1. Neo loves traveling. Supposed he has two choices of destination, Thailand and Maldives which costs him 3,000 baht and 5,000 baht respectively. His utility received from traveling to Maldives is twice compared to traveling to Thailand. Answer the following questions.

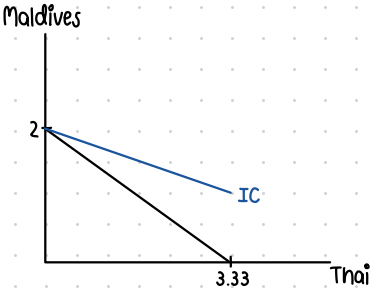
a) If Neo has 10,000 baht of budget, how many times of each destination he will choose to travel and why? Draw his indifferent curve and budget line to analyze his decision and indicate details on the graph.

Thai ⇒ 3000 ฿ Maldive ⇒ 5000 ฿

Budget ⇒ 10,000 ฿

$$\text{Max Thai} = \frac{BL}{P_x} = \frac{10{,}000}{3{,}000} = 3.33 \text{ times}$$

$$\text{Max Maldives} = \frac{BL}{P_y} = \frac{10{,}000}{5{,}000} = 2 \text{ times}$$



Decision

$$\frac{MU_x}{P_x} < \frac{MU_y}{P_y}$$

$$\frac{1}{3{,}000} < \frac{2}{5{,}000}$$

$$\frac{1}{3{,}000} < \frac{1}{2{,}500}$$

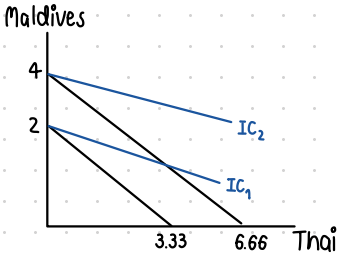
∴ He choose to go to Maldives 2 times b/c he has enough money and he will gain twice utility if he choose Maldives.

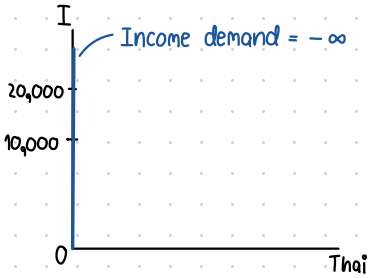
b) If his budget increases to 20,000 baht, draw his income-consumption curve. Also plot his income demand of traveling in Thailand, find its slope and explain.

Budget ⇒ 20,000 ฿

Max Thai = $\frac{20{,}000}{3{,}000} = 6.66$ times

Max Maldives = $\frac{20{,}000}{5{,}000} = 4$ times





b/c Neo didn't choose to go to Thai at all b/c if he choose to go to Maldives he will gain more utility

2. Consider a long-run production in which there are only two inputs labor and capital, and the input prices for labor and capital are wage (w) and interest rate (r), respectively. Suppose that at the equilibrium levels of labor and capital (L*, K*), the marginal product of labor (MP_L) and marginal product of capital (MP_K) are 6 and 8, respectively.

a) (5 points) Calculate the marginal rate of technical substitution (MRTS) and state the cost-minimization conditions of this firm, given that the required output is fixed at Q_0. If the market wage rate (w) is $3, what is the interest rate at the equilibrium?

$$MRTS = -\frac{MP_L}{MP_K} = -\frac{6}{8} = -0.75$$

at cost min : $\frac{MP_L}{w} = \frac{MP_K}{r}$

$\frac{6}{3} = \frac{8}{r}$

$r = 4$

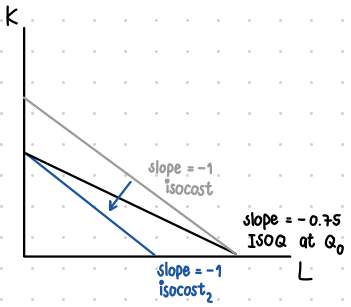
b) (5 points) Suppose now that the wage rate (w) increases to $4, ceteris paribus. Draw a diagram to illustrate the changes in the cost-minimizing combination of inputs.

$w\uparrow \Rightarrow 4$
$r = 4$

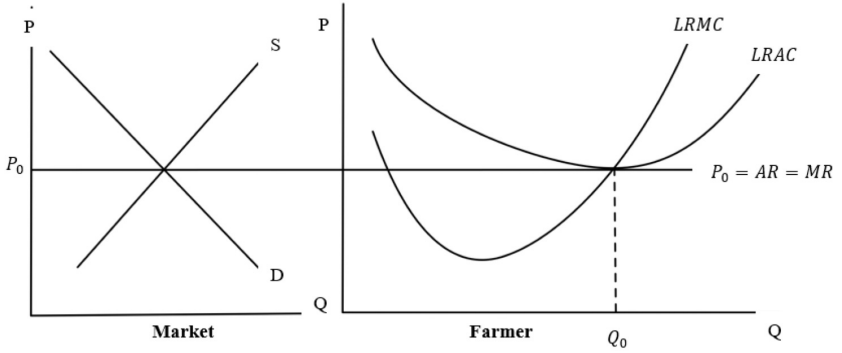
isocost slope = −1

use $k = \frac{TC}{4}$

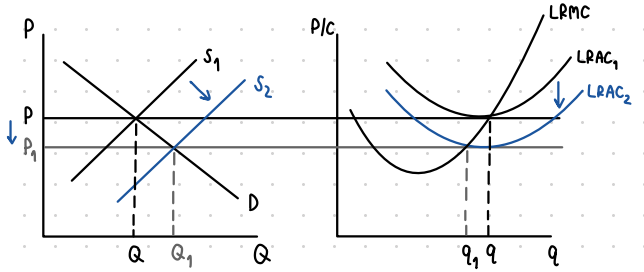
$L = 0$



3. A Thai rice farmer is in a long run equilibrium in a perfect competition and produces at the quantity Q_0 as shown in the graph below.

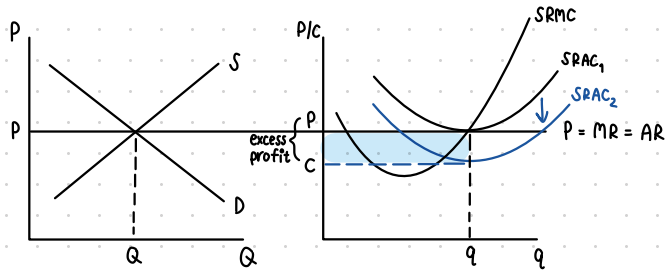


a) The government grants a lump sum subsidy to every farmer. How will this change the LRAC? Explain why LRMC does not change.



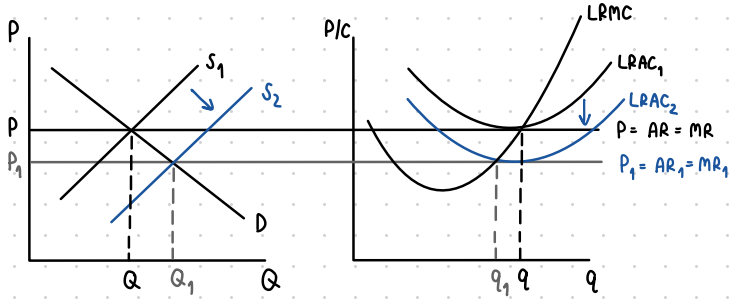
When gov. provides lump-sum subsidy, fixed cost will decrease which will result in lower TC. Thus, AC also goes down. LRMC does not change b/c lump-sum subsidy is a fixed amount of money that will decreases farmer's fixed cost not the variable cost. Therefore, there is no effect on MC.

b) Will the lump sum subsidy change the quantity the farmer wants to produce to maximize his profit? Show in the graph that the farmer now earns an Excess Profit. Explain.



In SR production, the cost of production will decrease b/c farmers receive lump-sum subsidy. It results in higher TR when comparing to TC. There will be excess profit (P>c). Farmers will be producing at q where MR = MC.

c) Demonstrate how this Excess Profit will affect the market price in the Long Run that allows new entry to the market.



When there is an excess profit, there will be new competitors enter the market b/c there is no cost of entering perfectly competitive market. This will shift the supply curve to the right from S_1 to S_2. The price will decrease from P to P_1 where MR = MC as a new equilibrium. Thus, the firm will receive a normal profit in LR.

4. An inverse demand function in a monopoly market is given by

$$P = 100 - 5Q$$

Supposed that the monopolist is very efficient, which gives a constant marginal cost of $20, answer the following questions.

a) How many units of this product will be produced that maximizes monopolist's profit in the short-run? Also, how much does this product cost? Show your argument clearly.

Profit maximization ; $MR = MC$

$TR = P \cdot Q = 100Q - 5Q^2$

$MR = \frac{dTR}{dq} = 100 - 10Q$

$MR = MC$

$100 - 10Q = 20$

$-10Q = -80$

$Q = 8$

Produce at $Q = 8$

$P = 100 - 5Q$

$= 100 - 40$

$= \$60$

b) How much is the total variable cost when the monopolist's profit is maximized?

$TVC = MC \cdot q$

$= 20 \cdot 8$

$= 160$

c) If this monopolist has a fixed cost of $160, how much is the monopolist's profit?

$\pi = TR - TC$

$TR = P \cdot Q$

$TC = TVC + TFC$

$TR = 60 \times 8$

$= 480$

$TC = 160 + 160$

$= 320$

$\pi = 480 - 320$

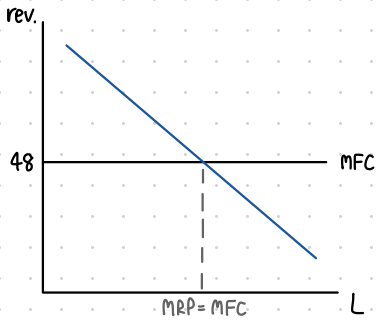
$= 160$

5. Assumed both a product market and a labor market are perfectly competitive, a table of marginal product is given below.

Unit of labor	Marginal product of labor
2	12
3	8
4	6
5	4
6	2

This product can be sold in the market for $12 each while labor wage is $48, answer the following questions clearly.

a) Figure out how many units of labor this firm will choose as input for its production to maximize profit. Illustrate a graph to support your answer and explain.



$MRP = MP \cdot MR$

At maximum profit, $MFC = MRP$ and $W = MFC$

meaning that $MFC = 48$ and $MR = P = 12$

when $MFC = MRP$

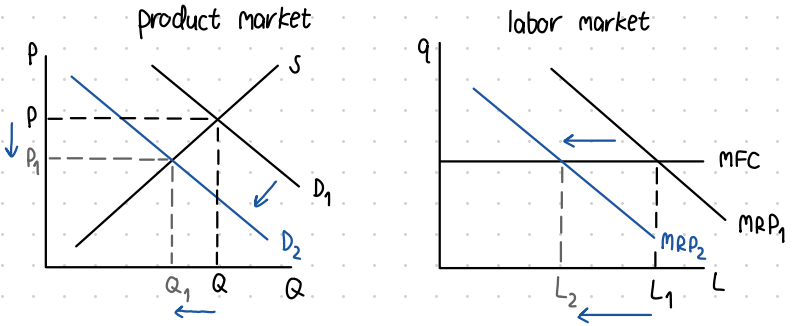
$48 = 12 \cdot MPL$

$MPL = 4$

when $MPL = 4$, firms hired at 5 units of L.

$\therefore$ To maximize profit, firms need to hired at 5 units of inputs.

b) Supposed that there is a sudden economic recession driving consumers' purchasing power downward, what would happen to the units of labor hired by this firm? Support your answer with illustrations that also show a connection between product market and labor market.



When there is a sudden decrease in purchasing power, the demand for G&S will be lower from D_1 to D_2, which makes the prices of product drop from P to P_1.

In labor market, since $MRP = MR \cdot MP$, when P drop MR will also drop which makes MRP shifts leftward from MRP_1 to MRP_2. The firms new equilibrium for hiring is now at lower unit of labor from L_1 to L_2.

6. Consider these statements and indicate which one of the choices fits with each statement and roughly explain why.

Choices:

1. Not a market failure
2. Market power
3. Externalities
4. Public goods
5. Moral hazard
6. Adverse selection

a) People feel that price level is hiking.
b) Morpheus always hears a loud fight coming from a room next to his.
c) Trinity does not receive her full-benefit until her first 3-month of her work position.
d) In Chiang Mai, there is no earthquake alarming system.
e) Starbucks coffee is more expensive than Amazon coffee.

Not Market failure A : Speculation & inflation are normal circumstances in the market.

Market power E : Starbuck has more market power when comparing to Amazon, so it can set price at higher level (P>MC)

Externalities B : There is a negative externalities from neighbor's room.

Public good D : The earthquake alarming system is public goods b/c it benefits & available for everyone.

Moral hazard C : Trinity might has an incentive to do risky thing since she doesn't bear full cost of that risk.