[Assignment : 3]

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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.

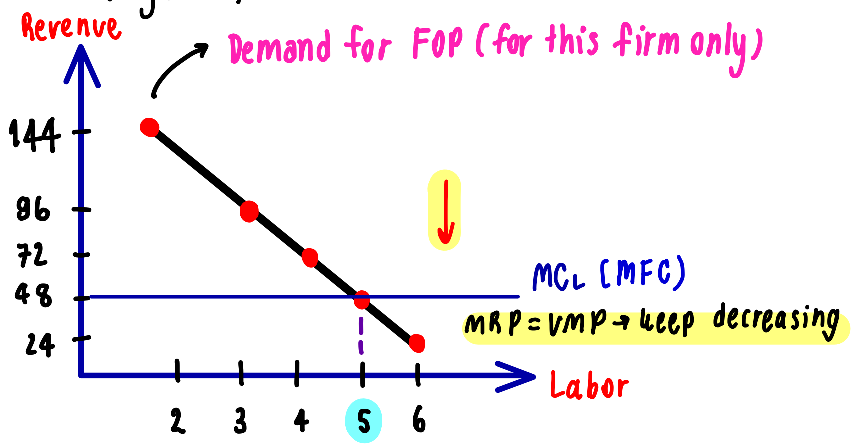
Unit of labor	Marginal product of labor (MP)
2	12
3	8
4	6
5	4
6	2

This product can be sold in the market for $12 each (MR) 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.

→ In perfect competion → MP = Price (Price taker)

→ wage = $48



↳ Comparing between the benefit & cost already!!

∴ This firm will choose 5 units of input for its production to maximize profit.

Since at the 5th worker/labor, the MRP is 48 which is equal to the labor wage of $48. ↳ MRP = Wage = MC_L

↳ MRP & MFC are equal

↳ MRP = VMP in perfect comp.

(MRP = Demand for FOP)

↳ MRP → shows how many worker will be hired @ given wage...

↳ MRP = MP · MR

MRP = (MP)(12)

MPR = wage

↳ condition to maximize π!

2nd worker → MRP = (12) · 12 = 144	
3rd worker → MRP = (12) · 8 = 96	
4th worker → MRP = (12) · 6 = 72	
5th worker → MRP = (12) · 4 = $\boxed{48}$	
6th worker → MRP = (12) · 2 = 24	

↳ It will not make sense to hire 6 units of workers because at 6th labor, the MRP is 24 which is lower than the constant wage rate that can be identified as MC_L / MFC.

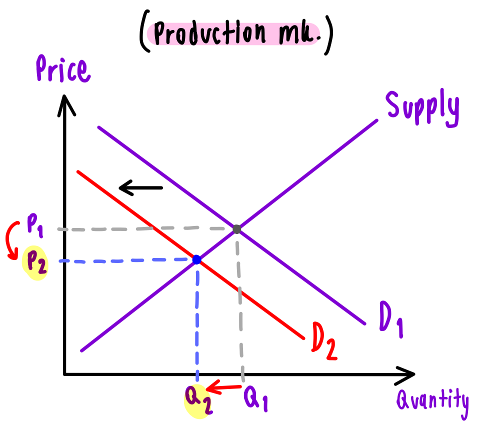
↳ Hiring labor 2 to 4th will still give the firm revenue and @ the 5th is when it is maximized. (firm shouldn't go over)

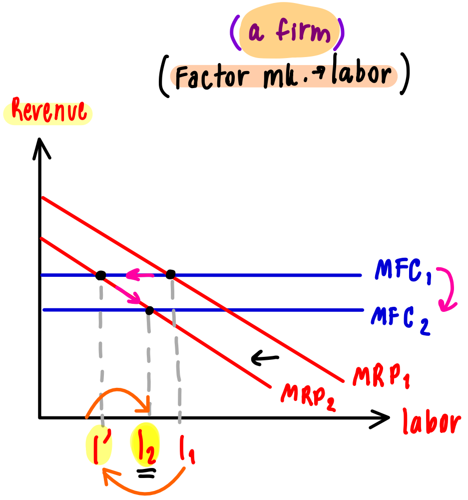
1.b) Supposed that there is a sudden economic recession driving consumers' purchasing power downward, what would happen to the units of labor hired by this firm? Support your answer with illustrations that also show a connection between product market and labor market.

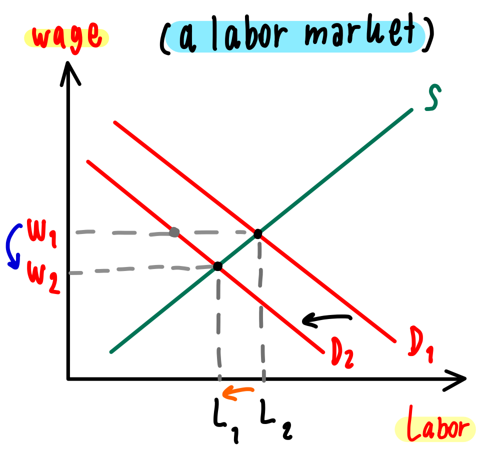
→ Sudden economic recession → Consumer's purchasing power → goes down

→ Units of Labor hired by this firm?

↳ Labor market [factor mk.] can be determined as the derived demand for labor due to the demand of goods & services in the production market.







Recession (consumers' purchasing power goes downward) → having inflation (too high)

in this case

demand from the production mk. goes down

Then, (Q↓, P↓)

(Prod. mk.) (shifts) (a firm)

P↓ → MR↓ → MRP↓ → demand labor in a firm dec. from l_1 to l'

→ total Demand↓ → wage↓ & Labor↓
(shifts) (labor mk.)

→ MFC↓ to MF_2 → demand labor in a firm inc. from l' to l_2

↳ The units of labor hired by this firm will decrease due to the decline in marginal revenue product or the revenue from selling a product due to the recession that makes the Price goes down.

↳ It will decrease from l_1 to l_1 first but then it will increase but not at the same optimal labor of a firm at l_2.

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. Pg.227/383

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.

↳ A = 50%, B = 20%, C = 30% of market share

↳ All companies' marginal cost = $ 0.2 unit of serv./mn. (avg)

2a) Lerner's index for company A?

$$\boxed{L = \frac{P - MC}{P}} \rightarrow L = \frac{1 - 0.2}{1} = \frac{0.8}{1} = \boxed{0.8}$$

↳ $L \in [0, 1]$

∴ Lerner's index for company A is 0.8 which leans to the monopoly market since 0.8 is closer to 1.

→ In this case, the marginal cost is $ 0.2 but if it is 0, then it will possess all the market power.

(determine how much competition in this industry)

2b) HHI index for this industry

↳ Summation of each firm market share square.

$$\boxed{HHI = \Sigma_{i=1}^{n} s_i^2}$$

$$HHI = \overset{A}{(0.5)^2} + \overset{B}{(0.2)^2} + \overset{C}{(0.3)^2} = \boxed{0.38}$$ //

2c) Company D & T decides to merge their company.

↳ New HHI index = ?

$$HHI = \overset{(A)}{(0.5)^2} + \overset{(merged)}{(0.5)^2} = 0.25 + 0.25 = \boxed{0.5}$$ //

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

3.a) People feel that price level is hiking.

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

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

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

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

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3a) Market power: Monopolist control the price which is hiking in this case.

3b) externalities: Morpheus hears the noise as an effect as a (3rd party) which he does not have anything to do with it and thus it is a negative extranality.

3c) moral hazard: Trinity had a [contract] with the company she works for but she does not receive her full benefit until her first 3-month. She had her advantage / benefit taken.

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3d) Public goods : There is no organization to allow Chiangmai to have earthquake alarming systems as the public goods that is categorized in club goods for residents who pay taxes in other areas.

3e) not a market failure : Starbucks coffee and amazon coffee set the price in their own firm. So, it is not relevant.