Beam 6304641779

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.

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.

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$MU_M = 2\,MU_{TH}$

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$\frac{MU_x}{MU_y} = \frac{P_x}{P_y} \Rightarrow \frac{MU_{mal}}{MU_{TH}} = \frac{P_{mal}}{P_{TH}}$

$MU_{mal} = 2MU_{TH}$

$P_{TH} = 3{,}000$ ฿

$P_{mal} = 5{,}000$ ฿

$\frac{MU_{mal}}{MU_{TH}} = \frac{2}{1}$

$\frac{P_{mal}}{P_{TH}} = \frac{5000}{3000} = \frac{5}{3}$

$\frac{MU_{mal}}{P_{mal}} > \frac{MU_{TH}}{P_{TH}}$

$\frac{2}{5} > \frac{1}{3}$

$0.4 > 0.33$

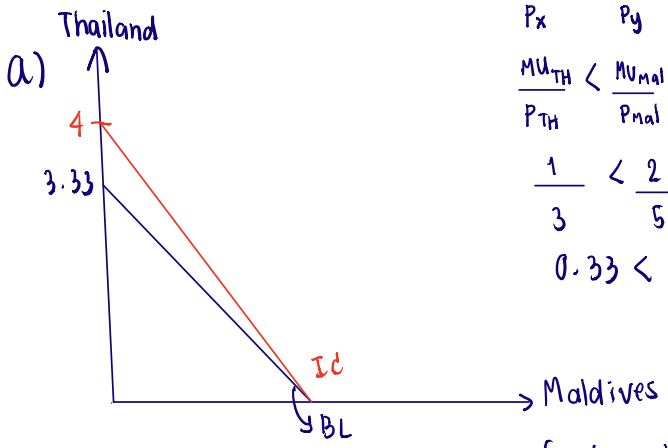
$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$

$\frac{MU_{TH}}{P_{TH}} < \frac{MU_{mal}}{P_{mal}}$

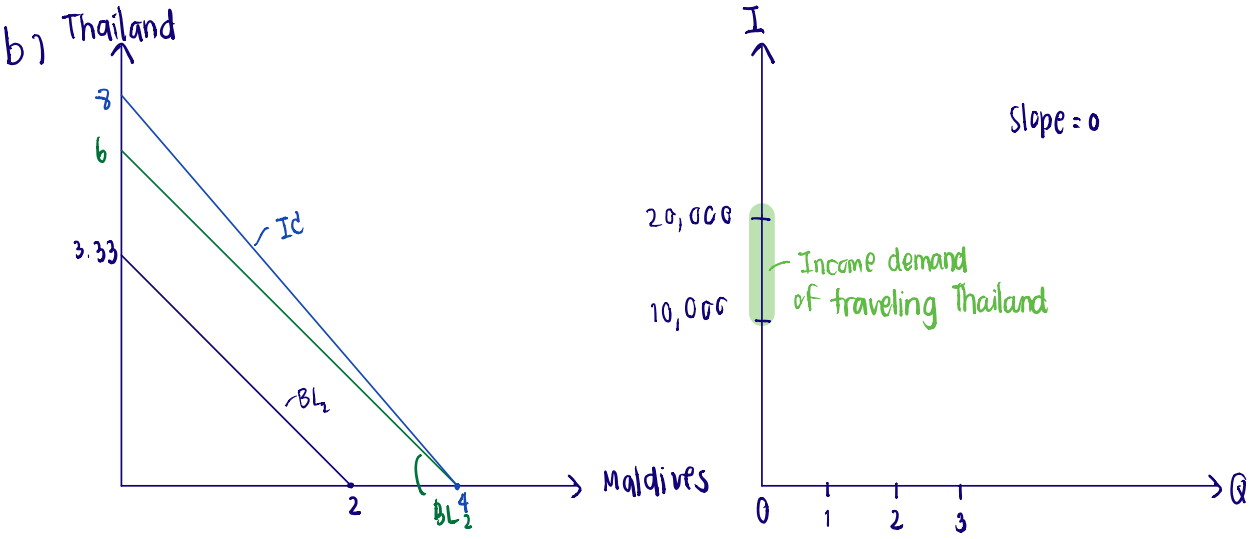
$\frac{1}{3} < \frac{2}{5}$

$0.33 < 0.4$

a)



Thailand and Maldives are perfectly substitution, however, Maldives gain more utility than Thailand. As Neo has 10,000 baht of budget, spending all the money to Maldives give his most utility (worth his spending).

b) 

When the budget line increse to 20,000, Neo now has more purchasing power, so he will choose to spend all of his money to Maldives for achieving his most utility causing the demand for Thailand is equal to zero when budget at 10,000 and 20,000 baht.

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.

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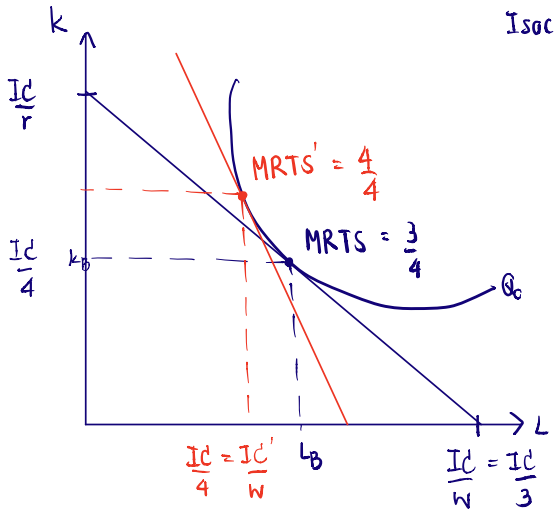
a)



Isocost : $IC = wL + rK$

$w = 3$, $r = ?$

$IC = 3L + rk$

k intercept : $L = 0$

$Ic = rK$

$\frac{Ic}{4} = \frac{Ic}{r} = k$

L intercept : $k = 0$

$Ic = 3L$

$\frac{Ic}{3} = L$

Slope of Isocost $= \frac{\Delta k}{\Delta L}$

$= \frac{IC}{r} \times \frac{w}{IC} = \frac{w}{r}$

equilibrium level

isoquant = isocost

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

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

$6r = 24$

$r = 4$

$\therefore$ interest rate at equilibrium equal to 4

$\therefore MRTS = \frac{\Delta K}{\Delta L} = \frac{3}{4}$, In minimizing cost, Capital is 3 labor is 4

b) $w = 4$

Intercept of Isocost

$TC = wL + rk$

intercept k : $L = 0$

$Tc = rk$

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

intercept L : $k = 0$

$TC = wL$

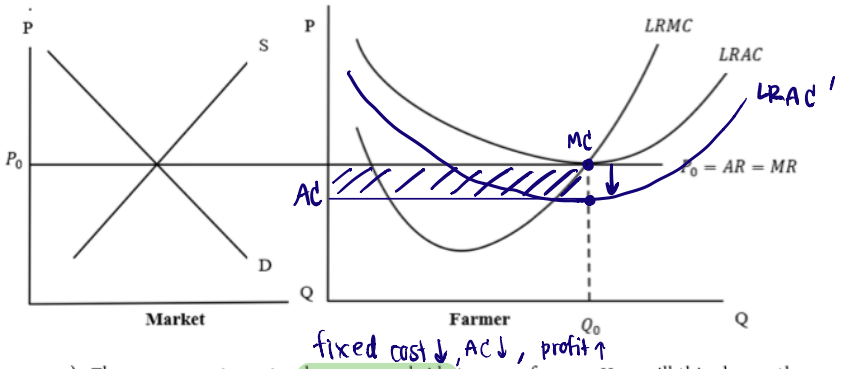
$\frac{TC}{4} = L$

$MRTS = \frac{\Delta K}{\Delta L}$

$= \frac{Ic}{4} \times \frac{4}{IC}$

$= \frac{4}{4}$

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.



fixed cost ↓, AC ↓, profit ↑

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

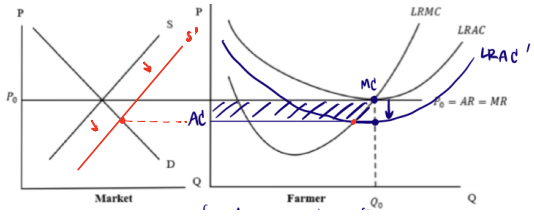
b) Will the lump sum subsidy (effect AC) change the quantity the farmer wants to produce to maximize his profit? Show in the graph that the farmer now earns an Excess Profit. Explain.

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

a) LRAC, LRMC doesn't change because government give lump sum subsidy that doesn't related to the producing process.

b) Because of a lump sum subsidy, fixed cost ↓ and AC ↓ LRAC shift downward because producer pay less total cost Price that farmer can gain are higher than LRAC, so the highlighted area is the excess profit

c)



New entry enter the market to gain excess profit. So, the supply shift to the right. The price decreases and reach to AC. Firm only gain normal profit

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

MC = AC

$$P = 100 - 5Q$$

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.

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

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

unit – fixed cost

a) $MC = \$20$

maximize profit

$MR = MC < P$

$TR = P \cdot Q = (100 - 5Q)Q$

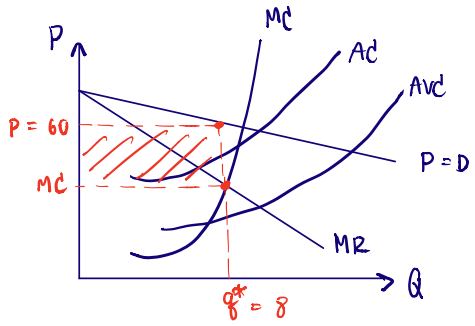
$= 100Q - Q^2$

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

$100 - 10Q = 20$

$-10Q = -80$

$Q = 8$



$P = 100 - 5(8)$

$= 100 - 40 = 60$

$P = 60$

8 units of product is maximize monopolist's profit in short run.

This product cost $60.

b) $MC = \frac{\Delta TVC}{\Delta Q}$

$20 = \frac{\Delta TVC}{8}$

$TVC = 160$

c) $\pi = TR - TC$

$= (P \cdot Q) - (TFC + TVC)$

$= 480 - (160 + 160)$

$= 480 - 320$

profit $= 160$

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.
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.

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.

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Unit of labor	Marginal product of labor
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MFC: 48, 48, 48, 48, 48

MRP (MR·MP): 144, 96, 72, 48, 24

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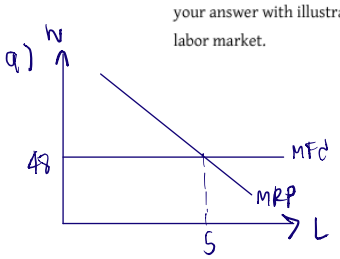
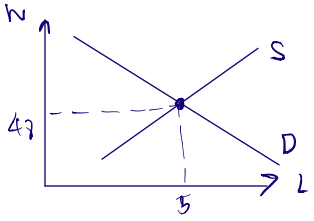


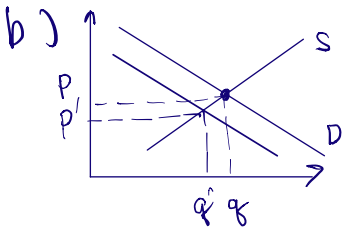
FIRM



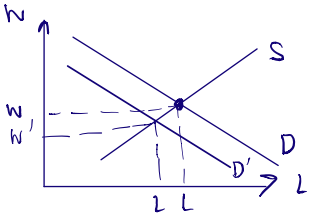
LABOR MARKET

5 units of labor is maximize profit.

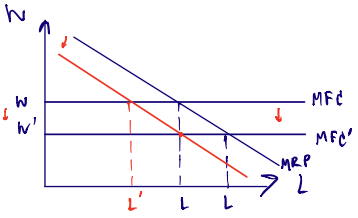
Minimize profit MRP = MFC.



Good Market



Labor Market



Firm Market

Customer purchasing power is decrease. Demand in product market is decrease to q' due to the lower demand in product, demand in labor also decrease. When price drop, MRP shift to the left and wage is decrease MFC is decrease after that. In conclusion, recessing wage increase than MRP decrease. Price and labor are decrease

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

Choices:

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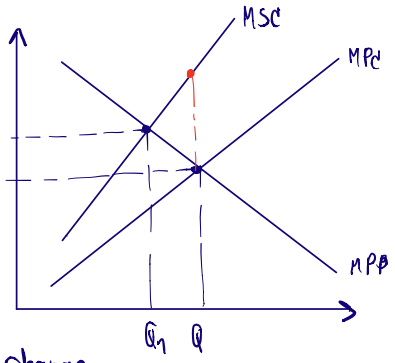
a) Not a market failure

b) Room next to his doesn't care about other it produce MPC equal to MPB which is at Q is overproduction But if he think about external MSC equal to MPC + MEC and reduce production which is located at Q_1. However, if he still produce at Q, it wil has DWL



c) Is a moral hazard because it related to contract and after signed the behavior had change

d) Earthquake alarming system is belongs to public goods because it's non excludable and non rivalrous. People can use it freely even they not paid it is call free rider and alarming system isn't lower in quantity.

e) starbucks can set a higher price because it has more market power to set the price. The price of product is higher than the cost of production.