

EE211 Assignment #3 (Section 2 Semester 2/2020)

Instructions:

- Assigned date is Thursday the 13th, May 2021. **Due date is Friday the 21th, May 2021 before 11.59 PM.**
 - Submission is only received through BE Moodle platform as PDF file.
 - Name your file as StudentID_nickname, such as 1234567489_Bo.
 - There is no need to rewrite the question into your answer sheets. Indicating clearly question and item number is sufficient.
 - Write your nickname and student ID on top-right corner of the first page.
 - For those who do not have a digital device to write on, you can write your answers in sheets of paper, take pictures, convert them into a single PDF then submit in on Moodle.
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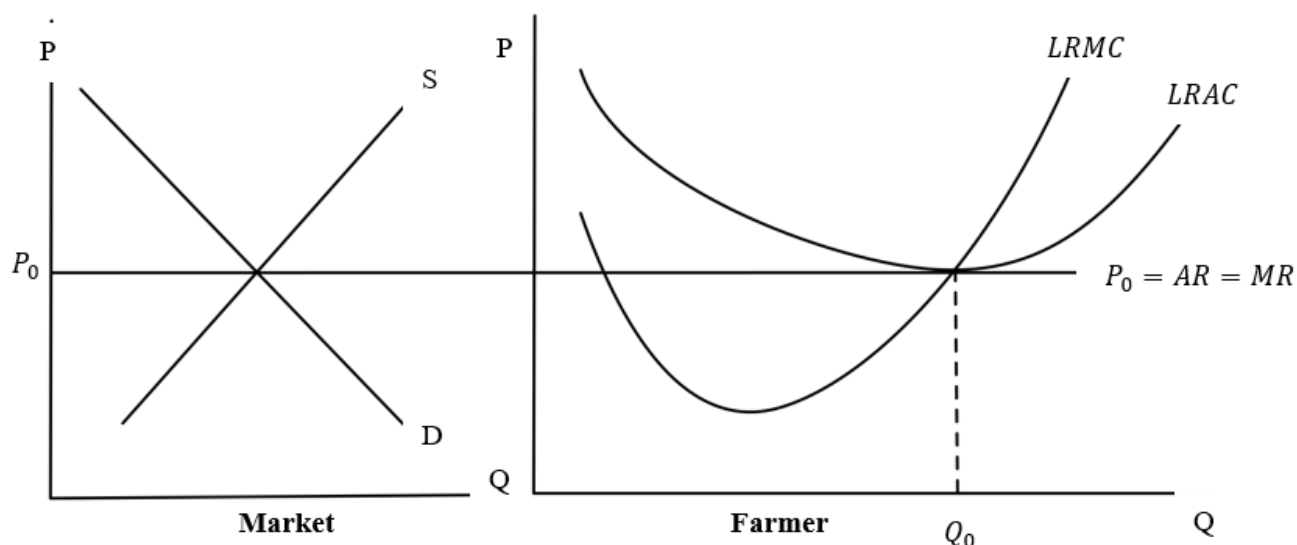
1. Neo loves traveling. Supposed he has two choices of destination, Thailand and Maldives which costs him 3,000 baht and 5,000 baht respectively. His utility received from traveling to Maldives is twice compared to traveling to Thailand. Answer the following questions.

- 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.
- 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.

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.

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.

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.

- 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?

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.

- 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.

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

Choices:

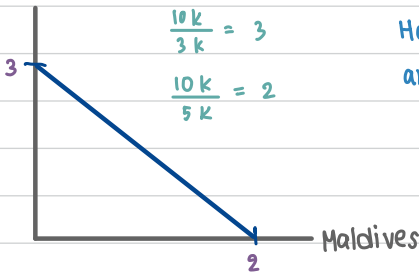
- Not a market failure
- Market power
- Externalities
- Public goods
- Moral hazard
- Adverse selection

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

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1. (a)

Thailand

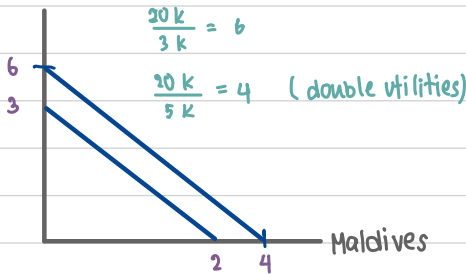


He will choose to travel to Maldives 2 times and Thailand 0 time, because :

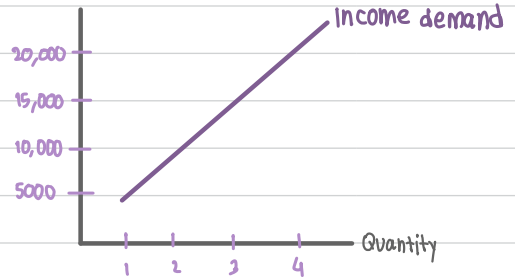
b/c
$$\frac{MU_T}{P_T} = \frac{MU_M}{P_M} \rightarrow \frac{1}{3,000} < \frac{2}{5,000}$$

(b)

Thailand



Income



Since Neo choose to maximize his utility by travelling to Maldives, slope of travelling in thailand will be zero.

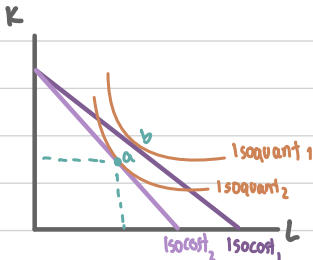
2. (a)

$$MRTS = \frac{MPL}{MPK} = \frac{6}{8}$$

Since $MRMS = MRTS$ (cost is minimized), then $MRMS = \frac{w}{r}$

$$\frac{6}{8} = \frac{3}{r}, \quad r = \frac{24}{6} = 4 \text{ (Interest rate)}$$

(b)

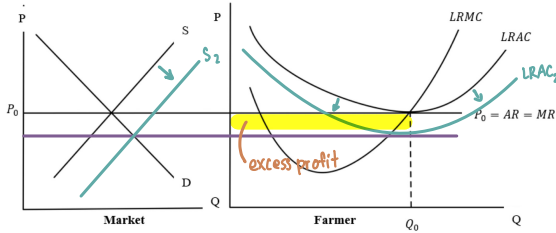


Since wage become more expensive, isocost shift from 1 $\rightarrow$ 2. With new isocost firm can't produce same q_0 as of a , the new quantity produce is at b . If firm wants output to remain at Q_0 , they need to increase in budget.

3. (a) When lump sum tax is imposed, fixed cost will decrease.

Fixed cost decrease leads to total cost decrease as well.

Since $TC = TFC + TVC$, the LRAC decreased too.



LRMC does not change because MC is derived from variable cost,

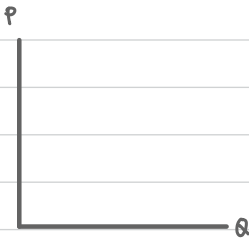
Lump sum will only reduced farmer's fixed cost. Then, LRMC stays the same.

(b) Farmer will not change the quantity produced.

Because MR and LRMC stays the same, to maximize profit is when $MR = MC$.

(c) Excess profit encourage the new competitors to enter the market, this leads to supply increase, then price will drop to point that's normal profit.

4. (a)



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

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

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

a) Maximum profit when $MR = MC$

$$100 - 10Q = 20$$

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

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

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

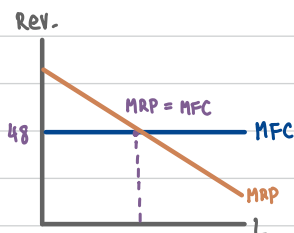
(c) profit ; $\pi = TR - TC$

$= TR - (TFC + TVC)$

$= 480 - (160 + 160)$

$= 160 \$$

5. (a)



(a) $MRP = MFC$

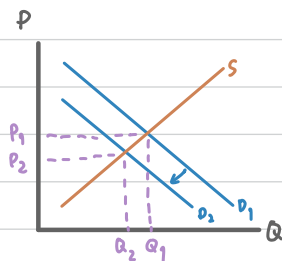
$MP \cdot MR = 48$

$MPL \cdot 12 = 48$

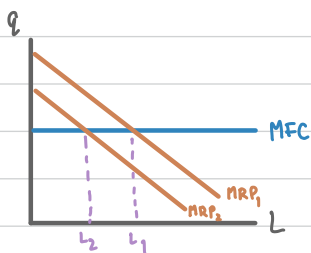
$MPL = 4$

$\therefore 5$ units of labor

(b)



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.

(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.