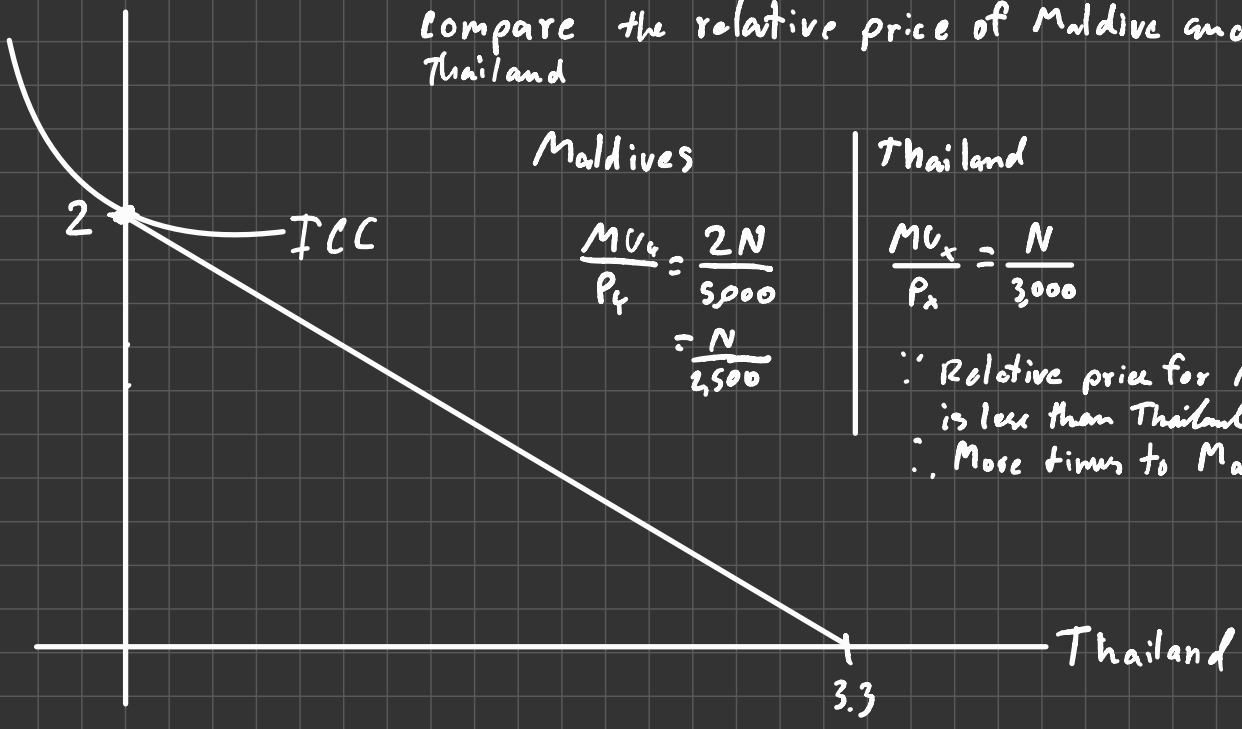
(1a) Maldives

Utility maximization: define N as the utility gained from travelling Thailand,

Compare the relative price of Maldive and Thailand



Maldives	Thailand
$\frac{MU_A}{P_A} = \frac{2N}{5000} = \frac{N}{2,500}$	$\frac{MU_T}{P_T} = \frac{N}{3,000}$

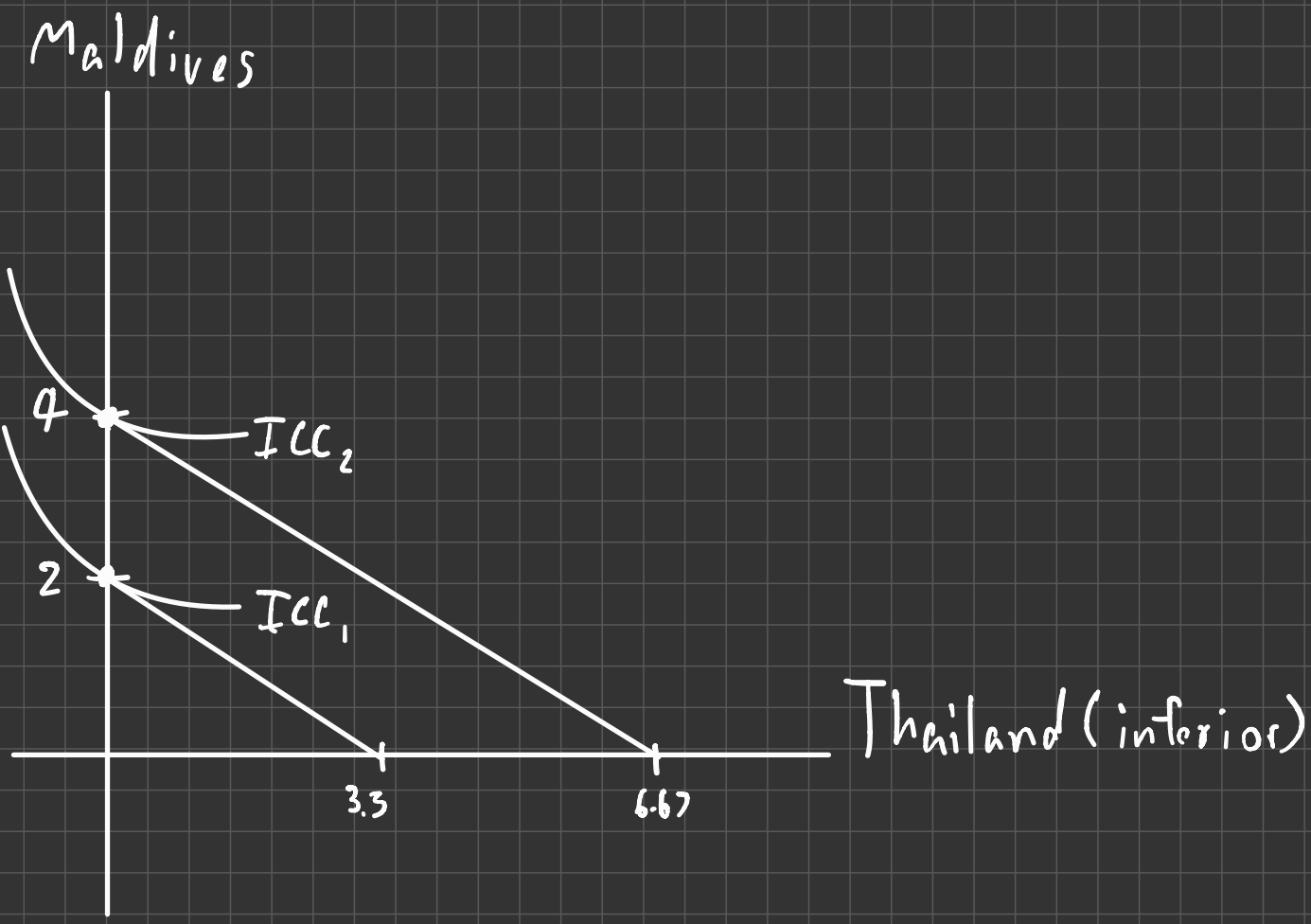
∵ Relative price for Maldive is less than Thailand.
∴ More times to Maldives

Options for Neo to travel are

Maldives	Thailand
0	3
1	1
2	0

∴ Neo will chose to go to Maldive for 2 times and Thailand for 1 times because it is the only option that he can go to Maldives more than Thailand.

(16)



His choices are

Maldive	Thailand
0	6
1	5
2	3
3	1
4	0

} more Maldives than Thailand

Consider (1,3) and (0,4), let's compute TU:

(1,3) => $1+(3\times2)=7$

(0,4) => $0+(4\times2)=8$

$\therefore$ (0,4) gives him more utility than (1,3)

$\therefore$ He will travel Maldives for 4 times and 0 times to Thailand.

$\therefore$ Slope is undefined because $\Delta u = 0$. #

(2a) Marginal Rate of technical substitution

$$MRTS = \frac{\Delta K}{\Delta L} = \frac{MP_L}{MP_K} = \frac{6}{8} = \frac{3}{4}$$

Cost manimization

$$\frac{MP_L}{MP_K} = \frac{w}{r}$$

at the equilibrium

$$\frac{3}{4} = \frac{3}{r}$$

$$3r = 12$$

$$r = 4$$

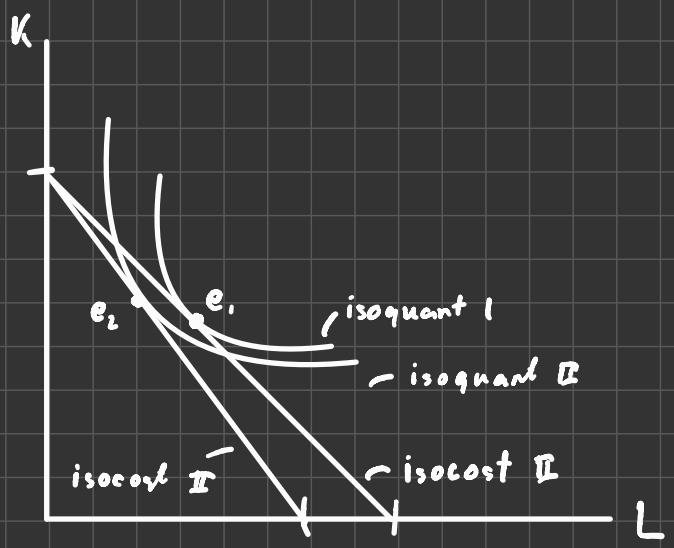
$\therefore MRTS = \frac{3}{4}$, $r = \$4$ //

(2b)

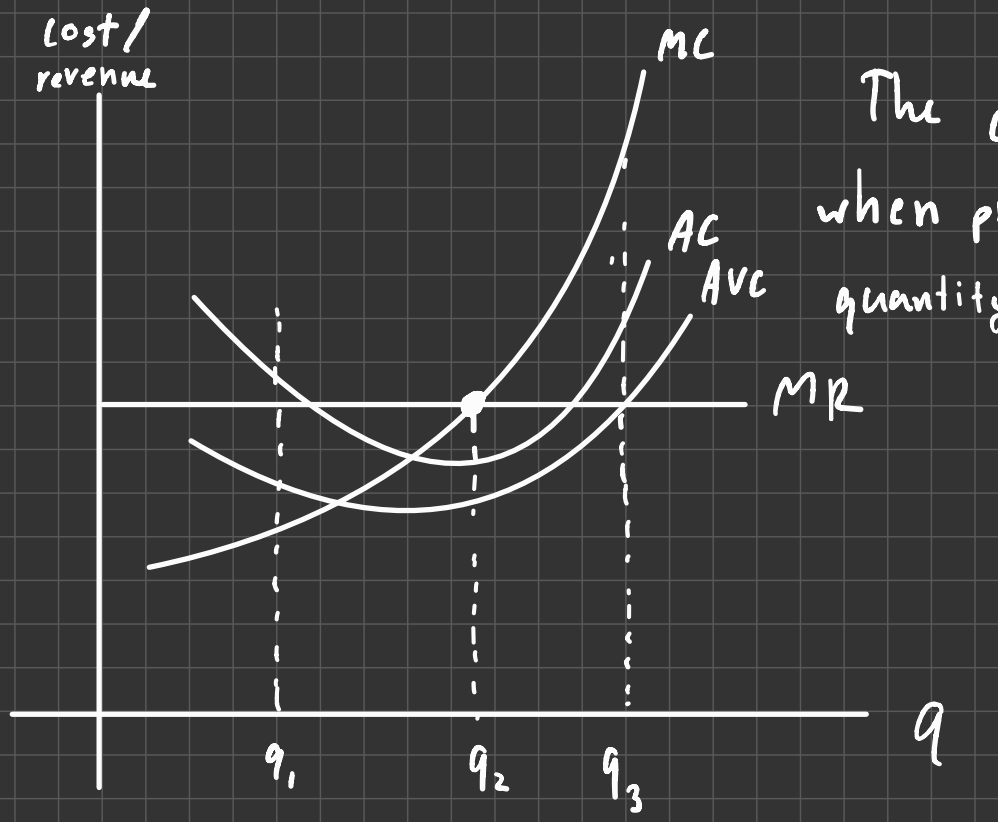
When wage increases to $4, the MRTS will be

$$MRMS = \frac{w}{r} = \frac{4}{4} = 1$$

Compared to wage rate of $3, MRTs increased from $\frac{3}{4}$ to $\frac{4}{4}$ which means that the firm is likely to hire less labour and invest more in capital.



(3a) profit maximization



The company will profit when production equilibrium quantity

Consider q_1:

- MC < MR
- MR < AC → there is some profit
- AVC > MR → no economy of scale

Consider q_2:

- MR = MC
- MR > AC → There is an economy of scale
- MR > AVC

consider q_3:

- MR < MC
- MR < AC → diseconomy of scale / more opportunity cost → start to lose
- MR < AVC → more marginal cost

∴ The quantity that maximize the profit is q_2. #

(36)

$AC = 180$, $AFC = 60$, $P = MR = 150$

$$TR = MR \cdot q = 150 \times 20 = 3{,}000$$
$$AVC = AC - AFC = 180 - 60 = 120$$
$$TC = TFC + TFC = AFC \cdot q + AVC \cdot q$$
$$= q(AFC + AVC)$$
$$= 20(60 + 120)$$
$$= 3{,}600$$
$$\pi = TR - TC = 3{,}000 - 3{,}600$$
$$= -600 \quad \#$$

(3c) The firm tends to minimize their loss.
They will decied whether to stay in the industry or not by comparing 2 scenarios: still producing at this rate and prodneing nothing. The scenario with less loss is the option that the firm choose.

Scence I: stay producing

Total variable cost = 120×20 = 2,400

Total fixed cost = 60×20 = 1,200

Total cost = TVC + TFC = 3,600

Total revenue = 150×20 = 3000

profit = 3,000 - 3,600 = -600 → lost 600

Scence II: stop production

Total variable cost = 120×0 = 0

Total Fixed cost = 1,200

Total cost = 0 + 1,200 = 1,200

Total revenue = 0

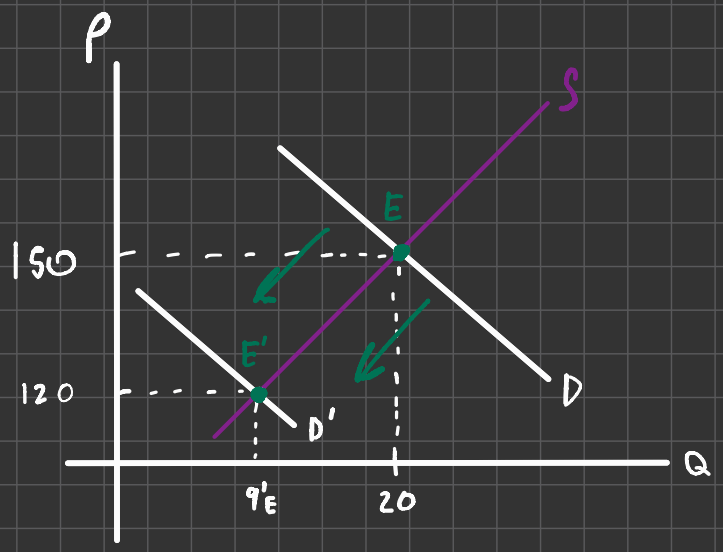
∴ profit = 0 - 1,200 = -1,200 → lost 1,200

∵ Continuing production scenario seem to minimize their loss.

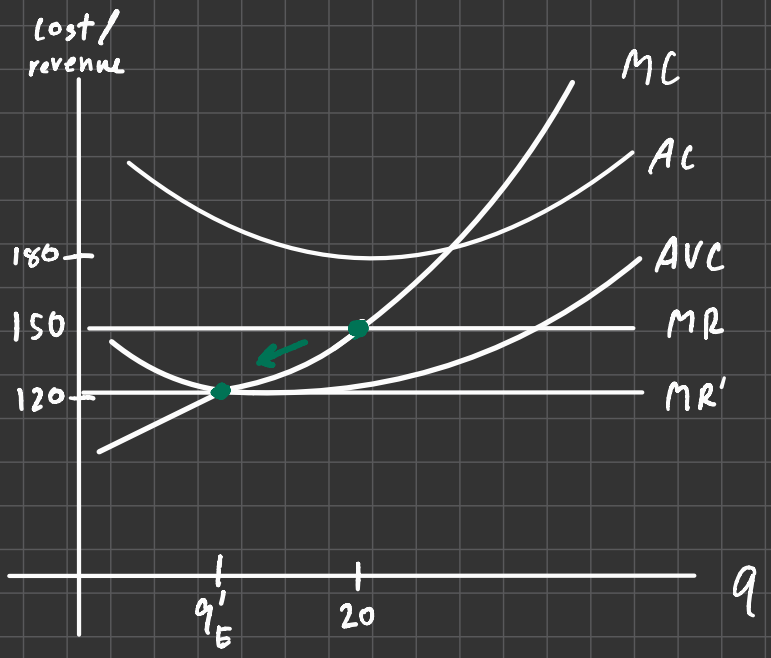
∴ The firm should continue their production. ∎

(3d)

(i)



(ii)



Compare 2 scences: continue and stop production. The less lost occur, the better option to choose.

(I) continued production

TVC = 120×20 = 2,400

TFC = 1,200

TC = 3,600

TR = 120×20 = 2,400

π = 2,400 - 3,600 = -1,200

(II) stop production

TVC = 120×0 = 0

TFC = 1,200

TC = 0+1,200 = 1,200

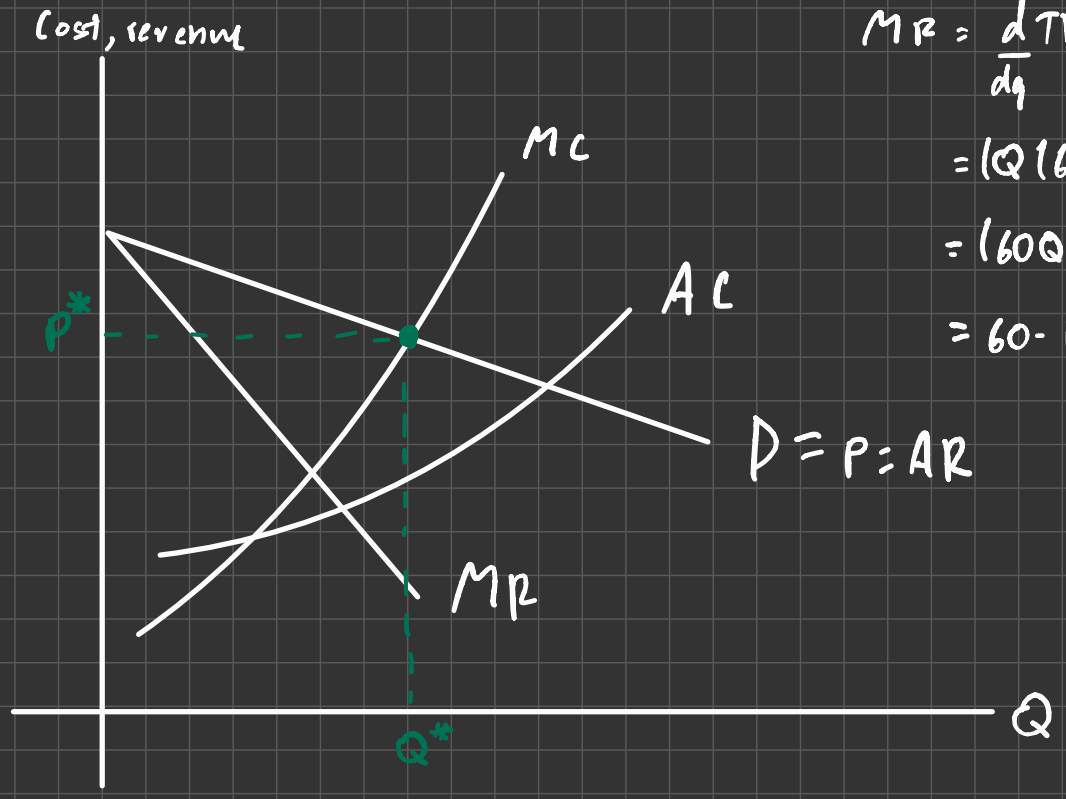
TR = 0

π = 0 - 1,200 = -1,200

∴ These 2 scenes are equally lost

∴ The firm decision depends on other factors e.g. trend and stimulus. #

(4a)



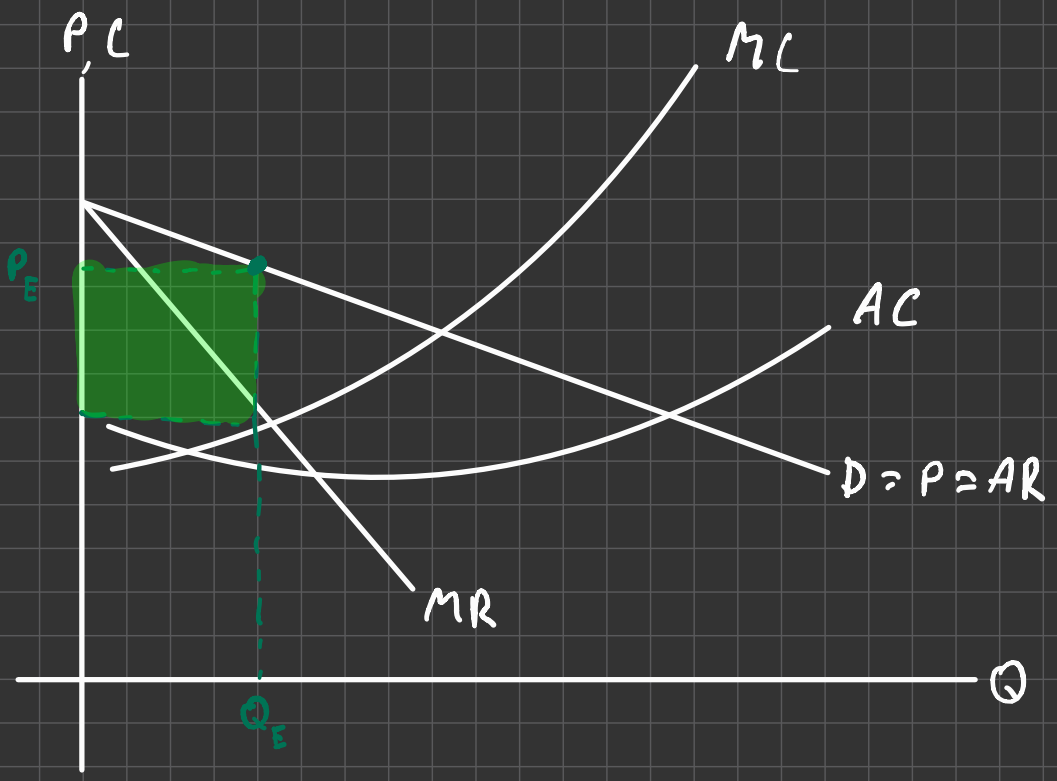
$$MR = \frac{dTR}{dq}$$

$$= (Q(60 - 0.6Q))'$$

$$= (60Q - 0.6Q^2)'$$

$$= 60 - 1.2Q$$

(4b)



Profit will be maximized when the marginal cost equivalent to the marginal revenue. The green area is the value of the profit occured for this firm