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Topic: Wage Determination under Perfect Competition in the
Labour Market

Wage Determination under Perfect Competition in the Labour Market

The analysis of wage determination under conditions of perfect competition is exactly the same as given there. In the case of wage determination, it should be remembered that average factor cost (AFC) becomes average wage (AW) and marginal factor cost becomes marginal wage (MW).

When there prevails perfect competition in the labour market, wage rate is determined by the equilibrium between the demand for and supply of labour. Demand for labour is governed by marginal revenue product of labour (MRP).

Wage rate determined by demand for and supply of labour is equal to the marginal revenue product of labour. Thus, under perfect competition in labour market, a firm will employ the amount of labour at which wage rate = MRP of labour.

As regards the supply of labour, it may be pointed out that supply of labour to the whole economy depends upon the size of population, the number of workers available for work out of a given population, the number of hours worked, the intensity of work, the skills of workers and their willingness to work.

The size of population depends upon a great variety of social, cultural, religious and economic factors among which wage rate the size of population rises or falls with a rise or fall respectively in the wage rate, and from this they had deduced a law called “Iron Law of Wages”. But the history has shown that rise in the wage rate may have just the opposite effect on the size of population from what the subsistence theory of wages conceives.

Moreover, the historical experiences have revealed that the size of population is dependent upon the great variety of social, cultural, religious and economic factors among which wage rate plays only a minor determining role. However, the willingness to work may be influenced greatly by the changes in the wage rate.

On the one hand, as wages rise, some persons will do not work at lower wages may now be willing to supply their labour. But, on the other hand, as wages rise, some persons may be willing to work fewer hours and others like women may withdraw themselves from labour force, since the wages of their husbands have increased.

Thus there are two conflicting responses to the rise in wages and therefore the exact nature of supply curve of labour is difficult to ascertain. It is, however, generally held that the total supply curve of labour rises up to a certain wage level and after that it slopes backward. This is shown in Fig. 33.5. As wage rate rises up to OW , the total quantity supplied of labour rises, but beyond OW , the quantity supplied of labour decreases as the wage rate is increased.

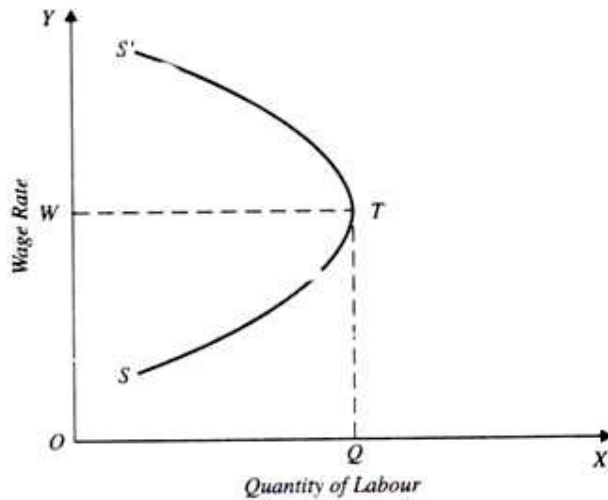


Fig. 33.5. Beyond a certain wage rate, supply curve of labour is backward sloping.

But so far as supply of labour to a particular industry is concerned it slopes upward. As the wages in an industry are increased labourers from other industries will shift to this industry. The elasticity of the supply curve of labour to an industry will also depend upon the transfer earnings of labourers.

Similar is the case of supply of workers to a particular occupation. If wages in one occupation go up, some persons from other similar occupations would be attracted to it and thus the supply of labour to that occupation will increase.

Thus because of occupational shifts, the supply curve of labour to a particular occupation is elastic and rises upwards. The long-run supply curve of labour is more elastic than the short-run supply curve since, in the long-run, besides the occupational shift in the labour force, new entrants in the labour market (who are now children) can also adopt the occupation by getting training for it in the very first instance.

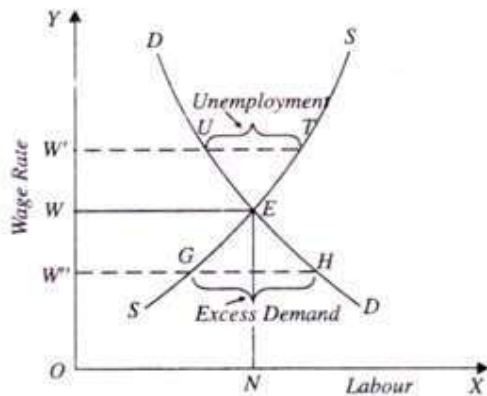


Fig. 33.6. Determination of Wages

How the wage rate is determined by demand for and supply of labour is shown in Figure 33.6 where DD represents the demand curve for labour and SS represents its supply curve. The two curves intersect at point E. This means that at wage rate OW, quantity demanded of labour is equal to quantity supplied of it.

Thus, given the demand for and supply of labour wage rate OW is determined and at this wage rate labour market is cleared. All those who are willing to work at the wage rate OW get employment. This implies that there is no involuntary unemployment and full employment of labour prevails.

It is important to note that there will be no equilibrium at any wage rate higher or lower than OW. For example, at a higher wage OW c supply of labour exceeds quantity demanded of it and as a result involuntary unemployment equal to UT emerges. Given the competition among labourers, this unemployment would push down the wage rate to OW.

On the other hand, at a lower wage rate OWC the demand for labour exceeds the amount of labour which people are willing to supply. In view of the excess demand for labour, the wage rate will go up to OW where the demand for labour equals the amount supplied of it. Thus wage rate OW will finally settle in the labour market.

Though wage rate is determined by demand for and supply of labour, it is equal to the value of marginal product of labour. This is so because in order to maximise its profits, a firm will equalise the wage rate with the value of the marginal product (VMP) of labour.

If the firm stops short of this equality, the value of the marginal product (VMP) will be greater than the wage rate which would imply that there was still scope for earning more profits by increasing the employment of labour. On the other hand, if the firm goes beyond and employs more labour than the equality point, the value of the marginal product of labour will become smaller than the wage rate.

As a result, the firm will incur losses on workers employed beyond the equality point and it will therefore be to the advantage of the firm to reduce the employment of labour. Thus in order to maximise profits and be in equilibrium the firm working under conditions of perfect competition in the factor and product markets will employ so much labour that the wage rate is equal to the value of marginal product (or marginal revenue product) of labour.

It will be seen from Fig. 33.6 that the firm working in perfect competition in the labour market will take the wage rate OW as given and equates it with value of marginal product (VMP) and employs OM labour. To sum up, the wage rate is determined by demand for and supply of labour, but is equal to the value of marginal product (or marginal revenue product) of labour.

It is worth mentioning that when the firms are in equilibrium by equating value of marginal product of labour to the wage rate, they may be making profits or losses in the short run. Consider Figure 33.7 which depicts the equilibrium position of the firm in the short run.

It will be seen from Fig. 33.7 that at the wage rate OW , the firm is in equilibrium when it is employing OM amount of labour. It will be further seen that the firm is making super-normal profits since in equilibrium employment OM , average revenue product of labour (ARP) which is equal to RM is greater than the wage rate OW ($=ME$).

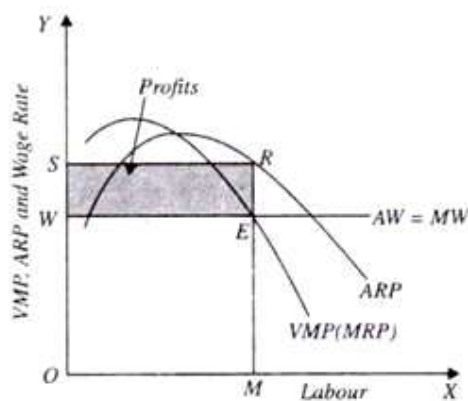


Fig. 33.7. *Equilibrium of the Firm with Super-Normal Profits*

This can happen in the short run, but not in the long run. When firms are earning super-normal profits in the short run more entrepreneurs will enter the market in the long run to purchase labour to produce the products made by it.

Entry of more entrepreneurs to the labour market will compete away the super-normal profits. As a result, the demand for labour will rise and the demand curve for labour will shift outward to the right, which will raise the wage rate and will eliminate the profits.

It should be carefully noted that a firm will not employ labour if wage rate exceeds average product of labour. Unlike machines labour is a variable factor and if its employment is not sufficient to recover its wages, it will be laid off even in the short run.

Consider Fig. 33.8 at wage rate OW_1 , a firm will be incurring losses if it employs ON_1 amount of labour at which wage rate $OW_1 = VMP = MRP$. Therefore, at wage rate OW_1 , the firm will not employ labour.

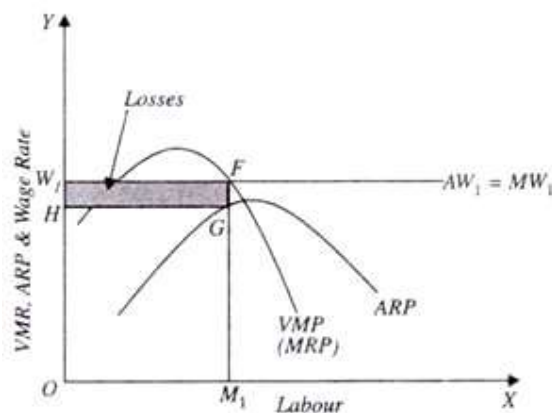


Fig. 33.8. A firm will not employ labour at wage rate OW_1 .

To sum up, in the long run, the equilibrium between demand for and supply of labour is established at the level where the wage rate of labour is equal to both the VMP (MRP) and ARP of labour and thus the firms earn only normal profits. The long-run equilibrium position of the firm working under perfect competition is depicted in Fig. 33.9 where it will be seen that the firm is in equilibrium at ON level of employment (i.e., at point T) at which wage rate is not only equal to value of marginal product but also average revenue product of labour.

Given the ARP and VMP curves, if the wage rate is lower than $OW (= N.T.)$, the number of firms employing labour will change causing changes in demand for labour. As a result of this, the wage rate will ultimately settle at the level OW or NT .

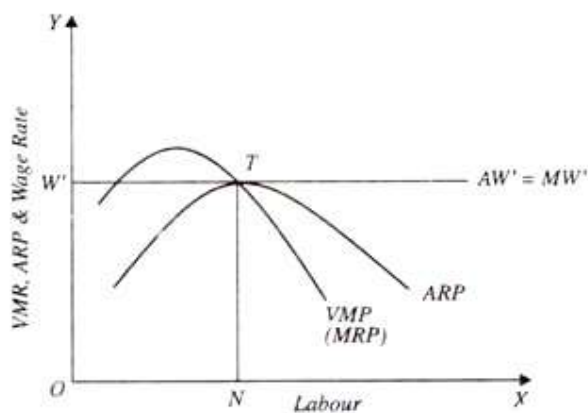


Fig. 33.9. Long-Run Equilibrium of the Firm

Changes in Equilibrium Wage Rate:

We have explained above how through interaction of demand for and supply of labour determines the market wage rate. Now, if any of the factors causes a shift either in demand curve or in supply curve of labour, the equilibrium will be disturbed causing a change in the wage rate. Both demand for and supply of labour can shift.

Shift in Demand Curve for Labour:

Demand for labour increases if its productivity increases, say through technological improvement. This will cause a rightward shift in the demand curve for labour and as shall be seen from Fig. 33.10 this will bring about a rise in the wage rate.

Similarly, if the demand for a product, say of a textile cloth, increases, the demand for textile workers being a derived demand will also go up. This too will cause an upward shift in the demand for textile workers causing a rise in their wage rate.

Further, if the price of a textile cloth rises, it will increase the value of marginal product, ($VMP = \text{Price} \times \text{MPP}$) of textile workers. With this higher value of marginal product, it will become profitable for the producer to hire more workers. As a result, demand for textile workers will increase causing a rise in their wage rate.

Conversely, if the demand for a product decreases or its price falls, it will induce a reduction in the demand for labour. Given the supply curve, decrease in demand for labour will bring about reduction in wage rate.

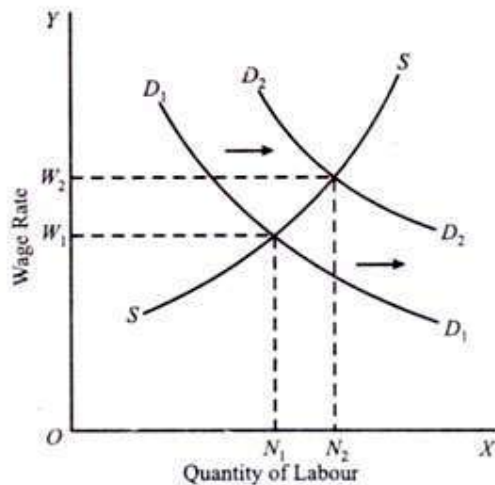


Fig. 33.10. Effect of Increase in Labour Demand on the Wage Rate

Shift in Labour Supply Curve:

If the factors determining labour supply undergo a change, the supply curve of labour will shift causing a change in the equilibrium wage rate. The supply of labour to a given occupation or industry will decrease if the wages in alternative occupations or industries go up.

In this case at every wage rate less labour will be offered to a given occupation or industry. This will cause a shift in the supply curve of labour to the left and, given the demand curve for labour, result in rise in the wage rate. This is shown in Figure 33.11.

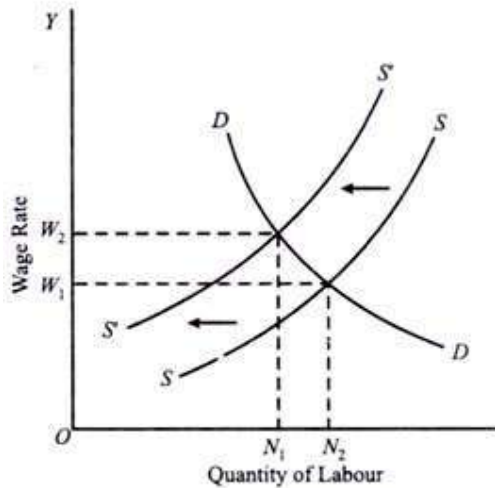


Fig. 33.11. *Effect of Decrease in Labour Supply on Wage Rate*

Similarly, if workers valuation of their leisure time changes, the supply curve of labour will shift. If most workers start attaching a higher value to their leisure time spent with their families, the less labour will be supplied to an occupation or industry. This will cause a shift in the labour supply curve to the left resulting in higher wage rate as is illustrated in Fig. 33.11.

Conversely, if for any reason, the wage rate in alternative occupation fall or workers' preferences for leisure declines, supply of labour to a given occupation or industry will increase at every wage rate. This will cause a shift in the supply curve of labour to the right and result in-fall in the wage rate.