CHAPTER-II

HUMAN RESOURCES ACCOUNTING CONCEPTS AND MODELS:

- A conceptual framework of human resource accounting.
- Critical evaluation of various models contributed by different scholars.
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HUMAN RESOURCE ACCOUNTING – CONCEPTS AND MODELS

The concept of Human Resource Accounting is still in the developing stage and there is a lot of thinking being done at different levels. Many scholars have contributed by way of developing models to measure the cost/value of Human Resource. These models can be classified in the following categories:

I. Monetary Models
   A. Cost Based Models
   B. Value Based Models

II. Non-Monetary Model

III. Statistical Based Models

I. Monetary Models

The models which incorporate the monetary aspect are called monetary models.

A. Cost Based Models

There are many cost based models which are given hereunder:
1. Acquisition cost method

Acquisition Cost or Historical Cost or Outlay Cost or Original Cost refers to the expenditure incurred by the Organisation in recruiting, hiring, training, familiarisation and developing human resources. It is just like the concept of original cost for other assets. The acquisition cost is capitalised and written off over the period for which the employee remains with the organisation. If the human asset leaves the organisation prematurely, the whole of the amount not written off is fully charged from the income of the current year. If the useful life is exceeds the original estimates, revisions are made in the amortisation schedule. This model was first developed by William C. Pyle assisted by R. Lee Brummett and Eric G. Flamholtz and was implemented in R.G. Barry corporation¹, a leisure footwear manufacturer, Columbus, Ohio (USA) in 1969 on an experimental basis which was discontinued later.

MERITS
a) It is simple and meets the test of principles of accounting i.e. it is only an extension of the concept of proper matching of cost and revenue.
b) The information required can be easily extracted from the existing records which reduces the time and cost involved.
c) The method is highly objective.

DEMERITS AND LIMITATIONS
a) It is difficult to estimate the number of years an employee will stay in the organisation leading to difficulty in estimating the number of years over which the capitalised expenditure is to be amortised.

b) There is no objective method to ascertain the rate of amortisation i.e. increasing, constant or decreasing.

2. REPLACEMENT COST MODEL

This method has been development by Eric G. Plamholtz\textsuperscript{2} in 1973 on the basis of the concept first suggested by Rensis Likert\textsuperscript{3}. Under this method value of an individual to an organisation is measured by the amount that the organisation would have to pay to replace him. There is a dual notion of replacement cost i.e. positional and personal. The former refers to the cost incurred to replace some one with a substitute capable of performing to the same degree in the same position while the later refers to the cost of replacing a person with a functionally equivalent substitute rather than the cost of replacing him with the best available substitute.

MERITS

a) It has the advantage of present oriented. It measures the current value of human resource taking into account the fluctuation of the job market and the general rise in price level.

b) It provides the upper limit of the value of the human resource in an organisation which is very relevant for planning and control purposes.

DEMERITS AND LIMITATION

a) It is practically not feasible to find identical personal replacement of existing human resource.


b) The value calculated is highly subjective and is likely to differ from man to man.
c) This method is not compatible with the conventional accounting practices.
d) It is time consuming because information has to be gathered from outside the organisation specifically for this purpose.
e) The method is not very appropriate in imperfect market conditions arising due to trade union, politics, custom and tradition seniority and age, legal bindings etc.

3. OPPORTUNITY COST METHOD

Hekimian and Jones⁴ proposed this method and defined opportunity cost as the value of an asset when there is an alternative use of it. They suggested a competitive bidding process by different divisions for the scarce employees in an organisation. The divisions bid amongst themselves for the services of the employee and he is allotted to the division making the highest bid. The successful bid price become part of the division's investment base.

MERITS

a) The bidding process provides for more optimal allocation of personnel and sets the quantitative base for managerial decision making regarding human resources.

DEMERITS AND LIMITATION

a) The concept of opportunity cost has been restricted to the next best use of employees within the same organisation.

b) This method excludes those employees who are not being bid by other departments which may be interpreted as discrimination leading to lowering the morale and productivity of the employees who are not covered by the competitive process.

c) Bidding is based on judgment of the manager and hence is subjective.

4. STANDARD COST METHOD

Standard costs of recruitment, placing, training and developing per grade of employee are calculated and made up to date every year. The standard costs so arrived at for all human resources are treated as the value of human resources for accounting purposes.

It provides easy implementation and avoids complications of replacement cost method. The variances between actual and standard can be analysed and forms a basis for control. But the limitations of replacement cost also applies to standard cost method.

5. CURRENT PURCHASING POWER METHOD (C.P.P.M.)

The capitalised historical cost of investment in human resources is converted into current purchasing power of money with the help of price index number's. if the index doubles than the value of human resource also doubles. The converted value becomes the value of human resource for amortisation in rest of the years. The increase or decrease is dealt in the same manner as in the case of replacement cost method.

The demerits of replacement cost method also applies to C.P.P.M.
B. VALUE BASED MODELS

1. HERMANSON'S UNPURCHASED GOODWILL METHOD

Roger H. Hermanson\(^5\) as early as in 1964 in his occasional paper no. 14 development two models emphasising more on the "Unpurchased Goodwill Method" which he based on the superior or inferi earnings in enterprises, and giving the "Adjusted Present Value Method" as an alternative for valuing human resources.

The Unpurchased Goodwill Method assumes that a business will ear a normal rate of return on resources. If a business shows return that is different form the normal rate, it may fairly presumed that some resources must be existing that have not been taken into account in preparing the Balance Sheet. These unrecorded resources are assumed to represent human assets.

MERITS

a) The method is not expensive because it uses the information contained in the existing records of the organisation.

b) It is and objective method.

DEMERITS AND LIMITATIONS

a) No recognition is given to Human Resources needed to generate normal earning. Only those Human Resources that an assumed to contributed to deviate from normal earnings are taken into account.

b) Earnings of the previous year are used as a surrogate from future earnings in order to determine economic value. The degree of reliability will depend upon the correlation between past earnings and future earnings which may not be very high.

c) The calculation requires data from both the firm itself and the rest of the organisations in the industry which is very time consuming.

2. HERMANSON'S ADJUSTED DISCOUNT FUTURE WAGES MODEL

This model is based on the assumption that a relationship exists between a person's salary and his value to the organisation. It uses compensation as a surrogate measure of a person's value to the organization. Compensation means the present value of the future stream of wages or salaries to Human Resource of the Organisation. The discounted future wage stream is adjusted by an efficiency ratio which is the weighted average ratio of the return on investment of the given firm to all the firms in the economy for a specified period, Usually the current year and the preceding four years. The weights are assigned in the reverse order i.e. highest 5 to the current year and 1 to the preceding fourth year. The efficiency ratio measures the efficiency of Human Resource operating in a firm over a period of five years. A ratio greater than 1 indicates that the average rate of return for a firm is above the average rate for all the firms in the industry and vice-versa of less than 1.
MERITS

a) The efficiency ratio provides a basis for adjustment in the compensation by using the efficiency ratio.

DEMERITS AND LIMITATION

a) The efficiency ratio is subjective.

b) The valuation period of five years and the weighting scheme has no justification and is purely arbitrary.

3. LEV AND SCHWARTZ PRESENT VALUE OF FUTURE EARNINGS MODEL

Brauch lev and Aba Schwartz' in 1971 developed a model defining "the value of human capital embodied in a person of age x is the present value of his remaining earnings from employment". The model divides the whole labour force into certain homogeneous groups such as unskilled, semi-skilled, skilled, technical staff, managerial staff, etc. Average earning stream for different classes and age groups are prepared for each group separately and the present value for human capital is calculated. The total present value of different groups represents the capitalised future earnings of the firm as a whole. The use of cost of capital rate for the purpose of capitalising the present value of the future earnings of the Human Resource is made.

MERITS

a) The model is an advancement over Hermansos’s Adjusted future wages model.

b) The model provides very useful information about changes in the structure of the Human Resource. The ageing of a firm's labour force may account for a slower rate of growth as against another firm with a younger labour force.

DEMERITS

a) The model does not take into account the possibility of an individual leaving the organisation other than death or retirement.

b) The model ignores the aspect of promotion or role changes within the organisation.

c) There is inherent subjectivity involved in determining the discount rate, length of expected employment within the organisation and determination of the level of future salary.

d) The valuation done on the basis of remuneration which the individual is expected to get irrespective of his capabilities, skill, experience, bargaining capacity and other environmental factors may not measure the true value.

e) There is no evidence that a significant relationship exits between individual's value and his earnings.
4. FLAMHOLTZ'S STOCHASTIC REWARDED VALUATION MODEL

Eric G. Flamholtz in 1971 developed a model in which he determined the value by aggregating the present value of expected future services of employees taking into consideration the probability of each employee working in different positions at different intervals. The movement of people from one organisational role to another is a stochastic process with rewards. The model takes into account both the monetary and non-monetary variables as the monetary value of an individual depends upon many qualitative (non-monetary) variables. The model links the competence and activation levels of employees with the reward system that affect productivity and work satisfaction as well. The variables of promotability and organisational membership are also considered with the help of statistical probability estimates to determine the realisable value of an employee to the organisation.

MERITS

a) The model is an improved concept over the Lev and Schwartz model.
b) The model is a composite model consisting of both monetary and non-monetary variables.

DEMERITS AND LIMITATION

a) It is an expensive and complicated model.
b) The model does not take into account the added value element of individuals operating as a group.
c) The model is not able to overcome the limitation of subjectivity as in the case of Lev and Schwartz.

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5. JAGGI AND LAU'S HUMAN VALUATION MODEL

The problem of predicting the expected tenure or promotion changes of individual employees was the catalyst for Bikki Jaggi\(^9\) and Hon Shiang Lau in suggesting the valuation of Human Resources on a group basis (1974). Hence Flamholtz's model in a way was restated by using groups instead of individuals by Jaggi and Lau. By group they meant homogeneous group of employees who may not necessarily be working in the same department. It became easier to ascertain the percentage of people in a particular group likely either to leave the firm during each of the forthcoming periods or be promoted to higher levels. This concept assumes that the pattern of movement is likely to remain constant overtime. The probabilities determined for one period are extended to future periods. To consider the career movements of the employees within the organisation and the chances of their retirement or death, markov Chain Representation is suggested by Jaggi and Lau.

MERITS

a) This model overcomes the drawbacks of the Flamholtz's Stochastic Rewards Valuation Model by taking homogeneous groups instead of individual.

b) The preparation of transition matrix from historical personnel records ensures objectivity to some extent.

DEMERITS AND LIMITATION

a) The model is complex and expensive.

b) The model is not useful for decision making about individual human resource which is very important feature of Flamholtz's model.

6. ROBBINSON'S HUMAN ASSET MULTIPLIER METHOD

W.J. Giles and D.f" Robinson were sponsored by Institute of Personnel Management and the Institute of cost and Management Accountants, London to produce a report on Human Asset Accounting and they developed a measurement method known as "Hunan Asset Multiplier Method". It advocates the use of a multiplier which when applied to earnings of Individual provides a current valuation last reported company earning into market capitalisation. After deducting the amount of net assets from the capitalised value, the balance is assumed to represent the value of Human Resources.

MERITS

a) It is very easy and inexpensive method.

b) The method provides data for periodic human asset balance sheet and profit and loss account and human asset profiles and projection of the organisation.

DEMERITS AND LIMITATIONS

a) Objectivity and reliability is totally sacrificed as infinite range of possible values can be chosen.

b) The weighting factor which forms the foundation of the method has no conceptual basis hence no single value can be substantiated.

7. WATSON'S RETURN ON EFFORT EMPLOYED METHOD

David Watson developed this method which involves the measurement of effort employed on various functions, i.e. buying, manufacturing and selling. Factors which distinguish the quantity and quality of effort expended are used to rate the contribution made by individuals. Such factors are:

1. Level or Grade of works done.

2. Effectiveness with which the individual performs his job.

3. Experience which increases, upto a point, the efficiency job performance.

These factors are then multiplied together in determining a measurement of effort employed for each individual. Individual scores are aggregated to obtain the figure of total effort employed in an organisation.

The method helps in more efficient allocation of Human Resources. It makes possible to question the existing allocation of resources between the different functions like buying manufacturing and selling on the basis of ratio of profits to efforts.

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8. BRUMMET, LLAMHOLOTZ, AND PYLE'S ECONOMIC VALUE METHOD OF GROUP VALUATION

Brummet, Flamholtz and pyle development this method in 1968 which was adopted to value the sales price in the insurance industry at the time of acquisition of sale. The method proposed that a group of human resources should be valued by estimating their contribution to the total economic value of the firm. The present value of a portion of the firm's future earnings attributable to human resources is the value of human resources. Firm's total present value calculation involves forecasting of the future earnings of the firm as a whole and discounting them at a predetermined rate. A portion of this value is allocated to human resources based on their relative contribution. This method is easy to calculated and involves less time as it uses date which is readily available.

9. MORSE'S NET BENEFIT METHOD

Morse has developed this method which states that the value of human resources is equal to the present value of gross value of services to be rendered in future by human beings both in an individual capacity as well as collective capacity minus the present value of future payments both direct and indirect to human beings.

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10. OGAN'S CERTAINTY EQUIVALENT NET BENEFITS METHOD

Pekin ogan\textsuperscript{14} has made an improvement over the Morse's "Net Benefit Method" by incorporating the element of certainty with which the benefits in future will accrue. As per this method the value of human resource is equal to the present worth of certainty equivalent net benefits of all employees. The net benefits mean the difference between expected benefits and total costs. The expected benefits of an individual employee are determined by the product of his monetary value benefits potential with his individual performance index. The certainty factor means the probability of the employee remaining with the firm. It is determined by assessing the probability of continuation of the employee and the probability of survival of the employee. The Total cost means the total of the maintenance cost i.e. future salaries and wages, start up costs, recruiting and initial training costs at their historical value and the future training and development costs. The net benefits thus arrived at for all employees multiplied by their certainty factor give certainty equivalent net benefits which form the value of human resources.

11. FRIEDMAN AND LEV'S HUMAN RESOURCE VALUATION MODEL

Friedman and Lev\textsuperscript{15} developed a model considering firm – versus market wage relationship as a surrogate measure for economic value for an organisation's investment in Human Resources. The Human Resource value as per the authors is the difference between actual wages paid and the average market


wages assumed that may be taken to reflect organisational personnel policies because otherwise it could be reasonably expected that the employees would move from one employment to another to eliminate the difference. The difference can only continue to exist because management's policies differ from those of other management operating in the labour market. Thus the wage differential represents a return on an organisation's investment in human resources. If the return is known the value of human resources investment can be calculated by discounting the stream of expected wage savings over the expected service life of the employees. The value thus obtained reflects the management's policies for hiring, developing and maintaining the work force relative to a market average.

The model is cost based surrogate for organisational human resource value and an extension of the method "Lev and Schwartz's present value of future Earnings model".

12. CHAKRABORTY'S HUMAN RESOURCE VALUATION MODEL

Dr. S.K. Charaborty\(^*\) has developed a model in the context of Indian industry. He has suggested that it is most appropriate to include human assets under the heading 'Investments' in the Balance Sheet. The model advocates the valuation of human resources on aggregate basis instead of individual. However he recommended that managerial and non-managerial human resource can be evaluated separately. The value of human resource on a group basis can be found out by multiplying the average salary of the group with the average tenure of employment of the employee in that group. The average annual salary payment for the next few years can be found out by salary grade

structure and promotion schemes of the organisation. It has further suggested that the recruitment, hiring selection, training and development costs of each employee should be recorded separately, they can be treated as deferred revenue expenditure to be written off over the expected average stay of the employee in the organisation and the deferred portion should be shown in the balance sheet of the organisation. If there is a premature exit on account of death, retrenchment etc. then the balance on the deferred revenue account for the year attributable to that person should be written off against the income of the year of exit itself.

The discount rate for the purpose of ascertaining the present value of the estimated payments in the future is taken as 'the expected average after-tax return on capital employed over the average tenure period. Adoption of such a long term rate has been recommended in order to avoid fluctuations in human asset valuation from year to year simply due to changing annual rates of return because in a year of low rate of return the valuation will have an upward bias and conversely in a year of high return.

Total Human Resource value is estimated by adding the expenditure incurred on recruitment, training and development to the present value of average future salaries of group of employees. This value is shown as investment on the asset side of the Balance Sheet and is added to the capital employed (calculated under conventional method) on the liabilities side.

13. DAV'S MODIFIED PRESENT VALUE MODEL

The model developed by Shiv Kumar Dave in 1987 incorporates in it indicators to reflect the effect of live factors which often affect the contribution

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of employees to the organisation and thereby, the calculated value of human resources. The model incorporates suitable indicators to take care of the positive and negative factors affecting the contribution of an employee to his organisation. The indicators are given below:

a) Experience Indicator
b) Efficiency Indicator
c) Labour Turnover Indicator
d) Labour Unrest Indictors
e) Output per Employee indicator

These indicators can be fitted on to any of the existing models and that is why the model is known as modified present value model.

II. NON-MONETARY MODEL

The models which are dominated by behavioural variables can be classified as non-monetary model.

1. LIKERI'S CAUSAL, INTERVENING AND END-RESULT VARIABLES MODEL

Likert Rensis 18 and David G. Bowers of the Institute for Social Research, University of Michigan, USA developed a model to measure the human resource value as a group to an organisation. The model assumes that the organisational productivity can be explained in terms of the human

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organisation. The model has classified certain human variables into three categories:

i) **CAUSAL VARIABLES**
These are independent variables which can be directly or purposively altered or changed by the organisation and its management which, in turn, determine the course of developments within an organisation.

ii) **INTERVENING VARIABLE**
These variables reflect the internal state, health and performance capabilities of the organisation e.g. the loyalties, attitudes, motivation, performance goals and perception of all members and their collective capacity for effective action, interaction communication and decision making.

iii) **END RESULT VARIABLE**
These are dependent variables which reflect the results achieved by the organisation such as its productivity, costs, scrap loss, growth, share of market and earnings. Thus it includes financial and performance data reflecting the results achieved by the firm. Hence some of the end result variables are monetary in nature.

The model shows that the changes in leadership styles, technical proficiency level, managerial behavior, organisational structure (called the causal variables) result in changes in the subordinates, attitudes, motivation, behavior, loyalties, perception (called the intervening variables) which produce changes in productivity, innovation, cost, revenue, quality, output, manpower development
(called the end-result variables). If a meaningful relationship among the three variables is established, the trend in earnings can be predicated. Forecast of predicted earnings can be discounted to determine the present value of the firm and its human resources.

Managerial leadership determines organisational climate which in turn influence the subordinated satisfactions and subsequently the total productive efficiency. Time lag of two years or more, often exist between a change in causal variables and the resulted changes in end-result variables.

Likert observes that a firm in which the causal variables display the characteristics of participate management style, will generate more effective intervening variables and consequently more desirable ene-result variable. He argues that the philosophy and practice of convention accounting concentrate on a few end-result variables which are consistent with the exploitative type of management style. He opines that by over emphasising short run profits and cost savings the present accounting system penalises managers who are making the greatest long run contribution to the organisation.

MERITS
a) The model unfolds the magnitude of human resource contribution to accomplish the objectives of the organisation and can be used as a means to formulate policy to build long term human resource capabilities.
b) It indicates the probable effects of management style on the result of the organisation both in the short run and in the long run.

**DEMERITS AND LIMITATIONS**

a) The model assumes linear relationship between causal, intervening and end-result the degree of reliability.

b) It is an expensive and time consuming model.

c) The questionnaire duly completed by members of the organisation forms the basis of all subsequent calculation. Hence different people may not arrive at the same value due to personal bias of the respondents.

d) The completed questionnaire requires interpretation which again will be subjective.

**III. STATISTICAL BASED METHOD**

The descriptive information containing statistics about human resources are collected, used and presented under statistical based method of human resources.

**CONTRIBUTION BY OTHER SCHOLARS**

1. Dr. Rakesh Chandra Katiyar has done a commendable work leading to D.Litt. Degree in commerce from Kanpur University, Kanpur India. He has studies the standard and practices in Anglo-saxon countries (USA,
UK, Australia, New Zealand, Canada) and India pertaining to accounting for human resources.

2. Few more research studies have been conducted on human resource accounting in India. One remarkable work is by R.K. Malik leading to Ph. D. Degree from the University of Delhi. The study has established the impact of human resource accounting information on the decision making. Another contribution in the field of human resource accounting is by R.K. Gupta which has led to Ph. D. Degree from the University of Delhi, India D. Prabhakar Rao has also contributed to the field of human resource accounting in a big way.

CONCEPT OF HUMAN RESOURCE ACCOUNTING

The definition of human resource accounting which has been generally accepted by the accountants is given by the American Accounting Association19 Committee Report 1973. They have defined human resource accounting as "the process of identifying, measuring and communicating information about human resource to decision maker". This may be called as a broad concept of human resource accounting. Many other definitions are given by different scholars which in one way of the other says that Human Resource Accounting is the measurement of cost and value of people for the organisation.

It may be noted that contributions discussed in this chapter are not exhaustive list of scholars in the field of human resource accounting, but an attempt has been to incorporate the major contributions.