

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                         |

(P.MP)

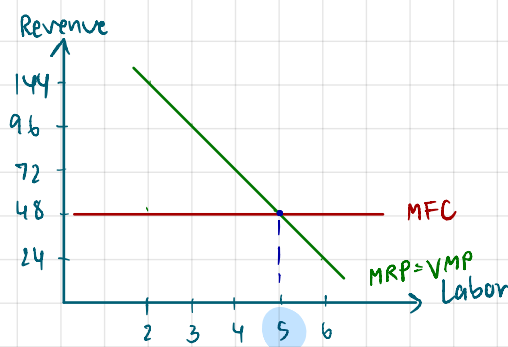
|     |
|-----|
| VMP |
| 144 |
| 96  |
| 72  |
| 48  |
| 24  |

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.

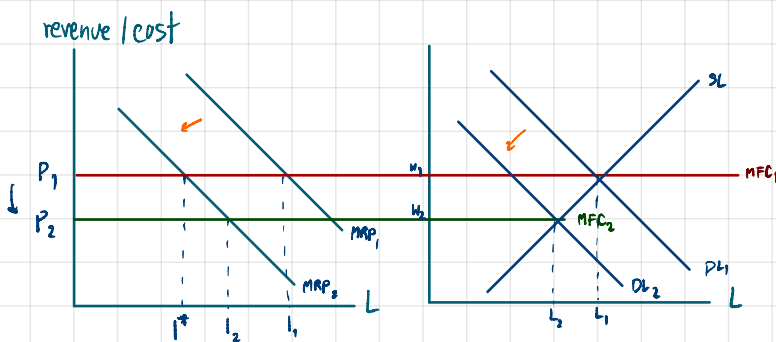
Firm will maximize the profit when  $MRP = MFC$  (perfectly competitive  $MRP = VMP$ )

$$MFC = \text{wage} = \$48$$



∴ 5 unit of labor this firm choose to maximize profit

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.



Decrease in purchasing power will shift to the left when both demand and price decrease, firm will employ less labour.

Demand will shift from  $DL_1$  to  $DL_2$ . Less labour will be hire in the market from  $L_1$  to  $L_2$

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.

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.

$$2.a) \text{ Lerner's index } \rightarrow L = \frac{(P-MC)}{P} = \frac{1-0.2}{1} = 0.8 \quad *$$

$$2.b) \text{ HHI index } \rightarrow H = \sum_{i=1}^n s_i^2 = (0.5)^2 + (0.2)^2 + (0.3)^2$$
$$H = 0.38 \rightarrow 3800$$

2.c) D+T = 50% of market share

$$\text{New HHI} = \sum_{i=1}^2 s_i^2 = (0.5)^2 + (0.5)^2 = 0.5 \rightarrow 5000$$

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.

\*\*\*\*\*

3.a) Market power because the group of firms can raise the price level

3.b) Public good because everyone can use the room

3.c) Moral hazard because employers take risks that Trinity will continue the work or not.

3.d) Adverse selection because Chiang Mai never have severe earthquake.

3.e) Market power because relevant the price