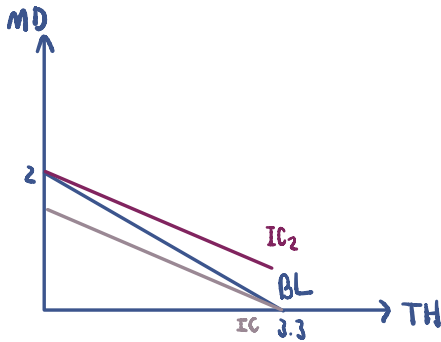


1. Neo loves traveling. Supposed he has two choices of destination, Thailand and Maldives which costs him 3,000 baht and 5,000 baht respectively. His utility received from traveling to Maldives is twice compared to traveling to Thailand. Answer the following questions.

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

a)



• Budget lines

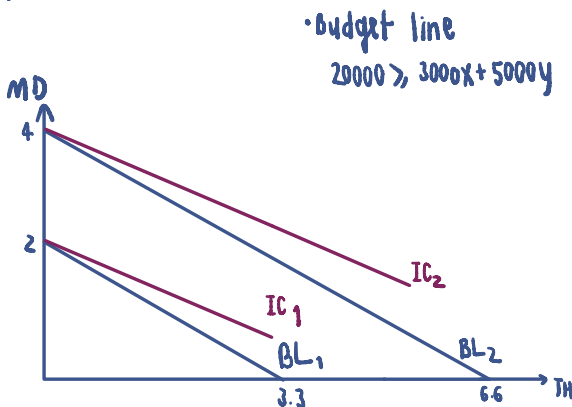
$$10\,000 \geq 3000x + 5000y$$

$$\text{Slope} : \frac{3000}{5000} = \frac{3}{5} = 0.6$$

$$\bullet \frac{MU_x}{MU_y} = \frac{1}{2} = 0.5$$

∴ Neo will choose to travel Maldives 2 times since it will yield more utilities.

b)



• Budget line

$$20000 \geq 3000x + 5000y$$

I

ICC : income demand
slope = ∞

→ TH

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.

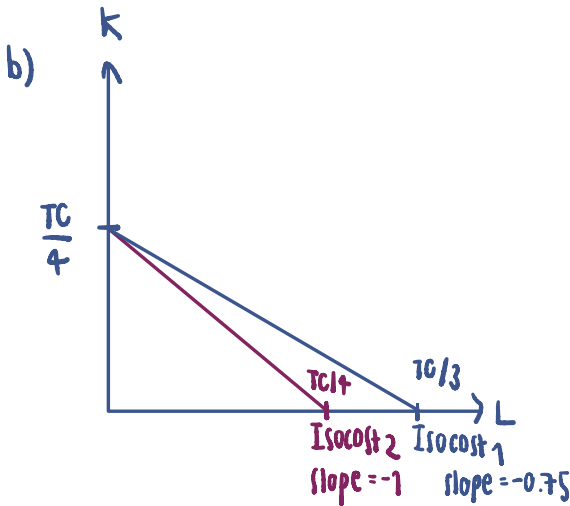
- a) (5 points) Calculate the marginal rate of technical substitution (MRTS) and state the cost-minimization conditions of this firm, given that the required output is fixed at Q_0 . If the market wage rate (w) is \$3, what is the interest rate at the equilibrium?
- b) (5 points) Suppose now that the wage rate (w) increases to \$4, ceteris paribus. Draw a diagram to illustrate the changes in the cost-minimizing combination of inputs.

$$a) \text{MRTS}_{LK} = \frac{\Delta K}{\Delta L} = -\frac{MP_L}{MP_K} = -\frac{6}{8} = -0.75$$

at cost-minimization ; $\frac{MP_L}{MP_K} = \frac{w}{r}$

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

$$r = 4$$

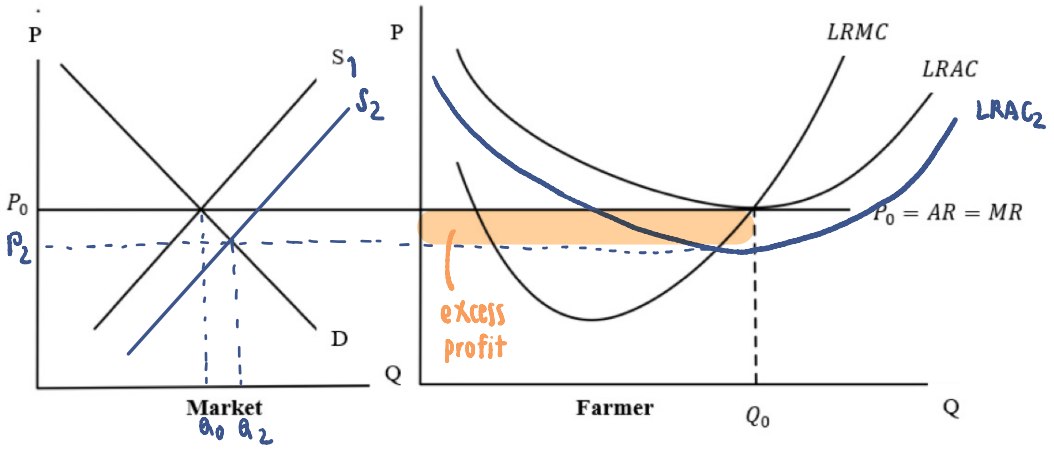


$$\text{Isocost} : TC = rK + wL$$

$$\text{slope} = -\frac{w}{r} = -\frac{4}{4} = -1$$

$$TC_2 = 4K + 4L \quad TC_1 = 4K + 3L$$

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.



- The government grants a lump sum subsidy to every farmer. How will this change the LRAC? Explain why LRMC does not change.
- 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.
- Demonstrate how this Excess Profit will affect the market price in the Long Run that allows new entry to the market.

a) A lump sum subsidy on seller will shift supply from S_1 to S_2 , the price will fall down to P_2 and make the LRAC shift downward to $LRAC_2$

Lump sum subsidy is one time fixed money aid, so it will not affect the variable factors \rightarrow LRMC does not change.

b) Farmer will not change the quantity produced because the MR and LRMC are not changed. To maximize profit is when $MR = MC$.

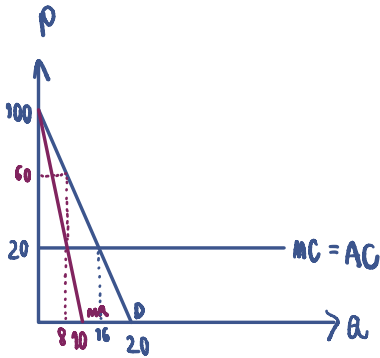
c) The excess profit will encourage the new competitors to enter the market. The supply will increase making price drop to the point where is normal profit.

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. $MC = AC$

- 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.
- How much is the total variable cost when the monopolist's profit is maximized?
- If this monopolist has a fixed cost of \$160, how much is the monopolist's profit? $TFC = 160$



$$D = P(Q) = 100 - 5Q$$

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

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

a) Maximum profit when $MR = MC$

$$100 - 10Q = 20$$

$$Q = 8 \text{ units}$$

$$\text{and this product price} = 100 - 5(8) = 60 \$$$

b) $TVC = MC \cdot Q = 20 \times 8 = 160 \$$

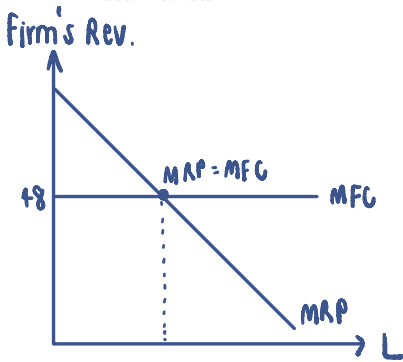
c) profit ; $\pi = TR - TC$
 $= TR - (TFC + TVC)$
 $= 480 - (160 + 160)$
 $= 160 \$$

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

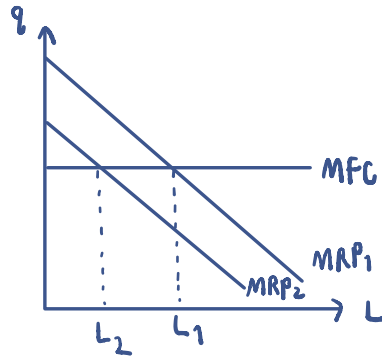
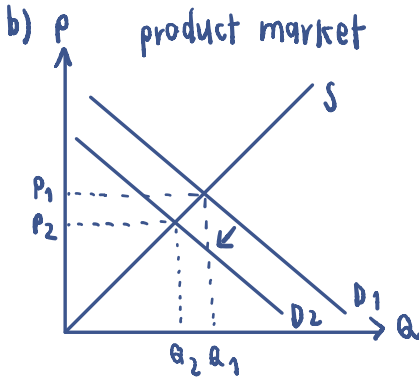
w	Unit of labor		Marginal product of labor	
48	2	96	12	144
	3	144	8	96
	4	192	6	72
	5	240	4	48
	6	288	2	24

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

- 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.
- 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.



a) $MRP = MFC$
 $MP \cdot MR = 48$
 $MPL \cdot 12 = 48$
 $MPL = 4$
 $\therefore 5 \text{ units of labor}$



Purchasing power decrease make demand drop lead to reduction of quantity and price

When price drop, since $MR=P$, MR will drop too. Moreover, $MRP=MR \cdot MP$ will shift from MRP_1 to MRP_2 and make the labor units decline too.

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.

a) Not a market failure

∴ It is a normal mechanism of market

b) Externalities

∴ Negative externalities from third party

c) Moral hazard

∴ The company bear the risk instead of Trinity

d) Public goods

∴ The earthquake alarming is benefit to everyone.

e) Market power

∴ Starbucks can set price higher than other for the same product