Department of Distance Education

Punjabi University, Patiala

Class : M.A. I (Economics) **Semester : 2**
Paper : I (Micro Economic Analysis) **Unit : I**
Medium : English

Lesson No.

Department website : www.pbidde.org

Lesson No. 2.1

Author : Prof. Balbir Singh &
Prof. Roshan Khosla

Marginal Productivity Theory of Distribution and Euler's Theorem

1. Introduction: A single factor of production is not in a position to produce a commodity. Actually, production takes place with the joint efforts of factors of production. The question is how much share is contributed by a factor of production in the total production. The remuneration of a factor can be determined after knowing its contribution to the total production. To determine the share of a factor of production we need a precise and exact theory so that each factor is paid with some justification. For this, we will also have to take into consideration the type of market that prevails at that specific time.

It is generally said that the idea of marginal productivity theory was given by David Ricardo but even before Ricardo, Edward West applied this theory to land where units of capital and labour were taken together. In 1830, it was Longfied in England who said that wages and interest were related to the value of the product that is contributed by employing marginal doses of capital and labour. Besides this, the Ricardian theory of rent and some other statements by different economists, the marginal theory of distribution was developed independently by Jevons, Wickstead and A.Marshall in England and by J.B.Clark in United States of America.

The marginal productivity theory enumerates that in equilibrium each factor of production will get remuneration according to its marginal productivity as measured by its differences due to the total product because of a unit addition or withdrawl of the factor. The maximum remuneration (or wage in case of labour) which an employer will be ready to pay for a unit

of factor on the basis of its productivity. Higher the marginal productivity of a factor, more the remuneration it will get. It implies positive relationship between productivity and its remuneration. The employer will not employ more factor units because by doing so the marginal factor cost will be more than the marginal productivity or contribution of the unit of a factor. Since all units are assumed to be homogeneous, the highest remuneration of each factor unit will be equal to productivity of the marginal factor unit.

Under perfect competition in the long-run average revenue productivity will be equal to its remuneration as it is depicted at point T in the fig 1. In the last the scholars were of the view that the rising part of the average revenue productivity curve (up to point T in fig. 1) shows the law of increasing returns and its falling phase beyond point T due to the application of the law of diminishing returns. So in the long-run, according to marginal productivity theory under perfect competition the remuneration that a factor unit gets is equal to the average revenue productivity and marginal revenue productivity as shown in the figure at point T.

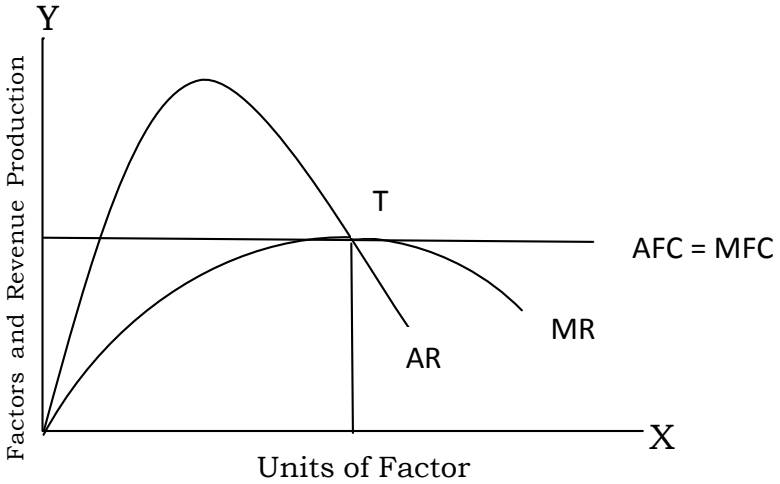


Fig No. 1

The theory brings out that factors of production receive their income according to their Marginal Productivity which is also called Marginal revenue product. Marginal Revenue Product of a factor of production is equal to its Marginal physical product multiplied by its marginal revenue.

Thus MRP = MPP x MR

Under perfect competition MRP of a factor of production is also equal to its VMP

2. Assumptions : The Theory makes following assumptions to prove the problems of distribution among factors of production

Explicit Assumptions:- (1) There is a pure competition in the factor market (i.e. Supply Curve is perfectly elastic). (2) Factors of production are homogenous. (3) Production coefficients are variables i.e. factors of production are perfect substitutes of one another. (4) Factors are capable of inter-use mobility. (5) Factors try to maximise their incomes. (6) M.P.P. is marginal that it is imputed to a unit change.

Implicit Assumptions:- (1) Production function is given. (2) Prices of all factors are given. (3)The demand for the product of the firm is given.

3. DERIVATION OF THE DEMAND CURVE:-

Marginal productivity theory emphasis only on one side i.e. demand of factors of production. Supply of factors more or less is given.

The demand curve for a particular factor can be derived from its marginal revenue product. Let us assume that the supply price of a factor of production say labour is given to firm. Then the firm employes labour at a level where the MRP of labour will equal to wage.

In the alongside diagram D1 D2 D3 points representing demand for labour at various wage levels lie on MRP curve, therefore it means that MRP curve also represent the demand curve i.e. MRP curve is the demand curve of the firm.

We can also find out the demand curve of the industry for labour by multiplying the demand of a firm by total number of firms. The shape of demand curve of industry will be same as that of a firm.

4. DERIVATION OF A SUPPLY CURVE:- Marginal Productivity theory assumes that factor prices are given. It means supply curve for the firm is perfectly elastic. However, we can examine the supply of a factor of production for an economy as follows.

Land : The Supply of land is inelastic from the point of view of the economy although it is perfectly elastic from the point of view of the firm and industry.

Labour : The Supply of labour for the economy depends on the size of the population which has no functional relationship to the current wage

rate. Therefore the Supply of labour to the economy is inelastic but it is perfectly elastic for the firm as well for industry. (Particular Occupation)

Capital :Supply of Capital depends on the policy of Central commercial banks therefore it is inelastic for the economy. But it is perfectly elastic for the firm as well as for the industry. (Particular Occupation)

Entrepreneur :Its Supply is also inelastic for the economy but is perfectly elastic for the firms to industy. Therefore following is the shape of the Supply Curve of a firm

We can also find the supply curve of the industry by adding supply curves of the firms in the industry horizontally therefore the shape of the supply curve of the industry will also be same as that of a firm.

5. DETERMINATION OF FACTOR PRICING :- We have proved that shape of the demand curve as well as the supply curve will be the same for firm as well as industry . Therefore a single diagram will depict the determination of factor pricing for both, a firm as well as industry.

The diagram shows that equilibrium is established at the point E where demand supply curves intersect each other. It means that OA amount of the factor demanded at the price OP. Now as supply is given at different wage rates (assumptions), therefore it is only the demand curve which determines price. In fact demand curve is nothing but MRP curve. Hence it is the MRP curve which determines the price. In fact demand curve is nothing But MRP curves. Hence it is the MRP curve which determines the price of the factor of production.

5.1. CLARK VERSION OF MP THEORY :

This Book the Distribution of Wealth

He assumes a completely a static society i.e. no change in population, capital and techniques of production. He also assumes perfect competition in t he factor market and perfect mobility on the part of both labour and capital. Again the physical instrument (capital) of production can be adapted to quantities and abilities of labour. He treated labour as homogeneous

factor. Every rational entrepreneur tries to utilize his existing amount of capital so as to maximise his profits.

It also assumes perfect mobility of the factors of production (this is derived from the assumption of perfect competition). The employer will reach equilibrium position when the wage rate is just equal to the marginal product of labour.

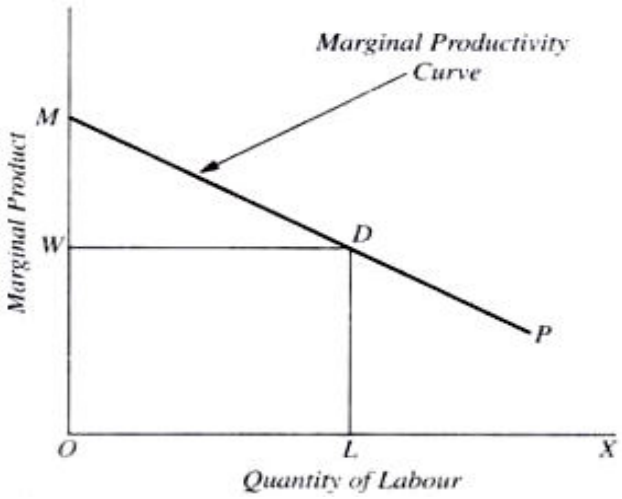


Fig No. 2

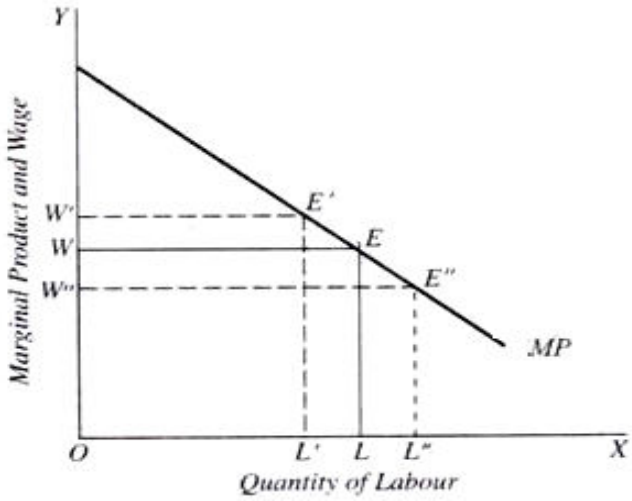


Fig No. 3

In the competitive labour market, the wage rate will be determined by the marginal product of given quantity of labour force. One assumption which is implicit in the Clarkian MP theory as applied to the economy as whole is that full employment.

To sum up, "in Clark's presentation, the MP of a given quantity of available labour determined its wage level. When the market as a whole in the disaggregated picture, however, where a single employer find the wage level determined by the forces beyond his control, the MP of labour determines the level of employment.

Self-check Exercise-I

Q. How is supply curve of the industry derived?

Ans .....

.....

.....

5.2 MARSHALL – HICKS MP THEORY

He believed wage rate (or any factor price) is determined by both demand for and supply of labour. MP concept explains only the demand side of the problem. The wage rate at which the supply curve of labour cut the demand curve of labour (governed by MP) will be determined.

Marshall says that the MP decline plus the competitive conditions in the labour market would in the long run tend to make the wages of labour in different industries or uses equal to each other and marginal product (assuming of course labour is homogeneous)

Marshall though use the assumption of stationary state in the theory of product price but in his theory of factor price he allowed for the gradual growth of population and for the changes in capital accumulation.

Marshall was of the view that changes in the real wages would, in the long run, effect the growth of population and therefore influence the size of labour force and supply of labour.

A relevant problem in the MP theory is to ascertain the MP of labour separately from the productive contribution of capital. This is because the employer has joint demand for doses of combined labour and capital.

Clark in order to find out MP of labour separately assumed that the form of capital could be suitable adapted so that a given quantity of capital could be used with any number of labourers.

But this can be done only in the long run and not in the short run. Marshall gave the concept of marginal net productivity. It is obtained by measuring the MP of the joint addition of labour and capital and subtracting from it the cost of capital added.

Marshall says that marginal productivity principle (which he calls the marginal productivity doctrine) as one of the two factors that determine wages the other one is the supply of labour. Marshall was of view that wages tend to be equal to the marginal product but he repeated many times that the wages are not determined by marginal product since like all other marginal quantity. And marginal products are determined together with the price by interaction of demand and supply. Marshall also criticised the Clark's view of marginal productivity theory and therefore why he did not agree to call the marginal productivity doctrine as a theory of remuneration (wages) was his opposition because of the use of the assumption of stationary state in his theory of distribution. As Clark's marginal productivity theory is dependent upon the rigid application of the stationary state abstractions was also criticised by Marshall. Although

Marshall also made use of the technique of stationary state of abstraction in his theory of product prices, but inspite of this, in his distribution theory he greatly qualified the technique of stationary state by introducing the dynamic elements in his theory. Besides this Marshall in his theory of distribution accepted the gradual growth of population and for the changes in capital accumulation. He also considered that the changes in the real wages (factor remuneration) would in the long run affect the growth of population and so influence the supply of labour. Marshall also says that the changes in the return on capital would also affect the present and future level of savings and that would bring the changes in the return of capital accumulation in the long run.

But later writers such as Pigou, Robertsen and Hicks did not adopt the concept of marginal net productivity of labour.

5.3 Critical evaluation of MP theory

1. This theory takes too many assumptions which are quite unrealistic e.g. perfect competition, implicitly bargaining power of labour and employer is equal, labour knows its productivity, employers are able to predict in advance the marginal product of labour.

2. It does not explain factor price under imperfect competition

3. This theory explains that trade unions can't increase the wages of labour without creating unemployment but the Marxian theory of surplus value contradict it.

4. This theory also ignore positive correlation between the rewards of factors and their productivity.

5. This theory assumes that entrepreneurs seek to maximise profits. R.A.Lester criticise this theory of marginalist approach but Machlup defended the theory by saying that it is not necessary that every entrepreneur would be able to find exact point of equilibrium. However, the trend is towards equality.

6. Since the production takes place due to the cooperation of various factors for their individual productivity can't be separately estimated.

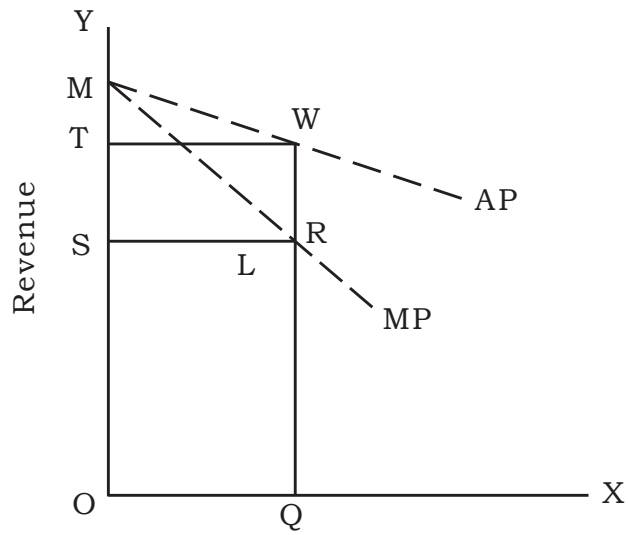
7. Total production exhaust under this theory only when law of constant return to scale prevails but the question whether law of constant returns prevails in reality.

8. This theory ignore the role of non-economic factors in the determination of wages e.g. power structure, social conventions, social status, prestige of a group of workers.

6. Marginal Productivity Theory and Euler's Theorem

Whatever be the principle which is proposed to explain the distribution of income in an economy it must ensure that the total product produced by the cooperation of different factors during a given period will be just exhausted if each cooperating factor is rewarded according to that principal. Hence the propounders of the marginal productivity theory of distribution were set with task to demonstrate that when each factor is rewarded at a rate equalling its marginal product the sum total of the shares of all the factors will exactly add up to the total product. Wicksteed was perhaps the first to grapple with the problem in his coordination of the law of distribution. In order to bring out the essence of the nature of the 'adding-up problem' we may consider a simple case where there are only two factors one of which is the hiring factor and the other is the hired factor.

The hiring factor in competitive economy is usually the entrepreneur. Let us suppose that the curve AP and MP in Fig. 8 show the behaviour of the average product and the marginal product of the hired factor respectively. We further assume that the quantity employed of the hired factor is OQ. According to the marginal productivity theory the reward of the factor be at the rate equalling its marginal product QR. Hence its share in the total product will be OQ×OR, which is represented by the area OQRS. The total product is OQRM = OQWT. The residue after the hired factor is paid according to its marginal product is SRM = SRWT. The 'adding-up problem' in this case consists in this that it has to demonstrated that the residue SRM = SRWT equals the share of the hiring of the hiring factor when this share is calculated at the rate of its marginal product.



OUTPUT
Fig. No. 4

Wickstead made use of Euler's Theorem to arrive at the conditions necessary for the factor shares to add up exactly to the total product when each factor is rewarded at a rate equalling its marginal product. Euler's Theorem states that if particular function Y = f (L, K, N) is homogeneous of the first degree so that lY = f(lL, lK, lN) then l in the above

$$Y = \frac{\partial Y}{\partial K} L + \frac{\partial Y}{\partial K} K + \frac{\partial Y}{\partial N} N$$

expression lY = l, (L, K, N) represents the proportionality coefficient. The meaning of the above mathematical statement is that if the function is homogeneous of the first degree then, all the independent variables (L, K, N) are changed simultaneously in the same proportion and in the same direction, the dependent variable (Y) will also changes in the same proportion and in the same direction. Suppose, for example, the value of l = 2, then it is implied that when the values of all the independent variables (L, K, N) are doubled the value of the dependent variable Y will also be doubled.

Now let us suppose that Y stands for the total product the value of

which depends on the quantities of inputs of land, capital and labour which are represented respectively by L, K, N, then Y = f (L, K, N) will represent the production function and if this production function is homogeneous of the first degree this will imply that there are constant returns to scale so that when the quantities of these factors input are changed together in the same proportion and in the same direction the total product will also change in the proportion and in the same direction.

Self-check Exercise-II

Q. Define Euler's Theorem?

Ans .....

.....

.....

$\frac{\partial Y}{\partial L}$ is partial first order derivative of this function with respect to L, that is with respect to land. It refers to the change in total product (dY) when the quantity of land (L) is changed by an infinitesimally small amount but the other factor inputs, i.e. K (capital) and N (labour) are kept constant. You can very well see that it is but the mathematical expressions for the original product of land.

Similarly $\frac{\partial Y}{\partial K}$ refers to the marginal product of capital and $\frac{\partial Y}{\partial L}$ and refers to the marginal product of labour. Hence the marginal expressions $Y = \frac{\partial Y}{\partial K} L + \frac{\partial Y}{\partial K} K + \frac{\partial Y}{\partial N} N$ when translated into economic language means that the total product (Y) equals the sum total of the shares of land, capital and labour when each of them is paid at the rate equalling its marginal product.

The above explanation implies that the 'adding-up problem' is solved within the framework of this marginal productivity theory, if (i) the production function is homogeneous of the first degree that is when there are constant returns to scale and (ii) the hiring factor that is the entrepreneurs earns no reward.

Constant returns to scale imply that there are neither economies nor diseconomies of scale. But if there are economies of scale, the average product is rising and the marginal product is greater than the average product. In this case if each factor is paid according to its marginal product the sum total of the factor shares will excess the total product. In the opposite case when there are diminishing returns the

average product is falling and therefore the marginal product of a factor is less than the average product of it. Therefore when each factor in this case is rewarded according to its marginal product, the sum total product of the factor shares will not exhaust the total product; it will fall short of total.

Since in actual world, the returns to scale may not be constant and some will contend that they are definitely not constant the problem was how to reconcile the marginal productivity theory with possibility of non-proportionate returns. It will not be possible for us to enter into the controversy in detail but we may here point towards solution suggested by the Swedish Economist, Knut Wicksell. He explained that the theory would be valid in the state of long-run equilibrium under perfect competition. In the state of long-run equilibrium a firm is producing its output at minimum point of its long-period as well as the short-period average cost curve where marginal costs are equal to the average cost. At this point the returns to scale as well as factor proportions become constant momentarily. Moreover the hiring factor the entrepreneur will not be earning anything. This can be interpreted to perform and his marginal product is zero. Thus the 'adding-up problem' is solved for Kunt Wicksell.

However, even if we accept Wicksell's explanation the theory will be valid only under perfect competition. But John Robinson while writing in a satirical spirit on the problem in her Euler's Theorem and the Problem of Distribution had tried to show that by appropriately defining inputs and outputs it is possible to make the marginal productivity theory of distribution formally consistent with Euler's Theorem.

SUGGESTED BOOKS

1. David Ricardo, *Principles of Political Economy and Taxation,* 1817.
2. Jan Pen, *Income Distribution Theory.*
3. Alfred Marshall, *Principles of Economics,* BKV, Ch. 6 and BKVI Ch. 1.
4. Joan Robinson, 'Euler's Theorem and Problem of Distribution in her *Collected Economic Papers,* Vol. 1.

M. A. (ECONOMICS) PART-I **PAPER-I**
Semester-II **(Micro Economic Analysis)**

LESSON NO. 2.2 **AUTHOR : PROF. PRITAM SINGH**

FACTOR PRICING IN IMPERFECT MARKETS

(With special reference to Wages)

1. Introduction
2. Factor Pricing in Imperfect Markets
3. Exploitation of Labour
4. Trade Unions and wage Determination
5. Wage Determination in Bilateral Monopoly
   - 5.1 Dunlop and Fellner Models
   - 5.2 Carlter's Model

1. Introduction:

Perfect competition is unreal market situation and what we find in the real world markets is imperfect competition. In imperfect competition demand curve (AR) slopes downwards and AR and MR are different.

[V.M.P. = M.P.P.×Price (or AR)] V.M.P. — Value of Marginal Physical Product
MPP — Marginal Physical Product
(M.R.P.=M.P.P.×MR) MRP — Marginal Revenue Product]

As in imperfect competition MR<AR; therefore, VMP>MRP.

However, there is imperfect competition, not only in the product market but also in the labour market. Therefore, the average wage (AW) and marginal wage (MW) curves slope upwards. Theoretically, we may have combinations of different situations in the product and the labour markets.

2. Factor Pricing in Imperfect Markets:

Case 1. When there is perfect competition in the product market but imperfect competition (or monopsony) in the labour market, in this situation (diagram No. 1) there being perfect competition in the product market VMP = MRP.

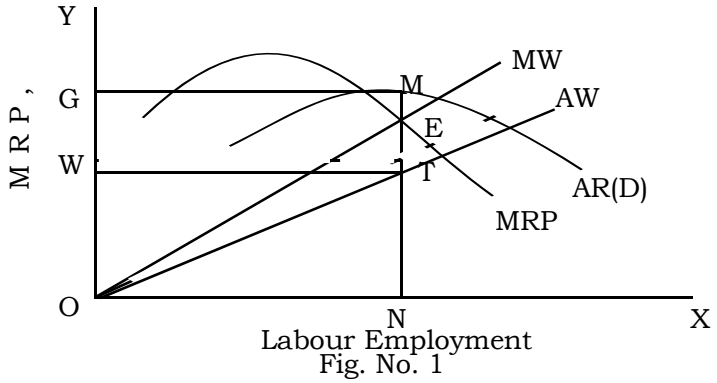


Fig. No. 1

But as there is imperfect competition in the labour market AW and MW slope upwards and are different. For profit maximisation, equilibrium is at E where MRP = (=VMP) = MW, but the wages are paid according to AW. Therefore, OW, wages are determined. The firm gets WTMG abnormal profits because of imperfect competition in the labour market.

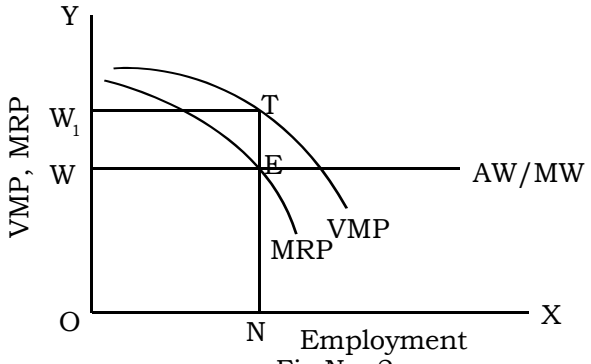


Fig No. 2

Case 2. When there is imperfect competition (monopoly) in the product market and perfect competition in the labour market. In this case (diagram No. 2) VMP>MRP but AW = MW are constant. Equilibrium is at E where MRP = MW (= AW), OW wage rate prevails but the wage rate is less than VMP because of imperfect competition in the product market.

Case 3. When there is imperfect competition (Monopoly) in the product market ant imperfect competition (monopsony) in the labour market. In this case VMP>MRP and AW and MW slope upward (diagram No. 3) Equilibrium is at E where MW = MRP, but wages are determined according to AW. Thus OW wages are fixed. Workers get less than the MRP and VMP both.

Self-check Exercise-I

Q. When there is imperfect competition(monopoly) in product market and perfect competition in labour market, equilibrium is at which point:

Ans .....

.....

.....

3. Exploitation of Labour

According to Mrs. Joan Robinson, perfect competition is the ideal market situation and in perfect competition wages = MRP = VMP. Any deviation from it amounts to exploitation. In this sense if wages are less than VMP, but equals to MRP, it is called monopolistic exploitation. If the wages are less than MRP, (-VMP) is called monopolistic exploitation and if the wages are less than VMP and MRP (VMP = MRP) both there is double exploitation of labour. In Figure (3) total exploitation of labour is equal to WTMR, of which WTEG is monopolistic exploitation (which is due to imperfections in the labour market) and GEMR is monopolistic exploitation (which is due to imperfections in the product (market).

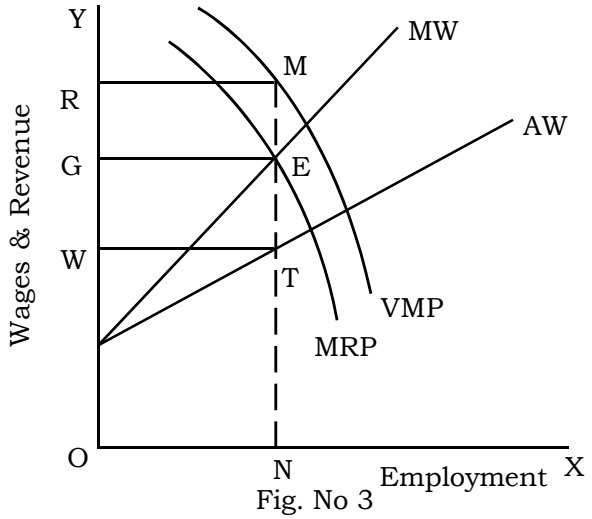


Fig. No 3

However, Chamberlin is of the opinion that in monopolistic competition factors are paid according to MRP and not VMP labour is exploited only if wage rates are less than MRP. An important implication can be derived from it that trade unions can succeed in eliminating monoponistic exploitation only and monopolistic exploitation which is due to imperfection in the perfect market cannot be eliminated.

4. Trade Unions and Wage Determination

Industrialisation gave birth to trade unions to act as countervailing power. There is Ross-Dunlop controversy whether trade unions are political institutions working in the economic environment or economic institution working in the political environment. Utility function of the trade unions is;

U = f (W, M) where W is wage-rate. M is membership.

But there is trade-off between wages and employment, which plays important role in the bargaining power of the trade unions.

Classical economists believed that trade unions have no role to play in wage-determination as perfect competition prevails in the labour and product market. In perfect competition even if union succeeds in getting higher wage rate, it will fail to get equilibrium level under the pressure of unemployment. If at all trade union succeeds in maintaining higher wage rate it will be at the cost of employment.

But when there are imperfections in the labour market, unions succeed in getting higher wages and employment. For example in figure (3) if union succeeds in getting wages higher than OW (but less than OG), both wages and employment will increase.

Further, if the monopolist resorts to price discrimination, then trade unions can force the monopolist to stop discrimination and may succeed in getting same wages for all workers of one category.

The kink in demand curve under oligopoly and resulting gap in the marginal

revenue also suggest that trade unions can succeed in raising wages without causing price increase.

Trade unions have very important role in wage-determination, when there is single employer or an association of the employers behaving as monopsony in the labour market. This case has been discussed in the next section.

Besides the theoretical market models two important factors i.e. relation between wages and productivity and backward sloping supply curve of labour also show that trade unions can succeed in raising wages without causing unemployment.

Fig. No 4

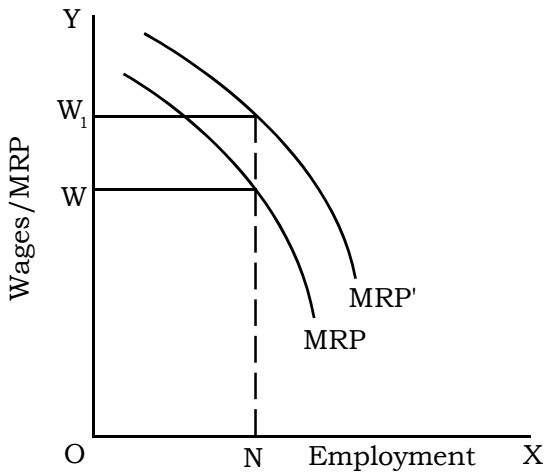
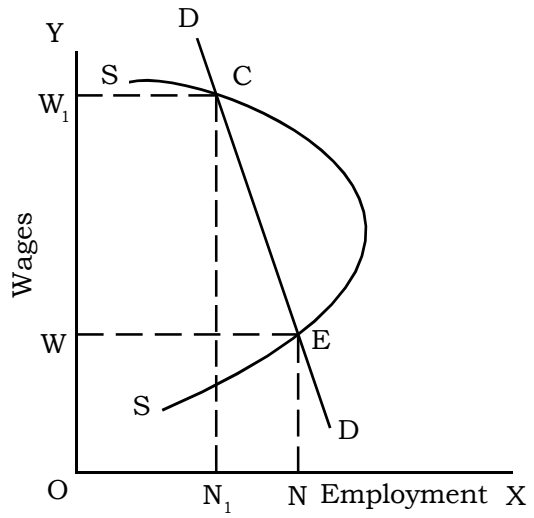


Fig. No. 5



In figure (4) if ON workers are employed and wages are OW then if trade union succeeds in raising wages to OW_1, MRP may rise to MRP_1 because when the wages rise, the efficiency of the workers may increase. Therefore employment may not be created. In figure (5) both OW and OW_1 are equilibrium wages because of backward sloping supply-curve of labour. Thus, wage increase may not cause significant unemployment as workers come to have preferences for more leisure.

5. Wage determination in Bilateral Monopoly

In the labour market when trade union in very strong and workers are completely united, trade union becomes a single seller of labour service. On the other hand, if there is one employer or an association of employers representing itself as single buyer of labour service the market situation is that of bilateral monopoly. This is also known as Collective bargaining.

Like price determination in bilateral monopoly, wage determination also results in various assumptions. There is no adequate theory to explain wage determination in bilateral monopoly, but different theories have concentrated on different aspects of wage-determination. Some theories examine the nature of union wage policy, other

examine the nature of bargaining power and still others the bargaining itself.

Self-check Exercise-II

Q. Describe Bilateral Monopoly?

Ans .....

.....

.....

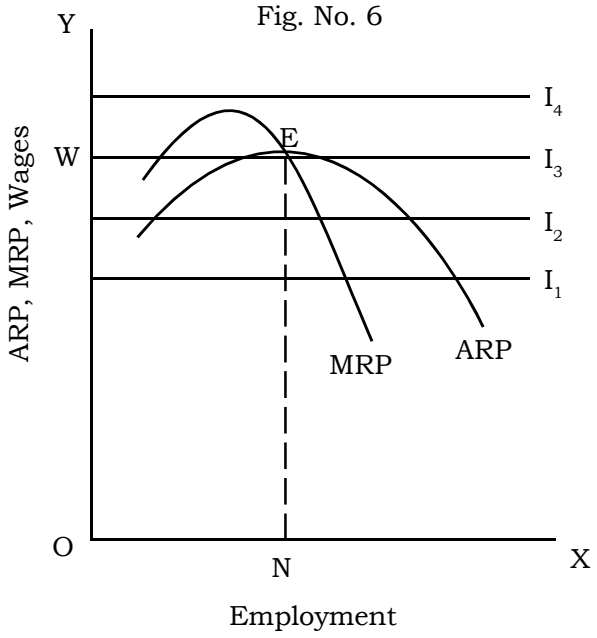
5.1 Dunlop and Fellner Models

These Models examine the nature of wages policy of the trade union. According to Dunlop model, trade unions maximize some goal or combination of goals. Trade union may want to keep all members employed, maximize the income of its members or maximize the wages of core members only. All these goals cannot reconcile together, but all goals are also not necessarily in conflict. Union generally estimates elasticity of demand for its members and tries to maximize wages and employment. Other factors like loyalty of the member-equality of union leadership and desire of union leaders to remain in office also effect unions wage policy.

Fellner also examined the nature of wage policy. Unions usually want optimum combination of wages and employment. Fellner employed indifference curves to explain the choice of optimum combination.

The extreme case is when union considers only wages and does not care about employment. In this case indifference curves are straight lines. Unions wants to reach the highest possible indifference curve.

Fig. No. 6



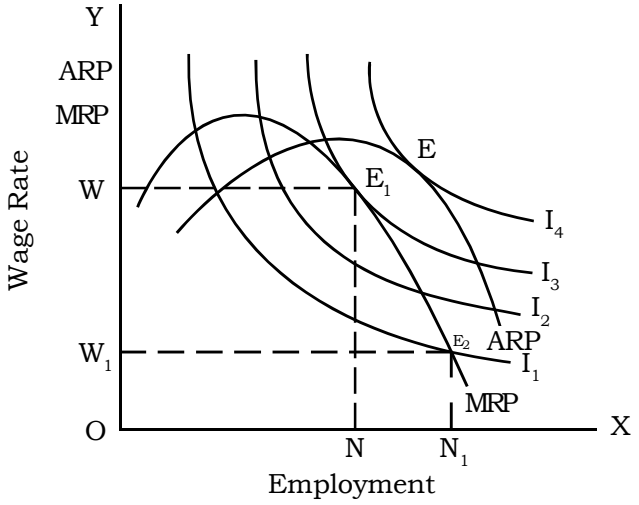


Fig No. 7

As shown in diagram (6) Union can reach I_3, indifference curve at the most. Equilibrium is at E where ARP is the highest. Usually trade unions keep in view both wages and employment and indifference curves are downward sloping as in diagram (7). Employer employs workers according to MRP. Thus from the employer's point of view, equilibrium can at the most be reached when wage rate = MRP. The highest possible indifference curve which the unions reach is I_3. Thus ON employment and O/W wage rate are determined. However, if the union adopts all or nothing policy it can reach I_4. Equilibrium will be E, where I_4 is tangent to ARP. Since equilibrium settlement has to be on the MRP curve the lower limit is represented by E_1 where the lowest acceptable indifference curve of the union intersects MRP curve. The point E_2 sets the lower limit below which the wage rate will be not fall. The union does not accept work at all, below wage rate OW_1. Thus wages will be determined usually between W_1 W by 'give and take' policy, depending upon relative bargaining strength of the two parties.

5.2 Cartter's Models

The major shortcoming in the Fellner's model is that he has not introduced employer's preference functions in the bargaining process. A.M. Cartter in his book Theory of Wages and Employment (1959) introduced employer's preference functions. He also pointed out magnitude of substitution between wage levels.

Union's Preference Path

If demand for labour increases the union prefers wage increases much more than increase in employment. When demand for labour decreases union resists wages reductions in employment and thus the wage-preference path is having a kink at the prevailing level (E), the upper portion being less elastic and the lower portion more elastic (Fig. 8).

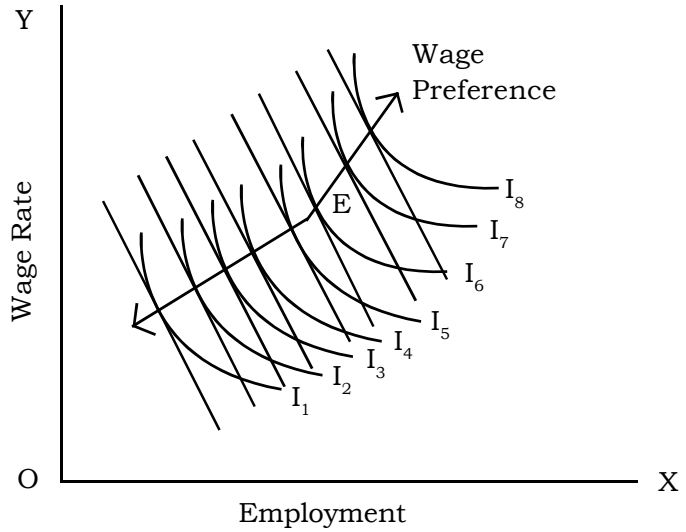


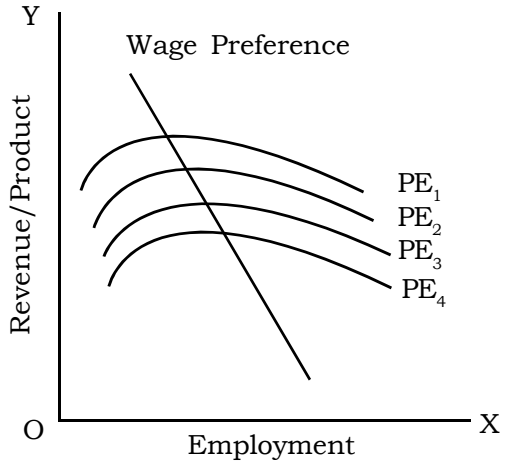
Fig. No. 8

Employer's Preference Curves

The objective of the employer is to get maximum profit. Profitability of various combinations of wages and employment can be shown through 'Average Net Revenue Product' (ANRP).

ANRP of labour = APRL - AC of other factors except entrepreneur.

There is some wage rate for which profit is zero. To such in ANRP a fixed profit is added and cost of other factors is deducted then various combinations on ANRP show fixed profits to the entrepreneur. These curves have their maximum at MRP, because



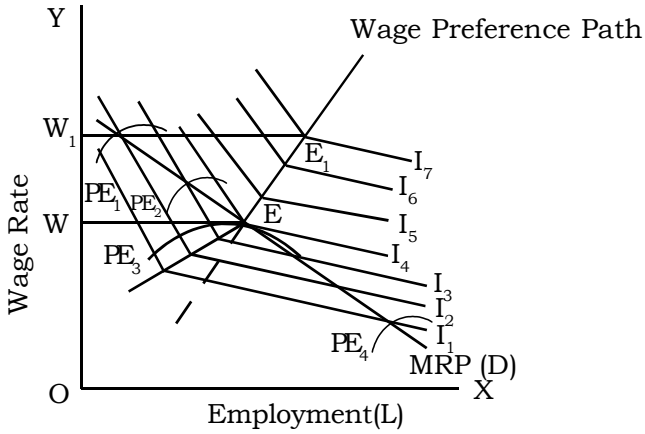
when the producer is at MRP, his profit is maximum. As wages reduce the lower (PE_2,

PE_3, etc.) preference curves show higher profits (diagram 9).

Fig. No. 9

Wage Determination

Wage determination in bilateral monopoly can be explained by combining the indifference maps of the trade unions and the employers (diagram 10) 1_1, 1_2, 1_3 etc. are the union indifference curves and PE_1 PE_2 etc. are the profit indifference curves of the employer. Point-E on the MRP curve represents the currently prevailing wage-



employment combination and union's wage preference path is linked at point E.

Fig. No. 10

If demand for labour is constant the prevailing point E is to be maintained as a result of fresh bargaining. The union can increase its satisfaction by moving along the wage preference path and the employer can increase his profit by moving down E along MRP. However, the demand for labour being constant, the employer will not insist on moving down E, since his profits have not fallen. The employer will stick to present wage-employment combination E. The Union satisfaction on the other, will be lower if it moves upward or downward from point E along the labour demand curve (i.e. along MRP curve) because only lower order indifference curves of the union cut the MRP curve from above and below the point E. However, the union will be better off if it moves along the wage-preference path to a point above E. But such a preferred position cannot be maintained when the employer is free to determine the amount of employment. If the union tries to move from point E to E_1, and raise the wage rate to OW_1 then the employer being free to adjust the level of employment will reduce the employment to W/L level indicated by the union worse off than the original position E since L lies on a lower order Union's indifference curve (I_2) than point E. Thus the prevailing level of wages and employment will be maintained.

However, there is one special case when union can demand wage increase though the labour demand remains the same. The case occurs when the demand curve for labour (i.e. MRP curve) is highly wage inelastic. Then there is a possibility that the Union may succeed in getting higher wages without substantial fall in employment. However such a case may lead to strikes and lock outs. Again such a

case can occur in the short run only.

The solution of wage determination in bilateral monopoly has been explained in terms of bargaining ranges in Cartter's model and in a sense equilibrium is not determinate.

Samuelson has mentioned the choices open to trade union and employer's association in bilateral monopoly. At the meeting of the representatives of the unions and employers several arguments are given and some solution may be reached depending upon the bargaining strength of the two parties. Several empirical studies have shown that wages in the unionised industries are higher indicating that the trade unions do succeed in getting higher wages.

LESSON NO. 2.3 **AUTHOR : PROF. ROSHAN KHOSLA**

RICARDIAN THEORY OF DISTRIBUTION

1. Introduction
2. Assumptions
3. Exposition of the Theory
4. Distribution and Economic Development
5. The Falling Rate of Profit
6. Criticism

(1) Introduction

Ricardo's theory of distribution, which is also often referred to as the classical theory of distribution, is an important part of classical political economy. Therefore, it should be studied and understood against the background of the classical political economy.

Classical Political Economy is the name generally given to that body of economic principles which were propounded in the last quarter of the eighteenth century and systematised by David Ricardo during the first quarter of the nineteenth century. But this economy was the continuation of a system of economic analysis which, for the first time started in France with the Physiocrats. Thus, it is not without reason that the Physiocratic political economy is generally regarded as an important adjunct of the classical political economy as it emerged from the hands of Adam Smith and David Ricardo. As regards the propagators of the traditions of classical political economy, we have an off-shoot of it through the Ricardian socialists like Bray and Hodgskin to Karl Marx, and another off-shoot culminating in the economic analysis of John Stuart Mill.

When we look at this body of economic knowledge, we find some very specific features about it. In the first place, the classical political economy is bound to concern itself basically with the problem of economic development which the founders of classical political economy like Smith and Ricardo found to depend on the accumulation of capital. The accumulation of capital on the other hand, was seen to depend on the proportion of the total product of the economy which went to the share of the capitalist class in the form of profits. Thus the Ricardian or the classical theory of distribution was, in fact, an integral part of the classical theory, of economic growth and development.

Another feature of it was that the classical economists had presented a model of a society which was composed of three distinct social classes, namely the farmers, the landlords and the manufacturers. However their model had many feudal stages and it was left to Adam Smith and his followers in the tradition of classical political economy to transform it into a typical model of a capitalist society as found during the second half of the eighteenth and the first half of the nineteenth century in Great Britain. To be brief, the classical model is the model of a social economy in which society is composed of three distinct social classes. It was identified with a particular factor of production : the landlords with the supply of land, the capitalists with the supply of capital and the working class with the supply of labour. Hence the Ricardian, and for that matter the classical model is a three factor model and in the Ricardian theory of

distribution only three factor shares are recognised and since each one of the three factors is identified with a particular social class, these factor shares-rent, profits and wages are, infact, recognised to be class shares. Therefore, the Ricardian theory of distribution is a theory of class shares.

Another feature of the Ricardian theory of distribution which it derives from the classical political economy is that it is a dynamic theory of distribution in a broad sense. It does not merely explore as to how the total product in a competitive capitalist economy is distributed among the different social classes in the form of feudal rents, capitalist profits and the wages of workers but also enquire as to what happens to the relative shares of three social classes during the process of economic growth and development.

Having classified some of the basic features of the Ricardian theory of distribution against the background of the classical political economy, we can now go on to expound this theory. But before we do that, it is important to keep in mind the basic assumptions on which Ricardo's model of distribution is based.

(2) Assumptions

Needless to state the Ricardian model of distribution is a macro model. In order to understand this model, we can assume that the whole economy consists of an economy-wide large farm which is owned by the feudal class of the landlords who do not cultivate the land themselves but lease it out to the capitalist farmers who employ wage labour to cultivate it. Ricardo was a great master of the abstract method and the abstraction made via this assumption is only a permissible procedure of scientific methodology for the purpose of simplifying the analytical problem in hand without losing sight of the essential elements involved in it.

The second assumption, which again is simplifying assumption is that the economy, which, according to the first assumption state above, is comprised of one single economy where farm produces only one commodity. Ricardo had assumed this commodity to be corn, that is why his model has come to be known as the 'Corn model'.

It is further assumed that the capitalist farmers produce corn on this farm by applying a certain amount of the composite factor, labour and capital. It is the labourers who actually cultivate the land. But the workers have to be sustained and kept, alive and in working condition during the period of production, at the end of which the final product becomes available. The workers are assumed to possess no means of production of their own; they have nothing but their power to work which they sell to the capitalists for wages. That is why they are described as 'Wage labour'. Wages are advanced by the capitalists to the workers and these wages ultimately take the form of subsistence which consists of certain amount of corn. So wages (wage capital too) are measured in corn. And so are the other shares, that is rent and profits.

The workers do not cultivate the land with their bare hands. The capitalist farmers equip them with some fixed capital in the form of various agricultural implements required by the given technology. However, even these implements represent 'past' or 'dead' labour. This assumption, namely, that implements (machines) are also a type of labour, helps to transform the composite factor, labour-capital, into a single uniform factor, labour. Capital, in any case is measured in terms of labour embodied in it. It is further assumed that labour and capital are combined in a fixed proportion. Each 'dose' of labour-and-capital represents a fixed amount of labour as well as capital. Doubling for example, the dose of labour-and-capital implies the doubling of both labour and capital so that the proportion between them remains the same. This is another reason for treating labour and capital as one factor. However, the proportion between the variable composite factor, labour-and-capital, and the fixed factor, land, is assumed to be variable.

An important assumption of Ricardian model is that of diminishing returns to the variable factor applied in the cultivation of land which also implies the assumption of given and constant technology. The assumption of diminishing returns implies that both the average product and the marginal product of the variable composite factor applied on land go on diminishing with the increasing amount of it. The reward of the variable composite factor, labour and capital is assumed to be equal to its marginal product, for unless the marginal dose of labour and capital help to recover its cost with its product, it will not be employed by the capitalist farmer. And, the variable factor, labour-and-capital, being a homogeneous factor, all units of it will, under free competition, have to be paid at the same rate. Let us specify the assumptions involved-in this argument. First the composite factor is assumed to be homogeneous. Second, the economy is assumed to be a freely competitive economy.

There, is another important assumption or hypothesis also on which the Ricardian model of distribution is based. This relates to the rate at which wages are paid to the labourers. It is assumed that the rate of wages in the long-run tends to equal the subsistence rate of wages, that is, the rate which just enables the workers to subsist and reproduce themselves. This subsistence need not be a biological minimum. On the other hand Ricardo believed it to be a historical and cultural minimum depending upon the prevailing customary standard of living.

However, this particular point is not very relevant to the essential argument of Ricardo's model of the determination of the relative class shares. What is relevant is that at this subsistence rate, however it may be defined, the supply of labour is assumed to be perfectly elastic. This assumption is supported on the Malthusian Law of Population to which almost all the classical economists including Ricardo subscribed.

The model also assumes that saving is done only by the capitalist class. The workers have too low an income to save anything. The landlords are assumed to lead an ostentatious and lavish style of life so that they are assumed to live beyond their means. Thus the capitalists are assumed to be the only social class which has both power and the habit of saving. It is further assumed by Ricardo in the classical tradition that whatever is saved is automatically invested by the capitalists. This implies the assumption of what is usually referred to as Adam Smith's 'saving-is-spending' theorem.

The model also assumes that demand for corn is independent of its price and depends on the size of population.

With the above assumption in our mind we can now proceed to expand the working of the Ricardian model of class distribution.

(3) Exposition of the theory

In the simplified model in which the production of the economy consists of only one commodity, corn, which is produced on a fixed area of land by applying certain amounts of labour and capital and employing a given technology the average and the marginal product on the given land will go on diminishing with increasing amounts of labour and capital applied in the cultivation of corn on it. This is shown by falling AP and MP curves in the following diagrams NO. 1. It should be noted that in the present model, all the factors including land and labour are assumed, to be homogenous. The diminishing average product (AP) and

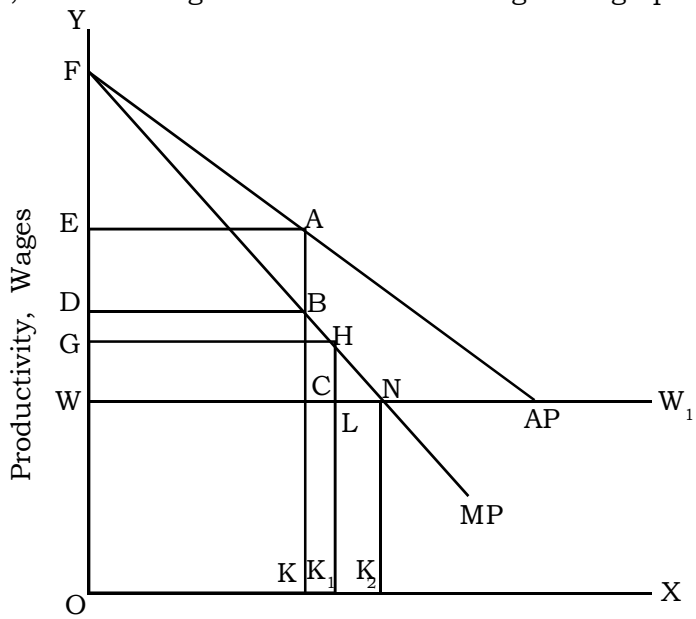


Fig. 1. Labour and Capital

marginal product (MP) result from the operation of the Law of diminishing returns on the intensive margin. The classical economists including David Ricardo had assumed

that the capitalists behave so, as to maximise their individual profits, but, unlike their neo-classical counterparts, they had not argued that they achieve this object by employing so much of the variable factor that its marginal product becomes equal to its price. In a micro-economic setting equalisation of the marginal product with its price which is assumed to remain constant for an individual producer may be logical, if it can be assumed that this individual producer can have access to any quantity of the given factor. But, in a macro economic model like that of Ricardo's which is depicted in above diagram this assumption cannot be made. Hence, in Ricardo's model equilibrium quantity of labour employed is not determined by the equality of the marginal product of labour with the rate of wages. On the other hand, it is determined by the amount of capital available in the economy as a whole. Another point which has been referred to in the preceding section too but which we would like to stress again is that Ricardo reduced the composite factor, labour and capital, to a single factor, labour, by assuming that capital was only 'past' labour, by assuming that the period of production consisted of only one year at the end of which, the agricultural implements (fixed capital) also completed their productive life. Hence in the above figure, the horizontal axis measures the composite factor, labour-and-capital, in terms of quantity of labour alone. How much investment in the employment of labour is done in any given production period depends on the stock of capital available in the economy.

Self-check Exercise-I

Q. Why do average product and marginal porduct curve diminish?

Ans .....

.....

.....

Let us now suppose that in a given production period, only OK amount of capital stock, measured in terms of quantity of labour is available to the community. Therefore the employment of labour on the fixed area of land (because only a certain fixed amount of land is available in a given economy) will be OK. The total product of the economy, when OK amount of capital is invested on land in the form of labour employed on it to grow can be measured with reference to either the average product curve (AP) or the marginal product curve (MP) in the above diagram. The total product equals the average product multiplied by the quantity of labour employed. So that in our figure above, the total product, when OK amount of labour is employed equals the area of the rectangle OKAE. But this equals the sum of marginal products ($\sum$MP) up to K amount of labour employed. In other words, the total is also measured by the area under the marginal product curve (MP) up to limit given by K. That is to say, the product at K amount of labour employed also equals the area of OKBF.

Now the problem is how his total product is distributed as rent, profits and

wages among the three social classes of landlords, capitalists and the workers. In the Ricardian model, the reward of the variable composite factors labour-and-capital is determined by the marginal principle which was later generalised by the neo classicals to explain the reward or share of every factor of production. But Ricardo, had confined it to the determination of the share of the variable composite factor, labour-and-capital, only. So, when OK amount of labour-and-capital, is invested in the cultivation of land the composite factor, labour and capital, is paid at the rate equalling its marginal product. In terms of our diagram, this rate is KB, when OK amount of labour-and-capital is employed and the total share of this factor in the total product is OKBD. The surplus over and above what is needed to reward the composite factor is appropriated by the land-owning class by virtue of the institution of private property in land. This surplus which goes to the feudal class of landlords in the form of Land rent is measured in our diagram by the area ABDE or the area DBF.

But there still remains the problem of distributing the share of the composite factor into the share of labour (wages) and the share of the capital (profits). The share of wages in the Ricardian model is determined by the principle of subsistence wage rate, "according to which the long run or the 'natural' rate of wages tends to equal that wage rate which is, in the words of Ricardo himself necessary to enable the labourers, one with another to subsist and perpetuate their race, without either increase or diminution." The 'market' rate as distinguished from the 'natural' rate, can be above or below this subsistence rate but in the case, the Malthusian Law of Population comes into operation to restore equilibrium at the subsistence wage rate. If the market rate goes above it the population increases which lead to an increase in supply of labour. Consequently, the rate of wages is pushed down to the subsistence rate. Thus the subsistence rate is the long-run equilibrium wage rate which determines the share of wages in the total rewards available to the composite factor, labour, and capital. In our diagram, OW is assumed to be the subsistence wage rate. Therefore, when OK amount of capital is invested in the employment of labour, the total share of wages in the total products OW multiplied by OK which equals the area of the rectangle of OKCW.

The share of wages going to the working class being thus determined by the subsistence principle, what remains of the total product minus rent goes to the class of capitalist in the form of profits. Thus, in our diagram, the share of profits, when OK amount of capital is invested, is measured by the area of rectangle WCBD. It is obvious that it is the residue after the other two factors are paid out which goes to the capitalist employers as profits. Therefore, profits are also described as the residual share.

Nicholas Kaldor, in his essay, "Alternative Theories of Distribution" has observed that in the classical or Ricardian theory of distribution, share of rent in the total product is determined by the 'Surplus' principle. In our opinion, this description of Ricardo's analysis of factor shares is not a happy one, for it creates

some confusion. It is because rent has been shown to be a surplus which does not enter into the costs of production. It is, of course, true that the size of this surplus depends on the intensive and extensive margin of cultivation. But when we say that rent is determined by the 'marginal' principle, it is likely to be misinterpreted to mean that rent if determined by the marginal product of land while what kaldor means to say, and means it rightly, is that there is an inverse relationship between the marginal product of the variable factor, labour and capital, and the rent on land. If we look at Ricardo's model in the Marxian perspective we can say that the reward of labour (wages) is determined by the subsistence principle, while the rest of the total product (total product minus wages) is a surplus created by labour and appropriated by the propertied classes of landlords and capitalists in the form of rent and profits respectively.

(4) Distribution and Economic Development

Ricardo puts special emphasis on explaining as to what will happen to the relative class shares during the process of capital accumulation and economic development. As already pointed out in a preceding section of this lesson, Ricardo had assumed that the capitalist class is the only class which has the desire as well as power to save. In other words, he assumed that profits are the only source of savings and therefore, of capital accumulation. He like other classical economists had also assumed that whatever is saved by the capitalists is automatically invested. This activity propels the process of capital accumulation. A part of profits goes to satisfy the consumption needs to the capitalists and the rest of it is invested in the employment of additional number of 'productive' workers.

Thus, in terms of our diagram, we can say that when there are positive profits which allow for some savings the amount of capital-and-labour employed by the capitalist will increase in the next period. Let us suppose that in our example, it increases from OK to OK_1. Now the marginal product of the variable factor, labour-and-capital falls from KB to K_1H due to the effect of the Law of Diminishing Returns. So the variable factor will now be rewarded at rate equalling K_1H so that the total reward of labour-and-capital is now OK_1HG while the total product is OK_1HF. The surplus of total product over and above the total reward of the variable composite factor, labour-and-capital is the share of rent which is now indicated by the area GHF which is greater that the area DBF, (=ABDE) that represented the share of rent when only OK capital was invested. This shows that the share of rent goes on increasing with the growth the capital stock invested in production.

The share of wages in absolute terms increase from OKCW to OK_1LW but the rate of wages remains the same in the real terms at the subsistence rate. Consequently, the share of profits decrease from WCDB to WLHG. It can be seen that as there is further accumulation and growth in investment of capital on land,

the horizontal line DB which slide down to GH when capital invested increased from OK to OK_1 will go on sliding downwards. When it coincides with the subsistence-wages rate line WW_1 the profits will become zero, while the share of rent will go on increasing. However, the wage rate will remain at the subsistence level, through the absolute share of wages will increase, for the number of workers employed will go on increasing.

If we assume that the customary subsistence level is not increased during the process of accumulation and the development and further, that the capitalists do not use profits as consumption at all, the process of capital accumulation and development in the Ricardian model will come to a dead end, when the total product comes to be eaten up completely by rent and wages and nothing is left for the capitalists profits. In our diagram, this situation under the said assumptions, will come about when the invested capital stock of the economy reaches OK_2 and the marginal product of labour-and-capital becomes just equal to the subsistence level of wage rate. Ricardo described this state as the 'stationary state' in which all further development and growth came to a stop.

The normative implication of Ricardo's theory of distribution was that if economic development and growth were to be sustained, the distribution of the national product should be changed in favour of the capitalist class and against the feudal class of landlords.

If we give up the two assumptions stated above in the paragraph preceding the above, the conclusion is not different. The only difference made will be to bring in the stationary state earlier that otherwise.

(5) The Falling Rate of Profit

We can work out the rate of profit by dividing the total profit by the total capital invested. If we assume that the capital invested is OK in our diagram 1, the total profit is WCBD which equals CB×WC=CB×OK. The total capital invested is in the form of wage bill which equals OK×KC. Thus rate of profit at K investment is.

$$\frac{CB.OK}{KC.OK} \text{ or } \frac{CB}{KC} \text{ or } \frac{KB-KC}{KC} \text{ or } \frac{KB}{KC}-1$$

In percentage form it can be written as (KB/KC-1)×100. The important point to note from the above result is that the rate of profit is directly related to KB (i.e. the marginal product) and inversely related to KC (i.e. the rate of wages). This latter relation has come to be known as Ricardo's 'fundamental theorem of distribution'. It can be seen that as more and more capital is invested, (KB/KC) ratio goes on falling. For example, at OK_1 it is (K_1H/K_1L) which is less that (KB/KC) ratio at K. It can also be seen that this ratio falls due to the fall in the numerator which represents the marginal product of capital-and-labour on land, though it can also

fall as a result of a rise in the wage rate but Ricardo's emphasis was more on the former factor than on the latter which he assumed to be constant at the subsistence level.

Thus Ricardo believed that there was a tendency for the rate of profit to fall during the process of economic development in a freely-competitive laissez-faire economy, and this tendency was explained by him, with reference to the diminishing returns on land, however, as a result of it the share of wages in relation of profits, that is the (Wages/Profits) ratio, rises.

It should be noted that the rate of profit referred to above has been arrived at without introducing value and prices. It has been measured in terms of the physical units of corn which, in this simplified abstract model is both the input as well as the output. Therefore this rate is described as the corn rate of profit. Ricardo also put forth the hypothesis that it is the corn rate of profit which determines the general rate of profit in the economy as the result of competition which tends to equalise the rate of profit across the economy as a whole.

The whole argument can be expressed in terms of Ricardo's labour-theory of value also; according to which the value of a commodity, in the long-run, tends to equal the labour cost of producing it on the 'marginal' or 'no rent' land or the cost of producing 'marginal output' on a homogeneous plot of land. Since the workers are to be paid at the subsistence rate of wages and the labour cost of producing at subsistence increases with the extension in the margin of cultivation due to diminishing returns of land, a greater proportion of the total value of the commodity, which contains wages and profits only because rent is a surplus which does not enter into the price of a commodity, has to be paid out to labour. Hence a smaller share goes to profits, and because this happens when, at the same time : total capital investment on land is increasing, *the rate of profit* in agriculture falls. The capital under the force of free competition and capitalists motivation to maximise their profits, begins to move out into manufactures where the resulting increased competition brings down the rate of profit to equal that in agriculture. Since in manufacturing industries too the agricultural goods make up almost subsistence to the workers and because, due to diminishing returns in agriculture, cost of subsistence rises, the money wage there too have to rise. This also depresses the rate of profit in manufactures to equal the rate prevailing in agriculture.

Self-Check Exercise-II

Q. According to Ricardo,why does rate of profit tend to fall?

Ans .....

.....

.....

(6) Criticism

Ricardo's theory has been often criticised on the count that its fundamental theorem which sets up an inverse relationship between wages and profits as relative shares is merely a tautology. However, on a careful consideration, this criticism will be found to be invalid. As H. Barkai has pointed out, it would have been a tautology, if, in the model, rising value of subsistence corn wages had been shown to result from a change in the product at the margin of cultivation as accumulation and investment in the cultivation of corn increases and this change is due to the diminishing returns.

It is however, true that Ricardo's theory crucially depends on the assumption of diminishing returns of land. Technology is assumed to be constant and adequate importance has not been given to technological process. Unless it can be shown that there are what Schumpeter calls 'historical' diminishing returns in agriculture, the pessimism in conclusion of the theory cannot be justified.

Ricardo's theory of distribution cannot be assailed on the ground that his theory of value itself is faulty. As pointed out earlier, his original presentation of his theory of distribution, which appeared before the publication of his *Principle of Political Economy and Taxation* which elaborates his much disputed theory of value, did not rely on the theory of value at all.

LESSON NO. 2.4 **AUTHOR : PROF. ROSHAN KHOSLA**

MARXIAN THEORY OF DISTRIBUTION

1. Introduction
2. Exposition
3. Rate of Profit
4. Falling Rate of Profit
5. Wages and Doctrine of Increasing Miserg
6. Criticism

(1) Introduction

Marxian theory of distribution is a theoretical structure which is based on the classical foundations. In the first place, Karl Marx's Theory of Distribution, like the classical theory, is of class shares. In the tradition of the classical political economy the marxian theory of distribution seeks to explain how the total product in a freely competitive capitalist economy is distributed among the different social classes making up that society. However while Ricardo the most systematic expounder of the classical theory of distribution considered for his analytical purposes three social classes of landlords, capitalists and the wage workers. Karl Marx in his basic model; considered only two classes, namely the capitalists and the wage workers. This is because his primary model is on a high level of abstraction and in it he considers only the most distinguishing features of a capitalist society for him the most meaningful basis of dividing the capitalist society into different socio-economic classes was the ownership of the means of production. Looked at from this point of view, the society has only two classes : the propertied class which owns the means of production or 'instrument of labour' as Karl Marx would have described them and the property less class of wage workers who own nothing except their power to work or 'labour power'. However, Karl Marx's model of industrial capitalism is in which the capitalist manufacturer play the key role along with the wage workers. The sections of the propertied class other than the capitalist such as the landlord and the money capitalist lend the services of land and money capital of the capitalist manufacture from whom they claim a share in the surplus created in production. Thus the basic social classes dealt within Marxian primary model are the capitalists and the wage workers.

Thus the class shares considered in Marx's primary model are profits and wages only. However this is based on the implicit assumption that the capitalist class owns all the means of production. The simplification that resulting abstraction have been done to uncover the essence of the capitalist mode of production and the way in which surplus is created under this model of production.

But once this had been done Karl Marx takes note of the various forms of property income such as profits, rent and interest, and shows that the shares going out of the surplus value created by the wage workers and appropriated in the first instance by the capitalist manufacturer who shares it with the landlords and the money capitalists according to the market law that regulated exchange and exchange

value under competitive capitalism. Therefore our main focus while elucidating the Marxian theory of distribution will also be on profits and wages where profits are to be interpreted as all types of property including all the three well-known categories namely profits of capitalists, rent of the landlords and interest by the money capitalist.

Another important feature of Marx's theory of distribution which testifies to its classical origins is that it is based upon the labour-embodied theory of value. It is true that Ricardo had originally given an exposition of the classical theory of distribution without making use of the theory of value as such. But the idea is implicit in his argument and his theory is capable of being explained in terms of value as he himself did in his major work. *Principles of Political Economy and Taxation*. The essential idea of Marx's theory had been already stated by Adam Smith in his *Wealth of Nations* in his proposition that as soon as land and capital stock became private property the workers become obliged to share the product of their labour with the landlords, who supplied the use of land and the capitalists who advanced to them means of subsistence to tide over the period till the final product was turned out and also the implements to work with. This proposition along with Smith's definition of 'productive' labour as the labour which produces a surplus over and above what it itself consumes during the period of production had clearly suggested the 'surplus principles'. Marx's theory of distribution will be found to be based upon an adaptation of the classical labour theory of value as well as the classical concept of the surplus which is produced by labour but is appropriated by the landlords and the capitalists by virtue of the legal institution of private property in the means of production in the capitalist society where in the workers become separated from the means of labour. Marx's theory of distribution is regarded as an adaptation of the ideas and propositions which can be found in the classical political economy of Smith and Ricardo but it is at the same time a more refined more elaborate and more sophistication application of the ideas and concepts which were lying in the classical political economy of Smith and Ricardo in the most rudimentary and even in a confused state.

2. Exposition

The kingpin of Marx's Theory of Distribution is his labour theory of value which he borrowed from the classical political economy, rid it of its crudities and presented it in a refined form. According to his, the 'Value in Use' or the utility of a commodity is only a necessary condition for it to possess exchange value but the use value of a commodity is not the determinant of its exchange value. What determines the exchange value of a commodity is the quantity of socially necessary labour time required to produce it. The idea was contained in Adam Smith's 'labour-embodied' version of his labour theory of value. But Marx improved upon it by emphasising that it is the quantity of not any kind of labour time but of socially necessary labour time going into the production of a commodity which determines its exchange value. The labour is the abstract labour. The concept of

the socially necessary labour implies the following assumptions : (i) The labour embodied in the commodity is such as is directed towards the satisfaction of some want, that is, it is assumed that the labour is devoted to the production of a commodity for which there exists a demand in the society : it is not the type of labour which is devoted to digging of holes in the ground and then filling them up (ii) the labour that determines exchange value is that quantity of it which is necessary under the prevailing technology, if the commodity is produced with the help of an outmoded technology which required more labour than which what is necessary under the prevailing technology, then its value will not be determined by the actual quantity of labour time gone its production which is obviously greater than what is necessary under the technical conditions already prevailing in the society (iii) It is assumed that production is subject to constant returns.

However, the most distinguishing analytical feature of Marx's theory is that it makes distinction between 'labour' and 'labour power'. It was the failure of Adam Smith and David Ricardo to perceive this difference which left their labour theory of value as well as the surplus principle in a confused state. While labour is the actual quantity of living labour which is expended by the labourer in the production of a given commodity, 'labour power' is the capacity of the labourer to perform labour.

The next step of Marx was to apply the labour theory of value to labour power which as stressed by Marx, itself becomes a commodity to be sold and bought in the market under capitalism. Applying his labour theory of value to the commodity 'labour power', he came to the conclusion that the value of labour or the rate at which wages are paid by the capitalist to his workers is determined by the amount of labour which is required to enable the workers to maintain and reproduce themselves. Here again concern notice the classical subsistence theory of wages. However, there are two important points of difference between the classical explanation of the subsistence theory of wages and the Marxian explanation of it. In the first place, the classical economists ended to believe that the wages which are paid out to the workers were the full reward of the amount of labour contributed by them towards the production of given commodity. This, in fact, was the reason why they were unable to explore the full implications of the labour theory of value. Karl Marx, on the other hand, believed that the wages paid to worker's 'labour power' but not of the actual amount of labour performed by exchange, of the worker's 'labour power' but not of the actual amount of labour performed by them. Secondly, while the classicals took recourse to the Malthusian law of population to explain the long run equilibrium of the wage rate at the subsistence level, Karl Marx was contemptuous of this law and he substituted it with his doctrine of the 'industrial reserve army' of the 'relative over population' made up of the surplus unemployed population due to the increasing penetration of the capitalists mode of production into the rural sector and the traditional village and small industry.

The distinction between 'labour and 'labour power' was of crucial importance in Marx's analysis of the capitalist economic system. Under free competition, the commodities exchanged at a ratio which equated the labour embodied in them. In such a situation there could not be a surplus over costs that could go to the capitalist as profits unless there was a commodity which produced more value than its own. Marx discovered this commodity in the workers 'labour power'. What the capitalists pay their workers in the form of wages is the value of their 'labour power' but what they make use of their living labour, and this is the source of the surplus which is appropriated by the propertied classes in the form of the profits, rent and interest.

Let us suppose that the technical conditions are such that only four hour's labour is required to produce that amount of wage goods which would enable a worker to maintain and reproduce his labour power. But once the bargain is struck by him and his capitalist employee, the number of hours that he made to work is determined, in the absence of any state regulation, by the capitalist employer. Let us suppose that the employer makes the worker work eight hours a day. Then, in the first four hours the worker produces sufficient value to replace the wages paid to him but in the remaining four hours he is producing a surplus of value for his capitalist employer over and above what was paid out to him in the form of wages. Assuming, for the sake of simplification, that there are only two classes namely, the capitalists and the property less workers or the proletariat, the total output of the economy would be divided into wages and profits. Wages would depend on the labour cost of producing worker's subsistence, while profits will depend on the size of the working force and the rate of surplus value. If we admit of other propertied classes of landlords and money capitalists too, then capitalists will have to share the surplus value created by labour with these classes too so that a part of the total surplus will go to the landlords as rent, another to the money lenders as interest and the rest of it will the capitalists as profits. This is, nutshell, the Marxian theory of distribution which we can now state in more technical terms as follows :

Marx classifies capital into two parts, namely the constant capital and the variable capital. Constant capital is that form of capital, such as fixed equipment and raw materials, which does not add to the value of the final commodity more than its own value. Variable capital, on the other hand, is that form of capital which adds to the value to the final commodity produce more than its value. In the light of the explanation given in last paragraph above, it should be obvious that capital investment in the employment of labour is the only form of the variable capital which, therefore, is also known as wage capital. The rate of surplus value is the ratio between the surplus value and the variable capital. Let us denote constant capital with (c) variable capital with (v) and surplus value with (s). Then the rate of surplus value will be (s/v). Assuming only two factors, capital and labour, and only two socio-

economic classes, capitalists and labourers, the share of profits in the total product will be s or (s/v) i.e. the rate of surplus multiplied by the amount of the variable capital. But the ratio of profit is calculated on the total capital invested. Hence the rate of profit will equal the ratio $\left[\frac{S}{C+V}\right]$. The share of Wages in the total product is determined by the socially necessary labour time required to produce the subsistence goods for the labour force employed in production.

The share of profits and wages in the total product referred to in the above paragraph is absolute share in each case. The relative shares will depend on the rate of surplus value. The greater is the rate of surplus value the higher will be the proportion of profits in the total product. In the example which we took, earlier and wherein it was assumed that the working day consisted of eight hours out of which four-hours labour represented the value of the subsistence wage paid to the worker, the variable capital (v) equalled the surplus value s. So that rate of surplus value was 100% (S/V ×100) if the technical conditions of production or the productivity in the wage goods industry remained the same but the working day had been extended to say, 12 hours, then the rate of surplus value would have been 8/4 ×100 or 200% . Let us further suppose that the constant capital as measured in labour time in both the cases is the same at 2 hours labour time. Then the total value of the product in the first case is c+v+s=2+4+4=10 hours of labour out of which profits make up 4 so that relative share of profits is (4/10) or (2/5). In the second case when the rate of surplus value of surplus value doubled from 100% to 200%, the total value of the product is 2+4+8=14 and the relative share of profits is (8/14=4/7) which is greater than 2/5. Thus we see that in Marxian theory the relative share of profits depends directly on the rate of surplus value.

It should also be noted that Marx had pointed out that there are two ways by which the rate of surplus value can be increased. One of these is to lengthen the working day or to intensify the place of work. The second one is to increase the productivity in the wage-goods industry so that a smaller amount of labour is required to produce the worker's subsistence. Thus the relative share of profits is also a direct function of the productivity in the wage-goods industry.

It should be further noted that while the productivity in the wage-goods industry is an economic factor, the length of working day is not a purely economic factor. Its length will depend on the outcome of the class struggle between the capitalists and the workers. Thus the relative share of profits in the total product is a function not solely of economic factors unless we refer to them in the ultimate sense; but also of political factors.

Self-Check Exercise-I

Q. Define surplus value?

Ans .....

.....

.....

3. Rate of Profit

If there are only two factors, labour and capital, and the rate of surplus value $\left[\frac{s}{c+v}\right]$ which is also described as the rate of exploitation of labour, is uniform, then a single uniform rate of profit in the above simple model can emerge only if the ratio between the constant capital (c) and the variable capital (v) is the same in all enterprises and all industries. The ratio, in Marxian language, is known as the 'Organic composition of capital'. However, if this ratio is not uniform while the rate of surplus value is uniform, then the rate of profit [s/(c+v)] will be found to be lower in industries with higher organic composition of capital, that is, in industries using higher proportion of constant capital in the form of machinery. This contradicts the facts observable of constant capital in the form of machinery. This contradicts the facts observable in actual world and came to be described as the Great contradiction in the Marxian argument by the critics. Karl Marx tried to solve this contradiction by making distinction between values and prices and demonstrating how values are transformed into prices the so called 'Transformation problem.' The explanation of this problem will lead us far away from the present subject. Therefore, we shall touch upon only the most essential idea contained in it in order to throw light on an aspect of the problem which we are discussing in this lesson.

The surplus value in the economy as a whole is the source of profits. The total surplus value divided by the total capital invested in the process of production of that surplus gives the average rate of profit for the economy as a whole. The forces of free competition ensure that all capitalists in all industries, regardless of their particular organic composition of capital, earn at a same rate of profit. This implies that while value of a commodity equals c+v+s, the price of commodity equals c+v+p[1] is the rate of profit that prevails in the economy as a whole and is given by the formula $\frac{S}{C+V}$.

4. The Falling Rate of Profit

As integral part of the Marxian model of development is the hypothesis of the falling rate of profit. Since the motivation behind the economic behaviour of the capitalists is assumed to be the maximisation of profits, the individual capitalists seek to increase their profits by introducing machinery which increases the productivity of labour and therefore, the relative surplus value available to the capitalists. The capitalist pioneering improved technology are thus able to push their individual rate of profit above the prevailing average rate. But soon the other capitalist are also compelled to follow suit under the pressure of competition. The process goes on repeating itself and result in progressive rise in the organic composition of capital, this process is, therefore, supposed to lead to a progressive decline in the rate of profit. That the rate of profit (p) is inversely related with the

organic composition of capital (c/v) is obvious from the following :

$$P = \frac{S}{c + v}$$

Where 'P' is the rate of profit, s is the surplus value, c is the constant capital, and v is the variable capital. Dividing the numerator as well as denominator of the right-hand side of the above definitional equation by v, we get the following result :

$$P = \frac{\frac{s}{v}}{\frac{c}{v} + 1}$$

We know that (s/v) is the rate of surplus value which is also known as the rate of exploitation of labour and (c/v) is the organic composition of capital. Hence the above result shows that the rate of profit in the economy is inversely related with the organic composition of capital (c/v) and is directly related with the rate of surplus value (s/v).

Here we can see the difference between Ricardo's explanation of the falling rate of profit and that of Marx. While Ricardo explanation it with reference to the law of diminishing returns in agriculture which was supposed to supply the wage goods for the workers. Karl Marx explained it in terms of the increasing tendency for higher organic composition of capital in the process of capitalist economic development.

The falling tendency of the rate of profits under capitalists economic development was one of the inherent tendencies of capitalism the other being under consumption resulting from the increasing concentration of purchasing power in the hands of a relatively small class of capitalists and other propertied people-on the basis of which Marx predicated the bumping of the capitalist system into an ultimate breakdown. However, he was aware that in order to postpone that day of reckoning, the capitalists would seek to counteract upon the tendency of the falling rate of profit and try to check it by measures to increase the rate of exploitation to reduce the wages below the subsistence level to cheapen the elements of the constant capital to increase the ranks of the 'industrial reserve army' (i.e. unemployment), to increase the inflow of surplus value from the foreign countries through imperialist measures, etc.

Self-Check Exercise-II

Q. What is the relationship between rate of profit and organic composition of capital

Ans .....

.....

.....

5. Wages and Doctrine of Increasing Misery

It has been already pointed out in Marx's model, the rate of wages is determined in the long-run sense by the value of 'labour power' or the cost of subsistence. However, the total absolute share of wages depends on the volume of employment also. The volume of employment depends on the rate and amount of capital accumulation which, again is a classical notion. When accumulation is growing the increasing demand for labour may push up the rate of the wages above the subsistence level and may also deplete the industrial reserve army. But this eats the surplus which could be appropriated by the capitalists. Hence they will take resort to labour saving technical innovations to displacement of labour and replenishing of the industrial reserve army.

The ranks of the industrial reserve army are believed to increase over the course of capital accumulation as the capital mode of production penetrates more sectors of the economy such as agriculture and the rural economy in general. The workers employed in the traditional industries and occupations are thrown out of employment by ruining these occupations which are unable to complete with the capitalist production. At the same time recurrent labour saving techniques also displace labour in the already established capitalist sector. The increasing industrial reserve army of the labour (Marx described it as the law of relative over population to distinguish it from the classical or Malthusian Law of population to which he did not subscribe) is utilised to put a downward pressure on wages. Therefore, Marx hypothesized that as capitalist accumulation proceeds, the total wealth and income of the society increase but they come to be concentrated increasingly in the hands of the propertied classes, particularly the capitalist class while there is increasingly misery among the working class. This is the doctrine of immiseration of increasing misery to working class.

Sometimes the above hypothesis is misinterpreted to suggest that Marxian analysis predicted a fall in the absolute share of wages. But this is surely a wrong interpretation. What Karl Marx actually wanted to suggest through his doctrine of increasing misery of the proletarial was that the relative share of wage would tend to decline in a capitalist economy based upon the principle of laissez-faire.

6. Criticism

Karl Marx's economic analysis was full of revolutionary implications. Critics have tried to refute the Marxian theory of distribution by denying the validity of his labour theory of value on which his theory of distribution is based. They have tried to maintain that Marx did not successfully demonstrate that value of commodities was determined by labour alone and that he simply imputed the creation of all value inclusive of surplus value of labour. Blaug; *Economic Theory in Restropect*, has gone to the extent of asserting that by imputing the creation of all value of capital we can derive an 'exploitation of capital' theory of distribution. But Blaug forgets that Marx emphasised a crucial difference between the commodity, 'labour power' and other commodities, the 'labour power' is the only commodity which creates more value than its own which is the source of surplus value. Moreover, critics like Blaug also forget that Karl Marx had emphasised that capital has a technical aspect as well

as a social aspect because it expressed a technical as well as social relationship. It is as a social relation that capital is able to dominate labour and exploit it. The labourers cannot work without the instrument of labour which, under capitalism are owned by the capitalist while the labourers are compelled to sell their labour power to the capitalist in order to subsist. The reverse social relationship between capital and labour cannot be imagined and, therefore, there is no possibility, theoretical or practical, that capital can be 'exploited' by labour.

However, there are other points of criticism which are not as irrelevant as the above. It has been suggested that the Marxian hypothesis of the falling rate of profit is neither logically sound nor born out by facts. It is suggested that this hypothesis is based on the assumption that while the organic composition of capital increases rapidly during the process of capitalist economic development, the rate of surplus value remains constant. The assumption is not realistic, for even if it is accepted that capital per worker has been rising thus showing a rising organic composition of capital, it is not a reasonable to assume that the rate of surplus value has remained unaffected by the rising organic composition of capital. The higher is the amount of capital per worker, the greater is the productivity of labour. Unless the increase in labour productivity is equally shared between the workers and the capitalist, the rate of surplus value will increase with increasing organic composition of capital. If it is so, the hypothesis of the falling rate of profit loses the authenticity. But this criticism is not valid because Marx assumes cultural rate of wages and not 'Iron law of wages'.

The hypothesis of increasing misery of the working class has also been criticised. If the hypothesis is interpreted to mean that absolute share of wages goes on diminishing over the course of capitalist development, it is definitely untenable. But it is much more appropriate to interpret it in terms of the relative share of wages. Many critics have questioned the hypothesis in this form too. Empirical studies, it is said, have shown that the relative share of wages in the national income of the capitalist economy like the American and the British has not been falling but has remained constant. The marxian would like to reply to this criticism by questioning the statistical methods employed in these studies which very often include all sorts of salaries also under the category, 'Wages'. Moreover, falling tendency of the relative share of wages was predicated by Marx on the existence of completely unregulated competitive capitalism which ruled out the existence of workers trade unions. Marx was aware that the workers' unions could check this tendency. But at the same time many studies found that the share of wages in the national income also decreased. When the competitive capitalism changes into monopoly capitalism with emergence of giant type large multination corporations, the share of wages in national income decreased. This has mainly happened during the five-six decades.

LESSON NO. 2.5 **AUTHOR : PROF. ROSHAN KHOSLA**

KALECKI'S THEORY OF DISTRIBUTION

1. The Nature of Kalecki's Theory
2. Concept of Degree of Monopoly
3. The Exposition of Kalecki's Theory
4. Relative Stability of the Wage Share
5. Assessment

1. The Nature of Kalecki's Theory

There are different approaches to the study of the problem of distribution of income in an economy. Distribution may be studied with reference to individual persons in order to know how it is distributed between persons or statistically devised classes of persons. This is known as the 'personal distribution of income' or, alternatively as the 'size distribution of income'. The distinctive mark of this concept of distribution is that it focuses the attention on how much the different individuals comprising a given economy earn without being concerned with how this income is earned. This approach is not concerned with how an individual receives his income. It shows no concern with whether the income is 'earned' or 'unearned' or whether it is in the form of wages or interest or profits or rent. Moreover, when this approach classifies individual, it does not do so on the basis of some social characteristic such as the ownership or non-ownership of property but on the basis of the size of income earned.

Another concept of distribution is the concept of 'functional distribution'. Functional distribution of income is not concerned with distribution among individuals. On the other hand, it is concerned with the distribution among different factors of production such as land, labour, capital and enterprise. The theory of functional distribution is, in fact a theory of explaining how the different factors of production are remunerated. It is indeed the theory of factor prices. This type of distribution analysis was described by E. Cannon as 'pseudo-distribution'. This is also known as the micro-economic theory of distribution.

The third approach to study the problem of distribution is to study the share of each factor in the national income as a whole. What percentage of it goes to labour and what part of it goes to the other factors like land, capital and entrepreneurial activity. This approach has led to the theories of 'distributive shares' which are also referred as 'relative shares'. These theories analyse the behaviour of the aggregate share of wages, profits, interest and rent in the national income. Therefore, these theories present macro analysis of the problem of distribution and are thus distinguished from micro-theory of distribution which basically explains factor prices, that is wages per unit of labour, rent per unit of land, etc.

The first point which we would like to stress with regard to the nature Kalecki's theory of distribution is that it belongs to the last of the three approaches to

distribution mentioned above.

However, when we look upon distributive shares or relative factor shares independently of the institutional and social fact of property system the analysis tends to obliterate the class character of distribution. The Classical or Ricardian theory of distribution was also a macro theory of relative (or distributive) shares. But in the British society of the times when the classical economists were analysing the problem of distribution, each factor of production land, and capital—was associated with a particular, socio-economic class such as the feudal class of landlords, the capitalists and the property less working class. Hence the classical theory of distribution was not only a theory of relative factor shares but also a theory of relative class shares, that is, it also explained how the income of a capitalist society was distributed among the three social classes of the landlords, the capitalist and the labourers. When we give the exposition of Kalecki's theory, it will become obvious that his theory is also in the classical tradition in the sense that it is also a theory of class shares with only difference that it works with the concept of only two classes, namely, the property-owners and the property less working class. The property-owners are, for the sake of simplification, identified with the capitalist entrepreneurs and the whole property income is identified with profits in his theory.

Lastly unlike the classical and Neo-Classical economics, Kalecki does not assumes conditions of perfect competition in which all parties to the different as well as the same bargain are assumed to be on equal footing. On the contrary, he makes the realistic assumption of monopolistic and oligopolistic competition, where the question of relative economic power wielded by the contracting parties to a bargain becomes important. This assumption naturally leads Kalecki to analyse the problem of class distribution of income in terms of the concept of 'degree of monopoly'. It is due to this fact that his theory has also come to be known as the 'degree of monopoly' theory of class shares.

In view of the fact stated above it is important that we should, first, be clear about the concept of the 'degree of monopoly'.

2. Concept of 'Degree of Monopoly'

The concept of 'degree of monopoly' was first of all presented by A. P. Lerner. Monopoly implies control over price which is absent under perfect competition. What is the degree of monopoly power enjoyed by a firm producing and selling a product under imperfect competition can therefore be measured with perfect competition as the frame of reference. Under perfect competition price equals marginal cost. Therefore Lerner suggested that the difference between price (p) and marginal revenue (m) as a fraction of price to be taken as the measure of the degree of monopoly (μ) Hence Lerner's measure of degree of monopoly is given by the following

formula : $\mu = \frac{P - M}{P}$.

It can be easily seen from the above formula that under perfect competition where p equals m, the degree of monopoly is zero. Where m is zero, the degree of monopoly will equal unity. In actual world, it is expected to be less than unity. In principle the degree of monopoly can also be measured with reference to the volume of profits, for under perfect competition a firm earns only normal profits in longer period equilibrium. The amount of profits earned over and above the normal profits by a firm may be taken as an index of the degree of monopoly. But apart from the fact that this measure will not be quite reliable in the short period situations, this measure is analytically less useful and also cumbersome (or rather it is useful analytically because of its being cumbersome). Therefore Lerner's measure as given above has been adopted as the standard measure of the degree of monopoly. Moreover, in so far as the standard practice in a real-world economy regarding pricing is to follow the 'mark up' principle. Lerner's measure of the degree of monopoly is able to suggest how the size of the mark up is likely to be determined.

It can also be seen that Lerner's measure of the degree of monopoly boils down to the reciprocal of the elasticity of demand for the production in the firm. This can be found out by substituting in Lerner's measure the value of $m = P\left[\frac{e-1}{e}\right]$ because in equilibrium, marginal cost (m) equals marginal revenue and marginal revenue equals average revenue (i.e. price) multiplied by (e-1/e) where 'e' is the elasticity of demand. Hence Lerner's measure of degree of monopoly (μ) equals $\left[\frac{1}{e}\right]$.

Self-Check Exercise-I

Q. Describe lerner's measure of degree of monopoly and give its formula?

Ans .....

.....

.....

3. The Exposition of Kalecki's Theory

Kalecki developed his theory of distribution mainly in his paper. 'The Determination of the Distribution of the National income.' (Econometrica : April, 1938), which was reprinted with significant changes in his Essay in the theory of Economic Fluctuations (1939) and also in his Theory of Economic Dynamics (1954). Since the theory has been explained by using mathematical language and

argument, it is essential to understand the meaning of the symbols used in the course of the argument. Small letters, wherever used, refer to the individual unit, while the same capital letters refer to the relevant variables related to the economy as a whole. For example, the small e refers the entrepreneurial income in an individual firm while the capital E refers the entrepreneurial income in the economy as a whole. A t bold i variable indicates the weighted arithmetic mean value of the variable concerned. Subscripts a and m refer to the average and the marginal quantity respectively. The other meaning of the symbols used are as follows :

(i) p = price
(ii) x = output
(iii) e, E = entrepreneurial income
(iv) o, O overhead costs which include non-manual wages or salaries
(v) w, W = Wages
(vi) A = real national income (E+O+W)
(vii) m = marginal cost
(viii) r, R = raw material cost
(ix) T = real gross output (A + R)
(x) μ = degree of monopoly.

Kalecki assumes that in the real-world economies are characterised by monopolistic and oligopolistic competition, prices are set by adding a 'mark up' to the average direct costs, the mark-up accounting for the overhead costs as well as entrepreneurial profits. Therefore, price (p) in his model is given by the equation :

1. $p = e_a + o_a + w_a + r_a$

Where w_a (wage cost per unit of output) plus r_a (raw material cost per unit of output) represents the direct cost per unit of output and e_a (entrepreneurial profits of the firm per unit of output) plus o_a (overhead costs, inclusive of rent, interest and salaries per unit of output) represents of 'mark-up'.

2. $m = O_m + w_m + r_m$

Subtracting equation (2) from equation (1) :

3. $p - m = e_a + (o_a - o_m) + (w_a - w_m) + (r_a - r_m)$

We know that Leaner's measure of degree of monopoly i.e.

$\mu = (p\text{-}m/p)$, Therefore

4. $p\text{-}m = p\mu$

Substituting the value of (p-m) from equation (4) into equation (3) and multiplying both sides by x

5. $xp\mu = xe_a + x\,(o_a - o_m) + x\,(w_a - w_m) + x\,(r_a - r_m)$

Summing up the above relation for the economy as a whole, we have

6. $\sum xp\mu = \sum xe_a + \sum x\,(o_a - o_m) + \sum x\,(w_a - w_m) + \sum x\,(r_a - r_m)$

Kalecki has argued, that the marginal overhead costs (o_m) are usually very small compared with the average overhead costs (o_a). Therefore $\sum x\,(o_a - o_m)$ may be written as (1-?) O where O, is the total overhead costs for the economy as a whole and

? is a positive fraction. Moreover, Kalecki assumes that the raw material costs increase in proportion with the increase in output of a firm. This implies that r remains constant in which case r_m equal r_a . Therefore the expression $\sum x (r_a - r_m)$ in equation (6) above will amount to zero and hence can be ignored.

But what about the term $\sum x (w_a - w_m)$? The problem is not as simple as in the case of the term $(r_a - r_m)$ treated above. Kalecki has argued that the normally prevailing type average wage cost curve is horizontal upon a point corresponding to the practical capacity of the plant slopes upward beyond that point. However, argues Kalecki, this point of 'practical capacity' output is seldom reached. Therefore, in such enterprises $(w_a - w_m)$ is bound to be insignificant compared to w_a. But, in industries producing raw materials (agricultural and mining) the law of diminishing return operates normally. Therefore, in these industries, the average wage cost (w_a) will be rising and therefore, the marginal wage cost (w_m) will be greater than w_a. But, in the economy such industries are counterpoised by industries like the railways and other public utilities where normally the increasing returns prevail until the point of 'practical capacity' is reached. In such enterprises, average wage costs (w) will be falling and, therefore, the marginal wage cost (w_m) will be less than (w_a). Hence, in these enterprises $(w_a - w_m)$ will be usually positive and small compared to w_a.

It should be obvious from the above argument that if the wage cost curves of the first type (i.e. the horizontal) represent a large part of the aggregate wages bill (W), then $\sum x (w_a - w_m)$ is likely to be small in comparison with W. Therefore, $\sum x (w_a - w_m)$ can be represented by λ w. Where λ is likely to be a small positive or negative fraction. In a nutshell the above line of argument implies that conditions of approximately constant returns are expected to prevail, in the short period, in the economy as a whole.

So, in the light of what has been explained in the preceeding three paragraphs, the equation (6) above can be rewritten as follows :

$$7. \quad \sum xp\mu = E + O - (1 - \beta) O + \beta W$$

Where $E = \sum x\, e_a$ is the aggregate entrepreneurial income for the economy as a whole. W is the total wages bill of the whole economy and β and λ are small fractions. The equation (7) can be rearranged as follows :

$$8. \quad \lambda xp\mu = (E + O) - (\beta O - \lambda W)$$

Since β is small fraction, therefore βO is very small compared with (E + O). Similarly λ is a small fraction and λW has been statistically found to be very much less than (E + O) so that it can be easily ignored. Hence equation (8) can be

reduced to as following :

9. $\sum xpu = E + O$ approximately

Dividing both sides of equation (9) by the gross output
T = Σxp, we have

10. $$\frac{\sum xpm}{\sum xp} = \frac{E + O}{T}$$

The left-hand side of equation (10) above is the weighed average of the degree of monopoly μ for economy as a whole which may, therefore, be denoted as μ. Thus Kalecki arrives at the following measure of the degree of monopoly for the aggregate economy.

By definition A (real national income) equals (E + O + W). Therefore (E+O) = (A - W) and hence equation (11) can be written as follows :

11. $$\frac{A - W}{T} = \bar{\mu}$$

Multiplying both sides of equation (12) (T/W)
we have

13. $$\frac{A - W}{W} = \bar{\mu}\ \frac{T}{W} \text{ or}$$

14. $$\frac{A}{W} = 1 + \frac{\bar{\mu}T}{W} \text{ or}$$

15. $$\frac{W}{A} = \frac{1}{1 + \frac{\bar{\mu}T}{W}}$$

which is the fundamental conclusion of Kalecki's model of the determination of relative shares.

What does this conclusion embodied in equation (15) above points out ? In the first instance, it points towards an inverse relationship between the degree of monopoly (μ) and the relative share of wages in real national income which has been denoted by the ratio (W/A).

Secondly the relative share of wages in national income, (W) is inversely related with the ratio (T/W) too. T, as already pointed out, stands for the real gross national income while W represents the aggregate wages. It can be shown that even the ratio (T/W) is a direct function of the degree of monopoly μ increases, it leads to an upward revision of the 'mark-up'. Consequently, prices of goods rise relatively to the wages costs and hence T = (?xp rise in relation of W. So, with increase in u and other things remaining the same, (T/W) also increases. Thus the

degree of monopoly is shown to play a critical role in the determination of the relative share of wages in the net national income. Increase in the degree of monopoly tends to depress that relative share of manual workers in national income, which decreases the degree of monopoly and it will raise the relative share of the manual workers.

Now, if the above result in considered along with the historical tendency of the capitalist economic system to grow towards greater degree of concentration of capital into fewer and fewer hands, the theory undoubtedly points to the Marxian doctrine of increasing misery of the working class during the course of capitalist economies development. But Kalecki took note of the widely believed empirical fact that the relative share of wages in the national income of the capitalist economics has remained relatively constant over the short periods as well as the long periods. Therefore, Kalecki's degree of monopoly theory of relative shares had to explain this relative stability of the share of the wages in national income in order to be consistent with facts. So, we shall now consider how Kalecki tried to explain the 'relative' stability of the share of wages in the national with the framework of his theory.

4. Relative Stability of the Wage Share

Kalecki has argues that the ratio (T/W) in equation (15) in the preceeding section can be influenced by factors other than the degree of monopoly (μ). For example, a change in the prices of the basic raw materials, that is, of the product of agriculture and mining, in relation to wage costs in other industries may also influence T/W. If there is an increase in the prices of these basic raw materials in relation to the wage costs in other industries, there must result from it an increase in all prices in relation to wage costs. Consequently, (T/W) rises, for $T = \Sigma xp$. However, (T/W) will rise less than the price of the basic raw materials due relative to the wage costs, because, when μ is given, prices at each stage of production increase in comparison to the sum of raw materials and wage costs.

The conclusion of Kalecki's model as embodied in the equation (15) makes it clear that with constant μ, the relative share of wages (T/W) falls with increase in the ratio (T/W) and the share of wages rises with a decreases in (T/W). Hence the rising prices of basic raw materials relative to the wage costs will tend to lower the relative share of wages by increasing (T/W). On the other hand, the falling prices of basic raw materials, with μ constant, will tend to increase the relative share of wages by decreasing the (T/W) ratio.

Hence the key to the solution of the problem of stability of the relative share of wages in the national income of the advanced capitalist economies of the world is to be found in the term (T/W) of the equation (15). The degree of monopoly (μ) is not a variable which undergoes change either in the short period or in the long period, but this statement does not imply that it remains constant. The changes in μ are rather gradual. It has been suggested by Kalecki that the relative stability of the wage share is the result of μ and (T/W) changing in the opposite direction. The latter, of course changes as a result of changing prices of the basic raw materials.

In capitalist economies, over the long period, there is increasing concentration of industry which tends to raise the degree of monopoly. On the other hand, some particular imperfections of competition tend to be removed : for example, falling transport costs leading to extensive markets, developed means of communication leading to improved information and knowledge, the standardisation of products and organised commodity exchanges, etc., tend to remove some imperfections of markets and thus tend to lower the degree of monopoly. But the movement towards industrial concentration manifesting itself in the form of powerful oligopolies and monopolies, which enhance the degree of monopoly, is believed to have an cage over the other force. So, over the long period, the degree of monopoly is believed to have an increasing tendency.

However, no firm hypothesis with regard to the secular trend of the relation between the prices of the basic raw materials and the wage costs can be made. But Kalecki examined some statistical data in respect of U.K. and U.S.A. During the period 1880 to 1913, the share of wage in the British national income was stable around 40% (41.4% in 1880 and 39.4% in 1913). The price indices for the period were found to indicate that prices of the basic raw materials in relation to the wage costs also remained practically unchanged from which Kalecki concluded that the degree of monopoly during the said period must also have remained practically constant. The British data with regard to the period 1913-35 showed a considerable fall in the prices of the basic raw materials relatively to the wage costs and since during this period too relative share of wages was stable, Kalecki inferred that the degree of monopoly during this period must have increased significantly. The data examined by Kalecki with regard to the U.S.A. also led to a similar inference.

Thus Kalecki's explanation of the relative stability of the share of wages is that over the observation period, either both μ and (T/W) have remained constant or they have been moving in the opposite directions to balances each other's effect on the wage share in the national income (W/A). But there is an inexorable law which is destined to make them move of the opposite directions and more or less to the same extent. If the prices of the basic raw materials show a rising tendency relatively to the wage costs in future, both μ and (T/W) will rise and consequently, (T/W) i.e. the relative share of wages will decline.

Self-Check Exercise-I

Q. Briefly describe Kalecki's explanation of the relative stability of the share of wages?

Ans .....

.....

.....

5. Assessment

Kalecki's theory of relative shares has the obvious merit that it does away with the assumptions of perfect competition and equilibrium. Instead, he has adopted the more realistic assumptions of imperfect competition and horizontal average and marginal direct cost curves. The substitution of those more realistic assumption in place of the unrealistic assumptions of the neoclassical model also enabled him to look at the problem of distribution in terms of relative economic power which is embodied in the concept of the degree of monopoly. In so far as this theory makes the degree of monopoly as the strategic explanatory variable, it provides a much more realistic explanation of distributive shares than the abstract models in the neoclassical tradition do. Another merit of the theory is that the classifying aggregate national income into only two macro shares namely, wages and non-wages income, it incorporates a more realistic and sociologically, meaningful class concept of distributive shares. Moreover, it is also a merit-according to Scitovsky 'great-merit' of Kalecki's theory that "it relates income distribution to the entrepreneur's pricing policy and makes the stability of distributive shares partly dependent upon on the stability of entrepreneurial profit margins." (Scitovsky).

However, despite its relative realism, the theory is not free from shortcoming. Firstly critics like M.W. Reder have found fault with Kalecki's simplifying assumption of horizontal average and marginal direct cost curves. But as Scitovsky has rightly observed, the abandonment of this assumption 'only complicates without destroying this theory.' One of the weakest link of the theory is that Kalecki did not try to measure the changes in the degree of monopoly independently but simply inferred it from the assumed stability of the share in the national income and the data with regard to prices and wages which implies that instead or empirically verifying his theory he implicly assumed it to be true. Some writers like Ashok Mitra, while trying to test his model, found the degree of monopoly to be constant rather than increasing over time as assumed by Kalecki. Moreover, as Kaldor has observed, unless the 'degree of monopoly' can be defined in terms of market relationships of some sort and an attempt is made to demonstrate how these market relationships determine the relation between price and costs, the theory does not provide a hypothesis which can be affirmed or refuted. An objection to the theory has also been raised on the ground that it will yield a queer result, if perfect competition is assumed, for, the degree will be zero and (W/A) in our equation (15) will amount to unity which implies that the whole of the income will go to manual workers as wages and other classes will get nothing. It has also been said (e.g. by Jan Pen) that Kalecki has turned a blind eye to the position of power of the unions. As J. Pen has remarked "he sees only the power of the capitalist, so that a reduction in the degree of monopoly through countervailing power remains outside the picture." We believe that introduction of the factor of the trade power will not undermine the essence of the theory, though non-recognition does leave the theory somewhat incomplete. It has been noted that Kaleki's impression with regard to the effect of raw material prices was wrong. While he proposed that the wage share increased as the prices of raw materials decreased. Ashok Mitra has shown that it is rather the other way about that is, the fall in raw material prices decreases that relative share of wages.

Taken as a whole, the theory does provide an unconventional insight into the problem of class shares but it calls for adequate empirical verification as well as inclusion of some other relevant factors to make it a more convincing as well as a more complete explanation of relative class shares.

M.A. (Economics) Part-I **Paper-I**
(Micro Economic Analysis)

Lesson No. : 2.6 **Author : Dr. Anupama**

Kaldor's Theory of Distribution

Structure:

I. Introduction
II. Objectives
III. Assumptions
IV. The Model
V. Critical Evaluation
VI. Conclusion
VII. Questions
VIII. Suggested Readings

I. Introduction: Kaldor's theory of income distribution is an important contribution to the theories of macro distribution as well as theories of economic growth. 1).Hawor-Domar models one leased on the asumption of castaut saving income tatio and this model makes an attempt to consider saving-income ratio as a valibu in the growth prosess. The model is used on the classical saving function which means that savings one equal to the ratio of of the national in came i.e. s= p/y. In his theory, economic growth is a function of distribution of income between profit and wages. His theory is also sometimes called neo-keynesian theory of distribution because he uses Keynesian analytical tools and theoretical framework to explain the factors which affect the distribution of income into profits and wages.

II. Objectives: This lesson gives an overview of the distribution mechanism in Keynesian framework as given by Kaldor. It gives an insight, how a change in distribution of income can lead an economy to a self sustained growth path. It also depicts how any disturbance in the desired distribution of income can lead to cumulative disturbances in the equilibrium of the economy.

III. Assumptions of the Model: This model of distribution is based upon certain assumptions. Firstly, national income is divided into two parts i.e. wages and profits. Wages include income of manual labour as well as salaries. Profit is defined as income of the property owning class which includes rent and interest also. Secondly, he assumes that the economy is at full employment equilibrium, therefore total output or income is given. Thirdly, both the wage earners as well as profit earners save something out of their income but marginal propensity to save is higher for the profit earners than that of the

wage earners. Fourthly, marginal propensity to save of both the classes is given and constant.

2). 5). The investment output ratio(II/Y) is an independent variable.

6). Elements of imperfeet canpetiton ot manopoly power liests.

Self Check Exercise-I

Q. Give two assumptions of kaldor theory of distribution

A. _____

_____

_____

IV. The Model: As income is distributed among workers and the capitalist, the income function is-

$$Y = W + P \qquad \text{\_\_\_\_\_(1)}$$

Where, Y is national income, W stands for aggregate wages and P for profits.

Since, the economy is at full employment equilibrium, the intended savings must be equal to the intended investment :-

So, $$I = S \qquad \text{\_\_\_\_\_ (2)}$$

Total savings can be further divided into two parts- saving out of wages (Sw) and savings out of profits (Sp)

$$S = Sp + Sw \qquad \text{\_\_\_\_\_ (3)}$$

If s_p and s_w are average propensities to save out of wages and profits respectively, then-

$$Sp = s_p.P \qquad \text{\_\_\_\_\_(4)}$$

and $$Sw = s_w.W \qquad \text{\_\_\_\_\_(5)}$$

So, equation (3) becomes

$$S = s_p.P + s_w.W$$

And equation (4) becomes

$$I = s_p.P + s_w.W \qquad \text{\_\_\_\_\_ (6)}$$

Also, $$W = Y - P$$

Therefore, $$I = s_p.P + s_w (Y - P)$$

$$I = s_p.P + s_wY - s_wP$$

$$= (s_p - s_w)P + s_w Y$$

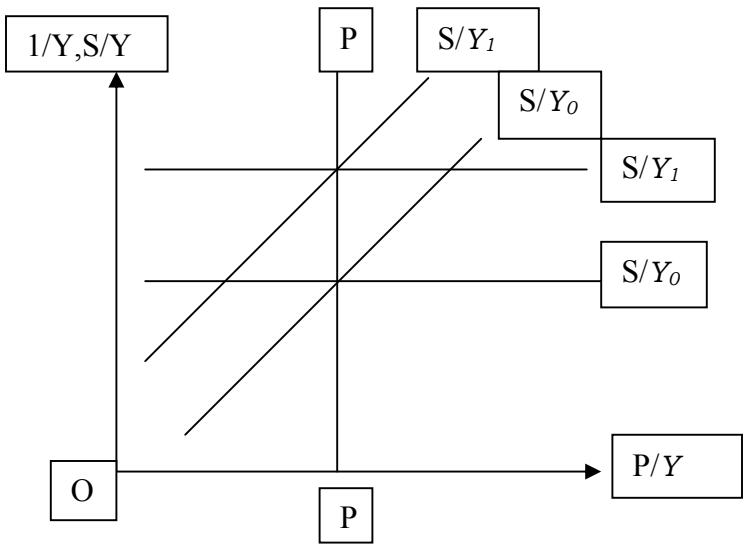
or,

$$\frac{I}{Y} = (s_p - s_w).\frac{P}{Y} - s_w$$

$$(s_p - s_w).\frac{P}{Y} = \frac{I}{Y} + s_w$$

$$\frac{P}{Y} = \frac{I}{Y}.\frac{1}{s_p - s_w} + \frac{s_w}{s_p - s_w}$$

Since, s_p and s_w are given and constant so, it can be said that share of profits in national income (P/Y) is a direct function of investment-income ratio (I/Y). An increase in investment income ratio will always lead to an increase in share of profits in national income and a decline in share of wages, provided that $s_p > s_w$. Like all Keynesian models, investment –income ratio is treated as an independent variable, which is insensitive to changes in propensities to save i.e. s_p and s_w.



Given the full employent level of incame yo, the savings-income ratio and the investment- income ratio are S/Yo and 1/yo respectivaly. The cearomy is in equilileum neeth a fixed mofict incame ratio given ley a vertical line PP. If theic is an air clease in income, the S/Y and 1/Y function shift upword to S/Y and I/Y. But the share of hofets in natianol in come reemaens castant as given by the line PP. In case I/Y alone shifts up, the savings-incame function reuirming at S/Y level, theue waild lee inflatianary rise in plices.This would eventually profit- income ratio and prees up the saving-income function to S/Y. If such a lelation cantinues beetween the I/Y and S/Y functions, the ecarany will maintain. Itself at the full employent and P/Y will remain contant.

The stability of system in Kaldor's model depends upon two conditions:

1. The propensities to save of two classes are different i.e. $s_p \neq s_w$.
2. Propensity to save of capitalist class is greater than that of working class i.e. $s_p > s_w$.

The system would be unstable if $s_w > s_p$ and so, any deviation from equilibrium will take it farther and farther. In such cases an increase in investment will lead to increase in demand and so, increase in prices. Due to increase in prices, the share of profits will increase and because propensity to save out of profits is here assumed to be low, an increase in profits would further increase demand. Thus, increase in prices will be cumulative. Similarly, in such cases, a decrease in investment will lead to fall in demand, prices and fall in share of profits and consequently a fall in demand. Thus, prices will continue to fall further and further. This shows that stability can only be achieved when $s_p > s_w$. here an increase in investment will lead to increase in demand, prices and share of profits but real consumption will decrease. Savings will increase to match the increased investment.

Further, the degree of stability depends upon difference between s_p and s_w. If the difference is small $1/ s_p - s_w$, which is termed as 'coefficient of sensitivity to income distribution', will be large. Consequently, a small change in investment-income ratio will lead to a large increase in share of profits or we can say a significant change in income distribution. When difference in propensities is large, the effect of change in investment-income ratio on distribution of income will be small.

The crux of the Kaldor's model is that as ratio of investment to income is increased, the saving-income ratio must rise and become equal to it so that new equilibrium is established. Since the propensities to save are constant, the saving income ratio can only rise if there is shift in distribution of real income from wage earners to the capitalist class. When there is full employment in the economy, an increase in investment can bring new equilibrium with higher level of real investment only if it leads to a real increase in both investment income ratio and saving income ratio. It also means decrease in real consumption. Therefore, a shift in distribution of income in favour of capitalist class is essential to increase the real investment.

The system works like this: when there is full employment in the economy, with an increase in investment, there is a general rise in price level. As the wages lag behind the prices, the real wages would fall and share of capitalist class being higher, it will lead to higher savings to match the increased investment. The new equilibrium is established at the expense of working class as real wages are reduced.

Kaldor's model operates under two constraints:

$$W > W_{min}$$

And, $$\frac{P}{Y} > m$$

Here m represents minimum level of profit.

Under this model an increase in investment is accompanied by fall in real wages, which can only be possible if the current level of wages is above the cost of subsistence (or the minimum wages).

Second constraint implies that the profit margin should be more than a certain minimum level of profits (m). Below this level, the entrepreneurs will not be willing to reduce prices anymore. If the profit margin is sufficiently high, producers will willingly accept a decrease in prices in the falling demand conditions.

Self-Check Exercise-2

Q. Give the two conditions on which stability of system in Kaldor's model depends?

Ans .....

.....

.....

V. Critical Evaluation of the Model: A distinctive feature of the model is that, it deals with the changes in income distribution rather than income itself. Moreover, a change in distribution of income, acts as an adjustment mechanism between savings and investment. Also, the savings, according to this model, act as passive factor, adjusting themselves to investment. The entrepreneurial investment decisions play the active role. This model has following shortcomings:

1. This model is based on the assumption of full employment. It deals with a particular state of economy not a general state. It does not tell how income redistribution takes place when there is less than full employment.
2. Kaldor's model assumes income to be given at full employment level and investment is exogenously determined. This level of investment is consistent with full employment equilibrium. With the saving propensities being constant, the only way the adjustment can be achieved is through change in relative share of wages and profits. This is merely an accounting exercise not an analytical one.
3. Kaldor's theory ignores some important consequences of price rise. It assumes that with increase in prices due to increase in investment, the share of the profits increases. Since profit earners have higher propensity to save, total savings increase and match the increase in investment. But this theory ignores that frequent rise in prices also leads to wage inflation, wage price spiral and overspending. Prof. Meade argues that

this model merely explains short run inflation not long run growth. Because at full employment level, with increase in investment, the producers themselves increase wages to attract labour from other sectors or other units of production. As a result an increase in output in a particular unit may be on cost of reduction in output somewhere.

4. Kaldor's theory assumes the current wage to be above a certain minimum wage rate, which is based upon cost of subsistence. So, when the real wages fall due to increase in prices, the workers don't resist. They will react only if the wages fall below the minimum level. This is totally unrealistic.
5. Kaldor does not take into account the impact of elasticities of substitution and marginal productivities of factors on the relative share of two factors.
6. Kaldor does not analyze the impact of technical progress on distribution of income. The technical progress may be embodied or disembodied. In the former case it will cause benefits from a new investment to rise and in the latter case, it will make existing investment more profitable. With rising productivity of labour due to technical progress, Kaldor's arguments may not be applicable. Real wages may rise even when the price level is increasing as long as the increase in prices is less than the increase in labour productivity.
7. This model suggests that the producers will be willing to reduce prices and profit margin to wipe out the deficiency of aggregate demand. But, generally it is observed that prices are rigid in downward directions. In case of deficiency in demand, the producers prefer to make adjustments in output rather than prices.
8. Kaldor also failed to take notice of the importance of human capital. The category of workers also includes highly skilled workers, managers, engineers etc. The theorey states that with the rise in 1/Y, the share of profti in national income inclreases but the share of wages falls. As a result of the decline in the share of the decline in the share of labour, the candition of workers will worren. As a canseqnence, the real income and output of the cenany will teduce. iccording to Mccormick the failure of the therouey to in corpatate heeman capetal leaves the clthorry too suuple to exption the clhcorty too suuple to expcain the camplexities of the real world." A reduction in their share will adversely affect the formation of human capital, therefore leading to a fall in real income and output.

VI. Conclusion: Kaldor's model of distribution is an important contribution in the macro theories of distribution which establishes the relationship between the distribution of income and rate of investment and so the

rate of economic growth. Kaldors model though esseutially leased on keynesian cancepts and chauodian approach level still it is diffrent from them in neuleer of ways. Korddor leleves that cllonomic growth and it s process are cleased on the interdependence of the fundamental variable inferdependence of the fundamental variables like saving, investment, moductivety etc. in kaldar's openian a dynanue precess of growth shaeld not lee presented and cannot lee ceender food with the - help of autain corstants laut cin terrms of leaic fan damental relation ships. The leasic fundamental reletionship among the fraction of income saved, the fuvtion of income invested and productiveeety defermine the outcome of dynamie process.

VII. Questions:

1. Critically analyze Kaldor's Model of Distribution.
2. How change in distribution of income can lead to establishment of equilibrium in a growing economy?

VIII. Suggested Readings:

Nicholas Kaldor (1960): Essays on Economic Stability and Growth, P 227-36
Amartya Sen (1970): Growth Economics.

Self-Check Exercise-3

Q. Diagramatically explain the distribution model of Kaldar.

Ans .....
.....
.....

LESSON NO. 2.7 **AUTHOR : PROF. PRITAM SINGH**

CLASSICAL AND NEO-CLASSICAL WELFARE ECONOMICS

(1) Introduction

1.1. Definition and Nature

Before we expound the main features of the classical and neoclassical welfare economics it will be proper to understand what welfare economics is. One way which indeed is a rough and a ready way to define it is to state that it is a specialised branch of the science of economics which concerns itself with the search for criteria that may serve the basis for the formulation of policies to maximize social welfare. However alternative definitions are possible. According to M.J. Farrel, "At one end of the spectrum of possible definitions one might treat welfare economics as an exercise in deriving the most general policy recommendations from a minimum of value judgements, eschewing empirical facts (so far as possible) positive economic analysis" (of M.J. Farrel, *Readings in Welfare Economics,* p. vii). But this extreme way of defining welfare economics is faulty for it is not only too general but also misleading. But its emphasis on 'eschewing empirical facts' and positive economic analysis it not only fails to describe the nature of welfare economics as it exists but also implies it to be a purely normative study. Even when welfare economics is predominantly a normative study. It does in no way imply the depreciate eschewing of scientific procedures of study.

Welfare economics concerned as it is with making policy recommendations is basically normative study. But in order to be creditworthy it must adopt scientific methods of study associated with positive sciences. Taking this view of the problem, it will be relatively more appropriate to define welfare economics as that branch which is "concerned with marking policy recommendations applicable in the world of economic affairs", and derived on the basis of minimum of value judgements and as rigorous scientific analysis.

However, even this definition is different in so far as it does no explicitly refer to the objective of the policy recommendations. The objective indeed is to maximize the well-being or welfare of the society.

Definitions are never perfect. Appropriateness of definition depends on the purpose for which the definition concerned is to be adopted. Since our objective here is to give a general feeling of the nature of the specialised branch of economic analysis that goes by the

name of welfare economics. We would like to stress the following distinguishing characteristics of this particular branch of economic analysis :

(i) First, it is concerned with the analysis of the welfare implications of alternative economic policies an the basis of which particular recommendations are made with a view to maximize social welfare under the given constraints.

(ii) In so far as it is concerned with policy recommendations, it is a normative study or to use Pigou's famous term, it is predominantly a 'fruit bearing' science.

(iii) However, the policy recommendation with which it is concerned are not pure and simple value judgements like the statement. "Honesty is the best policy." The policy recommendations are arrived at throughout rigorous positive analysis of the welfare effect of alternative policies. In this scientific procedure, it discovers analytically the objective criteria for determining the welfare effects of alternative policies on the basis of which the policy recommendation are made.

(iv) It follows from the preceding characteristic that although it is essentially a normative study, yet it seeks to employ scientific methods of study. Thus it purports to be a scientific study of the theory and economic policy related to objective of optimising social welfare.

(v) In so far as it is a normative study, it cannot evade making value judgements. But in order to maintain its scientific character, it keeps the value judgements to minimum necessary and introduces them exogenously as assumptions rather than as proven facts. The basic value judgement that it implies is that the society seeks to maximize its welfare.

1.2 Meaning of Social Welfare

Since this branch of economics is concerned with social welfare, it is important to understand the exact meaning of the term 'social welfare' as it is used in welfare economics. Firstly, the term 'welfare' is interpreted in subjective terms. It refers to the level of satisfaction or utility so that welfare of an individual is assumed to vary directly with change in his level of satisfaction. Secondly, the term, 'welfare' is used in the sense of 'economic welfare' which was defined by Pigou as that 'general welfare' that can be brought directly into relation with the measuring rod of money. In other words, it refers to that amount of satisfaction which is derived from the consumption of exchangeable goods. Here we will enter into the controversy whether it is possible to distinguish between general welfare and economic welfare or not. Suffice it to state if we go by the actual usage, the term 'welfare' definitely implies only that amount of satisfaction which is derived from the consumption of economic goods rather than from spiritual goods.

Having specified the meaning of the term, 'welfare', we now come to specifying the meaning of the term 'social welfare'. This term refers to the economic welfare of

the society as a whole. It is important to note welfare economics is rooted in the doctrine of consumer's sovereignty of the utility school of economics. Therefore, 'social welfare' refers to the total of the satisfaction of all the individuals who make up a given society. Society is assumed to be mere aggregation of individuals. It is not supposed to have mind independent of and different from the minds of its individual members. This society is not assumed to have an independent preference scale of its own. Nor does modern welfare economics admit of a single individual (a planning commission or a cabinet of elected ministers) as representing the collective mind of a given society. This implies that welfare economics rejects any dictatorial or paternalistic view of social welfare. Social welfare is simply the aggregate of the satisfaction of all the individual members of a society.

1.3. Measurement of Social Welfare

If, as we have already pointed out, welfare economics is concerned with policy recommendations aiming at optimising social welfare, it is necessary that social welfare should be amenable to some kind of measurement. Otherwise, the analysis cannot have precision and operational significance. The minimum necessary condition is that it should be measurable, at least, in manner that it can be shown to be more or less the same after implementation of a policy. This implies that if welfare economics is to be meaningful, social welfare should be measurable at least ordinally.

But the problem of measurement of social welfare is fraught with many difficulties. Welfare being co-terminous with utility, all problems that beset the measuring of utility also come in the way of measuring social welfare. The ordinalists pointed out the impossibility of measuring utility cardinally. However, recently Morgenstern and Von Neumann have demonstrated how a cardinal measure of utility for an individual can be prepared. But their method cannot help us in measuring cardinally the social welfare unless all individuals in a society have identical preferences which is impossible.

We cannot measure social welfare ordinally unless, again all individuals have identical preference scale so that any policy will effect all of them in one and the same way which is an impossibility. Since all individuals do not have identical preferences they will not make the same choices. Hence social choice cannot be derived from individual choices unless we are prepared for and capable of making interpersonal comparisons of utility.

Now interpersonal comparisons of utility cannot be made without making some sort of value of judgement. So one way out of this difficulty is to make some plausible premise for making interpersonal comparisons of utility that we can set the loss utility of one individual against the gain of utility by another. The required premise will be some kind of ethical premise of value judgement.

Pigou, in his Economics of Welfare, had adopted the premise that individuals belonging to a given social group have on the average equal capacities to enjoy money income regardless of whether they are rich or poor. Now, this is a value judgement in

the sense that this proposition in not capable of being demonstrated scientifically. Combining this value judgement with the hypothesis of diminishing marginal utility, he could deduce that any given amount of money when transferred from a rich individual to a poor individual will result in as a gain of utility to the poor which will be greater than the loss of utility to the rich individual and hence there will be a net gain to the society in terms of social welfare.

However, this procedure provoked positivists like Prof. Robbins to observe that 'The postulate of equal capacity for satisfaction rests upon ethical principle rather than upon scientific demonstration : it is not a judgement in a scientific sense but rather a judgement of value. The implication of this observation was that the introduction of the value judgement had robbed the Pigovian welfare economists of its scientific character.

But what is the alternative adopted by the welfare economists like Pareto who approach is believed to be scientific and value free by positivists like Robins? This alternative is expressed in Pareto's Unanimity Rule, according to which the position of maximum social welfare is the one where it is impossible to make a small change of any sort such that the ophelimities' of all individuals except those that remain constant are either all increased or all diminished. From this Pareto deduced the rule that any change of policy which increased the utility of one or more individuals in the society without decreasing the utility of any other individual will increase social welfare.

Pareto's procedure simply circumvents the problem of distribution without being more scientific than Pigou's procedure, if to be scientific is to be value-free. It can be demonstrated that Pareto's procedure is also based on certain value judgements which are implicit in his procedure. His Unanimity Rule, for example implies the value judgement that 'none should be harmed.' Apart from the very-raison d' etre of welfare economics is based on the implicit value judgement that it is desirable to maximise social welfare.

Pareto's procedure which shies away from making interpersonal comparisons of utility is restrictive in comparison with Pigou's procedure because, unlike the latter it cannot measure social welfare in situation when distribution changes makes some individuals better off while some others become worse off.

1.4. Positive Economics and Welfare Economics

In the preceding section we have already explained the nature of welfare economics hinting at the relation that it bears to positive economics. In the present section we shall elaborate upon this relationship.

It is well known that sciences are generally classified into two broad types, namely, the positive sciences and the normative sciences. Positive sciences are generally defined at those sciences which are concerned with only exploring and explaining the phenomena of things falling within the scope of their respective studies. They are not concerned with approving or disapproving, recommending or

condemning a course of action. In other words positive sciences are concerned with problems involving What is and not with problems involving 'ought' or 'should'. In Pigou's terms, positive sciences are 'light bearing'. Moreover, positive sciences are distinguished by their methods of analysis. The 'hall-mark' of positive methodology is to scrupulously avoid the introduction of value judgements in the analysis, though, as Myrdal has amply demonstrated in his *Political Element in the Development of Economic Theory,* this is not always possible in social sciences like economics. Of still greater importance as regards the methodology of positive sciences, is the devising of objective facts of the theories propounded in order to find out their consistency with actual facts.

The normative sciences, on the other hand, are those disciplines of study whose objective is not to explore and explain as such but to search for and recommend solutions to practical problems that fall within their respective fields of study. Their primary occupation is with problems involving 'ought' and 'should'. They are therefore, bound to approve or disapprove, recommend or condemn policies aimed at achieving certain given objectives. They fall in the category of those sciences which Pigou has described as 'fruit-bearing' sciences.

Concerned as they are with policy recommendations, value judgements cannot be avoided by them as much as the positive sciences can do. But this, in no way, implies that normative sciences are not more than mere an assembling of normative propositions. For these normative Prepositions are generally arrived at on the basis of Positive analysis the Criteria on the basis of which a normative science concludes what ought to be and what ought not to be may be arrived at scientifically following the procedure of positive methodology.

Anyway, it is still useful to distinguish between positive sciences and normative sciences along the lines suggested long ago by J.N. Keynes in The Scope and Method of Political Economy. A positive science, according to him, "may be defined as a body of systematised knowledge concerning what is," and a normative science may be defined "as a body of systematised knowledge relating to create of what ought to be and concerned therefore with the idea as distinguished from the actual."

If we bear in mind the distinction between positive science and normative science, as explained above, we can easily see that welfare economics, strictly speaking is not a part of positive economics in the sense in which micro-economics, or macro-economics is a part of positive economics. It is because while the main concern of the micro-economics and macro-economics theories is to explore and explain the principles which govern the functioning of a particular type of economy, the main pre-occupation of welfare economics is with search for criteria on the basis of which practical policies may be recommended to promote social welfare. In this sense, welfare economics is a part of normative economics.

But, as we have already observed a normative discipline of study need not be unscientific. Welfare economics is a normative discipline of study, concerned as it is

with policy recommendations. But these policy recommendations are arrived at on the basis of criteria which are devised through scientific analysis. However, one important basic difference between positive economics and welfare economics was that while the assumptions and conclusion of the former can be put to test against independent factual evidence this is generally not possible in the case of latter.

Perhaps, the most important characteristic of welfare economics that distinguished it from positive economics is the conspicuous role which value judgement play in it. The very existence of welfare economics is the conspicuous role with value judgement that social welfare is desirable objective and it should be maximised. Moreover, even when the search for criterion for determining the welfare optimum is carried out along the lines of positive economics analysis, it has to make use of some value judgements in order to get out of certain analysis problems. This is best illustrated by the way different schools of welfare economics have tried to get out of the difficulty pronouncing on the welfare effect of policy which increases the welfare of some individuals while decreasing the welfare of some others. The Pigovian school solved the difficulty by interdicting the value judgement that adamantly rejected the possibility of interpersonal comparisons of utility on the basis of all individuals belonging to a given social group have on the New Welfare Economics School. The value judgement that non can peep into an other persons mind to exactly know where an individual himself is the sole judge of his own welfare. The very definition of the welfare optimum by this school bears the impression of these value judgement.

However, even when value judgements are, more or less, basis for welfare economics, it has its own analysis which are as good as that of branch of positive economics. The main corpus of analysis welfare economic comprises positive economic analysis, be it old welfare economics of Marshall and Pigou utilising the analysis tool of consumer's surplus or the new welfare economics of Pareto and his followers using the tools of indifference or preference analysis.

Self-Check Exercise-I

Q. What do you mean by Positive Economics?

Ans .....

.....

.....

II. Classical Welfare Economics

In the history of economic thought the term, 'classical economics', has reference to that body of economic doctrines which are mainly the contribution of Adam Smith, David Ricardo and J.S. Mill. They did not have any explicit welfare economics, though it is possible, as Hla Myint's *Theories of Welfare Economics* show, to build up what may be described as 'classical welfare economics' from the observations lying scattered in the works of these classical economics. As M. Blaug has pointed out, Adam Smith's *Philosophy of the Invisible Hand*—which implies that individual while pursuing their

own individual self interest (i.e. pursuing to maximise individual welfare), are led by an invisible hand to promote (maximise) the interest of society as a whole-refers to the welfare optimising character of competition. Since the neo-classical welfare economics also arrives at the same conclusion, it is not possible to distinguish between the two on the basis of their broad general conclusion though they can be distinguished on the basis of the method of approach and analysis.

One particular distinctive mark of neo-classical welfare economics was that, unlike the classical, it did not explicitly treat welfare on the subjective level. On the contrary it treated welfare on the objective physical level. The implicit assumption (which was a type of value judgement) of the classical economics like Smith and Ricardo was that utility was proportional to the volume of the national product.

The classical view of satisfaction was also different from the neoclassical view. For them satisfaction or welfare was determined not by the subjective relation between the consumer and the goods consumed but by the objective physical properties of the goods consumed. It was this view of satisfaction which led them to assume that satisfaction or welfare was proportional to the amount of physical goods available. They did not use the concept of the marginal in their general analysis except in the analysis of rent on land. Therefore, unlike the neoclassicals, they could not visualise that satisfaction or welfare of an individual consumer and consequently, of the society as a whole could be increased over the basis of a given stock of physical goods through marginal adjustments in the allocations of consumption expenditure.

Basically, the classical economics was concerned with development and growth on the implicit assumption that growth of national product resulted in a proportionate increase in social welfare. Therefore, the classicals believed that the social welfare depended upon the growth of labour and capital which determined the growth of the national product. This emphasis on growth is another mark which distinguishes it from the neoclassical welfare economics. The Paretian neo-classical welfare economics assumes the factors of allocational efficiency only. Thus while classical welfare economics was essentially dynamic in nature the neoclassical welfare economics is essentially static.

From above, however, it should not be taken to mean that classicals did not take note of the effects of efficient allocation on welfare. Adam Smith's Wealth of Nations is full of references to a system of nature liberty (i.e. free competition) which bring about the ideal allocation of resources. As Blaug has observed in his Economic Theory in Retrospect, Adam Smith "did take the first step to the theory of optimum efficient allocation of given resources under perfect competition."

Nevertheless, the over all framework of the classicals was dynamic and growth oriented. For them the main determinant of the level of the national product and, therefore, of the social welfare was the rate of capital accumulation. Capital, to them, depended upon the portion of the national product saved and invested. On the one hand labour productivity and on the other, Labour productivity was made to depend

on the division of labour which, in turn, was limited by the extent of the market. The extent of the market, they believed, could be increased by a policy of free trade and unfettered competition. These are the various elements which, according to the classicals, were ultimate competition. These are the natural and social welfare. Even on distribution, their analysis implied policies which would change distribution against the 'prodigal' class of landlords and in favour of the 'parsimoious' class of the capitalists. Such a change in distribution was believed by them to promote capital accumulation and ultimately help in increasing the national product and social welfare.

III. Pigovian Welfare Economics

Pigou's contribution to welfare economics is quite famous. It was he who elaborated upon the elements of welfare economics given by Marshall and extended it further to give it his own individual impression. Its basic approach and method of analysis have given it different form from the Paretian Welfare economics which referred to as the New Welfare economics.

Before we attempt to give an exposition of Pigovian welfare economics we will like to mention here a point related to the categorisation of this stream of welfare economics. How should be categorise Pigou's welfare economics? It is well-known that for almost all purposes Marshall and Pigou are regarded as belonging to the neoclassical school of economics. On that basis their welfare economics should, perhaps, be categorised as neoclassical economic analysis and Pigou too has made ample use of it in his welfare analysis, this fact too supports this categorisation. But for that matter the founders of Paretian School of Welfare Economics New Welfare Economics also belong to the neoclassical school and their analysis also is in terms of the neoclassical concept of the margin. On that account both streams will fall within one and the same category of neoclassical welfare economics. However, the basic approach of Marshall and Pigou in their welfare analysis was nearer to that of the classicals than that of the Paretian neoclassical school in spite of the extensive use of the neoclassical 'concept' of the 'marginal' that they made in the analysis. On account of it, some commentators have preferred to place Pigovian-welfare economics in the category of classical welfare economics and to describe it as Old Welfare Economics as contrasted with Paretian welfare economics which is also described as the New Welfare Economics. As F.M. Bator has remarked in his paper, "The Simple Analysis of Welfare Maximisation (American Economic Review, March 1957)." "The classical tradition reached its culmination in Professor Pigou's Wealth and Welfare[1]."

But, this is also true that while-Pigou's welfare economics had its one foot firmly planted in the classical tradition, its other was in the modern welfare economics. Rather has rightly observed, "Pigou, the last of the great pre-modern was also with his Economics of Welfare amount the first of the moderns" (ibid). It is this fact which

1. Pigou's work *Wealth and Welfare,* First published in 1912, was the original version of what later, after elaboration and revision appeared as *Economics of Welfare* in 1970.

accounts for the difficulty of categorising his welfare economics. The so-called moderns, the Followers of Pareto and Walras, have however, continued to regard him as a pre-modern only and therefore, as an alien and have labelled his approach to welfare economics as Old Welfare Economics.

The classical welfare economics was implicit and crude and had many loose ends. It was Pigou who, using Marshallian tools of analysis and inventing a few of his own, systematised what is now referred to as the Old Economics or Pigovian Welfare Economics. His welfare analysis in the Economics of Welfare is very meticulous and exhaustive. But we shall here try to bring out its substantial approach to the analysis of social welfare.

In the first Pigou made a distinction between general welfare and economic welfare. He defined economic welfare as only that part of general welfare 'that can be brought directly or indirectly into relation with the measuring rod of money. He narrowed down the concept of welfare to economic welfare in order to make the welfare analysis amenable to qualitative analysis so that only when in this way "there is present something measurable." Can the economic analysis 'get a firm grip' on the subject. Moreover, he also believed that "unless there is specific evidence to the contrary" the effect of any course of action upon economic welfare is "probably equivalent in direction, though not in magnitude to the effect on total welfare."

His definition of economic welfare naturally led him to measure it in terms of the market behaviour of the consumers reflected in the price which they were willing to pay for the goods they purchased and consumed. Some critics have objected that since these prices measure the intensity of desire of consumers rather than their satisfaction the procedure is not quite satisfactory. However, Pigou was able to demonstrate his substantive propositions even without assuming that satisfaction or welfare could be measured cardinally with the help of the measuring rod of money. He argued that it was sufficient if welfare could be shown to be greater or less for which the concept of ordinal utility was sufficient.

In his paper, *"Some Aspects of Welfare Economics"* (American Economic Review, June, 1951). Pigou argued that "utilities, though, not (cardinally) measurable are comparable both interpersonally and intra-personally." This is one of the basic points of difference between the so-called old welfare economics of Pigou and the so-called new welfare economics of the Paretian school. He derived the possibility of inter personal comparisons of utility as we have already hinted at earlier from his ethical postulate or value judgement that all individuals belonging to a given society have on the average equal capacity for satisfaction combined with the hypothesis of diminishing marginal utility applied to money income led him to the conclusion that under normal conditions any given additional amount of money income will give a greater additional satisfaction to a poor person than to a rich person. This is how, according to him interpersonal comparisons of utility can be validly made.

On the basis of the above premises, Pigou in his welfare theory presented two

basic substantive propositions which may be described as the essence of his welfare economics. One of these propositions is related to production while the other is related to distribution. These basic substantive propositions as he put them down in his Economics of Welfare are as follows :

(i) "Any cause which, without the exercise of compulsion or pressure upon people to make them work more than their wishes and interests dictate, increase productive efficiency and therewith, the average volume of the national divided provided that it neither injures the distribution, nor arguments the variability of the country's consumable income will in general increase economic welfare."

(ii) "Any cause which increase the absolute share of the total income in the hands of the poor provided that it does not lead to a contraction in the size of the national divided from any point of view will in general increase economic welfare."

The first of these two propositions relates to production. Pigou derived from it his principle of maximising production or national dividend. This principle may be stated as follows : Given the productive resources of a society and constant technique, production will be maximised, if these are allocated in such a manner that the marginal social net product of each productive resources is the same in all the industries in which it is employed.

It is noteworthy that in his welfare analysis, he refined the neoclassical concept of the marginal product by introducing a distinction between the marginal private product and the marginal social product of a factor of production. He called attention to the important fact that the marginal private product and the marginal social product of a factor may diverge due to the existence of externality effects, that is, external economies and diseconomies in production : His recognition of the implications of externality effects for social welfare analysis where these effects were completely ignored. Pigou had rightly emphasised that from the point of view of the social welfare optimum it is the marginal social net product of each factor that should be the same in all the industries in which it is employed.

The second proposition relates to distribution. Pigou derived from it his second welfare-maximising principle. This principle states that any reduction in the inequality of distribution which did not reduce at the same time the total national dividend would increase social welfare.

The above principle related to distribution was derived by Pigou by combining his postulate of men's 'equals capacity for satisfaction" with the law of diminishing marginal utility as applied to money income. Any given transfer of money income or wealth from the rich as a class to the poor as a class will increase the satisfaction and the welfare of the poor more than it will decrease the welfare of the rich. The net effect of it on social welfare will be to increase it. Pigou held that his conclusion of his was further "fortified by the fact that, of the satisfaction yielded by the incomes of the rich

people a specially large proportion comes from their relative rather than their absolute amount and therefore will not be destroyed if the income of all rich people are diminished together."

Self-Check Exercise-II

Q. Define the basic propositions of Pigovian Welfare Economics?

Ans .....

.....

.....

IV. Pigovian Welfare Economics : An Evaluation

Pigovian welfare economics is in direct line of the classical tradition which exhibits a liberal, humanistic and egalitarian approach. It has the virtue of directness and simplicity—it is operationally more significant than the rival Paretian welfare economics. Apart form it, as we have already observed it is more realistic in so far as it takes cognisance of the existence of externality effects and their implications for social welfare. It has made a significant contribution to the economics' kit of tools in the form of a distinction between the marginal social net product of factor and its marginal private net product.

Nevertheless, economists belonging to the rival Paretian school have subject Pigou's welfare economics to a lot of criticism. We shall explain and examine some important points of this criticism here under.

In the first place, welfare analysis has been criticised in the name of positivism by critics like Prof. Robbins who has found fault with Pigou's ethical postulate of men's equal capacity for satisfaction. Robbins in his paper "Interpersonal Comparison of Utility" has observed that "The postulate of equal capacity for satisfaction rests upon ethical principle rather than upon scientific demonstration : it is not a judgement of fact in scientific sense but rather judegement of value." The implication of Robbins criticism was that interpersonal comparisons of utility were not possible on a scientific basis. Therefore, Pigou's analysis was not scientific. Its basic postulater was based upon a value judgement.

However, Pigou has given a proper reply to this criticism. In this paper, "Some Aspects of Welfare Economics" (American Economic Review, June, 1951), Pigou explained "If we take random groups of people of the same race and brought up in the same country, we find that many features that the comparable by objective they are on the average pretty much alike. On this basis we are entitled.....to the basis of analogy and observation, interpersonal comparisons can properly be made. "In fact, in his Economics of Welfare too, he had already observed if the rich and the poor of the same races are of different mental constitution, such that the rich were inherently capable of securing a greater amount of economic satisfaction form any given income than the poor thus the possibility of increasing welfare by this type of change of change would be seriously doubtful. But the rich and the poor belonging to one and the same society are not two different races. When the positivists demanded a scientific proof of his postulate, he had rightly reported "No body can prove that any body besides himself exists, but, nevertheless every body is quite sure of it. We do not, in short, start from tabularasa binding ourselves to hold every opinion, which the

natural man entertains to be guilty until it is proved innocent. The burden is the other way. To deny this is to work, not merely Welfare Economics, but the whole apparatus of practical thought."

Roy Harrod has also not supported Pigou's stand. In his paper, "Scope and Method of Economics" (Economic Journal, Sept., 1938), he had observed, "If the incomparability of utility of different individuals is strictly pressed, not only are the prescriptions of the welfare school ruled out but all prescriptions whatever ."

The critics also pointed out that equals distribution as implied in the Pigovian welfare ideal will have adverse effects on savings and capital which, in turn, will diminish the otherwise viable rate of production. By so doing it will prevent the attainment of the ideal output. This criticism too is based on a misunderstanding of Pigou's argument. Firstly, it underplays the favourables and overplays the adverse effects of a more equal distribution of production. Secondly, and more importantly, it ignores the proposition which Pigou had himself placed in the second substantive proposition of his which relates to distribution. He had unambiguously stated that more equals distribution would increase social welfare, "provided that it does not lead to a contraction in the size of the national dividend from any point of view." He has further emphasised that "Transfer of money incomes from the better-to-do to the worse-to do section of the community in practice must be accomplished". In a way such that these transfers do not adversely effect "productive effort, enterprise, and the development of capital equipment." In view of such clear statement it is difficult to accept this criticism as valid.

The fact of the matter is that Pigovian welfare economics had explicit egalitarian over tones which were not to the liking of the conscious and unconscious apologists of the existing inegalitarian economic system. Consequently, they attacked Pigou's welfare economics in the name of maintaining scientific purity which, in fact, was little more than a mere pedantic almost a vulgar, scientism. In this context it is meaningful that almost the whole of the so called "positivist" criticism of Pigovian welfare analysis was targeted at his second substantive proposition and the welfare principle derived from it which relate to the question of distribution. The implication of proposition are that they criticised not so much their "scientific conscience as their class interest and prejudices though for obvious reasons, they had to flaunt their injured scientific conscience in order to hide their class interest and prejudices. For otherwise, how could they appear to be speaking in the name of positive science.

We have earlier also mentioned that all economists have to make some value judgements. They are even more necessary in welfare economics. While the value judgements used in the Pigovian welfare economics are explicit, the value judgements of the Paretian welfare economics are implicit. The 'positivist' welfare analysis of the Paretian school has an implicit ethical postulate which leads their analysis to maintain the status quo as regards distribution. Whether Pigou's postulate of people's equal capacity for satisfaction was value judgement or an empirical assumption the fact remains that the so-called 'positivist' welfare analysis of the Paretian school too has surrenptitiously made value judgement in order to make the question of distribution a scared crow.

We may conclude this evaluation of the Pigovian welfare economics with the remains that from the practical point of view, as distinguished from the insane formalists point of view, the Pigovian welfare economics is sound and significant.

LESSON NO. 2.8 **AUTHOR : PROF. PRITAM SINGH**

THE NEW WELFARE ECONOMICS

1. New Welfare Economics : Meaning

During the course of the preceding lesson, we had hinted at a distinction which some commentators make between old welfare economics and new welfare economics. We had observed in the preceding lesson that Pigou had turned the welfare economics which was implicit in the work of the classical economists and even in the works of Marshall into an explicit discipline. Pigou had carried on the classical tradition by making some practical value judgements, particularly in the form of his now famous ethical postulate that all men belonging to given society have equal capacity for satisfaction. On the basis of it, he had demonstrated the possibility of making interpersonal comparisons of utility. But to the 'positivists' it appeared to be a non scientific procedure. So they characterised the Pigovian welfare economics as 'old' welfare economics, based as it was on the validity of making interpersonal comparisons of utility, the validity of which was derived in their opinion not scientifically but from an ethical postulate. So the 'positivists' went to develop a parallel welfare analysis which rejected the possibility and validity of making interpersonal comparisons of utility. This source discovered in the Italian economist, Pareto, whose welfare analysis was probably the first to make use of the concept of ordinal utility, on the one hand and to emphasise the impossibility of making scientific interpersonal comparisons of utility on the other. So the welfare economics of Pareto and all those who followed Pareto have worked with the concept of ordinal utility particularly have stuck in their analysis to the assumption of impossibility of making interpersonal comparisons of utility has come to be

known as the 'new welfare analysis' as well as later elaborations and refinements in the form of the later theories of compensation principles and social welfare function etc.

2. Pareto's Optimality

In his welfare analysis, Pareto set out to discover the conditions which are necessary for maximising social welfare. A situation in which social welfare is the maximum possible under certain given constraints is known as the social welfare optimum. Pareto's analysis had the objective of finding out the criterion for determining welfare.

Pareto's analysis is based on certain assumptions. Firstly, he assumed utility to be in nature and therefore non additive. Secondly, he assumed that the individual is the sole judge of his utility or welfare. Therefore, social welfare assumed by his to be the aggregate of individual welfare. Thirdly, since utility is subjective and the individual concerned the sole judge of its magnitude, the utilities, or welfare of any two individuals could not be compared. This is the assumption of the impossibility and invalidity of interpersonal comparisons of utility.

It is clear that if interpersonal comparisons of utility cannot be made, it will not be possible to determine social welfare which was increased or decreased or imagined the same as a result of an economic policy, if that policy leads to a change in distribution making some individual better off and some others worse off. It is because the gain in utility or welfare of any gainer could not be compared with the loss in utility or welfare of any loser as interpersonal comparisons of utility are ruled out by assumption. Hence, Pareto stated with an important assumption that the distribution is given and remains constant.

In addition to the above assumption, he also assumed that the preference of the people. (i.e. their indifference maps) and production functions (i.e. iso-product maps) in the economy remain constant.

Having made these preliminary assumptions, Pareto defined a situation of optimum social welfare as follows :

> "We are led to define a position of maximum ophelimity as one where it is impossible to make a small change of any sort such that the ophelimity of all the individuals, except-those that remain constant, are either all increased or all diminished."

The term, 'ophelimity' in the above quotation is Pareto's term for 'utility'. The position defined above by Pareto has come to be known as the Pareto Optimum or Paretian optimality. It can be more simply and directly stated as follows, Pareto optimum is a position where it is not possible to make any change in organisation which will make any individual better off without making, at the same time, some other individuals worse off.

3. Conditions of Pareto Optimality

On the basis of these conditions of constant preference scales of the consumers and constant production functions of the producers, Pareto arrived at the following seven conditions as the necessary conditions for attaining the social welfare optimum. These conditions serve as the criterion for Pareto optimality.

3.1 Conditions of Optimum Allocation of Goods

The first of these conditions is known as the condition of optimum allocation of goods. According to it, the allocation of goods among the individual members of the society will be optimum, if the marginal rate of substitution (MRS) between any pair of goods is the same for any pair of individuals possessing those goods.

We can explain this condition graphically by assuming only one pair of individuals and only one pair of goods in the whole economy.

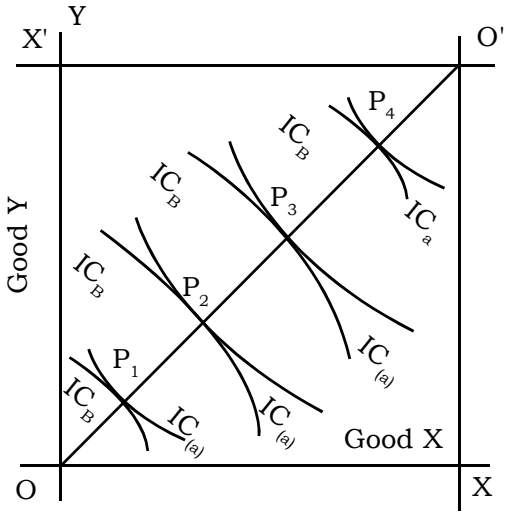


Fig. No. 1

Good X

In fig. 1 above we have an Edgeworthian box diagram in which the quantities of commodity X are plotted along the horizontal axes OX and quantities of commodity Y are plotted along O'X'. Along OX are represented the quantities of X for the individual A and along O'X' quantities of X for the individual B. Similarly, along OY are plotted the quantities of Y for the individual A and along O'Y' are plotted the quantities of Y for the individual B. The indifference curves which are convex to the origin O reflect the utility function or the preference scale of the individual A, while the indifference curves which are convex to the origin O' represent the utility function or the preference scale of the other individual B. The slope of an indifference curve at any given point on it indicates the marginal rate of substitution between the given pair of goods at that point. It is obvious, then, that the marginal rate of substitution between our given pair of goods X and Y will be same for each of our hypothetical individuals A and B at the point where their respective indifference curves are tangent to each other. It can be seen in the Diagram above that there is not one but many such points like P_1, P_2, P_3.....P_n etc. Hence, in terms of the condition of optimum allocation goods as stated above, each one of these infinite number of points will be a position of welfare optimum in the Paretian sense.

But which one of these optima is the best (the optimum Optimorum, as it is called) cannot be determined according to Pareto. It is because each such position indicates a given distribution. Moving from one such position, say P_1 to another such position say P_2 changes the distribution making one of the parties involved better off and the other worse off. The net result to the society, as a whole, cannot be determined unless we are willing and able to make interpersonal comparisons of utility on an objective scientific basis. Since according to Pareto, it was not possible, therefore, for him in the case of a change of distribution the welfare

optimum was indeterminate. However, if the distribution is given then there is a unique social welfare optimum from the point of view under consideration. This is why Pareto had assumed the distribution to be given and constant.

Self-Check Exercise-I

Q. Give the condition of optimum Allocation of Goods?

Ans .....

.....

.....

3.2. Condition of Optimum Production of Goods

The second necessary condition for Pareto optimum to exist is the condition of the optimum production of goods. This condition states the total production is optimum when the given goods are produced in such combination and proportion that the marginal rate of transformation (MRT) between any pair of goods is the same for any pair of those goods.

It can be shown that the total production will be less than the maximum possible, if the above condition is not satisfied.

We can demonstrate it again by taking the simple imaginary case where society consists of only two individual producers say A and B and there are only two goods, X and Y which are being produced. In Fig. 2.1 AB is the transformation curve of producer A and in Fig. 2.2. we have producer B's transformation curve A'B'. The quantities of goods X are plotted along the horizontal axes, while the quantities of goods Y are plotted along the vertical axes. The transformation curve AB in Fig. 2.1 indicates all the possible combinations of X and Y, which the producer A can produce under the given technical conditions with the help of the given and constant productive resources. Similarly the transformation curve A' B' in Fig. 2.2. indicates all the possible combination of X and Y which the other producer B can produce under the given technical conditions with the help of the

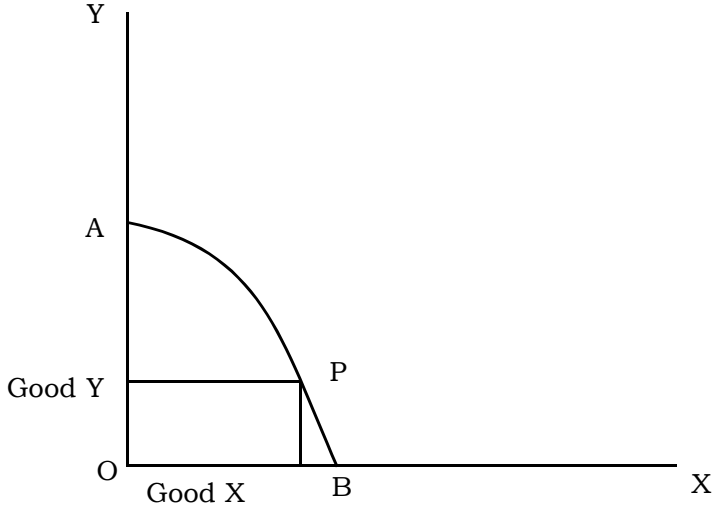


Fig. No. 2.1

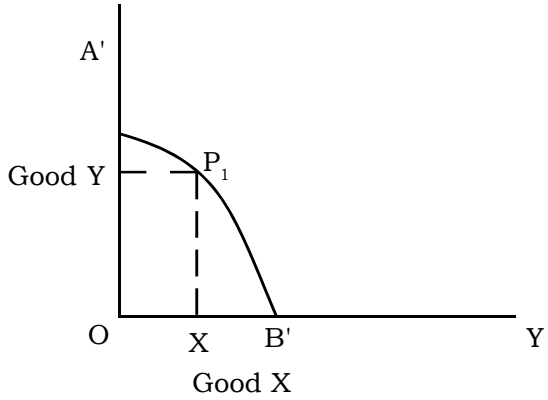


Fig. No. 2.2

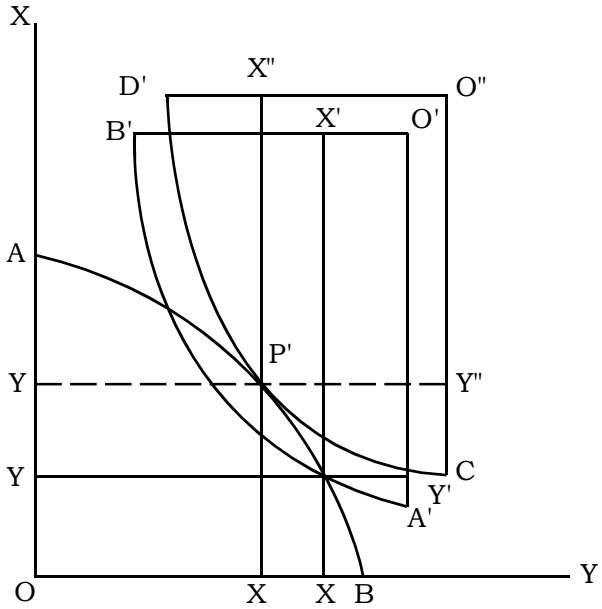


Fig. No. 2.3

given and constant productive resources. Let us suppose that the producer A is producing the combination P on his transformation curve AB wile the producer B is producing the combination P_1 on his transformation curve A'B'. Now, if we rotate the diagram of Fig. 2.2 through 180° and superimpose it on Fig. 2.1 in such a manner that the point p falls on the point p we shall have a diagram like in fig. 2.3. in it can be seen that at point P and P' in fig. 2.1 and 2.2 are the point P in Fig. 2.3 where P' coincides with it, the slopes of the two transformation curves AB and A'B' are not the same. Since the slope of a transformation curve at any given point on it indicates the marginal rate of transformation (MRT) between the given pair of

goods or alternatively the ratio between their costs of production, the marginal rate of transformation between the two goods X and Y (MRTxy) will not be the same for both A and B. The total production o the two goods in this position will by yy' of x and xx' of y.

Now let us slide back the diagram of producer B in the north east direction such that the transformation curve A'B' of the producer B becomes tangent to the transformation curve AB of the producer A. In our Fig. 2.3 this position is shown by the dotted diagram in which the transformation curve A'B' of B taken the position CD while the origin O' shifts to the position O". The transformation curve CD which is only a replies of A'B' becomes tangent to A's transformation curve AB at point P'. Therefore, at this point P' the slopes of the two transformation curves are the same this means that MRT is the same for both the producers A and B. Well, what is the total production of the two goods in this position P'. Here total production is yy" of x and xx" of Y which means that the production of both the goods is greater in this position P_1 than it was at P (P') in Fig. 2.3.

Hence, production is optimum, when goods are produced in such a manner that the marginal rate of transformation between any pair of goods is the same for any pair of producers producing those goods.

3.3. Conditions of Optimum Product-Mix

The third necessary condition of Paretian optimality is that the society's marginal rate of transformation between any pair of goods must equal the marginal rate of substitution between that pair of goods for any consumer consuming those goods.

We can explain the above condition with the help of diagram in Fig. 3 above. AB in this figure is the transformation curve of the society. Here too we are making the simplifying assumption of only two goods X and Y. The indifference curves I, II,

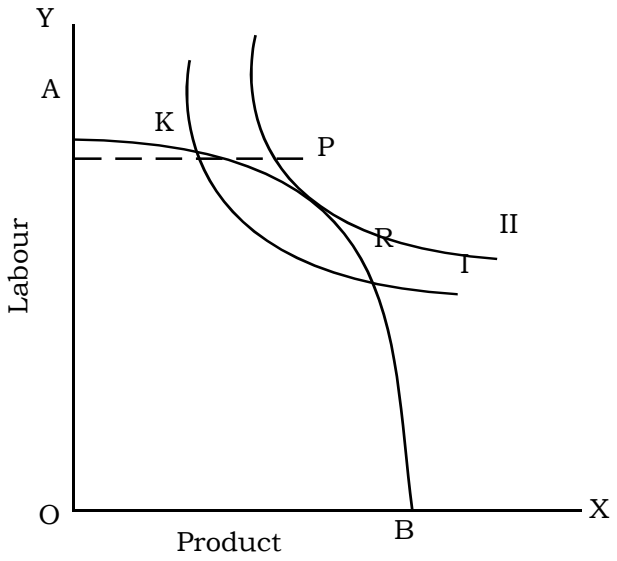


Fig. No. 3

represent the preference scale of an individual consumer consuming these two goods. Whichever combination of the two goods X and Y on the transformation curve AB the society decides to produce when its total cost in terms of real productive resources employed will be the same, for that is the meaning of transformation curve. It can indeed, be called an iso-cost or equal-cost curve where costs refer to real costs. Now, if the society chooses to produce combination of P or for the total cost to the society remains the same. But K and R are on a lower indifference curve of the consumer than the point P. Hence, the consumer's welfare in increased without any increase in costs to the society if combination P is produced. No other combination on the society's transformation curve AB can touch a higher indifference curve of the consumer. Hence, P is the optimum position. The welfare of the consumer cannot be increased beyond the level indicated by the indifference curve II without increasing the costs to the society. In fact under the assumption of the given and constant productive resources of the society, AB curve represents the production frontier or barrier which cannot be crossed. Hence P on indifference curve II is the only feasible optimum.

Now, what do we notice is position P in our Fig. 3 above? We notice that the society's transformation curve is tangent to the consumer's indifference curve. So, their slopes are the same at this point.....Since the slope of transformation curve at any point on it indicates the marginal rate of transformation between the given pair of goods at the point while the slope of an indifference curve : indicates the marginal rate of substitution between the given pair of goods, these two marginal rates are equal at the optimum position P.

Hence, this demonstrates the third necessary condition of Paretian optimality which states that the society's marginal rate of transformation between any pair of goods must equal the marginal rate of substitution between that pair of goods for any consumer consuming those goods.

3.4. Condition of Optimum Allocation of Factors

The fourth necessary condition of Paretian optimality is concerned with allocation of factors of production. This condition states that the factors will be most efficiently employed under the given techniques of production if the marginal rate of technical substitution (MRTS) between any pair of factors is the same for any pair of producers employing those factors and producing that good.

This condition will be satisfied in a simple two-producers, two factors and one good model at the point of tangency between the iso-product curves of the two producers all Edgeworthian box diagram like the one in our Fig. 1 above. The students are advised to draw this diagram themselves. In this diagram, the two axes for each party will represent the quantities of the two given factors of production. At the point of tangency between the iso-product curves of the two producers the slopes of two curves will be the same. Since the slope of an iso-product curve indicates the MRTS between the given pair of factors, at such a point of tangency the MRTS

between the given pair of factors will be the same for both the producers producing the given good.

It will be seen that in this case too there will be infinite number of such points of tangency between the iso-product curves of the two producers, each one of which an optimum point indicating a given factor proportion. But each particular optimum point also indicate a particular distribution of available factor supplies between the two parties. Therefore, in this case too, the best optimum, that is the optimum optimoram, will be indeterminate. The welfare optimum will be unique if the distribution is given and constant.

Self-Check Exercise-II

Q. What is the condition of optimum Allocation of Factor in Pareto Optimality

Ans .....

.....

.....

3.5. Condition of Optimum Utilisation of Factors

The fifth necessary condition of Paretian optimality is that each factor will be most efficiently (i.e. optimally) employed in production, if the marginal rate of transformation of a factor into a given good (i.e. the marginal product of a factor in a given industry) is the same for any pair of producers employing that factor and produce that good.

This condition is known as the condition of technological optimum of the optimum utilisation of factors of production. When this condition is satisfied in each

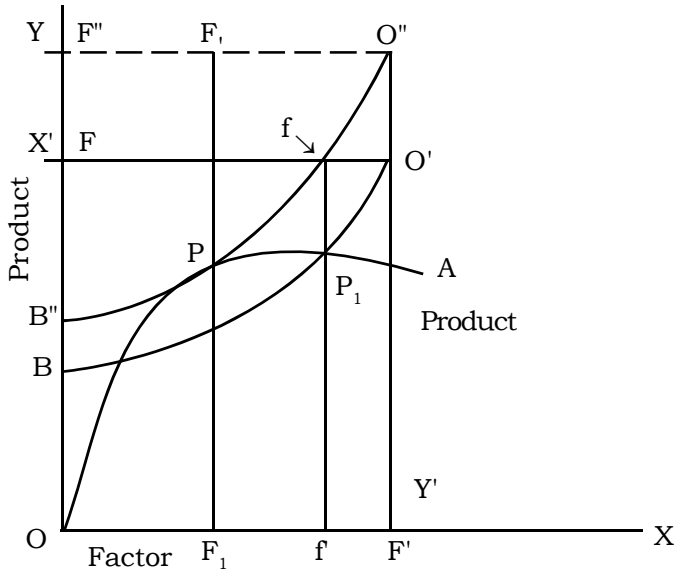


Fig. No. 4

line of production and all other things remain the same, total production or national dividend is maximised. Consequently, the social or national welfare is also maximised. We can explain this condition with the help of the following diagram.

It is assumed that there are only two producers, A and B, employing the same factor and producing the same given good. The quantities o the factor represented along the horizontal axes OX and O'X' in our diagram above while the quantities of the good produced are represented along vertical axes OY and O'Y'. OF = O'F' is the total available quantity of the factor. The curve OA represents the production function of producer B. These production functions are drawn on the assumption of diminishing returns so that they are concave to their respective horizontal axis. Supposing that the society is operating at a point like P_1 in our diagram, the total product of the society of y will be ff'. You can see that at P_1 the two production curves are intersecting each other. Hence their slopes, which reflect the marginal product of the given factor, or the marginal rate of its transformation into the given good, are different. Therefore, the marginal rate of transformation of the given factor into given good (that is the marginal product of the given factor) is not the same for both the producers.

Now, slide back vertically B's portion of Fig. 4 above (that is FO'B) till B's production function O'B becomes tangent to A's production function OA. This happens in our diagram (when F'O'B' takes the dotted position F"O"B") when the two production function curves became tangent to each other at point P. At this point slopes of the production function of both the producers are the same. Since, as we have already stated, the slope of such a production function reflects the marginal rate of transforming the given good or its marginal product, at this point of tangency, the marginal rate of transformation of the given factor into the given good or its marginal product is the same for both the producers. So, when this condition is satisfied, the total product is increased to the maximum attainable under the given constraints of fixed supply of the factor and fixed techniques of production. We see that at point P in our figure where this condition is satisfied, the total product increased from ff' at P_1, to F_1 F_1 which is the maximum attainable output under the given constraints.

3.6. Condition of Optimum Factor Supply

The sixth necessary condition of Paretian optimality is that the marginal rate of substitution between self use of a factor service and hiring out this factor service must equal the marginal rate of transforming that service into a product for each supplier of the factor service. The condition can be more easily understood with the help of factor service labour. Let us suppose that if a worker does his service he is not enjoying leisure, employer will pay him a reward in the form of wages which is his income. So, for him leisure (self-use) and income (hiring-out his service) are the two substitutes. The condition implies that the marginal rate of substitution between leisure (keeping the factor idle) and income or product must equal the marginal rate of transforming labour into product (i.e. the marginal product of labour) for each work.

We can explain this condition with the help of the following diagram in Fig. No. 5.

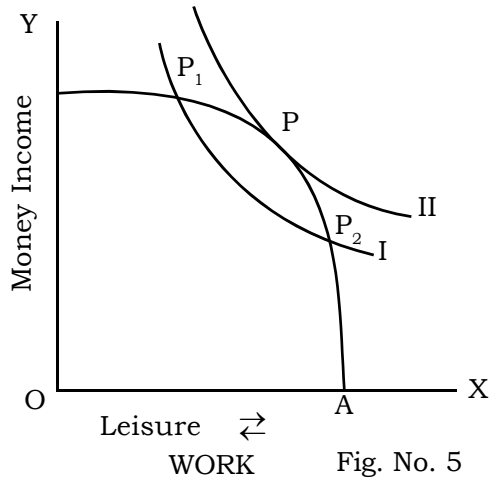


Fig. No. 5

In fig. 5 AB is the total product curve or the production function when only one variable factor, labour, is employed OA is the maximum time available to our imaginary worker. If he takes the position. A he takes all available time for leisure and his labour supply is zero. So, as we move along the total product curve AB from A toward B, the leisure time goes on decreasing and labour time hired goes on increasing. I, II are the indifference curves of our hypothetical worker reflecting his preferences as between leisure (self-use of the factor service) and income or product (charging out). The slope of such an indifference curve indicates the given worker's marginal rate of substitution between leisure (or self-use of the factor service) and income or product (or hiring out the service).

The above stated condition will be satisfied at point P in our diagram where the slope of the total product indicating the marginal rate of transforming the factor service labour into product (or the marginal product of labour) equals the slope of one of the worker's indifference curve indicating his marginal rate of substitution between leisure and income or between the self-use of his labour service and hiring it out if we move along the product curve AB beyond this point P, the total product of the society will not doubt increase but the worker will be pushed down to a lower indifference curve which will lower his welfare. Hence, P, where the above stated condition is satisfied is the optimum position indication the optimum supply of the given service should be remembered that the optimum labour supply for the society as a whole will be determined when the two marginal rates are the same for each worker.

3.7. Condition of Inter-Optimum Allocation of Assets

The seventh and the last condition of Pareian optimality is related to the intertemporal distribution of assets that is distribution of assets between present and future. In simpler terms it refers to the distribution of assets or wealth between present income and future income or consumption and savings. This condition states that the marginal rate of substitution between assets promising payment at any two

moments of time must be the same for any pair of individuals.

This condition is relevant to borrowing and lending in the absence of uncertainly and risk. Assuming to borrowers to be producers the condition will imply that the rate of interest at which an individual is willing to supply a given amount of saving (i.e. capital) must equal the marginal product of capital to each producer borrowing the savings.

We can explain it with the help of the following figure 6.

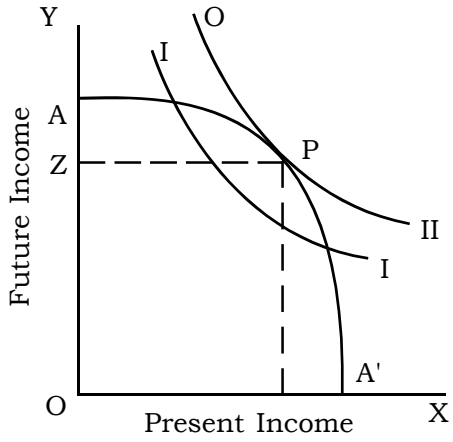


Fig. No. 6

In the above figure the present income is represented along the horizontal axis while the future income is represented along the vertical axis. AA' is the transformation curve showing how the saved present income, when supplied as capital to the borrower capitalist producers will be converted into future income (product at a future point of time) by the producers. If the individual is at A', he enjoys the whole income in the present (i.e. all current income consumed) and there are no savings. No capital is supplied and the product, that is future income is zero. As we move upward from A along the curve AA' the present income consumed goes on decreasing. Supply of savings and capital goes not increasing and the product of capital or future income also goes on increasing. The indifference curves I, II reflect the preferences of the individual asset holder, between present income and future income. The slope of the product or transformation curve AA indicates the marginal rate of transforming present income into future income or the marginal product of

capital. The slope of an indifference curve indicates the given individuals marginal rate of substitution between present income and future income which is also know as the marginal rate of time preference. The individual here reaches the highest possible level of satisfaction or welfare where the transformation curve is tangent to the highest possible indifference curve of the individual. This point is P

on indifference curve II in our Fig. 6 above. This is the optimum point as here the slope of the transformation curve equals the slope of an indifference curve of the individual. At any other point on he transformation curve the individual will be on a lower indifference curve that is on a lower level of economic welfare.

Taking the properties of the optimum position P into consideration, this condition of Paretian optimality may be more aptly and lucidly stated as follows : the

inter temporal allocation of assets will be optimum when the marginal rate of substitution between present income and future income for the marginal rate of time preference of each lender (saver) equals the marginal technical rate of transformation of present income into future income of each borrower (producer). In still simpler terms in means that the marginal rate of time preference of each one of those who save must equal the marginal productivity of capital of each one of the producers who borrow capital.

4. Limitations of Pareto's Welfare Analysis

Pareto's welfare analysis, explained in the preceding sections, suffers from some serious limitations.

In the first place, the seven marginal conditions of Pareto optimum are only the first order or the necessary conditions, Pareto's analysis does not recognise that these conditions though necessary are not sufficient for the attainment of Pareto optimum. The attainment of this optimum required certain 'second order' conditions also. These conditions are that in the position where the necessary marginal conditions are satisfied all the indifference curves involved must be convex to the origin and all the transformation curves (product curves) involved must be concave to the origin.

Secondly, even if the said second-order conditions are satisfied along with the necessary marginal conditions, social welfare may not be optimised. As pointed out by J.R. Hicks, there is the additional requirement, namely that total conditions are also satisfied. These 'total conditions' may be stated as follows : It must be impossible to increase welfare by producing a product not otherwise produced (or produced only by one firm) or by using a factor not otherwise (or used only by one firm). When welfare can be increased by such operations, the social welfare will not be optimum, even when the 'first-order' marginal conditions and the 'second-order' convexity conditions are satisfied.

Thirdly, Paretian conditions of social welfare optimum can be fulfilled under any type of distribution. The criteria fuil to tackle the analysis of welfare implications of distribution. This makes the analysis operationally insignificant, as Dobb has observed, "To chose a certain plan is ipso facto to choose a certain distribution and no one production plan as more optimal that another independently of a postulate about optimum distribution." (of Welfare Economics and Economics of Socialism, pp. 58-59). Any other theory like Pareto's which fails to provide some criterion of choosing from among alternative distribution cannot, therefore, become the basis

of framing practical plans to determine and strive for the social welfare optimum. The failure of the Paretian analysis in this respect is not due to, as the Paretians claim and stress their 'positivist scruples against introducing value judgement in their analysis. In fact, their very scruples and stress, thereon, betrays a strong hidden value judgement, namely, that the existing distribution must not be changed which of course, is pro-status quo value judgement.'

Moreover, Pareto's analysis also completely ignores the externality effects in production as well as consumption. On account of it this type of analysis cannot appreciate that social welfare is not simply the arithmetical summation of individual welfare, specially when the market fails to register these externality effects.

It can be easily demonstrated that the paretian criteria tend to be automatically fulfilled under free ad perfect competition. Therefore, Paretian welfare economists had very clear and storing message namely, that the welfare ideal is naturally attained under freely competitive lissez-faire economy where there is no interference by the government. Viewed thus, the Paretian welfare economics is of one piece with the formalist so-called 'positivist' neoclassical economists like that of Walras and his followers.

Lastly, Pareto's analysis is based on the assumption of constant preference scales of the individuals and constant production function. Thus it becomes limited to static conditions only.

5. Compensation Principle

We have seen that one of the basic flaws of Pareto's welfare analysis is its incapacity to deal with situation in which a policy results in a change of distribution such that in consequence of it some people are made better off while some others become worse off. Since Pareto and his followers were not prepared to introduce any sort of value judgement which could help them in making interpersonal comparisons of utility, their analysis was important to analyser the welfare effects of changes in distribution. That is why they assumed constant distribution with the result that their welfare economics remained limited to the analysis of conditions of optimum production or allocational efficiency only.

The theory of compensation principles is an attempt to rehabilitate Paretian welfare economics by formulating certain principles which may help the Paretian or the new welfare economics to pronounce on policies which result in a change of distribution without abandoning the basic stand of Paretian welfare analysis namely the impermissibility of interpersonal comparisons of utility. Three economists Kaldor, Hicks and Scitovsky are particularly known to have made contributions to the development of the theory of compensation principles or compensation tests. Since the tests proposed by Kaldor and Hicks are almost the same it has come to be considered as their joint theory and is referred to as the Kaldor-Hicks Compensation Principle. Scitovsky has further developed this theory and the test has come to be known as the Scitovsky's Compensation Principle.

5.1. Assumptions of the Theory of Compensation Principle

There are certain assumptions which are common to all these compensation principles and have been inherited form the new welfare economics of Pareto. One of these assumptions is the typical Paretian assumption that every individual himself is the sole judge of his own utility or welfare, secondly, it is assumed that inter-personal comparisons of utility are not possible on any scientific objective basis. Thirdly, utility is assumed to be ordinal only. Fourthly, it is assumed that change in distribution in itself cannot affect social welfare unless it is accompanied by some change in production too. This in fact, follows from the ruling out of the possibility of interpersonal comparison of utility. Externality effects that is external economies and dieconomies in production and consumption are also assumed away. Lastly, the usually Paretian static assumption of constant tastes or preference and constant techniques of production is also made.

Having made clear the underlying assumptions we must now explain the two important compensation principles referred to above.

5.2. Kaldor-Hicks Compensation Principle

Kaldor and Hicks argued that it was possible to draw social welfare conclusions, without taking recourse to interpersonal comparisons to utility even in situation where distribution changed. They held the view that the Paretian criterion of determining whether social act will increase as a result of policy (this criterion is increase in the welfare of at least, one individual unaccompanied by a decrease in the welfare of any other) could be properly interpreted and applied to situations where some individuals are made better off and some others are made worse off. They argued that in order to determine if a particular policy is welfare increasing or not, we could test it through a compensation test if the gainers from the policy are in new position able to compensate the losers from the policy and still remain net gainers the policy is welfare-increasing. As Kaldor has stated it, "In all cases, where a certain policy leads to an increase in physical productivity and thus of aggregate real income the economists case for the policy is quite unaffected by the questions of the comparability of individual satisfaction : since in all such cases it is possible to make every body better off than before, or at any rate to make people better off without making any body worse off." (Welfare Propositions of Economics and Interpersonal Comparisons of Utility, 'Economic Journal', Sept. 1939). In such cases, he argued there was no need for the welfare economist to prove that none such cases, he argued there was no need for the welfare economist to prove that none such cases, he argued there was no need for the welfare economist to prove that none in the society is going to suffer on account of the policy. The only necessary and sufficient condition is "to show that even if all those who suffer as a result are fully compensated for their loss the rest of the community will still be better off than before."

Hicks in the paper *'The Foundations of Welfare Economics' (Economics Journal, Dec. 1939)* also suggested similar test. According to him an policy "which will allow of

compensation being period and which will yet show a net advantage" must be regarded as welfare-increasing.

We can explain the Kaldor-Hicks compensation principle or test by a simple illustration. Let us suppose that a policy results in a increase in real income but it also result in gain of welfare to some and loss of welfare to some others. Let us suppose that the total gain of the gainers is x, while the total loss of the losers is x^1. The gainers are now asked to compensate the losers for their loss so that they, that is the losers revert to the same level of welfare that they enjoyed before the policy was introduced. Now $x-x^1>0$, then the policy is regarded as welfare increasing regardless of the accompanying change in distribution.

We can also express the Compensation Principle by introducing bounties and taxes by the government. It becomes then possible for us to state this principle as follows : Any policy adds to social welfare if it is possible for the government to give bounties to the victims of the policy to just compensate them for their losses out of the funds raised through taxes on the beneficiaries of the policy and still retain a surplus. As Reder has put is, "Welfare will be increased, decreased or left unchanged by a economic reorganisation depending upon whether the algebraic sum of all compensation taxes and bounties is positive, negative or zero" (cf. Studies in the Theory of Welfare Economics).

It is important to note here the emphasis on 'compensating' which implies that the beneficiaries are taxed and the victims (losers) are subsidised just to such an extent only that they revert to the level of satisfaction (welfare) that they enjoyed before the implementation of the policy.

Self-Check Exercise-III

Q. Describe the assumptions of the Theory of Compensation Principle?

Ans .....

.....

.....

5.3. Scitovsky's's Compensation Principle

Tibor Scitovsky pointed out a contradiction in the Kaldor-Hicks Compensation Principle. Kaldor and Hicks had considered a change from an initial situation A to another situation B and suggested a test to determine whether the new situation would or would not be preferable on social welfare grounds when change involved change in distribution. Scitovsky pointed out that the change from A to B might, under certain circumstances, create a situation in which a backward movement from B to A may become preferable on social welfare grounds by the same criterion that promoted that earlier movement from A to B. Thus the Kaldor Hicks Principle would land itself in a contradiction because it would show B preferable to A as well as A preferable to B. This absurd situation had come to be known as Scitovsky's paradox.

In order to remove this contradiction or paradoxical situation, Scitovsky refined the Kaldor-Hicks Principle by suggesting a double test. Therefore, his version of the Compensation Principle had came to be known as Scitovsky's Double Criterion. This criterion states that and policy will be welfare increasing if the beneficiaries of this policy are in a position to compensate the losers and yet remain gainers but the losers from his policy are not in a position to bride the gainers into not accepting the policy.

5.4. Compensation Principle : An Evaluation

The new welfare economies in its theory of compensation principles has not succeeded in removing the fundamental limitation of it. The theory continues to make a sharp gap between production and distribution.....it defines 'real-income' independently of distributing as distribution does not effect production through its effects on efficiency.

To treat production and distribution separately is wrong on an another account too. Comparing money value of different goods and services at their market prices cannot be independent of the distribution of income. It is because the markets are influenced by distribution.

A close scrutiny of the theory informs us that the authors of this new welfare economics have not succeeded in their objective of finding a solution to the problem of pronouncing on social welfare, when distribution changes along with production, without making inter-personal comparisons of utility. They have banished these comparisons and the value judgements they imply trough the front door only to admit them trough the back door. Any application of the compensation principle criteria will require the measurement of gains and losses of satisfaction of various individuals. How can we do it except by taking the help of the measuring rod of money? But as soon as we adopt this measure, we assume that the marginal utility of money is the same for all individuals, whether they are rich or poor. Now this is clearly not a matter of fact but a matter of value judgements. It implies interpersonal comparisons of utility.

Hicks had given 'long-term' argument in defence of the compensation principle. His argument was that if economic activities of a community were organised on the principle of making all alternations which were improvements in the efficiency sense as implied in the compensation principle then, although we could not say that all the individuals in the community would necessary be better off than would have been otherwise, nevertheless, as a community there would be a strong probability that almost all of them would be better off after that lapse of a sufficient length of time. As Little and Scitovsky have pointed out his arguments is not a convincing one. In the first place it assumes that the effect of economic changes on real-income distribution are random so that they will cover a sufficient long time to cancel out. As Little has contended there is hardly any objective basis for making this assumption. In fact, some changes may produce major change of distribution which cannot be expected to

cancel to each other. Moreover as Little has further pointed out if we apply to this long term arguments the Keyesian dictum that "In the long run we are all dead". It becomes a question of whether we are better off than our fathers or grandfathers. This only involves interpersonal comparisons of utility. Not only contemporaneous interpersonal comparisons but even obvious inter-temporal interpersonal are implied in this argument.

The compensation principles of welfare economies are non-operational. It is not enough that the potential for compensating the losers be there. The mere existence of potential will not increase the welfare of all the member as is erroneously implied in this theory and even openly-stated by Kaldor. The losers must be actually compensated for their loss and he gainers should be actually taxed on their gains. But putting into practice such a policy of compensation bounties and taxed is beset with difficulties. Firstly, the estimating of the exact magnitude of loss or gain requires the knowledge of every one's utility scale which is simply impossible to know. We cannot know it through questionnaires because the losers are almost sure to over-state their loses while the gainers will tend to understate their gains. Moreover, is may also create many administrative problems. So this theory becomes the basis of a practical policy.

Kaldor's argument also implies, that is, the state which is responsible for maintaining equitable distribution of if the economist is certain that the state will take care of distribution, he can recommend policy on the basis of potential-compensation principle. It is obvious that delegating authority and responsibility to the state also implies a value judgement. Some sections of people may not agree on this value judgement. As Scitovsky has pointed out, in free-market economies there is general presumption against state interference in economic matters.

But it can be stated that the Compensation Principle of the new welfare economics has miserably failed in its objective. It has not been successful in coping with the welfare aspects of distribution without making interpersonal comparisons of utility. It does not lead us beyond Pareto who had made social welfare simply the function and had made it independent of distribution.

6. Social Welfare Function

It is clear from the foregoing discussion that the most important flow of Paretian welfare economics has been its failure to tackle the problem of distribution without making interpersonal comparisons of utility. The Compensation Principle of the new welfare economics made an attempt to overcome this problem but failed. Still another attempt has been made in this direction in the form of the theory of social welfare function which is mainly the work of Bergson, Samuelson, Arrow and Tinner.

The theory of the social welfare function recognises the fact that the distribution effects on social welfare cannot be adequately dealt with without making interpersonal comparisons of utility which involve one kind of value judgement or the other. Therefore, the authors of this theory accept that welfare economics is a

normative study. But they insist that it should be studied scientifically. So this theory suggests that the economists should not introduce value judgements into their welfare analysis on their own but it should be introduced from the outside in the form of the desirable social objective.

Basically, a social welfare function expresses the functional relationship between social welfare which is treated as the dependent variable and the factors or the independent variable which determine it. The independent variables are then the policy variables by manipulating which social welfare can be influenced.

The distinguishing feature of this theory is that, unlike the traditional Paretian welfare theory, it does not assume social welfare to be a function of efficient production alone. Nor does it assume that the welfare of each individual is a function of only his own consumption. Instead, it makes the welfare of each individual depend not only on his own consumption but also on a host of other factors such as the individuals' attitude towards distribution and the consumption of other individuals also which may take care of externalities effects in consumption. As Bergson has stated it, the value of the welfare function. "is understood to depend on all the variables that might be considered as affecting welfare : the amount of each and every kind of good consumed by the service performed by every household, the amount of each and every kind of capital investment, and so on." (of, 'Socialist Economics' in Survey of Contemporary Economics, Vol. 1)

Thus this theory incorporates in the individuals welfare functions all the possible variables which may be expected to determine the welfare of the individuals. Not only that, it also suggests the way in which the individuals welfare functions may be aggregated into a single social welfare function. A social welfare function, for example, may be expressed as follows :

$W = w (u_1, u_2, u_3, \ldots\ldots\ldots u_n)$

Where W denotes social welfare, and $u_1, u_2, u_3, \ldots\ldots\ldots u_n$ are the respective individual welfare functions of the n number of individuals who make up the whole of the society.

Each of the $u_1, u_2, u_3, \ldots\ldots\ldots u_n$ functions is a function of a large number of variables such as for example, the individual's own consumption, distribution of income, the size of the national output, etc. However, even when the determinants in each individual u function are the same and assuming that these functions can be well defined, they are not likely to be identical.

6.1 Social Welfare Function Theory : An Evaluation

There is no doubt that the theory of social welfare function as developed by Bergson, Samuelson and others appear to be a brilliant, the device which, as Little as observed, "completes the formal mathematical system of welfare economics." But the problem is that it too is only an intellectual exercise with little or no practical significance on account of its various limitations.

In the place, it is not possible to know the individual welfare function in a

society having a fairly large number of individual welfare function of any one particular individual, for all individuals are not supposed to have identical preference functions. If the welfare of each individual is to count, we cannot, then, substitute the preference scale of a 'pater' or a dictator, howsoever, benevolent he may be, in place of the individual preference scales.

A way out of the above difficulty has been suggested. This suggested device is to adopt democratic system of voting in order to have a social ordering of alternatives on the basis of majority votes. But the difficulty with this device, as point out by Arrow in his Social Choice and Individual Value, is that where a choice is to be made out of more than two alternative, this device of majority votes may lead to a non transitive and inconsistent social ordering.

Moreover, the orthodox Paretian proponents of extreme individualism may stress that since social welfare is connected with the welfare of the whole society and not just with the welfare of the majority and social welfare function arrived at through majority vote would be meaningless.

Thus the theory of the Social Welfare Function is found to be of the little operational significance.

7. Technical Terms:-

1) Pareto optimality- also known as pareto efficiency isa state of allocation of resureces from which it is impossible to reallocate so as to make any one individual better of without making at least one indiviual worse off.

2) Compensation Principle:- Economists like Kaldor, Hicks and scitovsky have made efforts to evaluate the changes in social welfare resulting from any ecnomics reorganisation on wich harms somebody and benefits the others. The economists have sought to remove indeterminancy in the analysis of Pateto optimiality.

3) Social Welfare Funtion:- In welfare economics, a social states as less desirable, more desirable or indifferent for every possible pair of social states.

UNIT NO. 4

LONG-ANSWER TYPE QUESTIONS

1. Explain how the relative shares in the Ricardian Theory are affected by the course of economic development.
2. Explain the classical concept of 'stationary state'. How has it been related to the class distribution by Ricardo?
3. Briefly explain Marx's theory of value and show how it helps to understand Marxian theory of relative shares?
4. What is the Marxian doctrine of increasing misery of working class? What implications does it have in the Marxian theory of class shares.
5. What is meant by degree of monopoly? Explain how Kalecki makes the relative shares of wages in national income depend on the degree of monopoly?
6. Discuss Kaldor's Theory of Distribution.
7. What is Euler's Theorem? How does it help us to solve 'adding-up Problem' of the marginal productivity theory of distribution?
8. Explain how wages are determined under imperfect competition.
9. 'If wages are determined by marginal productivity, trade unions are superfluous'. Discuss.
10. Explain the main features of classical welfare economics?
11. What is meant by social welfare in economics? How will you measure it.
12. What is Paretian Optimum? Explains the conditions necessary for it.
13. What is Compensation Principle of Welfare economics? Examine it critically.

SHORT-ANSWER TYPE QUESTIONS :

1. Ricardo's 'stationary stage'
2. Ricardo's 'falling rate of profit'
3. Marxian concepts of 'labour' and 'labour power'
4. Marx's concept of 'falling rate of profit'
5. Socially necessary labour
6. Lerner's degree of monopoly
7. Functional distribution and personal distribution
8. Euler's Theorem
9. Distinction between VMP and MRP
10. Exploitation of Labour
11. Role of trade union in wage determination
12. Social Welfare
13. Does welfare relates to positive or normative economics?

14. Pigovian welfare economics.
15. New welfare economics.
16. Any two limitations of Pareto's welfare analysis.
17. Scitovsky's compensation principle
18. Wage offer curve
19. Backward sloping supply curve of labour
20. Assumptions of the theory of compensation Principle.

SUGGESTED BOOKS

1. N. Kaldor, 'Alternative Theories of Distribution' in his *Essay on value and Distribution.*
2. M. Blaug, (i) Economic Theory in Retrospect, the chapter on Ricardo, (ii) Ricardian Economics.
3. David Ricardo 'Essay on the Influence of a Low Price of corn on Profits of stock.' in P. Sraffa and M. Dobb (Eds.), *The Works and Correspondence of David Ricardo.*
4. David Ricardo, *Principles of Political Economy and Taxation,* 1817.
5. H. Barkai, 'Ricardo's Static Equilibrium', *Economica.*
6. Paul Sweezy, *The Theory of capitalist Development,* Ch. 2, 3 and 6.
7. M. Blaug, *op.cit.*, ch. on Karl Marx.
8. J. Schumpeter, *Ten Great Economists,* The Essay on Karl Marx.
9. M. Kalecki, 'The Distribution of National Income' in AEA, *Reading in Income Distribution.*
10. M. Kalecki, *Theory of Economic Dynamics.*
11. K.W. Rothschild, *The Theory of Wages,* Ch. 14.
12. Jan Pen, *Income Distribution Theory.*
13. Alfred Marshall, *Principles of Economics,* BKV, Ch. 6 and BKVI Ch. 1.
14. Joan Robinson, 'Euler's Theorem and Problem of Distribution in her *Collected Economic Papers,* Vol. 1.
15. G. Stigler, *Theory of Production and Distribution.*
16. W. Fellner, *Competition Among the Few.*
17. A.M. Cartter, *The Theory of Wages and Employment.*

Type Setting :- Department of Distance Education, Punjabi University, Patiala.