M.A. II Semester
Paper- Theory of Market Distribution(201)

The Marginal Productivity Theory of Distribution

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Introduction:

Marginal Productivity theory is a bold attempt to explain the determination of rewards of various factors of production. It provides a general explanation of how the price of a factor of production is determined. According to the theory the price of a factor tends to equal the value of its marginal product. Thus, rent is equal to the value of the marginal product of land, wages are equal to the value of the marginal product of labour and so on.

Assumptions of the Theory:

1.Perfect competition in both product and factor markets.
2. Operation of the law of diminishing returns.
3. Homogeneity and divisibility of the factor.
4. Operation of the law of substitution.
5. Full employment of factors.
6. Exhaustion of the total product.

Some Key Concepts:

1. **Marginal Physical Product (MPP):** It is defined as addition to the total product when one more unit of the variable factor is employed, the amount of all other factors remaining unchanged. For example, if two workers produce 5 pencils and three workers produce 7 pencils then MP will be 2 pencils.

2. **Marginal Revenue Product (MRP):** It is defined as the addition to the total revenue resulting from the employment of one more unit of the variable factor and the sale of the additional product. In mathematical notation, MRP is calculated as:
   MRP = MP x MR

3. **Value of Marginal Product (VMP):** It is defined as the proceeds from the sale of the marginal product. In mathematical notation, **VMP** is calculated as: **VMP = MP x P.**

4. **Average Revenue Productivity (ARP) :** It is the average revenue per unit of a factor of production.
   (Under Perfect Competition- Since P = MR ∴ VMP = MRP)
   (Under Imperfect Competition- Since P > MR∴ VMP > MRP)

Explanation of the theory:

The marginal productivity theory of distribution is the general theory of distribution. The theory explains how prices of various factors of production are determined under conditions of perfect competition. It emphasizes that any variable factor must obtain a reward equal to its marginal product.

We know that a rational producer aims either at maximizing his profit or minimizing his loss. Producer is in equilibrium only when the marginal cost is equal to marginal revenue. In other words, a producer will employ the factors only up to the point where the cost of an additional factor unit equals its marginal revenue. The theory is applicable to all factors of production, we may illustrate it with reference to labour.
Hence, Factor Price = Marginal Revenue Productivity (Or VMP).

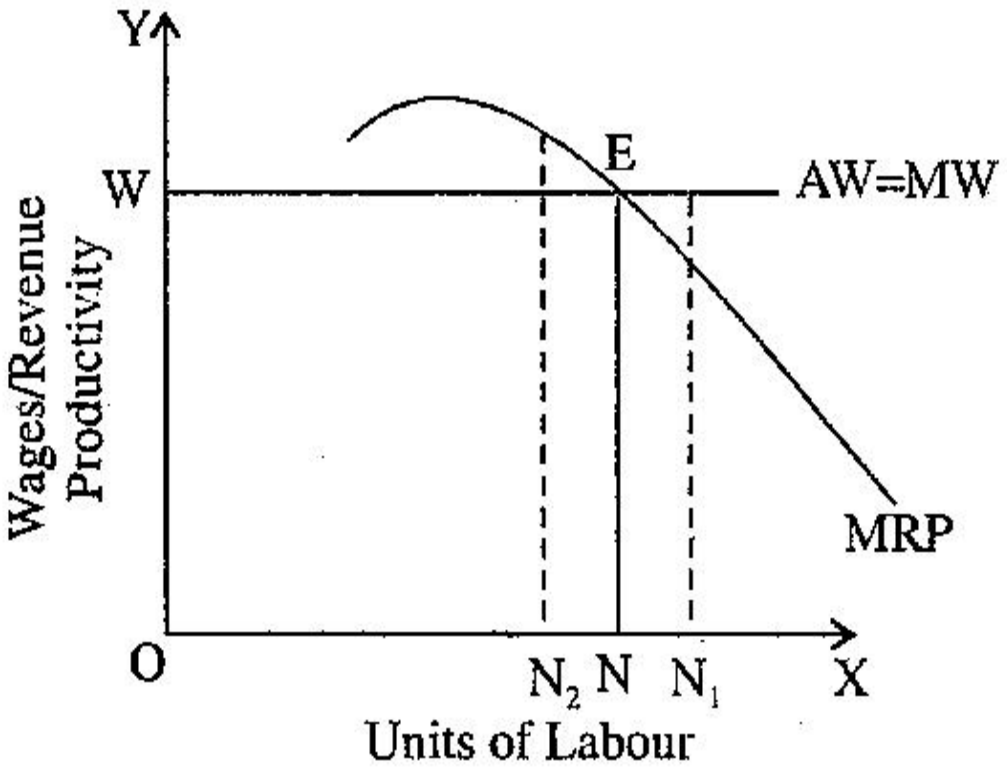
There is no fundamental difference between the mechanism of determination of factor prices and that of prices of commodities. Factor prices are determined in markets under the forces of supply and demand. But there is one difference. While the demand for commodities is direct demand, the demand for factors of production is derived demand. For example, there will be demand for workers engaged in construction industry only when there is demand for housing.

Determination of factor Employment and firms Equilibrium in a factor market:

The theory states that a firm should employ that many units of a factor (labor in our example) where marginal revenue productivity (or VMP) becomes equal to the factor -price (i.e. wage -rate in our example). VMP of a factor = Factor Price. This is explained in the following Table and Diagram:

Labour (units)	AW = MW or Wage-Rate (Rs.)	MRP (Rs.)
1	50 <	70
2	50 <	80
3	50 <	70
4	50 <	60
5	**50 =**	**50**
6	50 >	40
7	50 >	30

Table No.1



It is clear from the above table and Figure that when MRP (or VMP) is greater than wage -rate (MW = AW), firm can increase its profit by employing more labour. At equilibrium (E), MRP equals to wage rate. Similarly, if wage rate is greater than MRP, firm will be in loss. Then it will go on reducing the numbers of labour till wages and MRP become equal. Hence firm will employ 5 or N units of labour.

Thus, under perfect competition in the labour market a firm is in equilibrium when two conditions are fulfilled:

(i) MRP = AW = MW = Wage Rate.

(ii) MRP curve must cut MW curve form above.

Criticism:

1. The theory ignores the role of supply curve of factors in determination of price of a factor.
2. The theory assumes full employment. Full employment rarely exist in the real world.
3. The theory is based on the assumption of perfect competition. It is an unrealistic assumption which rarely exist in the real world.
4. Short period is ignored.
5. It is difficult to calculate the MP of a factor because production is a joint efforts of all factors.
6. It only explains the demand side of factors.