Assignment 3
Assigned on Apr 29th, 2022. To be submitted on May 6th, 2022 before midnight

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Instructions

(1) Please read the instruction carefully.
(2) Please read each question carefully and answer the questions straightforwardly. Always provide economic reasons at lease a paragraph for your analysis, or a graph when necessary, even when the question does not indicate so.
(3) Handing and submitting assignments are only available via BE Moodle.

Answering the questions and preparing answer sheets

(1) Answers are to be handwritten, in either digital or analog form, in a blank canvas or any clean paper. Make sure that your handwriting is clearly visible and readable.
(2) There is no need to rewrite the question. Just indicate the question number clearly for each of the answer, such as 1.a).
(3) When done, for the digital case, collage all the pages into a single PDF file. For those who write on sheets of paper, take photo of all pages then convert all of them into a single PDF file as well.
(4) Name your PDF file as StudentID_YourNickname, such as 640123456_Bo.

Submitting your answers

(1) Make sure your file does not exceed 10MB. This is the maximum file size for BE Moodle upload.
(2) Login to BE Moodle, head into the course, then the assignment topic.
(3) Choose your file to submit. Done. There will be timestamp for your upload date and time, so please make sure to not submit later than that.

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1. 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.

1.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.

1.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.

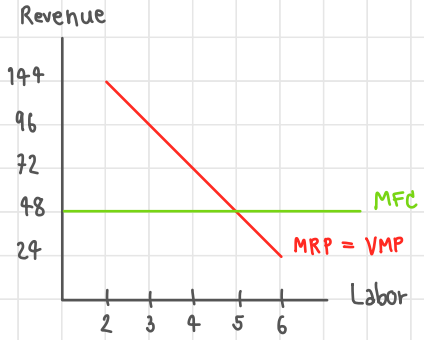
2. In a telecommunication sector where there are 3 companies namely A, D and T, at first, these companies can capture 50%, 20% and 30% of market share respectively. All of them share the same marginal cost of $0.2 on average for a unit of service per minute. Answer the following questions

2.a) If company A can charge users for $1 on average for a unit of service, figure out the Lerner's index for company A.

2.b) Figure out the HHI index for this industry at the current state.

2.c) If D and T decide to merge their companies, figure out the new HHI index.

1.) 1.a.)



The maximization - condition in factor market is MRP = MFC. Also, since product market and labor market are perfectly competitive, P = MR, which is 12.

MR = P = 12

And, $MFC = \frac{\Delta TFC}{\Delta L} = \frac{48}{1} = 48$ // must equal to MRP = MP · MR = 4 · 12 = 48 (at 5 units of labor)

L	MP	MR	MRP	VMP
2	12		144	144
3	8		96	96
4	6	12	72	72
5	4		48	36
6	2		24	24

∴ Making MRP = MFC, this firm should choose 5 units of labor to maximize their profit.

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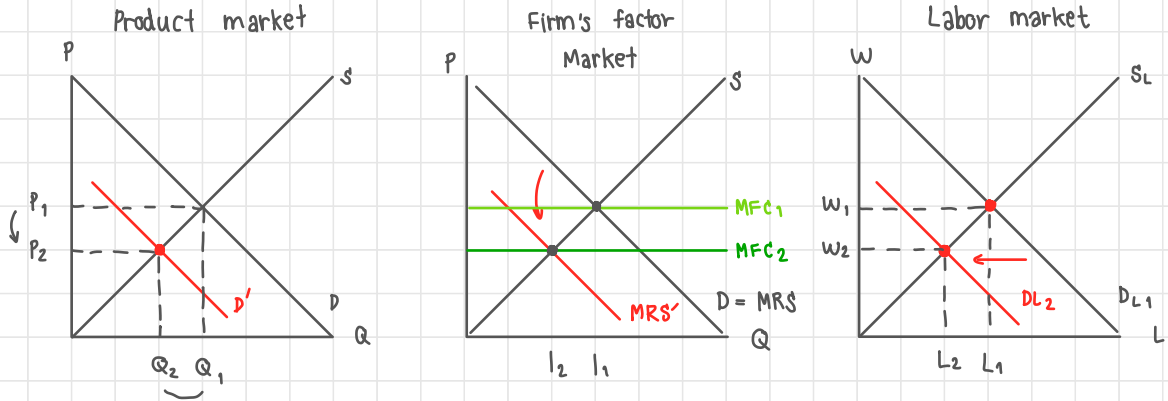
1. b.)



When consumers' purchasing power decrease, demand for product will decrease as well. This lead to the shift of demand line (shift left, also MRP shift downward from MRS to MRS' in perfectly competition) Firm demand less labor from l_1 to l_2, driving total labor demand shift left from DL_1 to DL_2. Lower demand for labor cause wage decrease from w_1 to w_2, leading to a decrease in MFC (from MFC_1 to MFC_2)

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2.) 2.a) $L = \frac{P - MC}{P} = \frac{1 - 0.2}{1} = 0.8$ #

∴ Company A has 0.8 Lerner's Index. Furthermore, if Lerner's Index towards to 1, it means that more of seller's power. #

2.b) $HHI = \sum_{i=1}^{N} Si^2 = (0.5)^2 + (0.2)^2 + (0.3)^2 = 0.25 + 0.4 + 0.9 = 0.38$ #

∴ HHI Index is another method to measure a market power (concentrate to market). From the calculation above, this telecommunication sector industry has 0.38 HHI Index.

2.c) Now Company D & T will have 50% of market share.
New HHI index will be $= (0.5)^2 + (0.5)^2 = 0.5$ #

3.) 3.a) Not in a market failures b/c doesn't relate to any types of market failure.

3.b) Externalities fit in this situation because Morpheus is a third party who doesn't choose to be in this situation (considered as additional cost or negative externalities)

3.c) This situation depends on whether the contract is said before or after 3-month. If the contract said she will gain her full-benefit before 3-month, her situation will be moral hazard. But, if the contract said she will gain her full-benefit until 3-month, this situation will not include in a market failure because it must be depend on the contract between Trinity and her company.

3.d) Earthquake alarming system is a public goods, but no one invests on it b/c it cannot return any profit.

3.e) In analysis, more expensive goods mean that firm has more ability to raise and maintain price above the price of another firm. So, this case is considered as market power. Also, we can calculate market power by Lerner's Index.

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3. 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

1. ถูกกว่า
2. ดีต่อสุขภาพ
3. เหมาะ กับทุกเพศ ทุกวัย.
4. safe กว่า เจ้าอื่น
5.

3.a) People feel that price level is hiking. Not a mkt fail

3.b) Morpheus always hears a loud fight coming from a room next to his. Externalities

3.c) Trinity does not receive her full-benefit until her first 3-month of her work position. Moral

3.d) In Chiang Mai, there is no earthquake alarming system. public goods

3.e) Starbucks coffee is more expensive than Amazon coffee. mkt power

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