

The diagram above shows that there is only one firm in the industry which faces the  $AC$  given by  $\delta$  the downward sloping LRAC. The demand curve is  $D_1$  and firm maximises profits at output level  $Q_1$  where super normal profits are  $P_1 \times Y \times AC_1$ . If entry and exit costs are high, price will remain at this level but if they are low then firms will be tempted to enter and dilute the monopoly. To ~~was~~ avoid this the existing firm will have to lower its price and in case of perfect contestability, price should be lowered all the way to  $P_0$  where  $TR = TC = OP_0RQ_2$  (normal profits). However even though sometimes market is perfectly contestable but it will remain like a monopoly b/c size of the mkt ~~allow~~ allows only a single firm to produce efficiently. If another producer enters, then demand curve for a single firm will shift inwards from  $D_1$  to  $D_2$  and no firm would be able to cover its

cost as LRAC lies above  $D_2$  through the entire range of output.

⇒ Costless exit: Setting up a new business involves huge expenditure on plant and machinery and once the money is spent it becomes fixed cost. If these ~~fix~~ FC are no higher than those of existing firms then a new entrant could enter the mkt and win competition, but there is always a risk that it might lose. ~~losing~~ losing competition will create ~~as~~ problems if there are substantial exit costs, that is, the capital equipment cannot be ~~use~~ transferred into another use. In a situation like this the FC turns into sunk costs, i.e., the ~~losing~~ firm is left with capital that it can no longer use. The firm may therefore be put off entering the mkt in the first place.

On the other hand, if all the capital and equipment can be transferred to some other use, then FC will not turn into sunk costs, which means there will be a costless exit from the industry which will encourage potential entrance. In other words we can say that the more costless exit is from the industry the greater will be the degree of contestability (contrast examples of airline <sup>service</sup> & power generation).

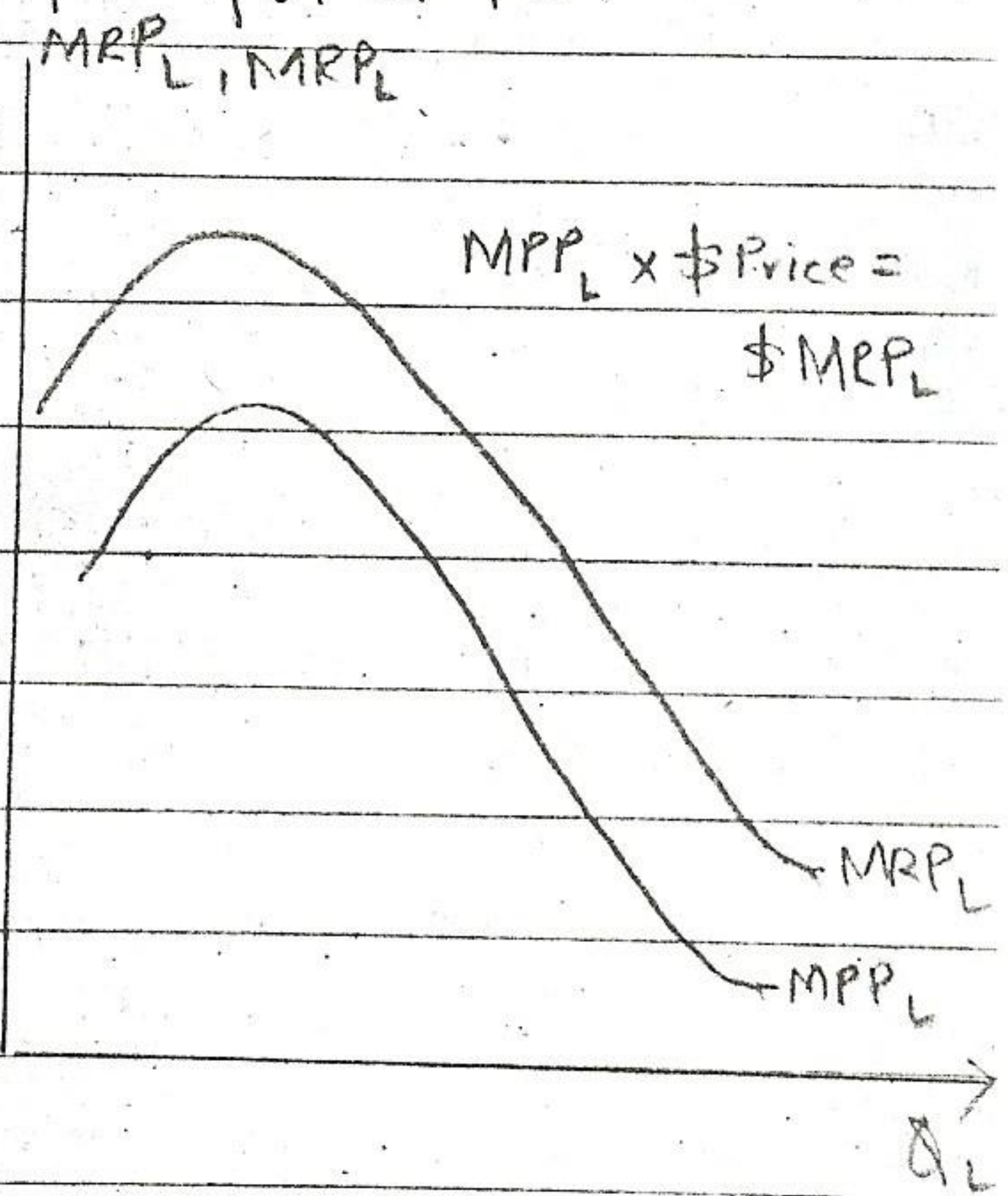
Costless exit also sometimes results in "hit and run competition". This means that if industry is making supernormal profits other firms will enter the industry only till the time they can share supernormal profits and the moment they are gone, firms will exit and transfer capital to another use where ~~SNP~~ <sup>SNP</sup> can be realized.

## LABOUR MARKET.

→ Demand for labour :

Demand for labour is a derived demand from demand for goods and services i.e. when a firm experiences an increase in demand for its product it will also increase demand for labour to increase production in order to accommodate the increase in demand. The demand for labour is an inverse function for wage rate, but what underlies a downward sloping labour demand function is actually the diminishing marginal revenue product of labour.

Q of labour	Output	$MP_L$	$MRP_L$	→ assuming firm sells each unit of output at \$5.
0	0	→ 15		
1	15	15	\$75	$MRP_L, MPP_L$
2	35	20	\$100	
3	50	15	\$75	
4	62	12	\$60	
5	72	10	\$50	
6	80	8	\$40	
7	85	5	\$25	



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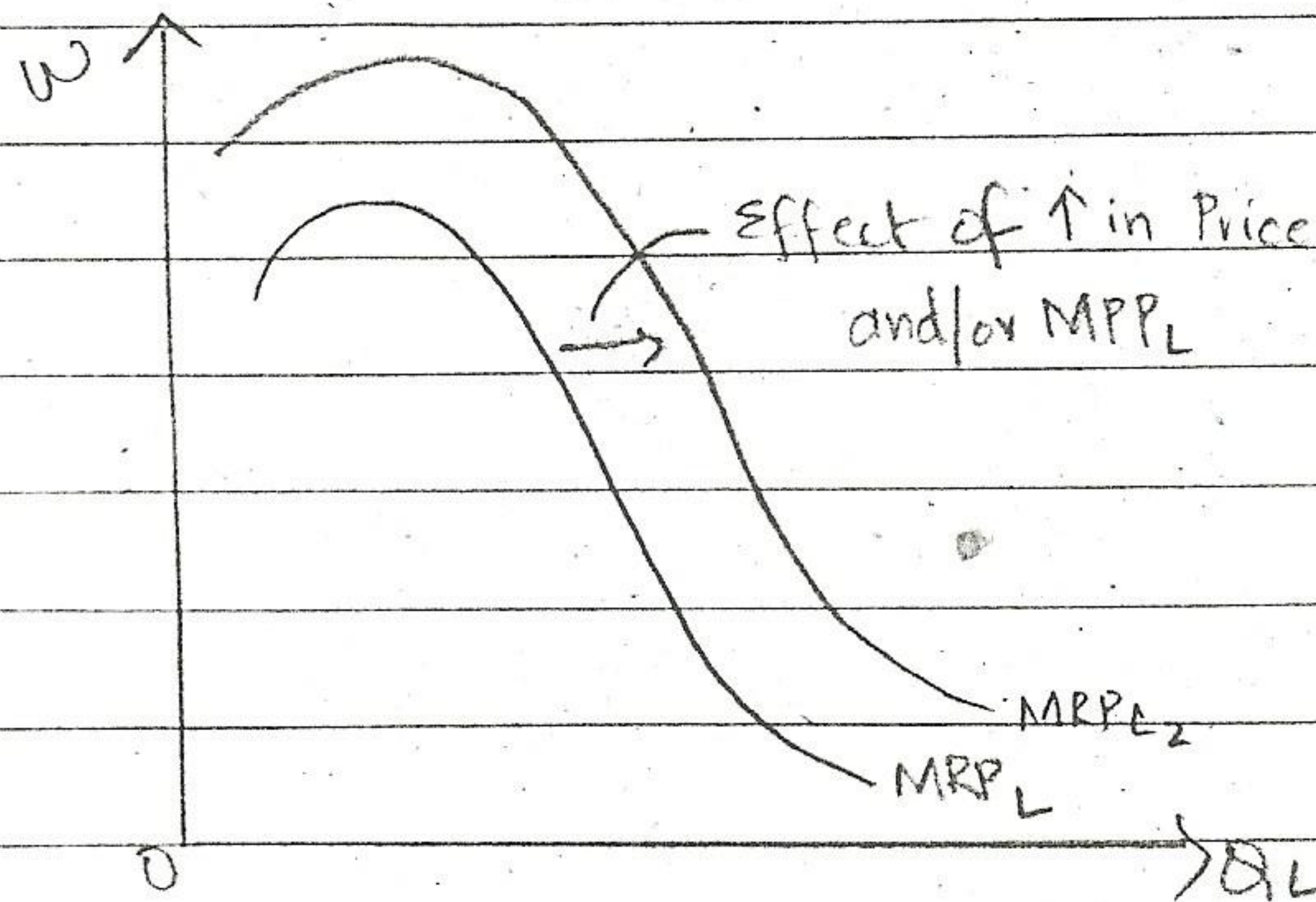
The table above shows that labour like all other factors is subject to the law of diminishing returns, so even if mkt price of firm's product remains constant the MRP of labour which is Product of  $MPP_L$  & Price will still decline (As  $MPP_L$  declines due to diminishing returns. The firm's decision regarding how much labour to be employed will depend on the MC of labour which is the cost of employing an extra unit of labour and MRP of labour which is the addition to total Revenue resulting from employment of an extra unit of labour. As long as  $MRP_L$  remains above  $MCL$  firm will keep employing more labour units b/c every additional unit of labour will add to firm's existing surplus/profit. It must be noted that firm's objective is to maximise surplus, so as long as Marginal Surplus remains positive, it will pay firm to keep employing more labour.

### → Effect of rise in the final price

A rise in the price of firm's final product will increase labour demand at each price b/c  $MPP_L$  will be multiplied with a higher value. The same effect will be realised if price stays constant but there is an increase in physical productivity of labour due to motivation or improvement in technology. Since  $MRP_L$  is what underlies the downward sloping labour demand curve, any rise in price or

Factors  
affecting

physical product of labour will shift  $MRP_L$  outwards.



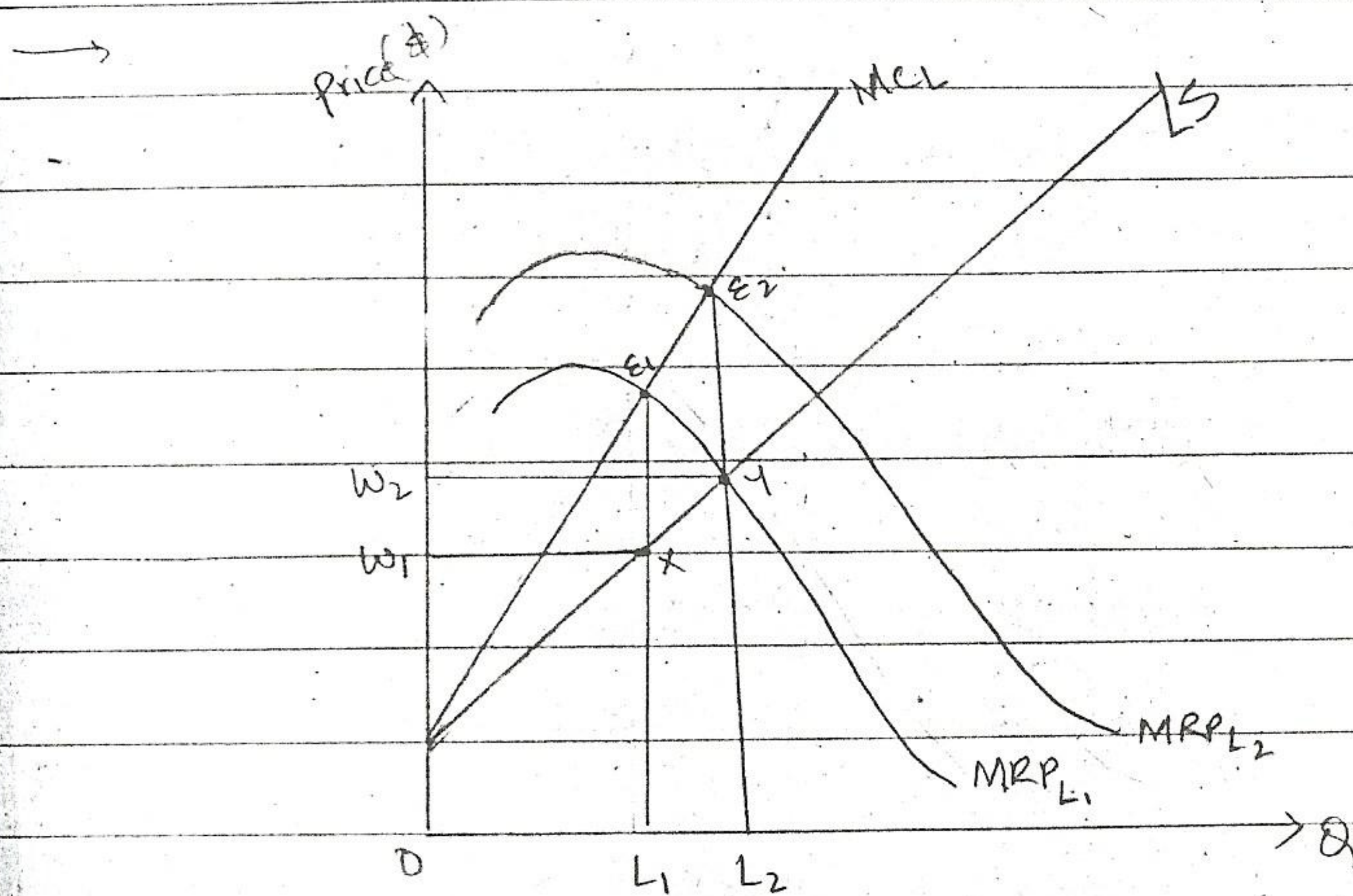
→ Wage determination:

wage Determination

Perfect Competition  
main assumptions

Imperfect Competition

- (i) large number of buyers (firms) & sellers (labourers)
- (ii) for each industry labour units are homogenous
- (iii) firms are too small to influence the wage rate determined by mkt forces of demand & supply.
- (iv) Perfect mobility of labour (both geographical & occupational)

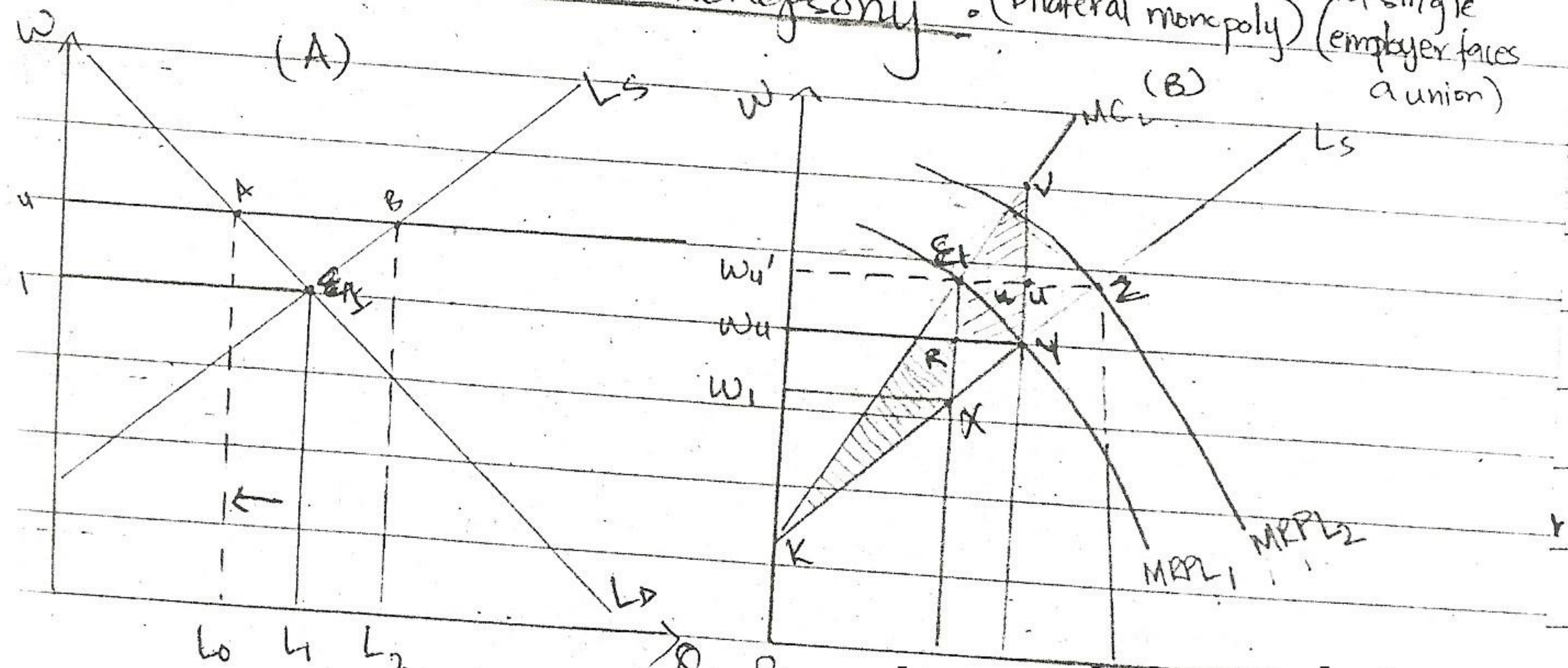


The labour demand curve facing the firm is initially  $MRP_{L1}$ , which cuts  $MCL$  at Pt  $E_1$ , therefore firm employs  $OL_1$  of labour by paying a wage rate of  $OW_1$  (Pt  $E_1$  is extended to labour supply curve to get pt  $x$  which determines the

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average usage). Now  $MRP_L$  increases from  $MRPL_1$  to  $MRPL_2$ . This could be due to increase in  $MPP_L$  and/or increase in price of firm's final product. As a result the equilibrium moves from  $E_1$  to  $E_2$  and it not only increases employment from  $OL_1$  to  $OL_2$  but also ind increases the wage rate from  $w_1$  to  $w_2$ . The rise in wage rate shows that firm is no longer a wage taker but a wage maker. There could be different degrees of wage-making behaviour starting from monopsonistic competition which is least imperfect to monopsony which is most imperfect which while oligopsony will lie somewhere b/w these two. So, as we move from monopsonistic competition to monopsony, the  $MCL$  and  $L_s$  will become steeper implying that any shift in  $MRP_L$  will lead to a much higher increase in wage rate and relatively lower / less than proportionate increase in employment.

⇒ Union Intervention in Perfectly Competitive Market vs Union intervention in monopsony (Bilateral monopoly) (a single employer faces a union)



when union intervenes in a perfectly competitive mkt it will increase the wage rate but reduce the level of employment. This outcome is depicted in panel A where labour mkt is in equilibrium at  $E$ , & wage rate is equal to  $OW_1$ . Union intervenes to establish a min wage of  $OW_u$ . This reduces labour demand from  $OL_1$  to  $OL_0$  but increases labour supply from  $OL_1$  to  $OL_2$  resulting in surplus of  $OL_2 - OL_0$ . The amount of employment is reduced by  $OL_1 - OL_0$  which is the negative effect of union intervention.

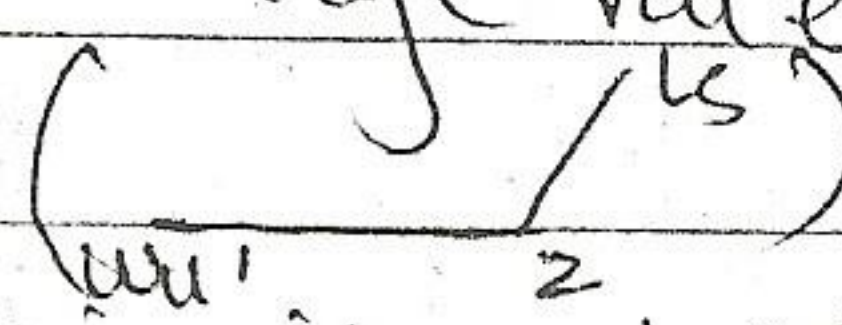
The diagram in panel B shows union intervention in case of a monopsony. This case is also referred to as a bilateral monopoly where a single union is negotiating with a single employer. Before intervention the monopsonist maximizes profits at  $E$ , where  $MC_L$  cuts the initial demand curve  $MRPL_1$ . This results in employment of  $OL_1$  of labour and wage rate of  $w_1$  and companies total wage bill becomes  $OW_1 \times L_1$ . Now union intervenes and we consider the following two scenarios:

- ① The union attempts to set a competitive wage of  $OW_u$  where labour demand  $MRPL_1$  intersects labour supply at pt  $Y$ . The minimum wage of  $w_u$  will result in a kinked labour supply  $w_u Y L_s$  (see diagram below). The perfectly elastic range of  $w_u$



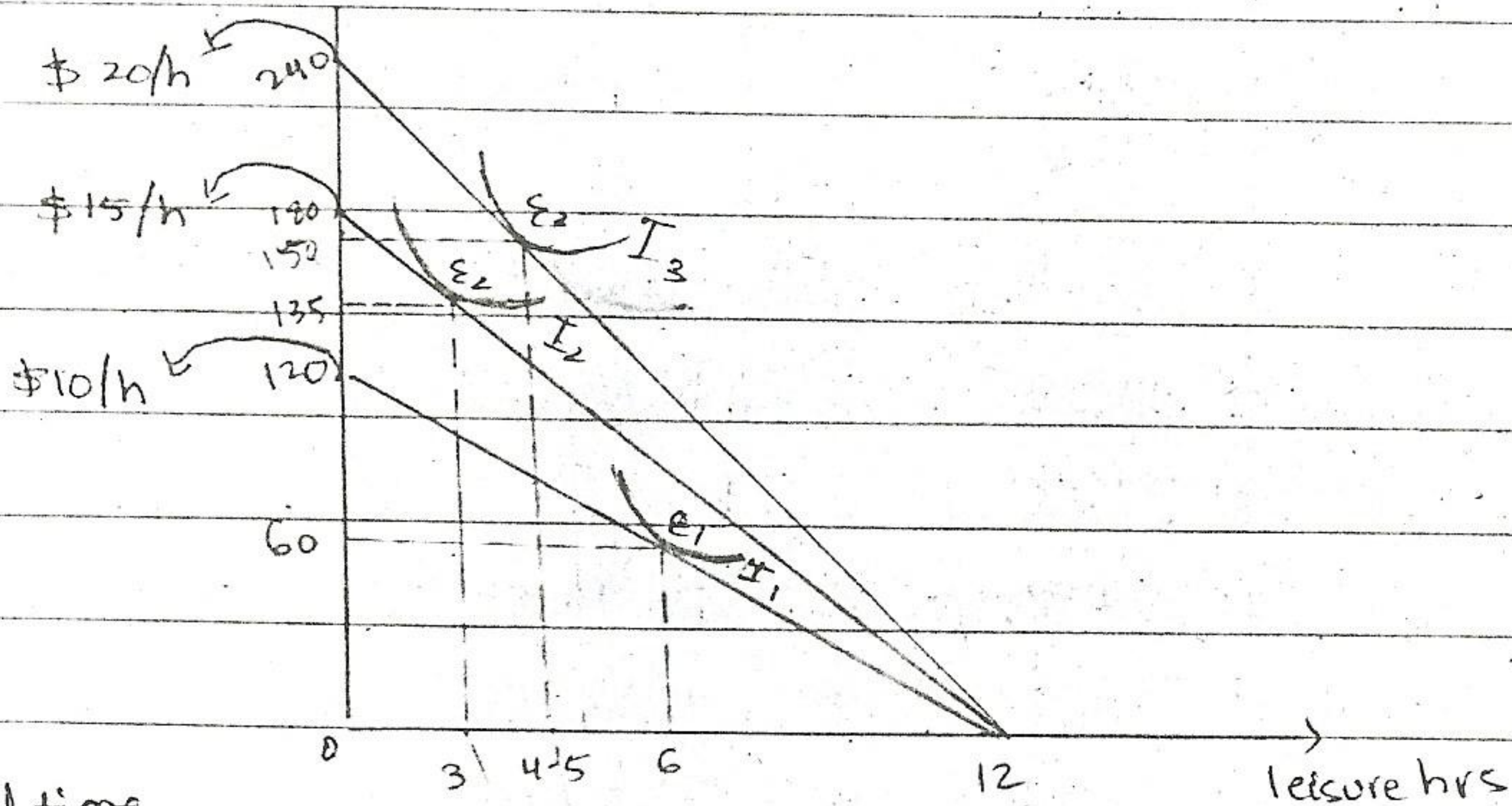
(92)

has  $MC_L$  coinciding in it which makes segment  $KV$  of  $MC_L$  irrelevant. In fact it allows the firm to extend labour demand by moving horizontally from pt R to pt Y and employ an additional  $(L_2 - L_1)$  of labour which will save the area  $REVY$  in marginal cost. It will also compensate the firm for previous savings forgone which are equal to the area  $KRX$ . So the outcome is not only the increase in wage rate but also the increase in employment from  $L_1$  to  $L_2$ . This is a win-win situation compared to the case of union intervention in a competitive mkt where wage rate rose but employment fell.

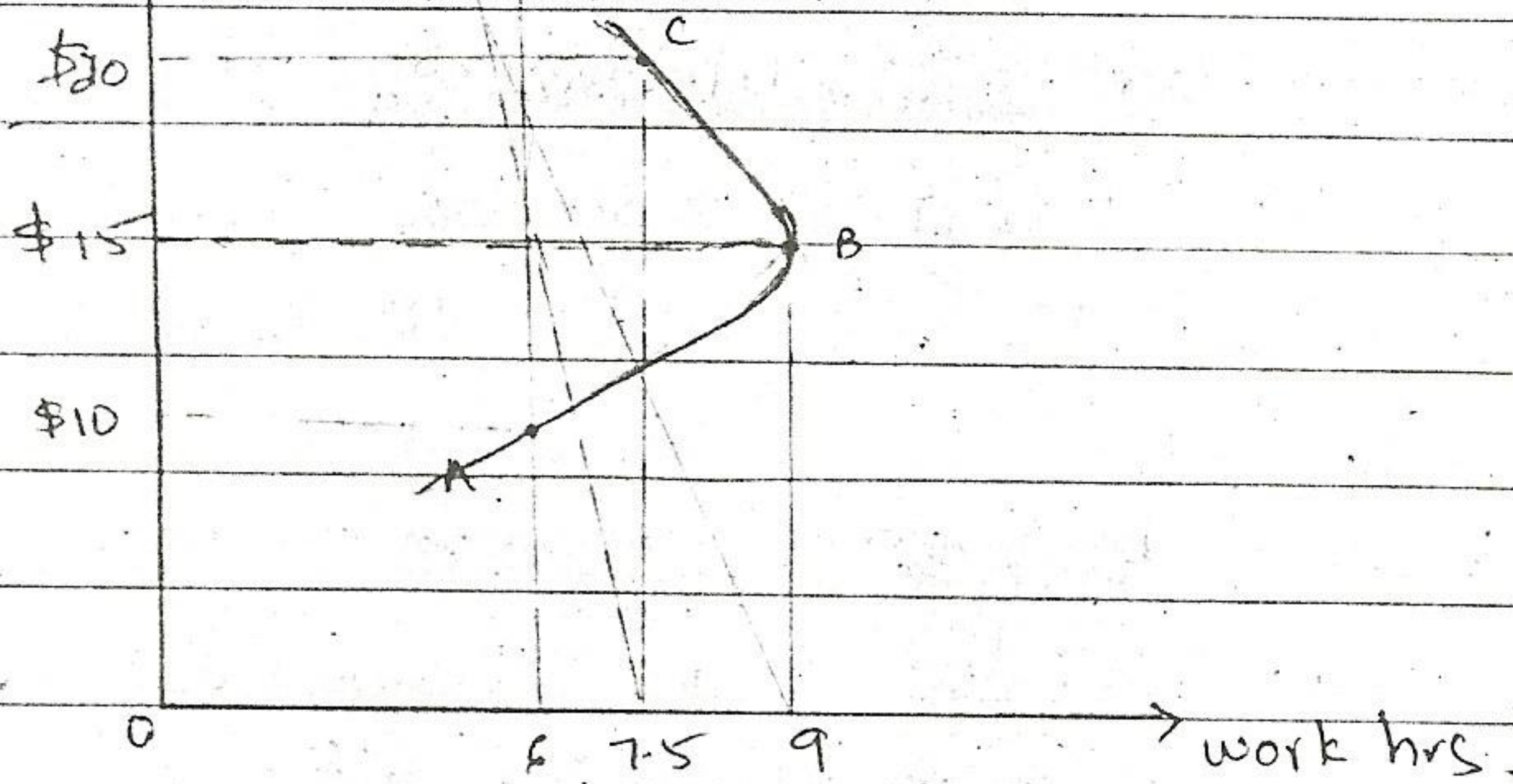
② The second possibility is that union sets a wage rate  $OWu^2$  which will make labour supply kinked.  Now the segment  $OWu^2$  has  $MC_L$  coinciding in it and  $MRPL_1$  intersects this segment at  $E_1$  which results in the same level of employment but a much higher increase in wage rate. This outcome may not be as successful as the first one b/c it doesn't increase employment but it is still better than the case of intervention in competitive mkt b/c there is no job destruction.

⇒ Labour Supply

Individual



Total time to be divided plus work & leisure is 12 hrs a day



A rise in wage rate creates 2 effects which work in opposite directions. Firstly an increase in wage rate increases opportunity cost of leisure and will induce an individual to substitute <sup>leisure</sup> work for <sup>work</sup> leisure. This is known as the substitution effect. On the other hand

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rise in wage rate also increases purchasing power and real income which will induce individual to buy more leisure and make him substitute work for leisure.

This is known as the income effect. Initially the wage rate is \$10 per hr and the individual is in equilibrium at  $E_1$  where  $I_1$  is tangent to the constraint. In other words 6 hrs of leisure corresponding to  $E_1$  translates into 6 hrs of work corresponding to wage rate \$10/hr shown by pt A in the lower panel. A rise in wage rate to \$15 an hr shifts the constraint up moving individual to a new equilibrium of  $E_2$  where he prefers 3 hrs of leisure which translates into 9 hrs of work shown by pt B in the lower panel. Pts A & B are connected through an upward sloping supply curves suggesting that substitution effect is stronger than the income effect. However, any further increase in wage rate such as to \$20/hr increases leisure hrs from 3 to 4.5 which means reducing work hrs from 9 to 7.5. This is shown by pt C in the lower panel and B to C labour supply is downward sloping implying that substitution effect is outweighed by the income effect. So at relatively lower wage rates its the substitution effect which is stronger than the income effect but the trend reverses once wages have risen to a certain level. The variations

in the relative magnitude of income & substitution effects will produce a backward bending supply curve shown in the lower panel.

### → Industry Supply:

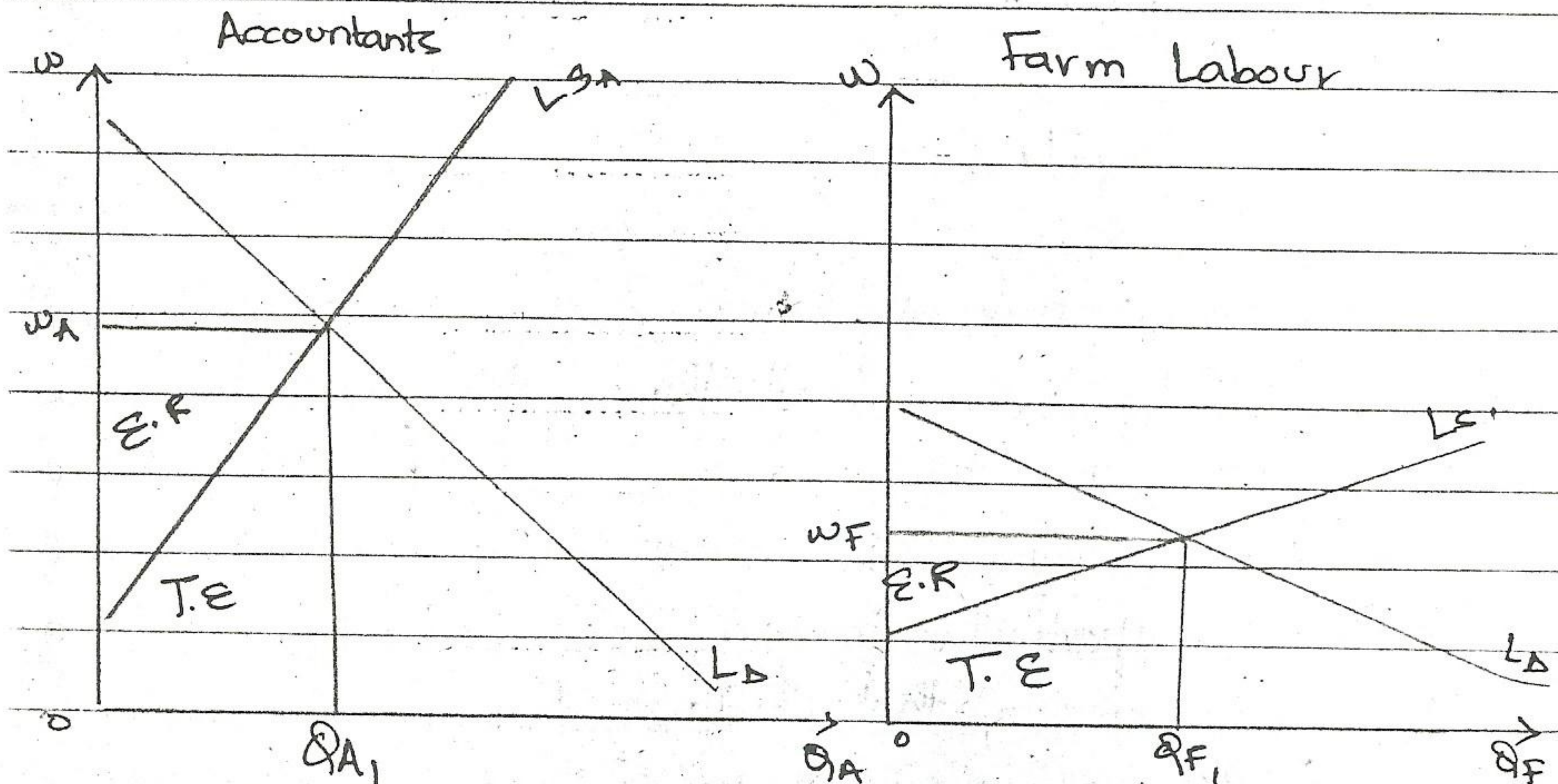
The industry supply curve is derived through horizontal aggregation of labour supply curves of all those individuals who have knowledge skills & abilities to work in that particular industry.

The greater the level of skills required in order to be employed in a particular industry, the more inelastic will be labour supply curve of that industry because the number of people available to work in a particular occupation varies inversely with the level of skill involved. This is why economists often make a distinction b/w skilled and unskilled labour and policies to deal with them should be different as both markets demonstrate a different set of dynamics.

As far as wage determination is concerned we already know that it's done through interaction of labour demand & labour supply and what underlies a downward sloping ~~downward~~ labour demand curve is diminishing marginal revenue product of labour which is composed of MPPL & Price. It is obvious that MPPL in industries which requires skilled labour will be much higher than industry which requires unskilled labour. Put differently the elasticity of labour supply &

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the level of labour demand together, explain the wage differential b/w different occupations/different sectors of the economy.



$$w_A > w_F$$

$$Q_A < Q_F$$

The diagrams above show that a relatively higher labour demand along with an inelastic labour supply function determines wage rate of  $w_A$  for accountants which is much higher than  $w_F$  b/c farm labour is fairly elastic in labour supply and has a poor MPPL due to a competitively lower capital to labour ratio. Furthermore the quantity of accountants will be much lower than the quantity of farm labour b/c of the level of skill & education involved. The elasticity of labour supply has serious implications for economic rent and transfer earnings. Transfer earnings represent the income that labour can earn in his next best alternative and

$$\text{Transfer earnings} + \text{Economic Rent} = \text{Total Earnings}$$

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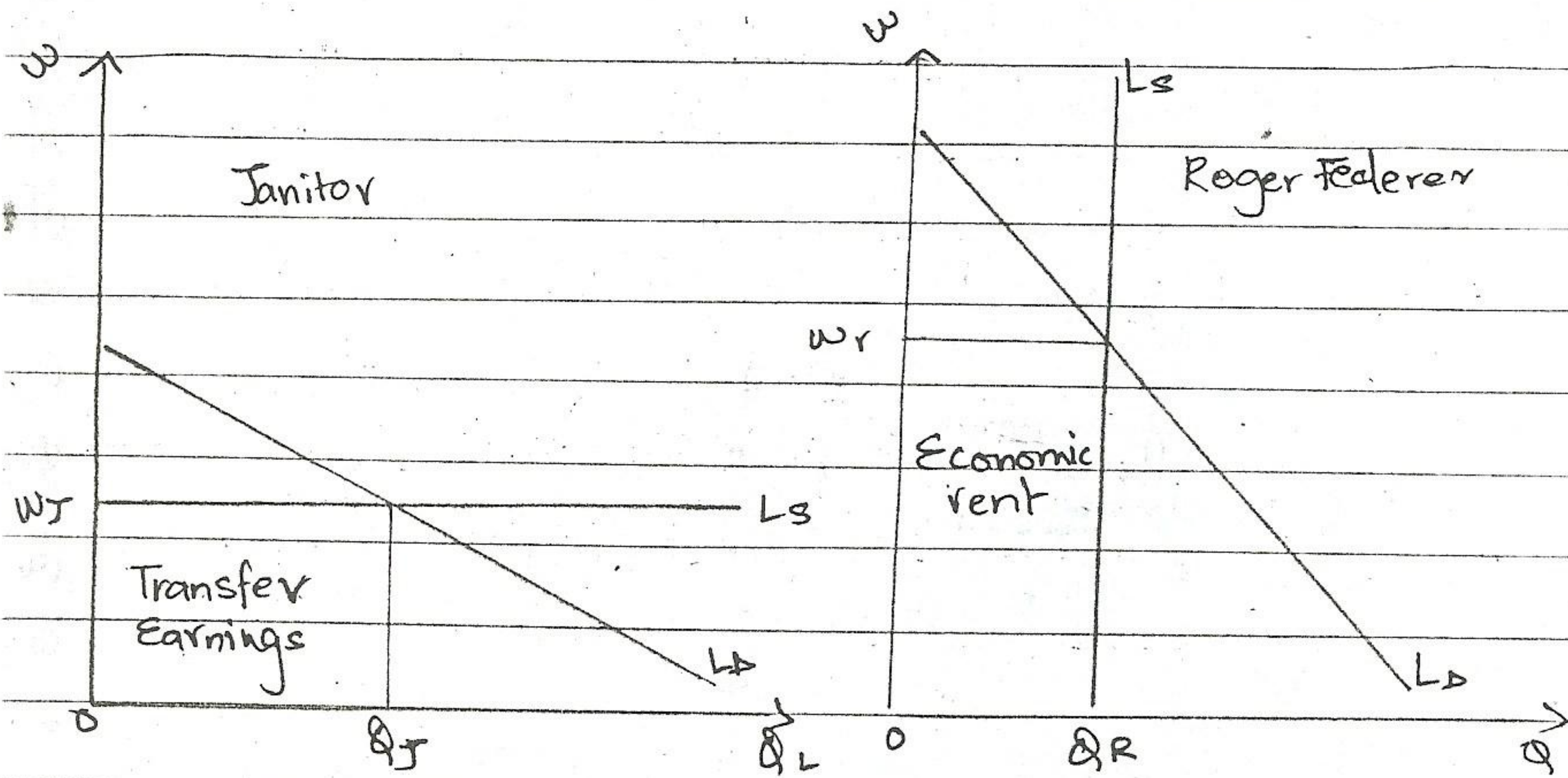
it becomes the area above the quantity axis and below labour supply. In other words transfer earnings show the minimum amount that must be paid to labour that ~~must be paid~~ in order to retain him in present employment. On the other hand, economic rent becomes the difference b/w what labour is actually paid and transfer earnings. On a diagram economic rent is the area below wage rate and above labour supply.

By identifying transfer earnings & economic rent in diagrams above we can derive the following conclusions:

- ① The greater the skill involved in any occupation, the greater will be the % of economic rent in Total earnings, and vice versa.
- ② As we move from skilled to unskilled labour market the labour supply curve becomes more & more elastic causing E.R to disappear and for a type of labour where supply is perfectly elastic eg janitors, total earnings will be equal to transfer earnings making economic rent zero. The move in opposite direction will make labour supply curve perfectly inelastic, which represents a unique skill & that will make ~~E.R~~ Total earnings equal to E.R (Transfer earnings equals zero).

Diagrams →

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→ Labour supply to the economy:

The labour supply to the entire economy depends on the following factors:

- 1) Age distribution of population - The labour force is influenced by the minimum working age and the retirement age. Furthermore, the no. of ppl falling b/w this age bracket is also influenced by birth rate & life expectancy. In developed countries the avg marriage age is increasing and there is also a trend of having fewer children. On the other hand b/c of good medical conditions and quality of life, life expectancy has increased & death rate has fallen significantly. These factors are causing an aging population resulting in a backward shift in labour supply curve. In contrast developing economy have high birth rates & avg marriage age is much lower. Poor life expectancy and poor medical facilities, on the other hand, are contributing to high death rates.

The long run impact of these factors is that labour supply in developing countries is increasing (shifting outwards).

(a) Labour participation rate: It refers to the fraction of labour force which is actually willing to work at the given mkt wage rate. Again we have contrasting trends in developed & developing economies. In developed economies an increasing no. of ppl including women are becoming aware of benefits of higher education and they are pursuing better qualifications to ensure career progressions. As a result the no. of ppl willing to join labour force upon reaching the minimum working age is ~~decreasing~~ declining. In the upper range, most ppl are pursuing early retirement especially those with little or no financial obligations eg ppl whose children are settled and mortgage is paid off. These two factors are reducing labour participation rate in developed countries. In contrast, lack of necessities and poor quality of life in developing countries is making higher education unaffordable and forcing an increasing no. of ppl to join labour force as soon as they reach the minimum working age and most of them will continue to work till they reach the retirement age. These factors have increased labour participation rate in developing economies.



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③ Level of taxes & benefits: They influence the incentive to work. Most economies try to make their tax system progressive by increasing the marginal tax rate. However after a point any increase in MTR will become counterproductive and make individuals prefer leisure over work. In the UK the MTR applicable to the highest income bracket had gone up to 80%, implying that after reaching a certain level of income every additional ~~pound~~ £ in incremental income was taxed away by 80p leaving only 20p as disposable. Similarly unemployment benefits can also distort incentives. A higher rate of unemployment benefits can encourage voluntary unemployment and reduce labour participation rate. Supply side economists stress on manipulating marginal tax rates and unemployment benefits to increase real output and employment in the economy.

④ Net migration: It is the difference b/w immigration rate  $I$  (no. of ppl coming into the economy to join the labour force) and emigration rate  $E$  (no. of ppl leaving the country to work abroad). Many developing economies, which have an aging population and negative population growth are attracting labour from developed countries in different sectors like teaching, nursing, accounting, inf IT etc. Countries like Canada, Italy, Australia have a rising proportion of imm. immigrants labour in their workforce.