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Wage and Salary Administration

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To

B. A. B.

Preface

OVER THE PAST FEW YEARS A BODY OF KNOWLEDGE HAS BEEN ACCUmulating on the process of determining how much individual employees are to be paid. This field of knowledge has been developed largely by employers working alone; to some extent by employers and unions. The name usually attached to it is wage and salary administration.

It is a dynamic field. It involves many conflicting considerations that must be balanced. Workable principles and procedures are evolving. In some cases, what may eventually be called principles and procedures are now merely generalizations based on limited experience and calling urgently for further research.

This book is an attempt to present the facts of wage and salary administration, insofar as they are known today, in a comprehensive and useful manner. Because the field is complex, it has been broken down into six problem areas which call for analysis and solution in all situations where there are employees receiving wages. It is hoped that the presentation will give the reader not only a better understanding of modern wage and salary administration, but also a comprehension of underlying reasons for current practices. By thinking through the problems and their solutions, he may be able to find even better solutions in the future.

The emphasis is on "practical" questions facing employers and union leaders in the employment relationship. Within the book the reader should expect to find some answers to these questions. Full documentation provides opportunities for further study.

The author is indebted for encouragement and criticism to Professor Dale Yoder of the University of Minnesota Industrial Relations Center, and Professor H. G. Heneman, Jr., Assistant Director. Special acknowledgment is due to Mr. Roger Hubbell, Manager, Wage Administration and Research Department, Allis-Chalmers Manufacturing Co., for his helpful suggestions. To the authors, editors, and publishers who granted permission to quote original material, sincere thanks are extended. In these cases full credit has

been given; any omission discovered is unintentional. Finally, deepest appreciation is expressed to Betty Ann Belcher, who assumed the entire responsibility for the physical condition of the manuscript and whose encouragement made this book possible.

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PART ONE

Introduction

1 · *Wage Problems in Modern Society*

WAGE AND SALARY ADMINISTRATION IS CONCERNED WITH THE determination of how much specific employees are paid. This apparently simple matter is one of the most complex aspects of the employment relationship. Many conflicting considerations must be balanced. Not the least complex element is the part that wages play in modern society.

Today, the concept of wages [1] includes many elements in addition to economic value. It has come to embody sociological, psychological, and organizational elements as well. In an industrial society wages determine the worker's way of life, including his social position. They may serve to substitute for personal recognition in the impersonal relations of large corporations. An increase in wages may boost a person from one social bracket to another. The wage has come to represent an estimation of a person's worth socially, and as a result, has important psychological implications.

SOCIOLOGICAL ASPECTS OF WAGES

Thus the wage earned serves as a symbol as well as a means to purchasable ends.[2] In a small and relatively immobile community, status of individuals is a product of many standards of judgment:

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[1] The term "wages" as used in this chapter is a generic term. No effort is made to distinguish specific meanings. Also "wages" and "salaries" are used as synonyms. Specific definitions are deferred until the end of Chapter 2.

[2] Wilbert E. Moore, *Industrial Relations and the Social Order* (New York: The Macmillan Company, 1946), pp. 337–338.

family, occupation, education, religious and political affiliations, acquaintances, and so on. In a large and mobile community, many of these standards bear less significance and income acquires a much greater relative importance. The wage then becomes symbolic of other standards of valuation.

When this aspect of economic demands of workers is recognized, it is possible to understand why a very small increase in pay may have great significance. Beyond the direct monetary advantage is the social recognition afforded.

Methods of income payment, including frequency of payment, have been observed to have symbolic significance without reference to amount.[3] A "salary" carries higher status than a "wage" without reference to relative amounts. Wage earners paid on a time basis often have higher status and lower incomes than those paid on piece rates.

The symbolic significance of wages adds to the importance of wages and salaries. As wages and salaries acquire these varied meanings and utilities, they assume larger proportions in the minds of recipients.

There is another side to this significance of the wage as a status symbol. In modern-day industrial civilization, pride in workmanship is sometimes forgotten; not so much because the workmanship is no longer present, but because work lives of employees are separated from the balance of their lives. Today family, friends, and acquaintances may have no conception of a worker's job. The job is relatively unrelated to the rest of his social activity, and little satisfaction may derive from his accomplishments on the job.

In the absence of community esteem, the worker's labor must be directed toward some other end. That end is the pay check. In this sense, industrial wages are a bribe to overcome unpleasantness. Preoccupation with income may be tied up with negative attitudes toward the way in which income must be earned. Compensation is often sought for sacrifice of interests, for unpleasant working conditions, and for jobs having low prestige value. Veblen[4] observed this preoccupation with acquisitiveness as a desperate attempt to

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[3] T. N. Whitehead, *Leadership in a Free Society* (Cambridge: Harvard University Press, 1937), pp. 131–134.

[4] Thorstein Veblen, *The Theory of the Leisure Class* (New York: B. W. Huebsch, 1918), chaps. ii, iii, and viii.

achieve goals not otherwise obtainable, or as a relatively poor substitute for other values.

PSYCHOLOGICAL ASPECT OF WAGES

Wages provide a means of satisfying needs. Needs motivate people. Therefore, there is a relationship between wages and motivation. This relationship is often assumed to be closer than it actually is—but it does exist. Employers concerned with motivating employees often look to wages as a means of providing this motivation. They reason that if employees are satisfied with their wages, their motivation to work will be higher than if they are not satisfied.

Motivation is highly complicated. Probably the primary reason is the complicated nature of human needs. Needs are biological and social in origin, but usually manifest themselves as combinations of both. There is a need for status as previously discussed. There is a need for food and shelter. But this latter need is influenced by previous experiences, level of aspiration, and the opinions and attitudes of other people.

Thus the relationship between wages and motivation is not simple and direct. It cannot be ignored, however, in a society where free choice remains with employees to accept or reject a wage bid and to supply their own drive to work.

ORGANIZATIONAL ELEMENTS IN WAGES

The significance of the wage as a status symbol is very closely tied to the function of the wage as an aid to organization. It is expected by employees that workers on more difficult and more responsible jobs will be paid more than those on less difficult and less responsible jobs. This shows itself in interest and concern in where individuals "fit" in the organization. There is a strong feeling that an individual's wages should reflect his status in the structure and that it is "wrong" for a supervisor to be paid less than his subordinates or for a person to be promoted without receiving a wage increase.[5]

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[5] Burleigh B. Gardner and David G. Moore, *Human Relations in Industry* (Chicago: Richard D. Irwin, Inc., 1950), p. 155.

Thus wages aid the process of organization (1) by providing a simple, acceptable way of recognizing the place of a job in the hierarchy, (2) by encouraging employees to prepare themselves for higher-level jobs, and (3) by permitting recognition of inequities where wages are not in accord with the organizational hierarchy.

ECONOMIC ELEMENTS IN WAGES

But the basic element in wages is the economic one. Wages have two sides. They are costs to the employer, and are at the same time income to the worker. To the employer, wages are a price that he must pay for the employment of a factor of production. In this sense, the payment of wages is an economic transaction governed by the same logic as any other purchase, in which the purchaser attempts to obtain the greatest quantity and the highest quality possible for his money.

In a sense also, the worker is selling his labor to obtain income, and he holds out for the highest price he is able to command. Unfortunately for the potential employee, however, his labor is perishable in that if today's labor is not purchased today, it has no value tomorrow. Also, in our present society, the total income of most of our adult population comes from the sale of labor. Thus, although modifying factors are present, to the employee as well as to the employer the sale of labor is an economic transaction.

The Labor Market

Out of this comes the idea of a "labor market" in which employer and employee bargain, buy, and sell the various types and grades of services.[6] In such markets, supplies of and demands for a particular type of labor seek to attain a balance. That labor markets generally fail to attain such balance or to set an "equilibrium" price is a common observation. Studies of wages indicate that wide differences prevail in the hourly rates paid by employers for equivalent labor on similar jobs.[7] Such studies show that ranges of 50 per cent are not

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[6] See Dale Yoder *et al.*, *Local Labor Market Research* (Minneapolis: University of Minnesota Press, 1948), pp. 1–2. "Actually, labor marketing is a *process* . . . in which the buyers and sellers of a particular 'brand' of human services meet and bid and take."

[7] Richard A. Lester and Joseph Shister, eds., *Insights into Labor Issues* (New York: The Macmillan Company, 1948), p. 209.

uncommon, and ranges up to 300 per cent occasionally occur for comparable jobs in the same community.[8]

Where such wage diversity is not present, its lack is caused by restrictions on the market mechanism rather than by the operation of the market. For example, in some highly unionized occupations one price is set for the market, not by the market forces, but by union contract.[9] Likewise, the range of wage rates for specific occupations is reduced where community wage surveys are made and used over a period of time.[10]

Lack of Balance

To the theorist, failure of the labor market to operate as postulated is disconcerting. Here is a market possessing certain of the characteristics of a theoretical market (perishable commodity, many buyers and sellers) that not only fails to balance supplies and demands, but sets not one, but several prices. To the realist, however (and labor economists have in the past few years fallen into this category), there are numerous reasons why labor markets fail to operate in a manner similar to a commodity market.

Labor is not a simple commodity like a sheet of steel, which can be bought according to specifications as to size, weight, strength, and chemical composition—all of which can be tested before purchase and which will remain stable after purchase. Labor is not only a perishable commodity, as mentioned previously; since it varies with the ability of a person to do work, it may be a different commodity from day to day or hour to hour, and it is affected by all manner of things. Management recognizes that part of the price may go toward promoting a feeling of loyalty to the organization and enthusiasm for work, thereby stimulating the employee to be a more efficient worker.

Thus, the quantity of labor supplied is a variable that is influenced only partially by factors controllable by the purchaser. In fact, the attitude of the supplier is probably the major element in the labor

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[8] See, for example, D. W. Belcher, *Clerical Occupational Wage Survey, Springfield, Illinois* (Urbana, Illinois: Business Management Service, University of Illinois, 1948).

[9] Clark Kerr, "Labor Markets: Their Character and Consequences," *Proceedings of the Industrial Relations Research Association,* No. 4, 1950, pp. 73–75.

[10] The city of Milwaukee is an example of this at least in the occupations employed by heavy industry.

supplied. And the supplier cannot be separated from the commodity as in many other purchases, but remains to change the unit if he so desires.

Of course, in a way, this is not as serious as it sounds. Because the supply purchased is variable and capable of being employed in many ways, the purchaser can in various ways influence the quantity purchased. Through the employment of good personnel policies and practices, he may be able to enhance the quality and/or the quantity of his purchase. Likewise, when the needs of the organization change, this commodity can quickly fill the changed needs. It is thus seen that because of the "unstable" nature of the commodity, the purchaser's demands may be variable. This is certainly different from the usual commodity market.

There is an additional disadvantage, however, of the instability of this commodity—labor—that causes great difficulty in setting the price. Because supplies and demands are unstable except in actual employment (and then only for short periods), the real price of labor to the employer is the cost in that employment. Thus the real price of labor to the employer is the cost per unit of output. But the seller requires that a price be quoted in the market before he sells. Hence, the purchaser must offer a price (wage) before the bargain is made. He is at the disadvantage of variability of units, described above, and must quote a price representing what the average unit is worth to him, and he must derive this price from his cost per unit. The difficulty of computing labor cost per unit of product requires no elaboration here. Suffice it to say that in many industries such computation is far from simple.

The supplier of the commodity—labor—likewise experiences difficulty in determining what price to accept. His knowledge is as imperfect as the employer's. At best he can know only the range of "going wages," and thus he has a wide range to choose from. His price depends on the working conditions, the supervision, the personnel policies and practices of the employer. Also, in recent years the purchaser has been offering "extras" in the form of fringe items and employee services that are even more difficult to translate into income.[11] But more important, the wage (price) includes many

[11] One authority has suggested that employees make quantitative estimates of the importance of various job characteristics. (See Lloyd G. Reynolds, "Wage Differences in Local Labor Markets," *American Economic Review*, Vol. 36,

elements uneconomic in nature, as described in previous pages. Again, the employee may have chosen to be represented by a sales agent (his union) possessing many motives beyond his own.

Wage Theory [12]

For all these reasons the task of wage theory has not been an easy one. This fact has failed to deter the theorists, however—nor should it. It is important that continual efforts be made to explain the way in which various factors affect wages, for misunderstanding of these relationships may result in private and public policies that defeat or prevent achievement of socially prescribed objectives.[13]

Wage theories have been offered ever since Adam Smith's observation that laborers produce all wealth. An early wage theory, generally credited to David Ricardo, is called the *subsistence theory;* it attributed the long-term level of wages to the cost of producing and maintaining a labor force. It thus concentrated on the supply side and assumed (incorrectly) that the means of subsistence control the birth rate. The *wages-fund theory*, most carefully stated by John Stuart Mill, described the wage-determining process in the short-term. According to this theory, wages were determined by the balance remaining in a fund of capital after payments for rent and raw materials. While this theory did consider demands for labor, it erred in (1) not recognizing the tendency of employers to balance labor costs against other costs, and (2) assuming labor supplies to be fixed.

Karl Marx fostered a theory that includes a wage theory and a theory of social justice. He stated that wages are set at the cost of subsistence by the employer, who "exploits" the worker by the amount of difference between subsistence cost and value of the product, in that labor is the source of all value. Thus the *Marxian theory* of wages is merely a restatement of the subsistence theory.

A later wage theory, American in origin, was called by its author,

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No. 3 (June, 1946), p. 367.) Very little is known about this process, however, and it is difficult to accept its existence when it is remembered how few employers know the cost of these benefits to them.

[12] For a more comprehensive discussion of wage theory, see Dale Yoder, *Manpower Economics and Labor Problems* (New York: McGraw-Hill Book Company, Inc., 1950), pp. 144–177.

[13] Yoder, *Manpower Economics and Labor Problems,* p. 145.

Francis A. Walker, the *residual claimant theory*.[14] According to this theory, wages represent the amount of value created in production that remains after payment has been made to all productive factors other than labor. The two major weaknesses of this theory are (1) supplies of labor are not fixed as the theory assumes, (2) the only residual share is what is known as profit.

Perhaps the most frequently mentioned modern wage theory is the *marginal productivity theory*, and its most frequently cited early exponent is John Bates Clark.[15] This theory purports to describe what rational sellers and buyers might reasonably be expected to do in pricing labor in a system of freely competitive labor markets. To facilitate description of the forces operating in wage determination, several rigid assumptions are made:

1. Units of labor are standardized and homogeneous.
2. Competition is sufficiently perfect to provide one price.
3. Markets cannot be influenced by either buyers or sellers.
4. Both buyers and sellers have full knowledge of alternatives.
5. Markets are free of collusion.
6. Markets are freely accessible to both buyers and sellers.
7. The theory applies only to an instant of time.[16]

While these assumptions are somewhat lacking in realism, they permit a view of the basic forces at work. Also, removing them one by one permits examination of the effects of changes.

In markets described by these assumptions, the determining factor, according to the marginal productivity theory, is a measure of the contribution of added units of manpower. Thus the production attributable to each added unit of manpower determines the maximum an employer can pay to this last unit. To an employer, a schedule of these marginal products is a representation of his demands for labor.

Facing the employer also is a supply schedule of labor representing

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[14] Francis A. Walker, *Political Economy* (New York: Henry Holt and Company, Inc., 1888), pp. 248–250.

[15] John Bates Clark, *The Distribution of Wealth* (New York: The Macmillan Company, 1899).

[16] For a discussion of these assumptions, see Lloyd G. Reynolds, "Toward a Short-Run Theory of Wages," *American Economic Review*, Vol. 38, No. 3 (June, 1948), pp. 289–308.

the different numbers of manpower units that will become available at different prices. Taken together, these demands and supplies clear the market at the point of intersection and set the price. Thus the price (wage) set represents the employer's estimate of the marginal productivity of the last unit of labor employed and the wage this same unit of labor is willing to accept.

It will be seen that removing the assumptions in turn will remove much of the precision of the model. It will, however, permit discovery of the direction of change and the type of change to be expected. It will also be observed that the marginal productivity theory will not permit actual wage setting in any particular labor market. It merely describes the major forces in wage setting, particularly those affecting the upper limit.

The indeterminacy of wages resulting from removal of the assumptions of the marginal productivity theory gave impetus to the *bargaining theory* of wages. Its exponents state that within a range of possible wages, the actual wage set by the employer will depend on the relative bargaining strength of the parties. Thus, if employees (or their unions) hold the balance of power, wages will be higher than if employers held the balance of power. In the most formal statement of this theory, the range of indeterminacy is believed to be bounded on the lower side by the cost of subsistence and on the upper side by marginal productivity.[17] More recently, some writers have stated that unions can and do increase the range of indeterminacy in marginal productivity determination, thus creating certain fruits of indeterminacy which they can appropriate through superior bargaining strength.[18] The mechanism appears to be that (1) a strong union forces wages up, (2) the employer makes adjustments to offset the increased costs, (3) the resulting adjustments increase marginal productivity. Thus, it has been suggested that, within limits, an employer is about as efficient as he has to be.[19]

Wage theories are still forthcoming. In an effort to explain

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[17] John Davidson, *The Bargaining Theory of Wages* (New York: G. P. Putnam's Sons, 1898).

[18] Lester and Shister, eds., *Insights into Labor Issues*, pp. 238–266.

[19] Reynolds, "Toward a Short-Run Theory of Wages," *American Economic Review*, Vol. 38, No. 3 (June, 1948), p. 298.

certain wage differentials, Professor Lester has offered a *range theory* using what he calls anticompetitive, impeditive, and competitive factors to explain existing differences.[20] His theory is based upon wage studies made over the last few years and makes use of the numerous economic, psychological, political, social, and institutional factors found to be operating in those situations. Even more recently Louis Salkever has attempted a theory of wage structure based upon (1) learning time in an occupation, and (2) kinds and amounts of labor reserves.[21]

Throughout the discussion of wage theory, the reader has perhaps been impressed with (1) the multitude of factors with which a wage theory must work, (2) the complexity of the wage problem, and (3) the complete lack of a formula which can be used in determining wages. Perhaps the variables are so numerous that no explanation in purely economic terms is possible.

WAGE AND SALARY ADMINISTRATION

Such a conclusion, however, is not of much help to the employer who must determine wages in order to obtain and hold a labor force. The existence of labor markets does not solve his problem, for such markets characteristically set not one price, but a range of prices. Likewise, competition in the labor market fails to establish consistent wage differentials between jobs. Also, the labor market is of little help to him in determining satisfactory methods of wage payment.

Nor is wage theory of great practical usefulness to the employer. It tells him what factors determine wages and something of their relative importance, but it is almost completely lacking in usefulness in determination of particular wages. Because of the lack of a simple formula for wage determination, the employer has had to develop a body of principles and procedures to aid him in his task. This body of knowledge, which has become known in recent years as Wage and Salary Administration, is the subject matter of this book.

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[20] Richard A. Lester, "A Range Theory of Wage Differentials," *Industrial and Labor Relations Review*, Vol. 5, No. 4 (July, 1952), pp. 483–500.

[21] Louis R. Salkever, "Toward a Theory of Wage Structure," *Industrial and Labor Relations Review*, Vol. 6, No. 3 (April, 1953), pp. 299–316.

Broad Purpose

The purpose of wage and salary administration broadly stated is to attempt to harmonize the various elements in wages which have been described in the previous pages. In its solutions to the wage problem it must consider the interests of (1) the employer, (2) the employee, (3) the consumer, and (4) the general public, and in arriving at specific wages it must make sure that consideration has been given to psychological, social, political, and institutional, as well as economic elements in such wages.

From the foregoing sections it is apparent that the task of wage and salary administration is a broad and complex one. There are many considerations in the economy and society at large that go into solution of wage problems. These considerations are important and will be examined in detail as each of the problems of wage and salary administration is discussed in later sections of the book. It is also apparent that the major decisions on wage and salary matters must be made by the principals most directly affected by the decisions. Thus, the employer and his employees or their representatives must solve most of the problems, but they should ever be aware of implications of their solutions to the economy. While wage and salary administration busies itself with the task of determining how much specific employees get paid, it must be aware that the largest single component of national income goes for wages and salaries. In balancing the many conflicting considerations, organizational goals may appear controlling, but over any significant period they probably cannot be allowed to conflict with socially prescribed objectives.

More specifically, an employer through wage and salary administration seeks: to control wages and salaries in the organization to ensure that these prices are serving their proper function and are neither too low nor too high; to maintain consistency throughout the organization by establishing standard wages for standard occupations; to adjust wages and salaries with changes in labor markets; to pay more money for more difficult and more responsible jobs than for less difficult and less responsible jobs, thus maintaining equity in wages; to recognize the principle of merit in compensating individual employees according to proficiency as members of respective occupational groups; to provide incentive both on a specific job and

by making promotions attractive to employees; to improve the ability of supervisors and executives to deal with wage questions raised by employees; and to provide rational methods of adjusting wage issues.

Through sound wage and salary administration several social objectives can be attained. Improved wage determination methods can result in more equitable compensation, in the encouragement and satisfaction of the ambitions of employees, in the acceptable valuation of specialized services, in the reduction of wage exploitation, in the encouragement of capable management, and in the evolutionary adjustment of wage levels to shifting conditions.

Under a system of private enterprise the limits to prosperity depend upon the abilities of men to organize for work and to distribute satisfactorily the results of joint effort. Under a competitive system, wage and price relationships are means for accomplishing these objectives.[22] Sound wage and salary administration can aid society in attaining these goals.

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[22] John W. Riegel, *Wage Determination* (Ann Arbor: Bureau of Industrial Relations, University of Michigan, 1937), pp. 131–132.

2 · *Content of Wage and Salary Administration*

GOOD MANAGEMENT IN ALL FORMS OF ENDEAVOR REQUIRES THAT employees be fairly paid for their efforts. Although the foregoing statement would be readily accepted by managers of all sizes and types of organizations, about the manner of accomplishing such a goal there is less agreement. To some, "a fair day's pay" involves a method of payment tied to productivity. To others, it involves seeing that the relative values of jobs in the organization and in the community or industry are properly accounted for and considered when job prices are set. To still others, "fair pay" is determined by what the individual employee or group of employees can command in other employment. In fact, to some employers a fair wage is what they can pay.

These views are not disagreements in principle or representations of different points of view, but merely emphasis on different parts of one broad problem. For wage and salary administration is concerned with all these problems and their solutions. If management wishes to provide employees with "a fair day's pay," it must consider and act upon the following problems:

1. The problem of wage and salary levels.
2. The problem of wage and salary structures.
3. The problem of individual wage determination.
4. The problem of wage payment methods.
5. The problem of "fringe."
6. The problem of control.

Any employer whose employees receive wages or salaries is faced with these problems. In the case of a nonunion employer, solutions

are provided by the employer on a unilateral basis. When a union is present, collective bargaining is involved in the solutions to some or all of the problems. First, average wages or salaries must be set that will help him get and keep a productive work force. This is the problem of wage and salary levels. In solving the problem major considerations are (1) legislation, (2) wages and salaries paid for comparable work in the community or industry, (3) union scales, and (4) certain other criteria for wage levels that may be used by the organization unilaterally or by the organization in conjunction with the union(s) representing the employees.

Second, some plan must be set up such that more difficult and more responsible jobs are paid more than less difficult and less responsible jobs. This is the problem of wage and salary structures. In providing a solution to this problem attempts are made to set up a hierarchy of jobs on some logical basis so that pay for these jobs is relative to job status within this hierarchy.

Third, attention must be given to the problem of individual wage determination. This, in bare essentials, involves a decision as to whether or not all employees on the same job will receive the same wage or salary, and, if the decision is negative, a decision on how the compensation of different employees shall be determined, i.e., how an individual employee obtains a raise in pay.

This thinking process leads directly into the fourth problem, the problem of wage payment method. Here, essentially, it must be decided whether to pay employees on a time basis, that is, so much per hour, or per week, or per month, or on some incentive system such that an employee gets more pay when he is more productive.

The fifth problem has been called the problem of fringe. This problem involves a decision on the many indirect payments found today in employment relationships. The solution follows the form taken by the solution to the problem of levels, i.e., legislation, community practice, and union influence.

The final problem in wage and salary administration is the problem of control. This essentially is a matter of controlling payroll costs in such a way that these costs are kept in line, and that an efficient work force is rewarded for its efforts and kept with the organization.

Wage and salary administration must provide solutions to all of these problems. None of them can be left to chance or to the

inconsistent results that accrue when solutions have not been sought and found. And while it is possible to analyze and solve two or more of these problems at one time, there is much to be gained in thinking of them and treating them as separate problems. In any going organization, of course, the manner in which one wage and salary problem is solved must influence the solution to other problems. However, this does not detract from the clarity to be gained from considering the problems as separate and distinct.[1]

Before analyzing the policies and procedures that have been found to be solutions to these problems, it will be useful to define each of them in greater detail.

WAGE AND SALARY LEVELS

The level of wages and salaries in the organization cannot be left to chance or to changing pressures of the labor market. If the wage and salary level is too low, there is likely to be difficulty in attracting and holding qualified personnel; or there are apt to be difficulties in dealing with regulatory bodies charged with administering minimum wage laws, prevailing wage laws, and public contract laws. Also, the influence of unions either within or seeking entry into the organization may be felt. Likewise, if the level of wages and salaries is too high, the competitive position of the firm in the product market is likely to deteriorate. And in certain periods difficulties with wage control administrators may be forthcoming.

Thus, the level of wages and salaries within an organization must be set after careful consideration of many factors. The major factors are (1) legislation and regulation on minimum and maximum pay, (2) going wages being paid for comparable work in the community and/or industry, (3) union wage scales and collective bargaining, and (4) management philosophy on proper wage and salary levels as reflected in acceptance or rejection of certain other wage criteria.

Legislation influences wage and salary levels by setting lower

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[1] For an excellent example of the interdependence of wage problems, see William Foote Whyte, "Economic Incentives and Human Relations," *Harvard Business Review*, Vol. 30, No. 2 (March–April, 1952), pp. 73–80.

and upper limits. State and federal minimum wage laws and prevailing wages set by regulatory bodies serve to set floors under wages in certain industries and areas.[2] Federal control laws, at various times, serve to set ceilings.[3]

Within these limits, the greatest influence on wage and salary levels is probably the level of wages and salaries paid in the area or industry for comparable work.[4] Wage surveys are used to collect such information.[5]

Once such information is collected, however, the manner in which it is used in determining wage and salary levels is far from uniform. If a union is involved, collective bargaining is the mechanism by which the wage level is set. The parties in arriving at their positions make varying uses of "going wage" data. Union wage policy reflects the needs of the union as well as economic considerations, and wage survey data represent only one of the latter. Management's position is likewise a result of many factors, which may include, in addition to "going wages," use of such other wage criteria [6] as cost-of-living, ability to pay, productivity, and others. Even when a union is not involved, the manner in which wage survey data are used may vary. Management may set the wage level of the organization at the community level, above it, or below it. This decision, though arrived at unilaterally, is tempered by considerations similar to those used by a management preparing for bargaining and may include other wage criteria as well.

The effect of each of these considerations will vary with times and conditions. This fact, however, does not detract from the necessity of management's analyzing and solving the problem of wage and salary levels.

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[2] For a convenient summary of legislation affecting wages and salaries, see Lionel B. Michael, *Wage and Salary Fundamentals and Procedures* (New York: McGraw-Hill Book Company, 1950), pp. 10–32.

[3] See *The New Salary Freezing Regulations* (New York: Prentice-Hall, Inc., 1952).

[4] See Richard A. Lester, *Company Wage Policies: A Survey of Patterns and Experience* (Princeton, N. J.: Princeton University, Industrial Relations Section, 1948).

[5] See D. W. Belcher and H. G. Heneman, Jr., "How to Make a Wage Survey," *Technical Report Series No. 2* (Minneapolis: University of Minnesota, Industrial Relations Center, July, 1948).

[6] For an excellent discussion of wage criteria, see Sumner H. Slichter, *Basic Criteria in Wage Negotiations* (Chicago Association of Commerce, 1947).

WAGE AND SALARY STRUCTURES

Wages and salaries paid for the different jobs within the organization are just as important as the level of wages and salaries. In fact, some authorities are convinced that such internal relationships are more important.[7] They point out that while qualified employees may be attracted by a proper level of wages and salaries, they cannot be kept if they observe wage inequities within the organization. If, for example, Herb is earning less money than Jim, on a job that he believes is more difficult or more responsible than Jim's, he is likely to be dissatisfied and unlikely to do his best work.

Preventing such wage inequities from arising and correcting them when they do occur involves the problem of constructing a wage and salary structure. Such structures may be set up informally in accordance with management judgment, or constructed through collective bargaining. The technique most often used for solution, however, is called Job Evaluation.[8]

Although there are several methods that have been developed to evaluate jobs, the logic used is essentially the same. The first requirement is a study of the jobs in the organization. With the facts about jobs at hand, the next step is to decide what the organization is paying for, i.e., what factor or factors place a job at a higher point in the job hierarchy and thus at a higher rate of pay. The next step involves building or choosing a system that will permit the appraisal of jobs according to the factor or factors and placing them properly in such a hierarchy. The next step is using the system to set up such a logical job hierarchy. The final step is assigning wage or salary rates that relate to the hierarchy.

It must be said that some systems of job evaluation use the last step to solve the problem of levels and the problem of structures in one operation.[9] There is no objection to this if it is realized that this is what is being done. The two problems will be seen in proper perspective from a quick examination of Figure 1. Solution to the problem of structure provides the slope of the line.

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[7] Jay L. Otis and Richard H. Leukart, *Job Evaluation* (New York: Prentice-Hall, Inc., 1948), p. 2.

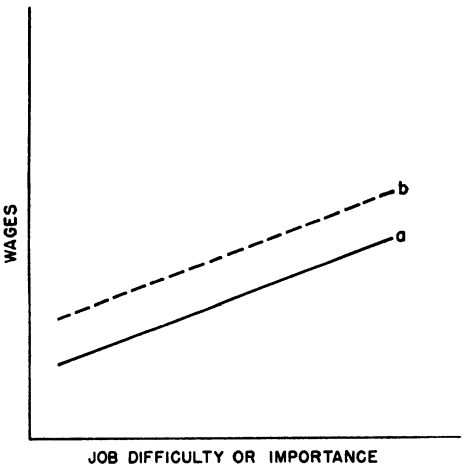
[8] Job evaluation is discussed in Chapters 6 through 10.

[9] Eugene J. Benge, Samuel L. H. Burk, and Edward N. Hay, *Manual of Job Evaluation* (New York: Harper and Brothers, 1941).

Solution to the problem of level determines the height of the line. (Line *b* is a higher wage level but the structure has not changed.)

Advantages, disadvantages, and controversies surrounding job evaluation practice must be left to later chapters. All that is possible here is a brief outline of the technique as a solution to the problem of structure.

Figure 1



INDIVIDUAL WAGE AND SALARY DETERMINATION

When the wage structure has been completed, a decision has been reached on the pay for jobs. It is individuals who are paid, however, and a policy question arises at this point as to whether all individuals on the same job shall receive the same pay. This question is usually decided in the negative, thus bringing forth the problem of individual wage determination.[10]

Where a variation in wage payment to different individuals on the same job is permitted, such variation may be accomplished in two

[10] For an outline of the problem of individual wage determination, see John W. Riegel, *Salary Determination* (Ann Arbor: University of Michigan, Bureau of Industrial Relations, 1940).

ways. One is an incentive method of pay whereby the base rate comes from the solution to the problem of structure, and the individual's compensation is determined largely by his own efforts. A discussion of incentive pay procedures is deferred until the chapters on wage payment methods.

The other method is that of setting up wage or salary ranges [11] that are applicable to individuals on the same job. Under such a system, labor grades are often set up for administrative purposes such that jobs of similar difficulty will have similar pay ranges. Thus there is a starting rate, a normal rate, and a maximum rate for each labor grade.

Once such ranges are set up, some procedure must be devised for moving individuals through the range. The possibilities are (1) automatic increases based on length of service, (2) increases based on merit rating, and (3) a combination of (1) and (2).[12]

As will be seen later, the problem of individual wage determination is closely related to the problem of control. Unless the movement of individuals through wage and salary ranges is carefully controlled, payroll costs can quickly get out of line, or, worse, fail to serve the purposes of the organization.

WAGE PAYMENT METHOD

In general, there are two methods of wage payment open to an employer—payment on the basis of time (that is, by the hour, day, week, or month), and payment on the basis of output (that is, by the piece produced, or dollar's worth of goods made or sold, or time or dollars saved). Either or both may be used in an organization.

There are, however, quite definite criteria that have been set up to determine which method is particularly applicable.[13] These will be discussed in Chapter 12.

Also, when it has been decided to adopt an incentive system, there are several types of incentive systems to choose from. The

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[11] A rate range refers to a range of wage rates that may be paid individual workers on a job.

[12] See S. A. Levitan, *In-Grade Wage-Rate Progression in War and Peace: A Problem in Wage Administration Techniques* (New York: Clinton Press, 1950).

[13] Paul Pigors and Charles A. Meyers, *Personnel Administration* (New York: McGraw-Hill Book Company, 1951), p. 269.

different types have different characteristics and advantages and disadvantages.[14]

But more important than the system chosen are the methods of installation and operation of incentive systems. Proper installation of such a system is probably more important to wage and salary administration than the type of wage payment method chosen.[15]

Also, in any discussion of wage payment methods, profit sharing and other payment systems not usually referred to as individual incentives deserve attention.

FRINGE

Compensation of employees is not accounted for when the wage or salary rate is determined. It is necessary to consider the so-called fringe items—the added compensation employees receive that is not called wages. Employees receive, for example, rest periods, paid vacation, paid sick leave, call-in and call-back pay, and down-time pay. Employers may contribute to insurance premiums, pensions, and other benefits for employees. Then there are payments for holidays not worked, for time spent in grievance handling, night shift premiums, and severance pay. The various bonuses not based on production are other examples—Christmas bonuses, attendance bonuses, length of service bonuses, and so on. And this list is far from exhaustive.

To the employee, many of these items may not be wages in that they do not appear in wage rates. Some of them do not appear on the pay check at all. But to the employer they are part of the wage bill. They cost him money and they are benefits that go to employees. The importance of these fringe items to the employer is seen when it is realized that they amount to approximately 20 per cent of payroll for most employers.[16]

The problem of fringe in wage and salary administration is the problem of determining which of these items shall be provided for employees. The solution lies in providing those considered most

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[14] J. Keith Louden, *Wage Incentives* (New York: John Wiley & Sons, Inc., 1944).

[15] John W. Riegel, *Paving the Way for an Incentive Plan*, Industrial Relations Section, California Institute of Technology (1943).

[16] *Wage Supplements: The Non-Wage Labor Costs of Doing Business* (Washington: Chamber of Commerce of the United States, 1950).

essential by employees, keeping the costs down, and keeping management and the employees aware of the cost of these items. It would also seem wise to promote the idea that these benefits are as much a part of employee compensation as the part that appears on the pay check.

CONTROL

The final problem of wage and salary administration is the problem of control. Control covers operation and maintenance of the various programs and techniques used to facilitate wage and salary administration within the organization, but more important, it refers to control of payroll and labor cost. The solution to this problem is based on the philosophy that what is paid out in the wage bill is not as important as getting value in return.

It calls for (1) keeping the total wage bill as a specified proportion of sales, (2) keeping the pay for jobs within the ranges set up for these jobs, (3) keeping efficient employees on the payroll and not encouraging inefficient employees to stay, by rewarding efficiency and not rewarding inefficiency, (4) keeping the general level of wages and salaries in tune with the labor market in which employees are found, and (5) seeing that adjustments in individual wages and salaries are made on a consistent and regular basis.

Control implies a standard against which to compare practice. To this end standards must be developed and used for each phase of the wage and salary administration program. Examples would be: (1) a forecast of the total wage bill, (2) base rates and ranges for jobs, (3) normal payrolls for departments and labor grades, (4) community and industry wage and salary data, and (5) definite review dates for employees.

Further, the various programs and techniques must be regularly appraised to ensure that each is accomplishing its task. Thus, a job evaluation program must include provisions for its maintenance and flexibility, an incentive program must work, and an employee appraisal program should serve to separate efficient from inefficient employees.

In a very real sense to the employer, the central problem of wage and salary administration is that of control. If the other problems are solved but the problem of control is not, wage and salary admin-

istration has not accomplished its purpose. If his labor costs are out of line or if he is unable to hold an efficient work force, the fact that wage inequities have been removed or that his fringe benefits are in line will be small comfort.

For these reasons, it would seem logical to begin a discussion of wage and salary administration with the problem of control. Actually, however, the other problems must be solved before control of wages and labor costs is possible. And to discuss control techniques, it is first necessary to develop an understanding of techniques useful in solving other wage problems. The discussion will therefore follow the order presented in this chapter, not because of importance, but for ease of understanding.

TERMINOLOGY

Before attacking the various problems of wage and salary administration, it is necessary to clarify the meaning of certain of the terms. Although everyone uses the terms "wages" and "salaries" as though their meanings were clear, careless usage of these and related terms—"wage rates," "real wages," "take-home pay," "earnings," "income," "base rates," "labor costs," and some others—results in frequent confusion and misunderstandings.[17] The term "wages" in popular usage is frequently used to refer to payments for services. In such usage, wages include salaries, bonuses, and commissions, as well as board and room and other perquisites.

In a somewhat restricted usage, the term "wages" refers to compensation paid for services of hourly rated or other nonclerical and nonsupervisory employees. Hourly rated employees include those paid on a piece-rate or output basis.

"Salaries" are sometimes distinguished from "wages." The former are paid to employees other than hourly rated. The distinction has been more widely recognized as a result of wage-and-hour regulation. The Fair Labor Standards Act, for example, exempts certain employees from requirements on premium pay for over-

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[17] See Dale Yoder, *Personnel Principles and Policies* (New York: Prentice-Hall, Inc., 1952), pp. 401–406, for a lucid differentiation between the various terms.

time.[18] Hourly rated employees are "non-exempt." Many salaried employees including managers, supervisors, and outside salesmen are "exempt."

"Wage rates" are payments *per unit*. Thus there are two principal types of wage rate. "Time rates" are based on time units, most commonly the working hour. A "piece rate" is a payment of so much per unit produced, but the term is commonly used to apply to payments under other "incentive wage" plans.

"Commissions" are similar to piece rates in which compensation is based on price or value rather than physical units. They thus represent a common method of compensating salesmen, but may be used to compensate other types of employees.

"Bonuses" are extra payments made in addition to usual compensation, and are of two principal types. One, the usual "production" bonus, is a regularly scheduled reward or incentive granted for extra performance. A second type of bonus, often called a "non-production" bonus and exemplified by the Christmas or year-end bonus, is a gratuity and a source of income on which the employee cannot regularly depend.

"Earnings" are the product of wage rates and employment. The most commonly used measure of earnings for hourly rated personnel is *weekly* earnings, which may include overtime and production bonuses. Hourly earnings may not be equal to wage rates for this reason.

"Take-home pay" differs from earnings in that it represents what the employee is paid after deductions for taxes, pledges, and so on.

An employee's "income" is usually calculated on a longer-term basis—typically a year—and may include items other than wage income.

"Real wages" refer to the purchasing power of money wages. To obtain real wages, wage rates or earnings are divided by an appropriate index of cost-of-living. The term *real earnings* is more useful than real wage rates.

"Labor costs" are related to wage rates or earnings, but are not the same. Wage rates may be changed without changing labor costs or with variations in labor cost quite unlike those in wage

[18] For details of the act and rules and regulations promulgated under it, see *Prentice-Hall Wage and Hour Service*, paragraph 9000 *et seq.*

rates. Labor costs can be realistically calculated only on a unit-of-output basis. Thus, if wage rates are increased 10 per cent and output remains unchanged, then labor costs are likely to increase about the same proportion. If, however, output also goes up 10 per cent with the increase in wage rates, labor costs may remain constant.

Direct wage payments are only a part of the wage bill. There are some types of compensation that may not even appear on the pay check. These are the "fringe" items which have become increasingly popular in recent years. These items are discussed in detail in Chapter 15. They are mentioned here to ensure that they are recognized as part of the wage bill.

This summary of important wage terms includes only a small part of the specialized terminology of wage and salary administration. It is sufficient, however, to permit a beginning toward the analyses of wage problems. Terms used in subsequent sections will be defined as used.

THE PLACE OF WAGE AND SALARY ADMINISTRATION IN THE ORGANIZATION STRUCTURE

A question frequently raised pertains to the place of wage and salary administration in the organization structure. In larger organizations, a department of wage and salary administration often exists. Where this is true, management has recognized the need for specialized training and experience in this area. Such departments are normally staff units charged with advising and aiding the entire organization in solving the wage and salary problems outlined in this chapter. Wage and salary administrators, because of their specialized knowledge, may be assigned (as an aid to management) to installing and operating programs. They must never forget their staff position, however, in the organization. Supervisors and executives within operating departments represent line management and make the final decisions. Better solutions to wage and salary problems come about through use by all departments of this specialized knowledge and as all supervisors and executives become better operating wage and salary administrators.

Because setting wages and salaries represents one of the major

industrial relations functions, the wage and salary administration department normally reports to the industrial relations department.[19] One authoritative study found the wage and salary administrator reporting directly to the director of industrial relations in the majority of organizations investigated.[20]

In smaller organizations, wage and salary administration may be assigned to an administrator whose major responsibility lies in another field. For example, the controller may be assigned the function. Where this is done, it is important that the person responsible be so placed as to make his advice and aid available to all departments.

In all types and sizes of organizations it is important that top management be convinced of the necessity for good wage and salary administration and apprised of the results of solutions to wage and salary problems. Chapter 1 outlined the importance of wages and salaries in the employment relationship. Subsequent chapters will stress the necessity of top management support for specific programs.

QUALIFICATIONS OF THE WAGE AND SALARY ADMINISTRATOR

Regardless of the organizational status of the person or persons charged with administering wages and salaries, however, there is no question about his (or their) qualifications. Management has need for specialized knowledge and experience in the field, and wage and salary administrators should have it.

A college degree is desirable, and some graduate work would be helpful. College courses in the following areas are important: industrial relations, wage and salary administration, business statistics, accounting, collective bargaining and contract administration, time and motion study, production management, principles of economics, and personnel psychology.

Several years of experience in various phases of industrial relations are desirable. Experience in labor organizations, especially in research departments, would also be valuable.

Wage and salary administrators should have the ability to integrate

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[19] Yoder, *Personnel Principles and Policies*, pp. 31–35.

[20] Philip H. Kriedt and Margaret Bentson, "Jobs in Industrial Relations," *Release No. 2*, University of Minnesota Industrial Relations Center, 1947.

and evaluate huge quantities of varied data and organize and present results in clear, understandable fashion. Technical and specialized knowledge of the various wage problems and their solutions is required, along with the interest and ambition to acquire new knowledge as it becomes available. Equally important, however, is a sufficient understanding of human relations problems and their solutions to guide them in the installation and operation of programs.

POLICY VS. PROCEDURE

A more conventional division of the subject matter outlined in early sections of this chapter calls for a separation into two parts: (1) Wage Policy, and (2) Wage and Salary Administration. Under such a plan, the former lays out the objectives and intentions of the organization in matters of wages and salaries; the latter describes procedures used to carry out the policies. The author rejected such a division and decided on a division of the field into "problem areas" [21] for the following reason. While policies and procedures may vary a great deal by type and size of organization, the problems are ever present. Any organization, regardless of type or size, must choose some method or methods to solve these problems. From the solutions offered, the organization may state its own policies and build its own procedures.

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[21] The problem areas referred to are those defined in this chapter: (1) the problem of wage and salary levels, (2) the problem of wage and salary structures, (3) the problem of individual wage determination, (4) the problem of wage payment method, (5) the problem of fringe, (6) the problem of control.

PART TWO

The Problem of Wage and Salary Levels

3 · *Wage Legislation and Regulation*

THE GENERAL LEVEL OF WAGES AND SALARIES IN AN ORGANIZATION probably represents the most difficult problem of wage and salary administration. If the wage level [1] is too low, turnover rates tend to turn upward to undesirable levels and recruitment programs meet with little success. In the extreme, the organization may experience difficulties with state and national regulatory bodies administering minimum wage laws and prevailing wage laws. Also, such an organization may be confronted with concerted organization drives if no union is present, or pressing wage demands where a union does exist. Less apparent but equally real, a low wage level, if it serves to hold a labor force at all, may operate to attract only less efficient workers with the result that labor costs rise.

On the other hand, if the general level of wages in the organization is too high, equally undesirable results are likely. The competitive position of the firm may suffer. Turnover rates may drop below

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[1] "The term 'wage level' simply means the average of all the wage rates (or of any other wage measure, such as hourly or weekly earnings) paid to workers in an occupation, an establishment, an industry, or a group of industries." H. M. Douty, *Wages: An Introduction* (Los Angeles: Institute of Industrial Relations, University of California, 1951), pp. 17–18. For reasons presented in Chapter 1, "wage level" in this chapter refers to that of establishments, not occupations or industries. While this definition is useful in explaining the general concept of a wage level, it may be a trifle rigorous for general usage. Actually, a summary figure (or average) is less often employed than a gross examination and comparison of job rates in a wage structure.

a desirable minimum with the result that the organization tends toward inflexibility and stagnation. Also, if during periods of wage control by federal authorities wage and salary levels are too high, there may be trouble forthcoming from these administrators.

Likewise, it is a change in the wage level that most drastically affects total payroll.[2] Solutions to other wage problems have payroll effects but not nearly in such magnitude as a change in the wage level. Substantial sums of money are involved, and for this reason alone an organization may be expected to pay close attention to wage levels.

Nor are employees and their representatives any less concerned with this aspect of the wage problem. It is in the solution to the problem of wage levels that the absolute amount of the wage rate is determined for many employees. Also it is here that unions exert their major effect on wages, and where member loyalty is largely built or lost.

Finally, consumers and the general public have major interests in the solution to the problem of wage levels—the consumer because wages are a major element in prices, and the general public because wages and salaries represent the major portion in national income, and, further, because too frequent or too drastic changes in wage levels have implications for the entire economy.

Thus, it is seen that the solution to the problem of wage and salary levels has broad implications. Although in our system solutions must be made by private parties, not only the interests of these parties are involved. It is apparent, also, that this problem cannot be solved without careful consideration of many factors.

The main factors to be considered in setting wage and salary levels in an organization are (1) expressions of public policy on minimum and (at times) maximum wages, (2) going wages being paid for comparable work in applicable labor markets, (3) union wage scales and collective bargaining, and (4) management philosophy on proper wage and salary levels as reflected in acceptance or rejection of certain other wage criteria.

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[2] Gilbert V. Bloom, *Wage and Salary Administration* (Madison: Industrial Management Institute, University of Wisconsin, March 20, 1952, mimeographed), p. 13.

LEGISLATION AND REGULATION

An attempt to discuss all federal and state legislation affecting wages and salaries would change this text into one on labor legislation. This is true because all public policy concerning the employment relationship must ultimately affect one of the primary conditions of employment—wages. It is therefore necessary to limit this discussion to (1) expressions of public policy directly affecting wages or salaries, i.e., legislation and regulation specifically mentioning these conditions of employment, and (2) wage and salary legislation and regulation concerned with the present problem of wage and salary levels.[3]

Expressions of public policy on wage matters have been concerned primarily with wage and salary levels. For this reason little will be lost for the present purpose by imposing these limits.

Legislation and regulation directly affecting wage and salary levels have influence mainly at the extremes. Thus public policy has, at various times and in certain types of employment relationships, set a minimum wage. Other legislation and, at times, regulation have served to set a maximum to wage levels.

Federal Legislation

The Davis-Bacon Act of 1931 provides for payment of prevailing wage rates on Federal construction contracts in excess of $2,000. One effect of this legislation is to set a lower limit to the wage levels of organizations engaged in such contracts. The Anti-Kickback (Copeland) Act of 1934 prohibits the kickback of wages earned on government projects. The effect of this legislation on wage levels is to police the maintenance of levels set previously.

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[3] This second condition is one of convenience of presentation. Both federal and state policy have from time to time been concerned with matters relating to the problems of structures, individual wage determination, wage payment method, and fringe. Thus both war and postwar wage stabilization agencies issued instructions pertaining to all these problems: the Fair Labor Standards Act contains sections concerning guaranteed wages (the problem of wage payment method); state laws affecting manner and frequency of payment likewise have implications for wage payment method; and state "equal pay" laws affect the problem of structure. Some reference to such legislation and its effects will be made in later sections.

The Social Security Act of 1935 and its subsequent revisions include among their provisions two nationwide systems of social insurance to protect wage earners against part of the loss of income resulting from unemployment, old age, and death, namely: (1) old age and survivors insurance, and (2) unemployment compensation. The contributions provided for in this law probably serve to influence wage levels in two ways: (1) by lowering take-home pay in the case of employee contributions to old age and survivors insurance, reducing effective wage levels, and (2) in the case of employer contributions, by lowering wage levels of covered employees. This second effect is based on the reasoning that employer contributions are part of the total wage bill and any additions to such "fringe" items must come out of employee earnings.

The Walsh-Healey Act of 1936 empowers the Secretary of Labor to fix the "prevailing minimum wage" in any industry holding a government contract exceeding $10,000. The act also requires that time and one-half be paid for all work in excess of eight hours in one day or forty in one week on these contracts. The first provision tends to set a lower limit to wage levels in the industries involved and sometimes to raise substantially the levels of particular organizations.[4] The second provision exerts additional upward pressure.

The Fair Labor Standards Act (Wage and Hour Law) of 1938 as amended provides for minimum wages for employees of organizations engaged in interstate commerce. It also requires premium payments for overtime.[5] As the concept of interstate commerce has been broadened, and as the Congress has increased the minimum wage, this act has become more and more important as a force tending to raise the lower limit of wage and salary levels. The 1949 revision of the act caused many organizations and even entire industries to raise substantially such levels.[6]

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[4] Evidence of effects on wage levels are the outcries of employers protesting that the "prevailing rate" set by the Secretary of Labor is too high. See "Threat to Walsh-Healey Act," *Business Week*, March 7, 1953, p. 135.

[5] The act also establishes a classification of exempt and non-exempt employees for overtime purposes. Employers are not required to pay exempt employees premium rates for overtime. This classification serves roughly to distinguish salaried and hourly rated employees.

[6] Discussion of the ultimate economic effects of minimum wage laws is deferred until the discussion of wage criteria because the economic effects of a minimum wage standard are probably identical whether determined by unions, employers, or public policy.

The Portal-to-Portal Act of 1947 served to limit compensation allegedly due the employee for the time between entering the gate of the plant until he started work. The effect of this legislation was to limit a certain type of upward pressure on wage levels.

Federal Regulation

Two additional acts had such profound effects on wage levels that they deserve special study. Furthermore, they must be discussed separately because their effects are attributable not to the provisions of the legislation, but to the presidential directives empowered by the laws and to the acts of the regulatory bodies set up by the laws. These two acts were (1) the Stabilization Act of 1942 and (2) the Defense Production Act of 1950.

The former authorized and directed the President to issue a general order stabilizing, at the levels existing on September 15, 1942, prices, wages, and salaries affecting the cost-of-living. It provided for making adjustments in prices, wages, and salaries as necessary to aid in the successful prosecution of the war or to correct gross inequities. This act paved the way for a long series of "directive orders" from the office of the President that had a profound effect on wage and salary levels during the war period.

These directives served to place upper limits on wage and salary levels during this period. And, equally important, the regulatory bodies assigned the task of policing such levels were forced to evolve principles and procedures for solving wage problems that promise to influence such solutions for years to come. For this reason, these directives and their consequences deserve attention.

One of these directives established the National War Labor Board, a tripartite board composed of representatives of labor, management, and the public, to stabilize wages and to solve wartime labor disputes. Among the first of the policies of this board was the Little Steel Formula. This policy limited general increases to 15 per cent above the level prevailing on January 1, 1941, and was based on the 15 per cent increase in the cost-of-living from January 1, 1941, to May 1, 1942.

It is important to note the effect of this policy. Not only did it serve to tie wage levels to cost-of-living (as a concept at least) during World War II, but this tie persisted during the postwar

period. Thus when the postwar wage stabilization program began, it was politically impossible to divorce wage and salary levels from the cost-of-living.

The Little Steel Formula was founded on the theory of stabilization accepted by the NWLB, i.e., that wages should not be permitted to rise more than the change in the cost-of-living during the base period. As time went on, other bases were accepted for wage changes. One was an adjustment for "substandard rates" based on minimum wage provisions of the Fair Labor Standards Act. Another basis accepted for wage increases was "interplant gross inequities." Under this policy the Board established "stabilized rates" for numerous occupations in the various labor markets. These "stabilized rates" were established from wage surveys made by the Bureau of Labor Statistics for the War Labor Board. Wage surveys have since become one of the most important determinants of wage and salary levels. As such they will be discussed in detail in the next chapter.

Another basis for wage changes developed by the NWLB was "intraplant inequities." This solution was less concerned with wage and salary levels than with structures,[7] and it provided a strong impetus for job evaluation plans. This policy of the Board did affect wage levels, however, in that an increase in wage levels was permitted when such plans were installed.

A final basis for wage increases was called "rare and unusual cases." These were situations in which intentionally higher wage rates were paid to entice manpower into positions of greater importance to the war program.

Another directive established the Salary Stabilization Unit with authority to stabilize salaries of executive, administrative, and professional employees.

After World War II these wage controls were continued on the theory of providing an orderly conversion from wartime to peacetime. The War Labor Board was superseded by the National Wage Stabilization Board. This agency followed the principles outlined above as developed by the War Labor Board in attempting to control the level of wages and salaries.

Thus, wartime wage and salary regulations affected wage levels

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[7] To be discussed in Chapters 6 through 10.

in several ways. First, in essence, an upper limit was placed on wage levels in most organizations. Second, the conditions under which wage levels could be changed were laid down. Third (as a result of the second), any present-day solution to the problem of levels must consider many of these criteria.[8] And finally, the wage survey and other techniques were improved sufficiently to make them useful tools.

The Defense Production Act of 1950 was necessitated by mobilization for the "cold war." It served to set up controls over the economy removed only a few short years before. Although the Federal agencies in setting up wage control regulation had a great deal of recent experience to guide them, they had to deal with a new situation that made control difficult, i.e., an economy neither at war nor at peace. Thus, the motive of patriotism was lacking, and, as a result, cooperation was difficult to attain, and agreement on which parties were to make the sacrifices was even more so.

Laboring under these difficulties, the Wage Stabilization Board and the Salary Stabilization Board attempted to hold the line against upward pressures on wage levels, and to set principles to guide any changes approved. No sooner had a wage freeze order been established than it became necessary to make provisions for real or apparent hardships. The answer adopted was a 10 per cent "catch-up" formula for those employees who had received no increase or only a small increase during 1950. Next it was necessary to deal with the concept of cost-of-living increases developed under wartime controls and now written into labor contracts covering millions of workers. The decision was to approve the principle and to allow other employers to adopt the principle if they wished.

The pressures to raise wage levels continued, however, and it became necessary to bend with them and yet rationalize any changes. Thus, it was found necessary to reactivate the old concept of "rare and unusual cases" and to develop a new one—"base period abnormalities." The latter enabled corrections of levels adjudged to be out of line when controls were established.

When wage controls were removed early in 1953 the Wage Stabilization Board was still wrestling with the thorny problem of

[8] For an exceptionally clear analysis of the wage criteria used by the Boards, see Gitlow, *Wage Determination Under National Boards* (New York: Prentice-Hall, Inc., 1953).

"productivity increases." Although the Board had not formally established a policy permitting such increases, so many requests had been made and the principle was endorsed by contracts covering such a large number of workers, that many observers felt sure that only abolition of the Board prevented the adoption of such a policy.

Although not pertinent to the present discussion, it should be observed that the Board found it necessary to incorporate many other aspects of the wage problem into their controls. Thus they covered the problems of structure, individual wage determination, wage payment method, and fringe as well as the problem of levels. The lesson in this, of course, is the tremendous importance of wages in our economy and the difficulties encountered in controlling a price that performs so many economic functions.

The wage controls attributable to the Korean war, like those imposed during the World War II period, had certain effects on wage levels. They served to slow down upward adjustment. They reformalized certain wage level criteria—the economic yardsticks against which adjustments in wage levels were to be tested. They reinforced the application of certain wage and salary techniques. And they served to highlight a new wage criterion—"productivity."

It is seen that any organization in solving the problem of wage levels must be cognizant of the pertinent Federal legislation and regulation. In addition, however, it must follow the requirements of the legislation of the state(s) where it operates.

State Legislation

State legislation applicable to the problem of wage and salary levels consists primarily of two types: (1) minimum wage laws and (2) prevailing wage laws. Minimum wage laws are in force in twenty-six states and Alaska, the District of Columbia, Hawaii, and Puerto Rico. Their application, however, is limited to women and children in all but four states. Prevailing wage laws, in effect in all states, provide that all employees on construction financed with public funds shall be paid at rates equal to prevailing scales in the localities where the work is undertaken.

The effect of these two types of legislation on wage levels is

to set a lower limit to wages in organizations covered. In some cases, state laws exert a greater effect than Federal legislation in that the minima established have exceeded at times those set by the Fair Labor Standards Act.[9]

Less direct in their effects upon wage levels are state laws regulating the amounts and types of deductions for fines, breakage of tools, and special benefit provisions, such as pensions, insurance, and the like.[10] Similar in effect are state anti-kickback laws. These laws would appear to have the effect of maintaining effective wage levels.[11]

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[9] For examples, see "Eleven States Lift Local Wage Floors," *Labor Information Bulletin*, Vol. 14, No. 3 (March, 1947), p. 2.

[10] See Glenn Miller, *American Labor and the Government* (New York: Prentice-Hall, Inc., 1948), chap. xii.

[11] Other types of state wage legislation are: (1) some forty-five states prescribe the time and manner of payment of wages; (2) some place definite limitations upon place of payment; (3) several states have "equal pay" laws—thirteen states and Alaska. *Monthly Labor Review*, Vol. 75, No. 5 (November, 1952), p. 503.

4 · *Going Wages*

WHILE EXPRESSIONS OF PUBLIC POLICY IN THE FORM OF FEDERAL AND state legislation and regulation may aid an organization in the solution to the problem of wage levels by defining outside limits, a wide range of choice normally still exists. Other criteria must be used to determine where within this range wage levels should be. For the vast majority of employers, a first approximation to a workable wage and salary level is obtained by discovering "going wages" in the area and often in the industry.[1] The particular "going wage" used may apply to all organizations operating in the local labor market, to organizations in the same industry in the local labor market, to organizations in the industry without regard to location, or to some combination of these. Although no definite pattern is applicable to all organizations, majority practice appears to be reliance on going wages in the local labor market on the assumption that it is from this market that employees must be obtained. Going wage information is usually obtained by using some form of a wage survey.

WAGE SURVEYS

Although there are records of wage surveys made as early as 1910,[2] their consistent use probably dates back only to World

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[1] Lester, *Company Wage Policies*, p. 10.

[2] Minnesota, Bureau of Labor, *Twelfth Biennial Report, 1909–1910* (St. Paul: Syndicate Printing Co., 1910). This report describes a survey covering 59 employers and 94,435 employees made in March, 1910.

War II. When the National War Labor Board developed the concept of "interplant inequities" and determined with the aid of the Bureau of Labor Statistics "stabilized rates," they apparently began what could be called the wage survey movement. At any rate, since that time employers have relied a great deal on the wage survey technique.

Lester [3] found in a survey of manufacturing companies employing approximately two million workers, that 90 out of 95 companies stated that they used wage surveys for the purpose of establishing and adjusting the levels of their wages. Fifty-two of these organizations not only made use of wage surveys compiled by others but also made surveys of their own. It is normal practice for many companies to make surveys at regular intervals, usually once or twice a year in each labor market, and more frequent special surveys when necessary. Tolles and Raimon state that comparative wage information is now collected from at least 62,000 establishments by employer associations.[4] These participating companies employ ten million workers. When it is remembered that the wage surveys of these employer associations are entirely separate from the surveys of the government and those conducted by individual companies, an idea of the enormity of the wage survey movement can be obtained.

Such a volume of data collection suggests that an enormous need exists. Why are wage surveys necessary? The answer has two parts. First, it seems fair and equitable to both employers and employees to have wages related in some fashion to wage rates for comparable work in the labor market or in the industry of which an establishment is a part.[5] This is one reason why employers seek going wages to help them determine wage levels. Second, the information has not been made available in other ways. Although many series of wage data are published,[6] very little information on

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[3] Lester, *Company Wages Policies*, pp. 10–11.

[4] N. Arnold Tolles and Robert L. Raimon, *Sources of Wage Information: Employer Associations* (Ithaca: The New York State School of Industrial and Labor Relations, Cornell University, 1952), p. 335.

[5] Douty, *Wages: An Introduction*, p. 30.

[6] By the Bureau of Labor Statistics, the Department of Commerce, National Industrial Conference Board, and others. For a convenient list see Ernest Dale, *Sources of Economic Information for Collective Bargaining* (New York: American Management Association, 1951), pp. 84–87.

occupational wage rates has been available from published sources. In recent years the Bureau of Labor Statistics has been making surveys of occupational wage rates in local labor markets.[7] Although government efforts in this area have contributed greatly to wage survey techniques [8] and many of these techniques are now finding use in private wage surveys, the results of government surveys have not obtained wide acceptance. The reasons for this may be that: (1) employers feel that while the jobs surveyed are representative jobs nationally, they may not be representative in the local labor market; (2) employers seem to feel that it is necessary for them to choose the jobs to be surveyed and the cooperating firms in order to obtain useful results; (3) employers feel that a more careful job of determining job comparability can be done locally; and (4) more information is desired than is available in such surveys.[9] Whatever the reasons, private wage surveys are increasing either because of or in spite of government surveys.[10]

What the employer wishes to know in order to aid him in setting wage levels are the "going wages" for specific occupations in his labor market (and/or perhaps in the industry of which his organization is a part). This information to be useful must be complete, up-to-date, and comparable. To satisfy these requirements, he may use government surveys and/or trade association surveys, and he may initiate, or cooperate in, one or more company surveys each year.

The lack of occupational wage information in labor markets appears at first glance to be a major omission in wage statistics. Likewise, such careful appraisal of survey results by the consumers of wage survey data may seem overdrawn. The reason, however, is

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[7] See, for example, "Occupational Wage Survey, Milwaukee, Wisconsin, March, 1952," *Bulletin No. 1099*, Bureau of Labor Statistics.

[8] See U.S. Department of Labor, Bureau of Labor Statistics, "Technical Note on Occupational Wage Surveys," New York Regional Office (mimeographed).

[9] "For company purposes, government wage data are generally unsatisfactory because individual firms cannot be identified, the statistics are not available at the right time, the surveys lack sufficient local coverage or are not properly selective, and comparability of job content cannot be readily established." Richard A. Lester, *Company Wage Policies* (Princeton, N. J.: Industrial Relations Section, Princeton University, 1948), pp. 12–13. Reprinted by permission.

[10] Tolles and Raimon, *Sources of Wage Information*, p. 343.

not hard to find—collecting comparable wage data is a difficult task with many pitfalls awaiting the unwary.

For example, job titles are almost worthless for purposes of determining job comparability. Different job titles may be attached to the same set of duties and responsibilities even within the same organization. Thus it is impossible to assume that the titles attached to jobs in one organization refer to the same jobs in other organizations, even in the same industry. The job which one organization entitles *machinist* may be entitled *lathe operator* in another, but, to make it more difficult, the second organization may have a job entitled machinist covering entirely different duties.

These examples suggest the futility of collecting wage data by job title. Only when jobs are properly defined by describing duties and responsibilities (and perhaps worker requirements) is it possible to obtain sufficient job identity so that wage information may be sought. And, even then, it is necessary that precautions be taken to assure that the job descriptions are used in comparing jobs rather than job titles. Anyone not aware of the pitfalls is very easily trapped by the apparent simplicity of comparing job titles.

Equally troublesome is the manner in which compensation methods vary from one organization to another. Overtime provisions, shift differentials, nonproduction bonuses differ greatly from one organization to another. To assure comparability, these items must be excluded and some type of "base rate" sought. Likewise, similar jobs may be paid on an hourly basis in one organization, a salary basis in another, and an incentive basis in a third. Again, the uninitiated may ask for the "average wage" paid on a job, only to be confronted later with serious doubt as to the value of an average where information is lacking on the method by which it was calculated.

Another difficulty concerns the number of jobs on which information will be sought. To seek comparable wages on all jobs in an organization would be an impossible task. But obtaining information on only one or two is almost worthless because an untrue picture of the wage level (or structure) of another organization is probable. The solution is to use enough jobs to be representative of the range of jobs in the cooperating organizations. It is apparent that this contains traps for the uninitiated.

Finally, equal rates of pay may not mean that two comparable

jobs have equal compensation. Working conditions, personnel policies, employee benefits, and so on may offset differences in pay. It may be necessary to secure information on these matters in order to compare compensation.[11]

With difficulties such as these to be met in making wage surveys, it is apparent that two frequently used methods of collecting information may yield questionable results. These two methods are (1) the job title inquiry, and (2) the mailed survey. In the former method, a telephone call or letter from one executive to another asks, "What do you pay for assemblers?" The answer received may include several inaccuracies. The information received may apply to a job with duties much different from those in the inquiring organization. The wage reported may include elements such as overtime or shift differential, thus making it noncomparable. It may represent an average calculated in any of several ways or an estimate. It certainly will tell the inquiring organization nothing about the wage level or wage structure of the reporting establishment.

The mailed survey is more common. In this method, job definitions are furnished as well as instructions on wage data desired. The main disadvantage of this type of survey concerns the efforts made to insure job comparability. The results probably depend upon (1) the respondent's knowledge and understanding of job analysis,[12] (2) the importance attached to the survey results by the respondent, and (3) the general press of business. If any of these conditions is unfavorable, the information will probably be furnished by job title, thus subjecting the study to the inaccuracies previously described.

An organization requiring wage survey data in attempting to solve the problem of wage levels has available several choices. (1) A governmental wage survey may be used if one is available

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[11] At the present state of knowledge, this problem may not be serious. Until we know more about how employees evaluate working conditions and personnel policies, comparisons are shaky. Fortunately, from a practical standpoint, there is a tendency for higher levels of wages to go along with higher benefits. Thus an employer who compares his money wages with those of other employers in setting wage levels will not, in general, make any grave errors. See Tolles and Raimon, *Sources of Wage Information*, p. 341.

[12] Job analysis is the process of obtaining facts about jobs—duties, responsibilities, worker requirements, and so on.

for the applicable labor market. (2) Union wage survey data may be available. (3) Surveys made by any trade associations of which the organization is a member may be relied upon. (4) An informal group of employers may form and make a wage survey. (5) An organization can make its own wage survey. Providing proper information is obtained and careful methods followed, the choice may be based upon cost (the possibilities are listed in probable order of increasing cost). Useful data and exacting procedure are, however, much more important than cost, in that questionable information is less than worthless. Thus, an organization requiring wage data must be in a position to evaluate procedures used in wage surveys.

Wage Survey Procedure [13]

The steps involved in wage survey procedure may be outlined as follows:

A. Planning the Survey
   1. Determining Purpose of the Survey
   2. Determining the Area to Be Surveyed
   3. Determining the Firms to Be Included in the Survey
   4. Determining the Jobs to Be Included in the Survey
   5. Developing a Method of Insuring Job Comparability
   6. Determining Information to Be Obtained
   7. Making the Schedules
   8. Determining the Survey Method
   9. Selecting a Staff

B. Conducting the Survey
   1. Insuring Job Comparability
   2. Collecting Information

C. Analyzing and Presenting Results

Planning a Wage Survey

The cliché that no program is better than its planning is especially apropos when applied to wage surveys. Two conditions make this

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[13] The following material is adapted from David W. Belcher and Herbert G. Heneman, Jr., "How to Make a Wage Survey," *Technical Report Series No. 2* (Minneapolis: Industrial Relations Center, University of Minnesota, July, 1948).

true, (1) the vital importance of the information, and (2) the cooperative nature of the project.

These conditions suggest the desirability of a steering committee [14] made up of representatives of organizations certain to be included as cooperators in the project. Such a committee helps assure participation and begins immediately the job of education and confidence-building so necessary to ensure usable results.

A steering committee is necessary, of course, when a group project is undertaken. It is highly desirable, however, even when one organization is conducting the survey. One result of committee action may be that the members see the advantages to be gained from a cooperative venture and suggest that a continuing cooperative group be formed. This has happened in several labor markets with the result that accurate, up-to-date information is available at less cost and effort to each member than would be the case if several individual organizations conducted their own surveys.

Determining Purpose of the Survey. Planning begins with delineation of the purpose or purposes of the survey. While such purpose will be primarily concerned with setting wage levels, other objectives may also be considered.[15] The steering committee, by seeing that the various objectives are considered, will permit the final results to be as useful to all participants as possible. Definition of purpose is a major step in solidifying judgment on the area to be covered, the organizations and jobs to be included, and the types of information required. It also helps in defining the accuracy needed and may be useful in considering costs and time limits of the survey.

One author has suggested that wage survey procedures should be a judicious compromise; that is, they should be as simple as it is possible to make them and still achieve reasonably accurate and useful data.[16] If compromises are to be made, they should be made in the planning stage rather than being forced while the survey is in progress. Only in this way can the objectives of the participants be realized.

Determining the Area to Be Surveyed. A second aspect of plan-

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[14] Wilbur R. Hanawalt, "So You're Making a Wage Survey," *Personnel*, Vol. 24, No. 3 (November, 1947), pp. 179–185.

[15] See the section on Uses of Wage Survey Data later in this chapter.

[16] Dale, *Sources of Economic Information for Collective Bargaining*, p. 98.

ning is determination of the area to be surveyed. This is essentially a matter of finding the boundaries of the labor market. For the typical organization this is defined as the geographical district providing the market from which the majority of its employees are drawn. This area usually has certain common characteristics: (1) high probability of workers seeking employment or re-employment within the district, (2) similar living costs, (3) similar transportation facilities. In most cases the labor market will be defined as the local community, although at times it may be narrower or wider than these confines. In some large cities it may be necessary to restrict the area because of travelling distances. In the case of certain occupations, such as rubber-working, the area may be defined more broadly to include establishments in the industry regardless of location. And in the case of engineers and certain other professional people, the labor market is not restricted by either area or industry, but is country-wide.

Determining the Firms to Be Included in the Survey. After determining the area to be studied, the organizations from which information will be requested should be carefully selected. An attempt should first be made to obtain establishments in the same industry as the surveying organization. Secondly, those firms should be included that compete for the same type of worker employed by the surveying organization. Also, the establishments selected must be large enough to make any averages calculated from their figures reliable.

The objective in selecting cooperating organizations should be that of securing a representative and balanced sample. This, ideally, requires a census of establishments in the universe to be sampled. Then a sample would be drawn such that (1) the establishments selected for study are representative of the universe; (2) sufficient coverage is assured that the average wages for each job are reliable; (3) the figures of one or a few very large firms do not unduly influence the total.

Thus, in most surveys made by companies or groups of companies, the participants use the criteria of (1) industry, (2) comparable work, (3) competition for workers, and (4) size, and limit the cooperating establishments to approximately twenty or thirty. When jobs are studied that are found in most firms and are usually filled on an occupational basis, as is the case in most wage surveys,

such a small sample may be quite satisfactory. To the extent that an attempt is made to survey unusual jobs, the sample should be increased.

Determining the Jobs to Be Included in the Survey. Another requirement in planning wage surveys is determining the jobs to be studied. Since, obviously, all of the jobs in all of the plants cannot be surveyed, it is common practice to select a limited number of key jobs.[17] Fortunately, this practice is quite satisfactory, in that typical wage administration practices are based on a limited number of key jobs.

Key jobs are so classified because of (1) their position in an organization's job structure and (2) the importance placed on these jobs by certain groups, causing them to become bench-marks or points of reference. More specifically, key jobs are selected by following these criteria: (1) the key jobs should represent the complete range of jobs; (2) a key job should be numerically important in terms of organizations having the job and in terms of employees; (3) key jobs should be those traditionally used in collective bargaining; (4) key jobs should be well known to executives and labor leaders in the labor market; (5) key jobs should be relatively stable in job content; (6) key jobs should be good reference points in job structures as to level of difficulty and responsibility; (7) key jobs should be susceptible to clear, concise description.

Within these requirements, the steering committee will determine the number of jobs to be surveyed. The number of jobs must be large enough to ensure that each participant will have many points of reference for reviewing his wage schedule. The industries represented in the survey will influence the number of jobs selected, as will the purpose of the study. Twenty to thirty jobs have been suggested as the optimum number,[18] but the number must be left to the criteria outlined and the judgment of the steering committee.

Determining a Method for Insuring Job Comparability. After the jobs to be studied have been selected, it is necessary to develop a method for insuring job comparability before wage information is collected. The usual method of insuring comparability is the

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[17] Sometimes called "common jobs" or "anchor jobs."

[18] Richard D. Smyth and Mathew J. Murphy, *Job Evaluation and Employee Rating* (New York: McGraw-Hill Book Co., 1946), pp. 98–99.

development of job descriptions through job analysis.[19] Job descriptions, sufficiently detailed to permit comparison of job difficulty and responsibility, are prepared or adapted from existing job descriptions for use by the survey crew. For most wage surveys, such descriptions are considered sufficient to permit capable field workers to obtain job identity or close similarity.

In an effort to reduce the amount of judgment that must be used along with job descriptions in comparing jobs, refinements have been attempted. One author, for example, has reported good results from a job content scale developed to pinpoint the level of a job encountered in a cooperating establishment.[20] A scale was developed by the steering committee for production jobs and service jobs. Several factors were formulated for each type of job as well as several degrees of each factor, such that a field man making the wage survey could obtain a point value for a job and thus compare jobs in terms of point values. Actually, the job content scale would appear to be very similar to job evaluation.[21]

Job evaluation has long been suggested for use in wage surveys when job duties of two jobs are not comparable.[22] Under such circumstances, employment of a common system of job evaluation would permit development and comparison of job-level values. This could be accomplished either by installing identical job evaluation systems in cooperating establishments, or by providing wage survey field men with such a system and instructing them to use it in comparing jobs.

While both the job content scale and job evaluation methods might add further precision to job comparison, it is doubtful if the additional precision would be worth the cost. Those responsible for wage surveys tend to favor the use of job descriptions rather than more complicated methods.

Determining Information to Be Obtained. A further require-

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[19] The job analysis process is described in Chapter 6.

[20] Wilbur R. Hanawalt, "Job Content Measurement in Wage Surveys," *Personnel*, Vol. 24, No. 5 (March, 1948), pp. 350–359.

[21] Job evaluation is a systematic process of comparing jobs to determine their position in a job hierarchy. The process is described in detail in Chapters 6–10.

[22] See A. W. Bass, Jr., "How Do Your Wage Rates Compare with Those of Your Community?" *Iron Age*, Vol. 140, No. 25 (December 16, 1937), pp. 36–39.

ment in wage survey planning is the determination of the information to be obtained. Such determination is made in broad outline when the purpose or purposes of making the wage survey have been formulated. In general, such purpose is to aid in solution to the problem of wage levels. Many employers believe that this solution requires information on (1) wages and (2) policies and practices affecting income. More specifically, the range of information sought may include: (1) wage rates, (2) hiring rates, (3) structure rates, (4) earnings, (5) wage changes, (6) wage policies and practices.

Wage rates, in order to be useful for wage survey purposes, must be precisely defined. The base hourly rate for regularly employed day workers meets this requirement. In other words, a base rate shorn of overtime, shift differentials, and nonproduction bonuses is specified. To this figure, cost-of-living increases should be added. Rates should be reported prior to deduction for social security and other taxes, and payments for group insurance and war bonds.

For incentive workers, wage rates become straight-time hourly earnings. This latter figure is obtained by dividing earnings by hours worked, increasing the hours worked to remove any overtime premiums paid and being certain that earnings and hours apply to the same base period. Otherwise, the same deductions and additions apply to incentive workers as hourly workers.

For salaried workers, comparability requires that all salaries, once they have been reduced to a common period of time, be adjusted to a base-pay figure as for hourly or incentive workers. Monthly, weekly, daily, or even hourly salary rates may be used.

The wage rate information required is the actual rates being paid to individuals on given jobs. During the analysis of the data it should be possible to obtain calculated measures of what individuals are being paid on a certain job in an establishment, or in the labor market.

Hiring rates should reflect the starting wage rates paid for particular jobs and classes of employees. Those asked for should apply to commonly recognized jobs, such as learners, helpers, messengers, and junior typists, or to the lowest job of a recognized profession, such as accounting and engineering.

Structure rates are usually those developed through job evaluation, although they may be simply range minima and maxima set up

informally. An organization with a formal wage structure may have a single rate for each job or group of jobs, or a rate range [23] for each job or group of jobs. In the case of a single rate structure, the structure rate is the rate paid all workers on a job. Where a range exists, the structure rates state the minimum and maximum paid to workers on a specific job.

When an organization has structure rates, they should be requested, because a valuable comparison can be made between actual rates and structure rates. The distribution of actual rates may change quite rapidly with changing business conditions. Structure rates, however, tend to be constant except for changes in wage level.

Some organizations desire information on earnings obtained by employees on comparable jobs. They want this information because they assume that employees compare earnings rather than wage rates. Most employers, however, in working out a solution to the problem of levels, prefer to use wage rate data rather than earnings data. One of the major reasons for this is the multiplicity of difficulties involved in comparing earnings. Earnings vary not only with hours worked, but with payment methods and policies regarding wage supplements such as overtime, shift differentials, and so on. Where employees are paid on an incentive basis, the many types of plans, methods of computing standards, and points where premium pay begins offer additional difficulties.

Wage changes may be sought to maintain awareness of recent changes in wage levels or wage structures in the labor market. For this reason, employers are interested in kind and amount of general increases or decreases, whether they were issued in cents-per-hour or a percentage. They are also interested in wage changes applying to specific groups of employees.

Furthermore, current wage policies and practices in the market are sought in many wage surveys.[24] Information is needed on the

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[23] A rate range refers to a range of wage rates that may be paid individual workers on a job. Individual workers receive a specific rate determined by merit, length of service, or some combination of these. This concept is explained fully in the discussion of Individual Wage Determination, Chapter 11.

[24] Some of these are employee services or "fringe" items. As such they will be discussed in detail in Chapter 15. It is essential that collection of information on these policies and practices be discussed at this point, however, because an employer needs this information in forming his solution to the problem of levels.

existing situation and the methods by which these matters are administered. Information may be desired on such items as seniority provisions, night shift provisions, vacations, sick leave, holidays paid for but not worked, call-in pay, severance pay, guaranteed minimum wage, uniforms and work clothing furnished, clean-up time, incentive pay, bonus plans, group insurance, overtime pay, progressive wage schedules, temporary transfer pay provisions, paid lunch periods, rest periods, meals at company expense, pension and retirement plans. Some applicable policy information might be: shift policies, wage policies, working hours, and seniority policy. This listing can be, of course, only suggestive. Labor markets vary a great deal among themselves in applicable policies and practices, and any specific market varies over a period of time in the number worthy of inquiry. Those planning wage surveys must determine which policies and practices are applicable to their study.

One final area included in many wage surveys is information on working conditions existing in cooperating establishments. Thus, inquiry may be made into such components as temperature, humidity, noise, fumes, accident and health matters. Although information on such conditions should appear in job descriptions, plants vary a great deal, and entire establishments may have superior or inferior working conditions. This information may be needed because, among jobs which are otherwise in the same wage classification, those which impose most disagreeable and hazardous conditions are sometimes assumed to command higher pay.[25]

Making the Schedules. After it has been decided what information to seek, the next step is making the schedules to be used in collecting the data. The schedules are constructed so as to permit collecting all of the information desired as conveniently as possible and to permit tabulation and analysis as quickly as possible.

Normally, to secure the information required, two different schedules are prepared, one for wage data and another for wage policies and practices, wage changes, and working conditions. Only one of the latter schedule is required per establishment. One wage schedule is required, however, for each job to be surveyed in each establishment.

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[25] Z. Clark Dickinson, *Compensating Industrial Effort* (New York: The Ronald Press, 1937), p. 194.

An example of such a wage schedule is provided in Figure 2. On one side the job description is presented. The other side is reserved

Figure 2 *

Wage and Salary Survey

Wage and Salary Information

Job Title: _____

(Title used by cooperating organization to describe job described below.)

Job description:

* Source: Adapted from David W. Belcher and Herbert G. Heneman, Jr., "How to Make a Wage Survey," *Technical Report Series, No. 2* (Minneapolis: University of Minnesota, Industrial Relations Center, July, 1948). Reprinted by permission.

Figure 2 (Cont.)

Wage and Salary Survey

Wage and Salary Information

Hourly Employees

Basic hourly rate	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Scheduled hours per																
Number at each given rate male																
female																

Incentive Employees

Earnings in last pay period	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Actual hours worked in last pay period																
Number at given earnings male																
female																

Salaried Employees

Salary per	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Scheduled hours																
Number at each salary male																
female																

Minimum hiring rate per_____for employees in this job. _____.

Most typical earnings per_____for employees in this job _____.

Structure rates applicable to this job: Minimum _____ per _____.
Maximum _____

Comments:

Hourly:

Incentive:

Salary:

for wage information. The form is applicable to hourly, incentive, and salaried jobs, and is also designed to apply in organizations where employees on the same job are paid on more than one of these bases.

Figure 3 is an example of a schedule applicable to wage practices and policies. It is apparent that this schedule may be expanded or contracted to meet the needs of the particular survey.

Figure 3 *

WAGE AND SALARY SURVEY

General Information: Policies and Practices Affecting Income

Name of company participating in the survey: _____

Address: _____ Nature of business: _____

Code No.: _____ Date: _____

Data furnished by: _____ Title: _____

1. Number of employees in the company:

	Male	*Female*
a. Hourly	_____	_____
b. Salaried	_____	_____
c. Incentive	_____	_____
d. Total	_____	_____

2. Minimum hiring rate:

	Male	*Female*
a. Hourly	_____	_____
b. Salaried	_____	_____
c. Incentive	_____	_____
d. Total	_____	_____

Last increase (or decrease) in wages or salaries applying to entire company or specified groups of employees (*not* increases to employees on the basis of merit or seniority).

Date _____	Amount per _____	%	Applicable to
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

* Source: Adapted from David W. Belcher and Herbert G. Heneman, Jr., "How to Make a Wage Survey," *Technical Report Series, No. 2* (Minneapolis: Industrial Relations Center, University of Minnesota, July, 1948). Reprinted by permission.

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Figure 3 (Cont.)

	Hourly		*Salary*	
	Yes	No	Yes	No
3. Is a single rate used for each job?	____	____	____	____
Is a rate range used for each job?	____	____	____	____

	Hourly		*Salary*	
	Yes	No	Yes	No
4. If rate ranges are used, indicate method of progression within the range				
a. Merit increases only	____	____	____	____
b. Automatic increases only	____	____	____	____
c. Part automatic and part merit	____	____	____	____

Please explain, if *b* is checked, giving number of months and amount or per cent of increase for all such increases, differentiating between type of employee (and department, if necessary). _____

_____

_____

Please explain, if *c*. _____

_____

5. Average number of hours worked per year by shop employees: _____ hours.

6. Is there a wage incentive plan in effect? —Yes —No
If "yes," do earnings increase in direct proportion to output regardless of the number of units produced? —Yes —No
If a different plan is used, please explain and give its name if it is a common plan. _____

_____

_____

If there are limits on incentive earnings, please explain. _____

_____

_____

If there is a minimum guarantee above the legal minimum effective when the plant is down or when an incentive worker is temporarily on other

Figure 3 (Cont.)

work, please give amount and explain. _____

_____

_____

7. Are employees guaranteed an annual income?

Hourly		*Salary*		*Incentive*	
Yes	No	Yes	No	Yes	No
____	____	____	____	____	____

If "yes," please explain in detail giving any variation between types of employees or departments. _____

_____

_____

8. Please explain the basis of the payment of overtime. _____

Is weekly overtime paid? _____

After how many hours? _____ At what rate? _____

Is a daily overtime rate paid for hours over a certain number worked in a day? _____

What is the Saturday overtime policy? _____

_____

Sunday? _____

Holidays? _____

Does the policy vary by type of employee or department? _____

If so, please explain: _____

_____

9. Are there night shifts? _____

Night shift differentials? _____

If so, what is the premium for the first night shift?

% ____ or amount ____. Second? % ____ or amount ____.

If a percentage, does it apply to guaranteed or total earnings? _____

_____

If no night shift premiums, do night workers put in less hours at the same pay than day shift workers? _____ Hours _____

Figure 3 (Cont.)

Do night shift workers get extra lunch and rest periods? _____

Please explain _____

_____

Do shifts rotate? _____ What are the provisions? _____

_____ How often? _____

Do any of these policies vary among departments? _____

If so, please explain: _____

_____

	Hourly		*Salary*		*Incentive*	
	Yes	No	Yes	No	Yes	No
10. Is employee's lunch time paid for?	____	____	____	____	____	____

If so, how long is lunch time? _____

11. Is a clean-up time granted at the end of each shift?

Yes— No—

If so, are employees paid for this time? _____

	Hourly		*Salary*	
	Yes	No	Yes	No
12. Are rest periods granted?	____	____	____	____
If so, are they paid for?	____	____	____	____

If rest periods are granted, please indicate the amount of time allowed during each shift. _____

Hourly: _____ Salary: _____

13. Paid holidays?

How many holidays do you give with pay? _____

Which ones? _____

Please explain any variation between departments: _____

_____

If employees work on holidays, what are they paid?

Figure 3 (Cont.)

	Hourly	*Salary*
Straight-time	_____	_____
Time and one-half	_____	_____
Double time	_____	_____
Other	_____	_____

14. Is there a plan for the payment of employee benefits? (excluding Social Security and Workmen's Compensation) _____

			Contributed to by:			
					Both:	
	Yes	No	Company Only	Employee Only	Company %	Employee %
Death	____	____	_____	_____	_____	_____
Accident	____	____	_____	_____	_____	_____
Sickness	____	____	_____	_____	_____	_____
Hospitalization	____	____	_____	_____	_____	_____
Pension	____	____	_____	_____	_____	_____
Savings	____	____	_____	_____	_____	_____
Other	____	____	_____	_____	_____	_____
_____	____	____	_____	_____	_____	_____
_____	____	____	_____	_____	_____	_____
_____	____	____	_____	_____	_____	_____

Please explain eligibility requirements _____

_____

_____

Does the union participate in management of any of these plans? _____

Which? _____

15. Nonproduction Bonuses (Bonuses that do not depend on output, that aren't contractual obligations of the company, that aren't paid as often as quarterly, and that aren't in a definite amount):

Figure 3 (Cont.)

	Yes	No	Explain
a. Safety bonus	____	____	____
b. Christmas bonus	____	____	____
c. Attendance bonus	____	____	____
d. Stock purchase plan	____	____	____
e. Other	____	____	____

Are all or any part of them included in collective agreement? ____

Which? ____

16. Is sick leave granted? ____ What employees? ____
Please explain minimum and maximum eligibility requirements, the number of days off, total hours for which payment is made and rate of pay, methods of calculation, length of waiting period, and maximum accumulation.

____

____

____

17. Are employees paid when it is necessary to send them home because of lack of sufficient work? ____

Hourly		*Incentive*		*Salary*	
Yes	No	Yes	No	Yes	No
____	____	____	____	____	____

If "yes," what is the policy as to payment?

Hours paid, rate, ____

____

18. Is there a call-in-emergency pay policy? Yes___ No___

If "yes," please explain: ____

____

19. Are paid vacations granted employees?

Hourly		*Incentive*		*Salary*	
Yes	No	Yes	No	Yes	No
____	____	____	____	____	____

If "yes," is the program a single or a graduated one? ____
What are the minimum and maximum eligibility requirements? Please

Figure 3 (Cont.)

state them explicitly—if the policy says "any worker hired before March will be given two weks vacation," say so. State the number of days off, total hours for which payment is made and rate of payment. State the method of calculating vacation pay for incentive workers. _____

_____

_____

Are employees who don't take vacation given extra pay? _____

Do any of these provisions vary between departments? _____

Explain _____

_____

20. Are all necessary tools and working supplies furnished the employee by the company? Yes— No—

If "no," please explain: _____

_____

21. Are employees furnished any free goods or services? (exclude discounts on purchases) Yes— No—

Free lunch? Explain: _____

Free work clothes and laundry? Explain: _____

Free lodging? Explain: _____

Free transportation? Explain: _____

Other Explain: _____

22. Is there a suggestion system? Yes— No—

If "yes," how are employees rewarded? _____

_____

Per cent of savings _____ Flat cash award _____

Minimum award payable _____ (if any)

Maximum award payable _____ (if any)

23. Are any payments made to employes laid off for lack of work? Yes— No—

If "yes," please explain the basis of such payment _____

_____

Figure 3 (Cont.)

24. Is a separation allowance paid to employees at the time of their termination of service with the company? Yes— No—
If "yes," please explain the basis on which the allowance is determined.

_____

_____

25. Is seniority a factor in personnel policies? Yes— No—
To what extent are promotions influenced by seniority?

Please explain: _____

_____

Is there a probationary period before a worker's seniority begins? Yes—

No—

If "yes," please explain: _____
In the event of a layoff, to what extent does seniority determine who is laid off first? _____

26. Please give below working hours by class of employee:

Hourly—total scheduled hours _____

	1st shift		*2nd shift*		*3rd shift*		*other*	
	Begin	End	Begin	End	Begin	End	Begin	End
Monday								
Tuesday								
Wednesday								
Thursday								
Friday								
Saturday								
Sunday								

Incentive—total scheduled hours _____

	1st shift		*2nd shift*		*3rd shift*		*other*	
	Begin	End	Begin	End	Begin	End	Begin	End
Monday								
Tuesday								
Wednesday								
Thursday								
Friday								
Saturday								
Sunday								

Salary—total scheduled hours _____

	Begin	End
Monday		
Tuesday		
Wednesday		
Thursday		

Figure 3 (Cont.)

Friday
Saturday
Sunday

Of the following check those paid as time worked:

Time spent punching time clock _____

Waiting at cashier's window _____

Clean-up time _____

Check-up time _____

Travel time _____

Waiting time _____

Time spent on grievance procedure _____

Down time _____

Time spent on safety programs _____

Other _____

27. Are any employees covered by a collective agreement?

Yes___ No___

If "yes," please explain, giving name and affiliation of union or unions, occupations covered, and proportion of employees represented: _____

_____

_____

_____

28. Please explain generally the working conditions of each class of employees, bearing in mind such items as temperature, humidity, noise, fumes, and accident and health hazards:

Hourly _____

_____

Incentive _____

_____

Salary _____

_____

Determining the Survey Method. Three different ways of obtaining wage and salary information exist: (1) the telephone inquiry, (2) the mailed survey, and (3) the interview or organization visit

method. Which of the three is applicable in a given wage study depends principally upon the purpose the survey is to serve.

If information regarding wage policies and practices is required and no effort is made to collect occupational wage data, the telephone inquiry is quite adequate. With a proper schedule this information may be made available accurately and quickly by this method. Also, if job comparability has recently been established and both parties to the conversation are familiar with the previous study, some supplementary wage information may be exchanged over the telephone.

The mailed survey may likewise be safely used for securing wage policy and practice data. Also, after job comparability has been established in a recent period, it may be used to bring previously secured wage information up to date. To make an original wage survey or even a widely spaced periodic survey by mail, however, is dangerous. Job comparability and common understanding are virtually impossible by this method.

Most productive of accurate wage data is the interview method, which involves sending qualified personnel to the cooperating organizations to secure the information. They collect wage data only after personally verifying job comparability. They interview the proper person to obtain information on wage policies and practices.

This method, though costly and time-consuming, is productive of reliable wage data. For this reason, most organizations prefer, for at least the original wage survey, to spend the additional time and money the interview method requires. Because this method is the most reliable and accurate,[26] emphasis throughout this chapter has been placed on this type of survey.

Selecting the Survey Staff. The task of the wage survey staff consists of collecting the data and tabulating, analyzing, and summarizing the results. Whatever method is used for collecting the data, the latter aspect remains essentially the same. This work must be headed by someone familiar with wage and salary administration, and more specifically, someone intimate with wage policies and procedures of the surveying company.

The personnel charged with collecting wage survey data where the interview method is used, however, are virtually responsible for

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[26] Michael, *Wage and Salary Fundamentals and Procedures*, p. 106.

the accuracy of the information obtained. It is they who must compare jobs using the method developed to obtain comparability. No matter how precise these tools may appear, they still require numerous judgments to be made by the field staff. It is important that these people be equipped to make these judgments. Another important part of the task of this field crew is to obtain a high degree of cooperation from the representatives of the organizations included in the survey.

These important aspects of the job of the field man require that he possess a broad knowledge of the jobs in his organization and the wage and salary policies and procedures of his organization; and that he possess the ability to obtain cooperation from others and to exercise discretion in discussing confidential information. Where it is impossible to obtain all these requirements in one individual, a desirable solution is to send two—one possessing knowledge of wage and salary policies and procedures and one possessing a broad knowledge of the company's work and its jobs. The latter may be a line supervisor. The advantages of such a solution are (1) fulfilling the knowledge requirements, and (2) a check on individual judgments.

Conducting the Survey

Assuming the wage survey has been carefully planned, the actual conduct of the survey to be successful should follow certain well-defined steps. These are: (1) making the initial contact with cooperating organizations; (2) obtaining wage policy and practice data; (3) determining job comparability; and (4) collecting wage data.

Making the Initial Contact with Cooperating Organizations. Each cooperating organization should be contacted by letter or telephone by the manager of the surveying organization as soon as plans for making the survey are complete. He should provide information on (1) the purpose of the survey, (2) the jobs to be covered, (3) the information sought, (4) the manner in which the study is to be conducted, and (5) the type of report to be used in presenting results. He should invite the establishment to participate in the study, and make an appointment for the field staff. In this contact, it is well to assure the cooperating organization that the information furnished will be treated in a confidential manner and to point out the safeguards used to accomplish this.

Obtaining Wage Policy and Practice Data. The survey representative should, in his initial visit to a cooperating establishment, deal with some responsible official of the organization in order to make proper arrangements for contacts necessary to carry out his task. If the purpose of the survey includes collecting information pertaining to wage policies and practices, arrangements for obtaining these data should be made at the time of the first visit. This insures either obtaining the information from this official or receiving his permission that the information may be provided by a subordinate executive. Also, if there is a possibility that part of this information may take some time to collect, this process should proceed while the wage study is being made.

Determining Job Comparability. Before collecting wage data on the jobs included in the survey, it is necessary to insure comparability of jobs in the cooperating organization with jobs selected for study by the steering committee. In many ways this is the core of wage survey procedure and the step on which the accuracy of final results depends. In details, the task of the survey representative varies somewhat with the device developed for insuring comparability; i.e., whether he is to make use of (1) job descriptions, (2) job content scales, or (3) job evaluation. In any case, it is necessary that he observe the jobs, discuss them with responsible line supervisors, and make a decision on whether the jobs existing in the cooperating establishment are sufficiently similar to those in the surveying organization to make applicable wage data useful.

His approach must be one of emphasizing job content and/or job requirements and de-emphasizing job titles. A useful approach, in the experience of the author, is to present job descriptions with job titles removed to a company official familiar with the jobs under study. As the official reads the description, he is asked whether a job similar to the one described exists in the organization. If it does, the title is recorded. After all the job descriptions have been perused in this manner, the survey representative is permitted to observe the jobs, talk to supervisors, and make his decision. In his study of jobs in the organization, he may find that it is possible to combine two or more existing jobs in the establishment to arrive at one of the survey jobs. This is permissible if the combined job meets the same standard of comparability as other jobs.

This process of observing the job and comparing contents with

job descriptions may be used as a beginning point before making use of job content scales or job evaluation, if either of these is required. After finding jobs that appear similar, the survey representative may apply these scales in the hope of making a more precise judgment.

Job evaluation methods have one additional application in the hands of the survey representative. Where he finds it impossible to find a job in the cooperating establishment to correspond with the job description, he may make a search for a job that, though it may involve different duties, has a comparable level of difficulty or responsibility. When such a job is found, he may apply a job evaluation scale to determine whether the two are comparable in terms of job-level-value. If so, the job is adjudged comparable.

To aid in establishing job comparability, some authors have recommended use of job evaluation methods entirely. Kress,[27] for example, suggests the use of a uniform job rating plan in all cooperating organizations to attain job comparability. Bass [28] suggests a modification of this plan, namely, to use a uniform job rating plan in the cooperating organizations on only the survey jobs. It is doubtful that any additional accuracy to be attained in this way (if that could be assured) would be worth the additional cost involved. Most organizations making wage surveys prefer to rely on job content, using job-level-values only when necessary.

Obtaining Wage Data. After the jobs of the cooperating organization have been compared to survey jobs, observed, and discussed, and the survey representative has decided the similarity is sufficient for inclusion, the next step is obtaining the wage data. The data should be obtained from payroll records of the cooperating organization by the survey representative and an official of the cooperating establishment working together. This requirements permits (1) raising questions on borderline cases, (2) obtaining reliable data rather than estimates, (3) accurately following the definition of wage rates established by the steering committee, and (4) leaving out of consideration employees other than regular full-time employees.

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[27] A. L. Kress, "How to Rate Jobs and Men," *Factory Management and Maintenance*, Vol. 97, No. 10 (October, 1939), pp. 59–65.

[28] A. W. Bass, Jr., "How Do Your Wage Rates Compare with Those of Your Community?" *Iron Age*, Vol. 140, No. 25 (December 16, 1937), pp. 36–39.

Tabulating, Analyzing and Presenting Results

When the data from all cooperating organizations are in, the job of tabulating, summarizing, and presenting results can begin. It is necessary that all information be checked for comparable terminology and units before tabulation. After such editing, the data are consolidated. Two tabulations result, one for wage data and another for wage policies and practices. The manner in which wage data are consolidated depends upon the method of presentation chosen. Several possibilities exist.

Wage Data. The several possibilities for tabulating and presenting wage data from wage surveys may be roughly classified into (1) classification by job, and (2) classification by job structure. A given report may use both methods.

Probably the most common method is typified by Figure 4. One of the advantages claimed for this method is the identification of the data by company code number. Thus a company may compare its wage data to that of other companies individually or collectively. In such a summary it is common to include all information, although the data may be tabulated separately by type of wage payment, sex of employee, union and nonunion, and so on.

It may be noted that the question of whether or not to present wage data separately by type of wage payment has not been settled. There are so many types of incentive systems,[29] not to mention the variety of standards after which premium pay begins, that combining incentive wages is almost meaningless. One authority believes that time rates and incentive rates should be separated for presentation.[30] In the final analysis, the decision as to whether to break down the data by method of wage payment will depend on the purpose of the survey.

Another method of presenting wage data appears in Table 1. Here, as in Figure 4, data are presented by job, and the number of employees is listed. This method has the advantage, however, of showing detail that the previous method hides. To some, it has the disadvantage of lacking means of identifying wage data with the organization to which they apply.

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[29] Incentive systems are discussed in Chapter 12.

[30] Michael, *Wage and Salary Fundamentals and Procedures*, p. 128.

Figure 4

COMPANY CODE NUMBER

Job	A				B				C				D				E				F				G				H				Summary Weighted Average
	Average	Minimum	Maximum	No. of Employees	Average	Minimum	Maximum	No. of Employees	Average	Minimum	Maximum	No. of Employees	Average	Minimum	Maximum	No. of Employees	Average	Minimum	Maximum	No. of Employees	Average	Minimum	Maximum	No. of Employees	Average	Minimum	Maximum	No. of Employees	Average	Minimum	Maximum	No. of Employees	
Shop Jobs																																	
Assembler																																	
Heavy Laborer																																	
Rammer																																	
Poleman																																	
Carpenter's Helper																																	
Drill-Press Operator																																	
Pipe Fitter																																	
Summary																																	
Office Jobs																																	
Messenger																																	
Stenographer																																	
Payroll Clerk																																	
Duplicating Machine Operator																																	
Typist																																	
Summary																																	

TABLE 1 *

EXAMPLE OF WAGE RATE FREQUENCY DISTRIBUTION

Messenger
Female
Hourly
Non-Union Plants

Cents per hour	*Number of Employees*
$.55 and under $.60	6
.60 and under .65	6
.65 and under .70	4
.70 and under .75	6
.75 and under .80	42
.80 and under .85	33
.85 and under .90	16
.90 and under .95	5
	118

From this distribution certain measures may then be calculated and listed below the frequency distribution as follows:

——— Average (weighted by number of employees at each rate).

——— Median (the middle rate).

——— Mode (the most frequently occurring rate).

——— First quartile (a point where ¾ of the rates are above it and ¼ below it).

——— Third quartile (a point where ¼ of the rates are above it and ¾ below it).

* Source: David W. Belcher and Herbert G. Heneman, Jr., "How to Make a Wage Survey," *Technical Report Series, No. 2* (Minneapolis: Industrial Relations Center, University of Minnesota, July, 1948). Reprinted by permission.

In using this method, as many breakdowns may be made as are needed to satisfy the purpose of the survey. Also, many types of calculations from the data may be made since very little of the detail is lost through tabulation.

A third type of presentation by job is that used by the Bureau of Labor Statistics in their occupational wage surveys. Table 2 shows their method of presentation. This method has the advantage of hiding as little detail as possible, but it too may be said to have the disadvantage of lack of company designation.

These tabulations, following the general practice, present informa-

TABLE 2†

Professional and Technical Occupations

(Average straight-time weekly hours and earnings* for selected occupations studied on an area basis in Milwaukee, Wis., by industry division, March 1952)

Sex, occupation, and industry division	Number of workers	Average		Number of workers receiving straight-time weekly earnings of—																							
		Weekly hours (Standard)	Weekly earnings (Standard)	Under $40.00	$40.00 - $42.50	$42.50 - $45.00	$45.00 - $47.50	$47.50 - $50.00	$50.00 - $52.50	$52.50 - $55.00	$55.00 - $57.50	$57.50 - $60.00	$60.00 - $62.50	$62.50 - $65.00	$65.00 - $67.50	$67.50 - $70.00	$70.00 - $75.00	$75.00 - $80.00	$80.00 - $85.00	$85.00 - $90.00	$90.00 - $95.00	$95.00 - $100.00	$100.00 - $105.00	$105.00 - $110.00	$110.00 - $115.00	$115.00 and over
Men																											
Draftsmen, chief	132	40.0	$105.00	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	7	2	4	14	39	46	14	11
Manufacturing	130	40.0	105.00	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	7	1	4	14	29	46	14	11
Draftsmen	684	40.0	81.00	-	-	-	-	-	-	-	-	3	6	18	25	37	118	150	128	67	39	60	26	3	-	4
Manufacturing	654	40.0	80.50	-	-	-	-	-	-	-	-	3	6	18	24	37	117	146	121	62	36	54	25	2	-	3
Durable goods	633	40.0	80.50	-	-	-	-	-	-	-	-	3	6	18	22	31	117	141	119	57	36	53	25	2	-	3
Nondurable goods	21	41.5	77.50	-	-	-	-	-	-	-	-	-	-	-	2	6	-	5	2	5	-	1	-	-	-	-
Draftsmen, junior	446	40.0	65.00	-	3	2	4	13	13	16	30	54	57	40	26	45	73	41	26	3	-	-	-	-	-	-
Manufacturing	439	40.0	65.00	-	3	2	4	13	13	14	30	54	55	40	25	45	72	41	25	3	-	-	-	-	-	-
Tracers	97	40.0	52.50	8	13	9	9	10	9	11	1	3	2	-	-	13	9	-	-	-	-	-	-	-	-	-
Manufacturing	95	40.0	52.50	8	13	8	9	9	9	11	1	3	2	-	-	13	9	-	-	-	-	-	-	-	-	-
Women																											
Tracers	50	40.0	50.00	2	1	4	12	10	3	9	4	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manufacturing	50	40.0	50.00	2	1	4	12	10	3	9	4	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nurses, industrial (reg'st'd)	216	40.0	60.00	-	-	-	9	2	28	18	17	49	25	9	22	14	16	6	1	-	-	-	-	-	-	-
Manufacturing	201	40.0	59.50	-	-	-	9	2	25	18	16	48	25	9	18	13	14	4	-	-	-	-	-	-	-	-
Durable goods	156	40.0	59.50	-	-	-	9	2	21	11	12	34	21	6	14	12	12	2	-	-	-	-	-	-	-	-
Nondurable goods	45	40.0	59.50	-	-	-	-	-	4	7	4	14	4	3	4	1	2	2	-	-	-	-	-	-	-	-
Nonmanufacturing	15	40.0	65.00	-	-	-	-	-	3	-	1	1	-	-	4	1	2	2	1	-	-	-	-	-	-	-

*Hours reflect the workweek for which employees receive their regular straight-time salaries and the earnings correspond to those weekly hours.

†Source: U. S. Department of Labor, Bureau of Labor Statistics, "Occupational Wage Survey, Milwaukee, Wis.," *Bulletin No. 1099* (March, 1952).

tion on actual rates paid on comparable jobs in the organizations surveyed. Where information has been obtained on structure rates, hiring rates, and earnings, they may be presented in similar tabulations.

Although it is useful to have wage information applicable to specific jobs and although obtaining such information is a necessary first step in analysis, what is needed most often are wage data applicable to job structures. If an organization is to use going wage data in determining whether its wage level is in need of adjustment, it is this latter information that is needed.

Several methods of presentation have been worked out to permit comparison of wages applicable to job structures. Figure 5 illustrates one method. In this figure, the dotted line represents the wage data of one company, the solid line shows the average for the organizations surveyed, and the data from individual companies are noted with the aid of code letters on the chart. The chief advantage of this method of presentation is the possibility of each establishment comparing its structure and wage level to the community and to individual companies. A disadvantage is the large amount of information presented on one chart.

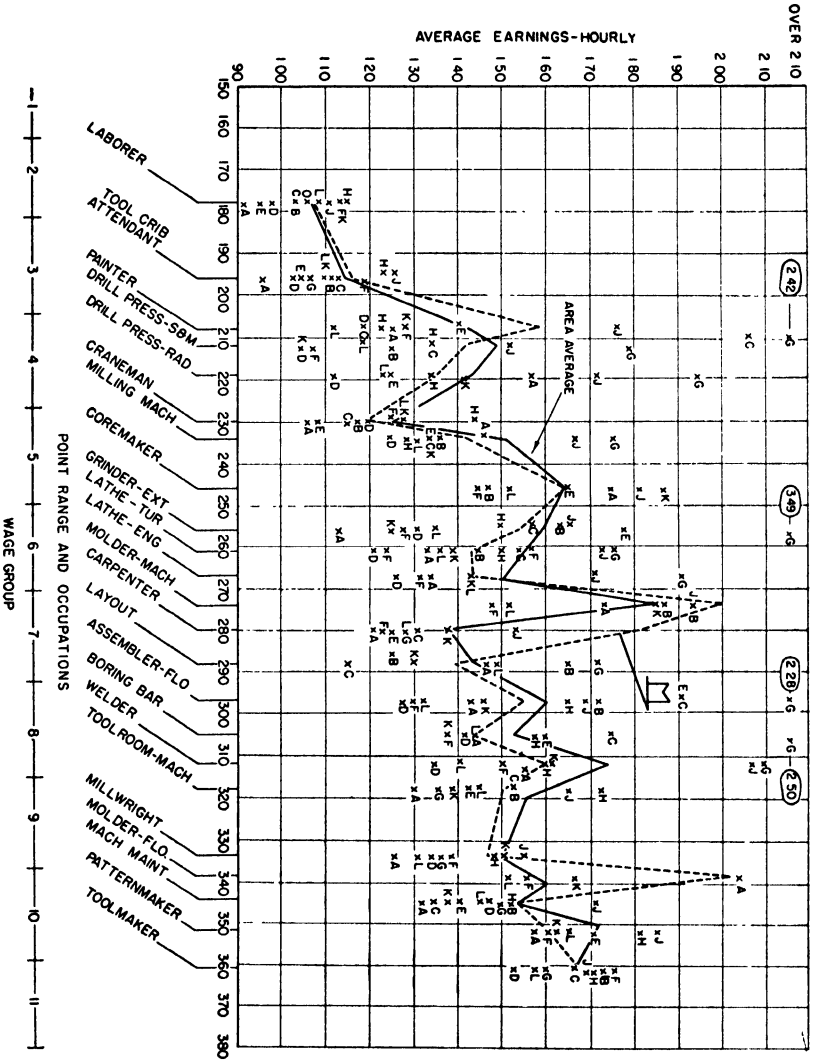
This type of presentation is made possible because the organizations included in the survey are using a common job evaluation method. The job evaluation method is not used to determine job comparability, but it permits use of a point scale in plotting the wage data.

This approach is very similar to one suggested by Bass.[31] His plan calls for wage lines (one each for hourly, incentive, and salaried employees) calculated and plotted for each cooperating establishment. These wage lines are obtained from survey job rates for each individual company. Wage lines for each company and the community average wage line are then plotted on graphs. Code letters are used to conceal company identity. This method is illustrated in Figure 6. Note that such charts permit comparisons of both wage level and slope.

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[31] A. W. Bass, Jr., "How Do Your Wage Rates Compare with Those of Your Community?" *Iron Age*, Vol. 140, No. 25 (December 16, 1937), pp. 36–39.

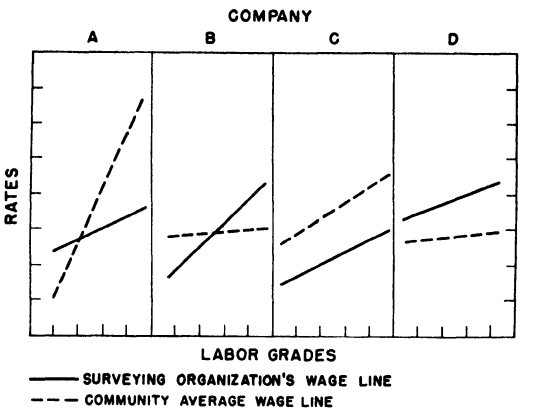
Figure 5 *



* Source: "Conducting Wage Surveys," *Research and Technical Report 4*, Industrial Relations Center, University of Minnesota. Reprinted by permission.

Although these methods are based on the assumption that the cooperating organizations use an identical job evaluation system, this is not a requirement for using this method of presentation. Because job comparability is assured during the survey, all that is necessary is for one of the companies to have a job evaluation plan that has numerical values for use on the horizontal scale. This will permit the drawing of charts such as those illustrated.

Figure 6 *



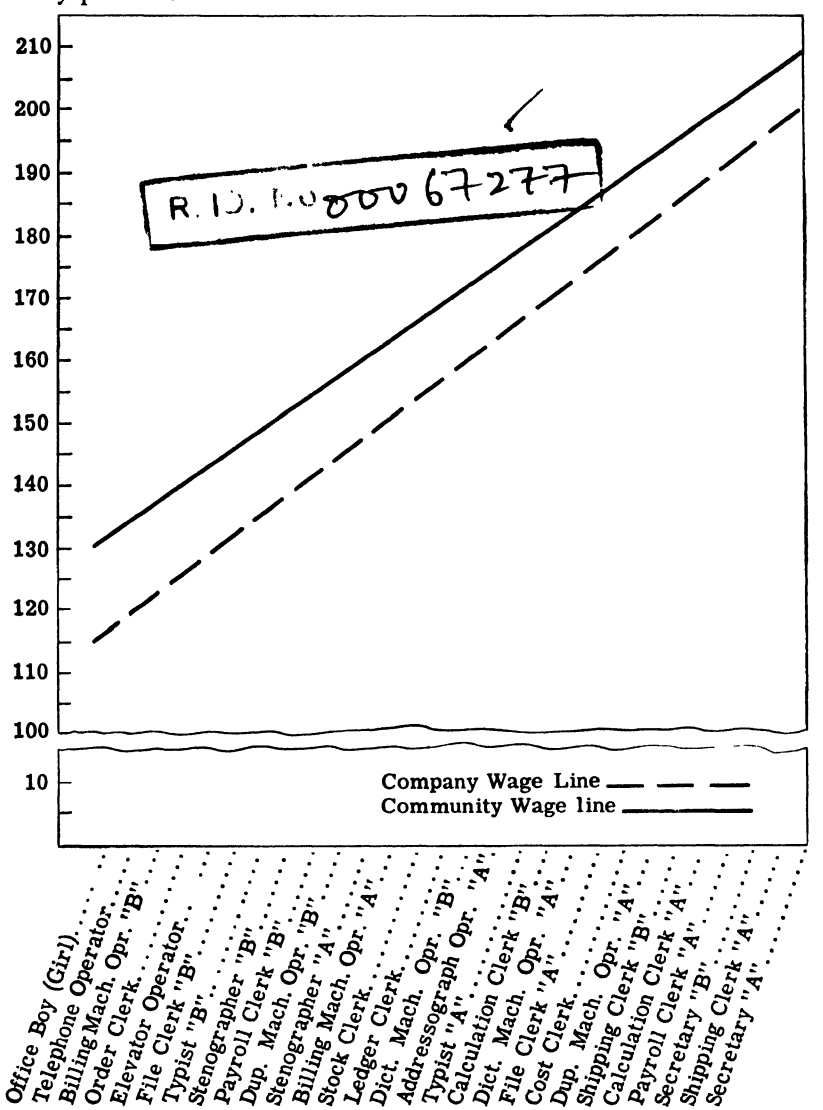
* Source: David W. Belcher and Herbert G. Heneman, Jr., "How to Make a Wage Survey," *Technical Report Series, No. 2* (Minneapolis: Industrial Relations Center, University of Minnesota, July, 1948). Reprinted by permission.

In fact, the author has been able to use the method even where none of the cooperating companies had a job evaluation plan. By obtaining average [32] rates from frequency distributions for jobs (Table 1), and plotting these wage rates from lowest to highest on a chart using equal distances on the horizontal axis between each job, he was able to visually fit a community wage line. Wage lines were obtained for each cooperating organization in the same way—by fitting a straight line visually to averages for each job. Figure 7 is an example of the results. From such a chart, comparisons of wage levels can be easily made.

Another method of presenting wage data from wage surveys is

[32] The median was used.

Figure 7 *



* Source: *Office Salary and Personnel Practices Survey*, Bloomington, Illinois, March, 1950 (mimeographed).

suggested by Michael.[33] He suggests combining job wage data into grades or groups of jobs of similar value before tabulation. In this way many of the random variations tend to compensate and a more regular picture emerges.

Wage Policy and Practice Data. Many variations are also possible in tabulating wage policy and practice data. They may be presented in narrative form, e.g., "Twelve companies grant one week's vacation after five years of service." They may be tabulated question by question following the schedule used (see Figure 8). They may be combined into a single table for easy comparison (see Table 3).

For maximum usefulness of wage survey data, it is advantageous to have at hand both wage data and data pertaining to policies and

Figure 8 *

Employee Benefits

	Are plans in existence?				Contributed to by:			
	Total		Unionized				Both	
	Yes	No	Yes	No	Company Only	Employee Only	Company %	Employee %
Death								
Accident								
Sickness								
Hospitalization								
Pension								
Savings								
Other								

Eligibility Requirements
(Number of Companies)

	After 1 year	2 years	3 years	4 years	5 years
Death					
Accident					
Sickness					
Hospitalization					
Pension					
Savings					
Other					

* Source: David W. Belcher and Herbert G. Heneman, Jr., "How to Make a Wage Survey," *Technical Report Series, No. 2* (Minneapolis: Industrial Relations Center, University of Minnesota, July, 1948). Reprinted by permission.

[33] Michael, *Wage and Salary Fundamentals and Procedures*, p. 134.

TABLE 3 *

| COMPANY | TOTAL NUMBER OF EMPLOYEES | TOTAL NUMBER OF CLERICAL EMPLOYEES | % CLERICAL EMPLOYEES | % CLERICAL FEMALE | % CLERICAL MALE | % CLERICAL HOURLY | % CLERICAL SALARY | MINIMUM HIRING RATE: HOURLY M | HOURLY F | SALARY M | SALARY F | SINGLE RATE | RATE RANGE | PROCESSING TRIP RANGE: START | MAX | AUTOMATIC INCREASE AT END OF: 1 MO. | 2 MO. | 6 MO. | 9 MO. | 1 YR. | 1½ YRS. | 2 YRS. | 2½ YRS. | 3 YRS. | 3½ YRS. | 4 YRS. | 4½ YRS. | 5 YRS. | 6 YRS. | 7 YRS. | 8 YRS. | HOLIDAYS PAID | OVERTIME: HOURLY | SALARIED | EMPLOYEE BENEFIT PROGRAMS: HOSPITAL | SURGICAL | MEDICAL | SICK | PENSION | SAVINGS | INSURANCE: 2X | ST. | LTD. | NON PRODUCTION BONUS: CHRISTMAS | PRODUCTION | SUGGESTION | LENGTH OF SERVICE | SEPARATION | CLERICAL ASSOCIATION | UNION | WEEK MEN'S HOURS | WOMEN'S HOURS | DAYS PAID VACATION AT END OF: 3 MO. | 6 MO. | 9 MO. | 1 YR. | 2 YRS. | 3 YRS. | 4 YRS. | 5 YRS. | 6 YRS. | 7 YRS. | 8 YRS. | 9 YRS. | 10 YRS. | 15 YRS. | 20 YRS. | 25 YRS. |
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practices affecting wages. In several studies, the author has followed the practice of presenting on adjacent pages wage data (Figure 7) and policy and practice data (Figure 9).

Figure 9 *

WAGE POLICIES AND PRACTICES OF COMPANY X

Minimum hiring rate	Hourly: Male: Female:	Salary: Male: *$190* Female: *$160*
Single rate or rate range	Hourly: Single: Range: *X*	Salary: Single: Range: *X*
Method of progressing within rate range	Hourly: Merit: Auto.: Both:	Salary: Merit: *X* Auto.: Both:
Overtime	Varies by dept.: *No* Weekly: *1½ over 40* Daily: *No*	Saturday: *1½* Sunday: *1½* Holiday: *1½*
Rest periods	Hourly: *10 min. twice daily*	Salary: *10 min. twice daily*
Paid holidays	Number: *6* Payment: *1½*	

Benefit programs — Contributed by Company or Employee

Death		Accident		Sickness		Hospital		Pension		Savings	
Co.	Emp.	Co.	Emp.	Co.	Emp.	Co.	Emp.	Co.	Emp.	Co.	Emp.
100		*100*		*100*		*100*					

Nonproduction bonuses	Safety bonus	Christmas bonus	Attend. bonus	Stock purchase	Year end bonus	Suggestion award
					X	

Sick leave	*Discretionary*
Vacations	*1 yr. service, 1 week vacation; thereafter, 1 day added for each yr. worked up to 2 weeks.*
Separation allowance	*None*
Probationary period	*None*
Hours, work week	Hourly: Weekly hours: *40*; Work Week: *7–3:30 M–F, ½ hr. lunch* Salary: Weekly hours: *35*; Work Week: *8:30–4:30, 1 hr. lunch*

* Source: D. W. Belcher, *Clerical Occupational Wage Survey, Springfield, Illinois*, Business Management Service, University of Illinois, December, 1949 (mimeographed).

In the report as finally prepared, it is well to explain the method used in conducting the survey, to list the cooperating organizations, and to include the job descriptions (or other job comparability methods) used.

INDUSTRY GOING WAGES

Some organizations, either through choice or as a result of union pressure, choose to align their wage levels with the industry of which they are a part rather than a specific local labor market. Where such is the case, the wage survey procedures outlined in previous pages may be used in selecting the cooperating organizations on an industry basis regardless of location rather than within a narrowly defined area. At least the original survey should be made in the manner outlined, and preferably also surveys as widely spaced as one year. Supplementary surveys, provided that a method of reporting job changes has been set up, may be made in an informal manner by mail or telephone.

GEOGRAPHIC GOING WAGES

An additional set of problems is faced by organizations with numerous installations in different sections of the country. At first glance it would appear that a reasonable solution would be to adopt the level of the industry and apply it in all installations. This, however, might result in some areas in levels too low to attract and hold the desired labor force, and in others, unnecessarily high levels. Many organizations, therefore, follow the practice of adjusting to community levels in the various areas where installations are located. This practice can be justified logically in terms of the trend toward decentralization. Such an approach works reasonably well as long as local establishments are large enough to participate in local wage surveys.

In cases where the organization is made up of numerous small installations, Dean [34] suggests a thorough study of (1) the effect of city size, (2) regional influences, and (3) skill differentials. Such a study yields relationships such that a small number of wage levels

[34] Joel Dean, "Geographical Salary Administration," in *The AMA Handbook of Wage and Salary Administration* (New York: American Management Association, 1950), pp. 277–294.

and wage structures will suffice for all installations. The study on which his suggestions are based found that the wage level influenced the slope of the wage structure. This suggests that, in organizations with installations large enough to permit it, local installations should be authorized to set their own wage structures as well as wage levels.

EXECUTIVE WAGE SURVEYS

Previous pages have emphasized current practice in making wage surveys. The principles developed are applicable in general to jobs at all levels in the organization. Most wage surveys, however, stop at the supervisory level. The reason is, of course, not hard to find. The difficulties and pitfalls inherent in obtaining job comparability at all levels become even worse at the supervisory and executive level.

Many companies make continuing surveys of supervisory pay.[35] The problem of job comparability needs continued study, however. And most companies point out that such surveys are useful only as guides.

In recent years the American Management Association has attacked the problems of supervisory and executive wage surveys.[36] Their first survey was made in 1949, and a total of 664 individual company records were studied.[37] In that study it was found that if companies were classified by (1) industry and (2) profit position, reasonable figures could be obtained on a limited number of management jobs. Accordingly, an executive compensation service was set up which surveys each year a limited number of top jobs.

More recently, middle management and supervisory jobs have been added to the yearly survey. The approach is to: (1) describe clearly the functions of each job, (2) establish status, and (3) let each company fit its jobs into the right slots regardless of titles. Sufficient jobs are now surveyed to permit year-to-year comparisons.[38]

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[35] See "Pay Differentials for Executives and Supervisors," *The Conference Board Management Record*, Vol. 9, No. 7 (July, 1947), pp. 192–197.

[36] See "Yardstick for Management Salaries," *Business Week*, January 31, 1953, pp. 72, 74.

[37] Arch Patton, "How Much Should An Executive Be Paid?" in *Executive Compensation: Company Policies and Practices, Financial Management Series No. 97* (New York: American Management Association, 1951), pp. 16–22.

[38] *Business Week*, January 31, 1953, p. 74.

Others have also attacked the problem. McKinsey & Co. break payrolls into groups: (1) top management (the highest paid .1 per cent), (2) middle management (the next highest paid .9 per cent), (3) the supervisory group (those at the foreman level), and so on.[39] Another approach is the suggestion that percentages of payroll going to executives be compared between similar companies.[40] Using the results of the McKinsey study in defining top and middle management groups, Patton suggests that (at least) large companies might compare the percentage of total payroll going to these groups.

Supervisory and executive salary problems will be discussed in greater detail in Chapter 13. It is sufficient here to point to the work being done on wage surveys in this area. The next few years should do much to improve the quality of going wage information for supervisors and executives.

USES OF WAGE SURVEY DATA

This chapter has throughout emphasized the role of wage surveys in aiding an organization in its attempt to set its wage levels. Such use of wage surveys is the major one, as shown convincingly in Lester's study,[41] where his respondents placed major emphasis on wage surveys for this purpose.

Wage surveys are, however, multiple-purpose tools—they have other purposes besides wage level considerations. In connection with this subject, therefore, it is essential that such objectives be examined.

A frequent use of wage surveys is to validate the wage structure of the organization. Although, as will be seen in subsequent chapters, wage structures are developed within the organization, it is desirable to check the slope of the structure against the market. For example, it may be found that the slope of the wage line of the organization is greater or less than the slope of the community or industry wage line. In such cases, lowering or raising either end of the organization's wage line may be considered. Likewise, it may be discovered from the wage survey that certain jobs within the

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[39] "Executives Fail to Match Hired Hands in Pay Gains," *Business Week*, March 1, 1952, pp. 102–104.

[40] Arch Patton, "Are Executives Paid Enough," *Fortune*, March, 1952, pp. 106ff.

[41] Lester, *Company Wage Policies*.

company structure are paid at much different rates than the community average. In such cases, though community practice may not be controlling, the organization will want to know why such differences exist.

A wage survey may also aid the organization in solving problems of individual wage determination. Community practice on starting rates, progression rates, merit and length of service increases practices will aid organizations in setting their own policies.

The problem of wage payment method may also derive part of its solution from a wage survey. Trends toward or away from various types of incentive plans, profit-sharing plans, guaranteed annual wage plans, and so on will aid an organization in accepting or rejecting certain wage payment methods.

Wage surveys, by providing information on community practice regarding policies and practices affecting wages, aid in the solution to the problem of fringe.

Finally, wage surveys are an aid in controlling wages and salaries. Data on community wage levels, structures, progression, payment methods, and fringe, together with internal data, are the essentials with which control methods operate.

Thus, wage surveys, although mainly a tool to aid in establishing wage and salary levels, have other equally important uses in wage and salary administration.[42] Such surveys cannot provide final answers, nor can the results be used alone. Further, it is important that constant effort be made to improve survey procedures. But, until better tools are forged, the wage survey must continue to carry a heavy load as a wage and salary technique.

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[42] For an excellent discussion of the uses of wage surveys, see Stanley P. Farwell, "The Use of Wage Survey Data," in *Conducting Wage Surveys, Research and Technical Report 4* (Minneapolis: Industrial Relations Center, University of Minnesota, 1949), pp. 1–8.

5 · *Wage Criteria*

UNFORTUNATELY FOR EMPLOYERS WHO COLLECT AND USE "GOING wage" data, the availability of such wage information usually does not solve the problem of wage and salary levels. Once such information has been collected, several questions remain: (1) Should a given employer use the minimum, the maximum, or some average of the collected information as a reference point? (2) Where in comparison to area and/or industry rates should he set his level? (3) What considerations should affect his decision?

When the wage and salary data are made available in summarized form, the first impression received from these data is the enormous spread of wages and salaries paid. On individual jobs, a spread in wage rates of from 25 to 300 per cent may occur, although, of course, such large spreads as the latter figure are extremely rare. True, clusters appear in the data. Also, means, medians, modes, interquartile ranges, and trend lines may be calculated. But what is the going rate? Various interpretations may be made of the information and quite easily justified. Thus, if an employer decides to solve the problem of wage and salary levels by paying the market rate, he may take any of several positions as to which of these summaries represents the local (or industry) wage level and set his level accordingly.

To most employers, however, the problem is not that simple. They find going wage information useful only as a guide. With this information in hand, they carefully consider several other factors before making their final decision on where the level of wages and salaries in their organization should be. Sometimes this decision is made and the accompanying deliberations are conducted at the

bargaining table, and sometimes both are made by the employer without the aid of a union.

NEED FOR WAGE CRITERIA

The range of wage level possibilities and a number of the considerations are well illustrated by Reynolds.[1] He sees the firm in a labor market as having at any time a maximum and minimum possible wage level. The "minimum shutdown point" is that wage level below which the plant would be closed down for lack of labor. The "maximum shutdown point" is the wage level above which the firm could not go because it would lack the means of paying labor. The distance between the minimum and maximum points will be greater the shorter the time period taken into account, because a firm can get away with paying a low wage for a few weeks without losing many workers, especially in a period of low employment. Correspondingly, a firm may draw on cash reserves for a short period to meet the wage bill. The maximum point will be higher the more prosperous and efficient the firm, the industry, the locality, and the economy. This point will also be higher if the organization stresses prestige, reputation, and leadership, or attempts to secure especially able workers. The minimum point will be lower the more important to the firm's labor force are non-economic considerations and attachments (loyalty to the organization, good supervision, fair treatment, friends and family ties), the less alternative opportunities are known by the labor force, and the more plentiful the available labor supply.

A given employer must choose a position within this range. To make this decision (either aided by union negotiators or unilaterally) he must consider a variety of factors. These factors are referred to in this chapter as "wage criteria."

Decisions as to which wage criteria apply to the organization at a particular time, and the extent to which they apply, permit the employer to narrow the range of possible wage levels until one is chosen. This process may be conscious or unconscious. No mathematical weighting technique appears to be used; but a limited

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[1] Lloyd G. Reynolds, *Labor Economics and Labor Relations*, 2nd ed. (New York: Prentice-Hall, Inc., 1954), pp. 551–557.

number of studies [2] and analyses such as that made by Reynolds confirm the existence of the process and the need for wage criteria.

Since these so-called wage criteria are the materials with which an employer constructs his solution to the problem of levels, they must be identified, their advantages and limitations sought out, and the manner in which each may be used outlined. These are the purposes of this chapter.

In one way, wage criteria are merely slogans used by the parties to a wage dispute. In another way, they are a method of testing a given wage level or proposed wage levels against the economic facts of life. In any case they require consideration as the factors determining wage levels.

VARIETY OF WAGE CRITERIA

Several authorities have provided tabulations of wage criteria. Lester,[3] in his study, obtained from employers opinions as to which factors were most important in setting wage levels. They are, in order of importance: (1) wage rates paid by other firms in the area or industry, (2) union pressure, (3) changes in cost-of-living, (4) shortages or surpluses of qualified labor, (5) employee unrest, (6) the company's financial position, and (7) profits of the company.

The Twentieth Century Fund in an interview survey [4] obtained estimates of the importance of the various wage criteria. From the viewpoint of management, criteria used, in the order of importance, were: (1) cost of living, (2) comparison with other localities, (3) comparison with other unions, (4) profits, (5) effect on price of product, (6) comparison with other occupations or industries, (7) productivity, and (8) strength of union or strike threat. In the same study, opinions of union leaders were sought. The results were: (1) cost of living, (2) comparison with other localities, (3) comparison with other occupations or industries, (4) comparison with other unions, (5) profits, (6) productivity, and (7) standard of living.

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[2] Lester, *Company Wage Policies;* The Twentieth Century Fund, *Labor and Management Look at Collective Bargaining* (New York, 1949).

[3] Lester, *Company Wage Policies*, p. 28.

[4] The Twentieth Century Fund, *Labor and Management Look at Collective Bargaining*, p. 73.

Myers and Shultz [5] obtained a series of "general guides to wage policy" from the employers in their study. This tabulation (again in order of importance) for manufacturing firms was: (1) meet product competition, (2) maintain employee morale and productivity, (3) retain and attract adequate labor supply, (4) pay prevailing rate in community, (5) remain nonunion, (6) keep in line with industry scale, (7) get by with as little as possible, and (8) avoid labor trouble. For nonmanufacturing firms, they were: (1) pay prevailing rate in community, (2) retain and attract adequate labor supply, (3) keep in line with industry scale, (4) pay prevailing rate in area, (5) remain nonunion, (6) maintain employee morale and productivity, and (7) maintain financial position.

Sumner Slichter, in an excellent analysis of the factors, lists seven wage criteria: [6] (1) the minimum necessities of workers, (2) changes in the cost of living, (3) the maintenance of take-home pay in the face of reductions in hours, (4) changes in the productivity of labor, (5) the ability (or inability) of the employer to pay, (6) the alleged effect of higher or lower wages upon consumer purchasing power and employment, and (7) the wages paid in other industries or places.

George W. Taylor [7] believes that when collective bargaining prevails, the two important wage criteria are: (1) What does it take to avoid a strike or to get one called off? and (2) Will a wage increase lose jobs or production?

Robert Satter,[8] in his analysis of arbitration cases in wage disputes, discusses six "principles" used by arbitrators in rulings on wage levels: (1) the cost of living, (2) the living wage, (3) the prevailing wage, (4) the reduction in amount of take-home pay and the national interest, (5) productivity, and (6) the ability to pay.

Gilbert Bloom,[9] an operating wage and salary administrator, offers the following criteria applicable to wage levels: (1) area relation-

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[5] Charles A. Myers and George P. Shultz, *The Dynamics of a Labor Market* (New York: Prentice-Hall, Inc., 1951), p. 164.

[6] Slichter, *Basic Criteria Used in Wage Negotiations.*

[7] George W. Taylor, "Criteria for Wage Determination," *The Conference Board Management Record,* Vol. 11, No. 6 (June, 1949), pp. 241–242.

[8] Robert Satter, "Principles of Arbitration in Wage Rate Disputes," *Industrial and Labor Relations Review,* Vol. 1, No. 3 (April, 1948), pp. 363–385.

[9] Bloom, *Wage and Salary Administration.*

ships, (2) industry relationships, (3) cost of living, (4) ability to pay, (5) productivity, (6) management's ability to hire and retain the people that it needs, and (7) scales of competing unions.

Although these tabulations of the wage criteria available for application to the problem of levels are not identical, they tend to fall into a pattern. Accordingly, the following outline is probably representative with factors listed roughly in order of importance:

1. Comparable wages
2. Cost of living
   a. a living wage
3. Ability to pay
   a. profits and financial position
   b. labor cost
   c. product price effects
   d. employment effects
4. Productivity
5. Union pressures and union scales
   a. wage patterns
6. Labor supplies
   a. employee morale
7. Purchasing power

This outline will be used in the discussion of the manner in which the separate criteria are applicable to the problem of wage and salary levels. It must not be thought, however, that these factors are wholly separate and distinct in their operation. As will be seen, there is a great deal of overlapping in definition and effects. An attempt to distill out such overlapping would probably reduce their number to three or four at the most. Because of their continual reappearance in discussions of wage issues, however, it is important that each be discussed.

USE OF WAGE CRITERIA

Wage criteria are useful as yardsticks. They serve to point out the economic consequences of actions; they serve as bases of arguments between the parties; they are a valuable supplement to judgment. Their use as measuring sticks of the possibilities permits a solution to the problem of levels.

It has been suggested that these criteria are used by management and labor more to rationalize positions than to make them.[10] It is doubtful that this is a true representation of the facts. The employer is faced with a range of possible wage levels and must choose one. To make this choice he must have some basis.

But if it were true, that fact would not limit the usefulness of wage criteria. If noneconomic considerations are used to determine wage levels, it is well to check the position chosen against economic criteria. The possible effects of a decision need to be explained. And although it is true that the effects of a decision on a particular firm or industry need not apply to the economy as a whole, it is important that the relationships be continually appraised. Of particular concern is the effect of changes in wage level on output, prices, and employment.

All wage setting is essentially forward-looking. It cannot be narrowly geared to anything that has happened in the past. Facts alone can never completely determine wages. Wage setting involves judgment, and this judgment can be aided by what has happened in the past and by the use of wage criteria; but the solution requires a forecast of the future.

Always confronting those setting wage levels is the fact that though wages are costs to the employer, they are, at the same time, income to the worker. Wages, like coins, have two "sides"; observing one side and not the other yields only a partial view. When changes in wage levels are under discussion, it is necessary to examine consequences both on the side of costs and on the side of income.

On the side of costs, it is necessary to ask such questions as: What is the cost situation in this particular case? What is the competitive situation with other products? What is the competition with other firms? What is the mechanization situation here—will higher wages stimulate a company to introduce a new machine? What are the capital requirements of this company? Where can it get the capital?

And similarly, on the side of income: How do these workers' wages compare with the wages of other workers in the firm? In the firms that are competing with this firm? In other localities?

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[10] Taylor, "Criteria for Wage Determination," *The Conference Board Management Record*, Vol. 11, No. 6 (June, 1949), pp. 241–242.

Until these and other questions have been faced, an intelligent decision on wage levels is impossible. It is the task of wage criteria to present the questions that must be answered before a solution to the problem of wage levels can be found.

The wage criteria are not universally applicable. Nor are they without serious limitations. In the following sections, an effort will be made to outline the areas of usefulness of each of them, and to spell out these limitations.

Comparable Wages

The previous chapter served to point out the force of going wages as a standard for wage level determination. It is, without doubt, the most widely used [11] of the wage criteria. Perhaps the main reason for this is its apparent fairness. To most people, what constitutes a "fair" wage is determined by the wages paid by other employers for the same type of work.[12] Another reason is its apparent simplicity. At first glance, it appears quite simple to obtain going wages and to base wage levels upon them.

This illusion of simplicity vanishes, however, in the attempt to give meaning to comparable wages in a particular situation. First, as was seen in the previous chapter, precise techniques carefully employed are required to find comparable jobs and comparable wage rates. Second, wages include certain wage policies and practices that make comparison difficult. Third, the influence of regularity of employment is important in defining comparable wages. Determining the extent to which regularity of employment should reflect itself in wage rates is not an easy task. Fourth, there is the problem of deciding on the criteria of "comparable" firms. The important question is determining when differences in competitive conditions in the product market are so significant as to warrant a different wage level regardless of labor market influences.

Fifth, the going wage is an abstraction. Some concerns always pay on the high side of the market in order to obtain goodwill or

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[11] Lester, *Company Wage Policies;* see also Abraham L. Gitlow, *Wage Determination Under National Boards* (New York: Prentice-Hall, Inc., 1953), p. 242.

[12] Satter, "Principles of Arbitration in Wage Rate Disputes," *Industrial and Labor Relations Review,* Vol. 1, No. 3 (April, 1948), pp. 363–385.

to insure an adequate labor supply. Other firms pay on the low side for equally good reasons. The result is a range of rates to which various statistical measures may be applied, yielding different standard rates. Various interpretations may be made and different determinations of the going rate arrived at—all quite easily justified.

Sixth, reliance on comparable wages as a criterion of wage levels is to concentrate on wages as income. Comparable wage rates may represent entirely different levels of labor costs in two different firms. Thus setting wage levels strictly on the basis of going wages may impose severe hardships on one organization and a much lower labor cost on another. The solution would call for labor cost surveys virtually impossible at present.

These difficulties are not insurmountable, however, as attested to by the number of employers leaning heavily on this criterion of wage levels. In addition to containing a certain measurability, such a policy also contains a good deal of economic wisdom. Wages are prices. A function of prices in a competitive economy is the allocation of resources. Use of comparative wage data operates roughly to "clear the market" and to allocate resources among labor markets.

Such data can at least provide a range of possibilities within which other factors can be used to determine a given employer's wage and salary level. In this way, limits are set within which the wage, when taken along with its noneconomic elements, becomes satisfactory as income, and operates reasonably well in its allocation function. Wages as costs are likewise satisfied because unit labor costs can be widely different between two firms with identical wage rates, and unit labor costs can be identical in two firms with widely different wage rates.[13] And the fact that unit labor costs fluctuate more than wage rates [14] and are, at least in some measure, capable of variation through employer action,[15] permits satisfactory adjustment to some level within this range.

Finally, comparable wages appear to operate as a force for gen-

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[13] Gitlow, *Wage Determination Under National Boards*, p. 29.

[14] Lloyd G. Reynolds, "Wages in the Business Cycle," *American Economic Review*, Vol. 42, No. 2 (May, 1952), p. 85.

[15] Lloyd G. Reynolds, "Toward a Short-Run Theory of Wages," *American Economic Review*, Vol. 38, No. 3 (June, 1948), p. 299.

eralizing changes in wage levels, although the impetus for such changes may have come from other factors.[16]

The essence of this discussion of the comparable wage criterion is that while it is a major force in setting wage levels, it is not simple in its operation. In a tight labor market it is likely to be the compelling factor. In such a situation, paying going wages may be necessary in order to obtain and keep a labor force. Here, competitive forces in the labor market are likely to be more compelling than those in the product market. When strong competition in the product market appears, however, the emphasis is likely to change to an attempt to equalize labor costs. Under such circumstances, the comparable wage criterion may not be abandoned, but will be less important as an influence. A position will still be taken within the range of comparable wages, but the level set will show the influence of wages as costs more than that of wages as income.

Cost of Living

In several of the studies cited, the wage criterion adjudged to be of primary importance was cost-of-living changes. This criterion has been widely applied during recent years. The relative emphasis placed upon it by management and labor depends upon whether living costs are rising or falling. The attention given to this factor is greatest during pronounced changes in living costs. When the cost of living is rising, there is great pressure from workers and their unions to adjust wages to offset reductions in real wages. When living costs are stable or declining, this pressure abates but may be used by employers as a reason for wage reductions.

In actual practice, economy-wide wage levels do follow changes in cost of living much more closely than other factors. Clark Kerr [17] found that, in the short run, changes in wage rates tend to follow cost-of-living changes.

Employers in recent years have, in recognition of the influence of cost-of-living changes, written escalator clauses into labor con-

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[16] Gitlow, *Wage Determination Under National Boards*, p. 246.

[17] Clark Kerr, "The Short-Run Behavior of Physical Productivity and Average Hourly Earnings," *Reprint No. 18* (Berkeley: Institute of Industrial Relations, University of California, 1950).

tracts. In September, 1952, approximately 3.5 million workers were covered by escalator provisions.[18] According to these provisions, wage rates are adjusted automatically when changes in the cost of living occur.

In view of these facts, what part should changes in the cost of living play in influencing the wage level of a given employer? Should wage levels be adjusted in a given organization in accordance with this wage criterion?

An affirmative position emphasizes wages as income. Thus, wages may be tied to cost of living to ensure keeping up with changes in the labor market. Because wages are related to cost of living, using the latter as a wage criterion appears to be a simple way to keep wage levels in line. Similarly, it can be reasoned that changes in living costs, through changes in real wages, influence the price at which labor becomes available to the organization. And unless wages are adjusted upward when workers' estimates of their worth are adjusted upward, trouble will be encountered in attracting and keeping a labor force.

A third reason, including some cost considerations (though not wage costs), has prompted the adoption of escalator clauses in recent years—the possibility of obtaining long periods of labor peace. The General Motors type of agreement has prompted other employers to tie wages to cost of living in return for long-term labor contracts. In these cases, it would appear that employers are accepting increased wage costs in return for reductions in costs attributable to work stoppages and so on.

A negative position on the use of the cost-of-living wage criterion may likewise be justified on several grounds. (1) "Changes in cost of living do not closely parallel changes in the supply-demand situation of any specific labor group." [19] An index of cost of living, in other words, is a highly fallible barometer of the current market value of any one sort of labor. (2) Application of the cost-of-living standard through escalator clauses forces practically uniform adjustments in levels in all cases. But there may be reasons for important variations in wage levels of different firms and in-

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[18] H. M. Douty, "The Growth, Status, and Implications of Wage Escalation," *Monthly Labor Review*, Vol. 76, No. 2 (February, 1953), pp. 126–129.

[19] Z. Clark Dickinson, *Collective Wage Determination* (New York: The Ronald Press, 1941), p. 141.

dustries. (3) All contracts in business are made in money terms, not real terms.[20] Thus it is doubtful that the supply price of labor changes with cost of living, except in response to changes in wage levels in other organizations. (4) Raising wages to compensate for changes in living costs may be self-defeating. When increased living costs result from the availability of more money than goods (as during a war or re-armament period), increasing wages can result in more increases in living costs. Increasing wage levels to compensate for increases in the cost of living may produce further increases in living costs *unless* output per man-hour increases faster than living costs.

Some other arguments for rejecting cost of living as a wage criterion are concerned with the characteristics of indexes of cost of living. (1) A cost-of-living index typically contains certain components, such as food and rent, the price movements of which are not necessarily good barometers of the change in other wage-determining factors.[21] These prices may be out of line relative to the general level of prices. If this were the case, serious questions might be raised as to the propriety of altering wage levels by the application of the cost-of-living standard.

(2) Cost-of-living indexes measure changes in the price of a constant bundle of goods and services over a period of time. Thus, changes in expenditure patterns, changes in quality, variety of offerings, and general availability of goods are not immediately reflected in the index. As a result, a change in the cost-of-living index is a less than perfect estimate of the change in real wages.

(3) Cost-of-living indexes measure reasonably accurately only changes in living costs of families similar to those on which the index is based. Since city wage-earner and clerical-worker families are used as a basis,[22] the living costs of individuals living alone, higher-income families, and families living in rural areas or small communities are not accurately measured. Adjusting money wages of these latter groups with this index cannot be expected to produce a meaningful wage level.

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[20] Dickinson, *Collective Wage Determination*, p. 137.

[21] John T. Dunlop, *Collective Bargaining Principles and Cases* (Chicago: Richard D. Irwin, Inc., 1949), p. 98.

[22] See *The Consumer Price Index, a Short Description of the Index as Revised*, January, 1953, U. S. Department of Labor, Bureau of Labor Statistics.

(4) A time lag of approximately six weeks exists between the occurrence of a cost-of-living change and the publication of the index. When prices are changing rapidly, this lag prevents attainment of correct real wages even for applicable groups.

(5) The applicable base period also presents a problem. In cost-of-living indexes there must be some starting point. The base period used in such indexes is a period adjudged to be normal or representative. For use in wage level determination, the date of last change in wage level might be more appropriate.

Another technical argument may be cited against tying wage levels automatically to cost of living. As usually applied, a given change in cost of living is translated into a flat cents-per-hour change in wages. This flat figure is applied equally throughout the wage structure. The effect is to compress the wage structure so that, over a period of time, the differential between unskilled and skilled jobs is considerably narrowed.[23] While the seriousness of this will become apparent from the chapters on wage structure, it should be said here that such compression is undesirable and requires correction—and correction may be difficult when a union is present.

It is interesting in view of the expanding use of escalator clauses in recent years that both labor and management have professed strong objections to automatic ties between wages and cost of living. In a study made by the Twentieth Century Fund,[24] both labor leaders and managers stated that they opposed the principle and gave their reasons. One reason labor was opposed was that such a tie implies acceptance of a constant standard of living. This objection is not new. Historically, unions have opposed the principle on the ground that it is merely a treadmill.[25] This objection has been largely overcome by including the improvement factor in contracts. Thus escalator clauses maintain a constant standard of living and the improvement factor raises it each year.[26] Manage-

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[23] Union and employer associations in Norway recently dropped the cost-of-living criterion from contracts for this reason. See "Norway Backs Down from C-of-L Hikes," *Business Week*, June 7, 1952, p. 150.

[24] Twentieth Century Fund, *Labor and Management Look at Collective Bargaining*.

[25] See Executive Council Report, *Convention Proceedings of the American Federation of Labor*, 1921, pp. 68–69.

[26] Improvement factors are discussed on page 105 in connection with changes in Productivity.

ment has tended to oppose the principle because it ignores other variables more significant to the individual firm's economic position and because of its inflationary possibilities.[27]

In sum, the place of the cost-of-living criterion in wage level determination may be stated as follows. It has elements of attractiveness to both parties during periods of rapidly increasing retail prices. It is deceptively simple and blindly following the criterion can cause more difficulties than it corrects. By using this criterion, a given employer may adjust quickly to changes in the labor market. When influences in the labor market are stronger than influences in the product market, there may be a tendency toward use of the cost-of-living criterion. When an employer is faced with strong competition in the product market, however, the choice must be made between maintaining the worker's real wages and maintaining jobs. Increased cost of living can only be a compelling criterion when there is a virtual suspension of competition.[28]

The Living Wage

A wage criterion very similar conceptually to the cost-of-living criterion is the living wage. Both are concerned with standards of living. There is, however, a difference. The cost-of-living criterion is concerned with an *actual* standard based on statistical measurement. The living wage, or minimum budget as it is sometimes called, is concerned with an *ideal* standard.

Used as a wage criterion, the living wage calls for raising the wage level of a firm in order that wages of employees may reach a decent level. Minimum budgets are available for this purpose. Examples are (1) the Heller Committee budgets [29] and (2) The Bureau of Labor Statistics' City Workers' Family Budget.[30] These budgets are not based on income, but on what people think they need to maintain a certain standard. Thus to use this standard for

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[27] Gitlow, *Wage Determination Under National Boards,* p. 62.

[28] Taylor, "Criteria for Wage Determination," *The Conference Board Management Record,* Vol. 11, No. 6 (June, 1949), pp. 241–242.

[29] See *Quality and Cost Budgets for Three Income Levels—Prices for San Francisco,* Heller Committee for Research in Social Economics (University of California, September, 1949).

[30] *Workers' Budgets in the United States: City Families and Single Persons, 1946 and 1947,* U. S. Department of Labor, Bureau of Labor Statistics, Bulletin No. 927.

wage level determination is to base wage levels purely on the expressed needs of the workers.

Most employers reject this criterion as an aid in solving the problem of wage levels. (1) Need is not the basis for wage determination. Wages in the United States are determined by contribution rather than by need. Wages are job related, rather than need related.[31] An attempt to set wages on the basis of need would soon create a chaotic situation. (2) Basing wage levels on minimum budgets "determines which individual members of the work force are fit to hold jobs." [32] Setting wages at a given level and deciding no worker shall be paid less than this amount is the same as saying anyone who is not worth that amount is regarded as unemployable.[33]

(3) A living wage is a very indefinite concept. Assumptions that may be applicable to only a small minority of the working population must be made regarding size of family, scale of living, and so on. A four-member family, for example, on which the City Workers' Family Budget is based, is relatively unusual.[34] Moreover, if all workers were given an income such as that called for by some of the budgets, the entire national income would be insufficient.[35]

Thus, the living wage criterion is of little usefulness to an employer in setting wage levels. In free economies, wages are determined by contribution rather than ethical considerations.

Ability to Pay

As a wage criterion, ability to pay implies fairness. At first glance it appears fair that an organization set its wage level at a point prescribed by its ability to pay.

Also the marginal productivity theory of wages prescribes that employers will use their ability to pay to help determine their bids for labor. Labor assesses its asking price on the basis of these bids and gravitates toward establishments making the highest offers. No

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[31] Gitlow, *Wage Determination Under National Boards*, p. 83.

[32] Slichter, *Basic Criteria in Wage Negotiations*, p. 11.

[33] A minimum wage law covering all workers has the same effect.

[34] "1951 Survey of Consumer Finances, Part III, Distribution of Consumer Income in 1950," *Federal Reserve Bulletin*, Vol. 37, No. 8 (August, 1951), pp. 926–928.

[35] Slichter, *Basic Criteria in Wage Negotiations*, p. 14.

firm pays more than is necessary to attract the quantity and quality of labor required.

Actually, ability to pay is an important factor in an employer's solution to the problem of wage levels. The profitability of the organization is a definite consideration in wage level determination. Forecasts of labor costs per unit of output (determined by wage rates and physical productivity) after a change in wage levels are important determinants of the decision. An increase that would be offset by increases in physical productivity does not increase labor costs and meets the requirement of ability to pay.

An increase in wage levels which increases labor cost requires examination of whether such an increase can be passed on to consumers, or whether it must be absorbed. The decision as to whether the increase can be passed on to consumers depends upon competition in the product market. If the increase must be absorbed, expansion plans, reserves for contingency, and plans for acquisition of new funds must be re-examined.

Throughout this process by which a firm determines its ability to pay a given wage level, reappraisals of costs are made. Cost savings may be made by tighter operations; raw materials may be economized. Or, more important for the present discussion, machines may be installed to substitute for labor if such substitution costs less than expected savings in labor costs. Similarly, management techniques calculated to reduce labor cost may be initiated.

Thus in a very real sense the entire process of wage level determination on the part of the employer is his assessment of his ability to pay. And the weight attached to other wage criteria may be determined by this estimate of ability to pay.[36]

Similarly, a union presumably attempts to estimate an organization's ability to pay before making its demands. A wage level that is too high when a significant proportion of the industry is nonunion can cost jobs. A wage level that makes further mechanization profitable to an employer can have the same effect. Or a given wage level may force an organization out of business.

In many cases, the ability-to-pay criterion has entered directly into wage negotiation or determination in the sense that an attempt

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[36] Satter, "Principles of Arbitration in Wage Rate Disputes," *Industrial and Labor Relations Review*, Vol. 1, No. 3 (April, 1948), pp. 363–385.

has been made to link wages to profits, prices, sales, or output.[37] In 1919, an agreement signed by the Printer's League of New York provided that after one year there might be a wage readjustment based in part upon the economic condition of the industry.[38] The motion picture operators have based wages upon the seating capacity of the theater.[39] In the coal industry, agreements have been worked out so that poorer coal fields pay lower wages.[40] "Sliding scale" plans, gearing wages to selling prices, have been used in other countries.[41] Profit-sharing plans have been extensively used in this country.

The principle of ability to pay has also been used in railroad wage negotiations.[42] One of the most widely publicized uses was in the General Motors' negotiations in 1945, where statistical techniques were used in an attempt to forecast profit levels using: level of output, average hourly earnings, cost of material, product prices, and a productivity time trend.[43]

A more elaborate attempt to link production, prices, and costs was made for the steel industry in 1947.[44] Detailed analysis was made of wage-cost-price-profit relationships in the U.S. Steel Company, yielding estimates of the revenue and cost structure of this company at every level of production. From this analysis, estimates were made of the cost of a wage increase at various percentages of capacity.

It is, therefore, apparent that the ability-to-pay wage criterion has some usefulness in setting wage and salary levels both at the bargaining table and when used unilaterally by the employer. It is perhaps most useful at the extremes—in determining whether a change in wage levels apparently justified by other considerations can or cannot be met by the organization.

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[37] Dale, *Sources of Economic Information for Collective Bargaining*, p. 115.
[38] Dickinson, *Collective Wage Determination*, p. 206.
[39] Dickinson, *Collective Wage Determination*, p. 210.
[40] Dickinson, *Collective Wage Determination*, p. 209.
[41] Dickinson, *Collective Wage Determination*, p. 189.
[42] Dale, *Sources of Economic Information for Collective Bargaining*, p. 115.
[43] Walter P. Reuther, *Purchasing Power for Prosperity: The Case of the General Motors' Workers for Maintaining Take-Home Pay*, UAW-CIO, General Motors Department (Detroit, 1945), pp. 55–76.
[44] Robert R. Nathan, Oscar Goess, and G. Griffith Johnson, *Economic Factors Relating to Wage Negotiations in the Steel Industry for 1947* (Pittsburgh: United Steelworkers of America, January 10, 1947).

What may not be apparent, however, is that strict application of the ability-to-pay criterion could lead to very undesirable results.[45] (1) A complete disorganization of wage relationships would occur. Wage levels would bear no relationship to the going rate in the labor market. Firms in the same industry located next door to each other could easily have greatly different wage levels. And wages would fluctuate widely along with the most volatile of income shares—profit. All semblance of industry wage uniformity (usually strongly desired by unions) would disappear. Low-profit firms employing high proportions of skilled labor could have lower wage levels than high-profit firms employing all unskilled labor. Thus unskilled labor could receive higher wages than highly-skilled labor —an effect not at all conducive to acquisition of skill or increased productivity.

(2) Strong limits would be placed on production and the standard of living. Profits, in our economic system, perform a number of functions. Among them are: (1) a spur to improved efficiency, (2) inducement to investment and capital formation, (3) a source of savings for investment, and (4) the magnet that draws the factors of production to their most productive uses. Under a system where increases in profits are absorbed by wages, these functions would be seriously interfered with. An efficient management would have nothing to gain from additional effort, while inefficient management would be subsidized by low wage levels. Nor could employees leave inefficient firms for more efficient ones because expansion of output and employment in the latter firms would be forestalled by paying out increased profits in wages to present employees. Thus, incentive to management to improve efficiency would be seriously impaired. Possibilities of expansion would be severely limited. And the funds for investment and capital formation would tend to dry up at the source, both from reduced dividends and reduced incentive. The net result of this set of circumstances would seem to be lower production and a reduced standard of living. Equally serious, the ability of such an economy to absorb shocks of adverse

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[45] See Slichter, *Basic Criteria in Wage Negotiations*, pp. 25–31; Dunlop, *Collective Bargaining Principles and Cases*, pp. 100–104; Dale, *Sources of Economic Information for Collective Bargaining*, pp. 115–127; and Gitlow, *Wage Determination Under National Boards*, pp. 13–27. The following discussion is based to some extent on these authorities.

business conditions would be low, in that funds could not be set aside in reserves for contingencies.

Strict use of the ability-to-pay criterion would also require answers to certain technical questions that are far from simple. (1) How should profits be calculated and compared? Accounting profits may diverge widely from "pure" profits which are significant to economists.[46] There may be implicit wage, rental, and interest payments in accounting profits. Conversely, there may be "pure" profit elements in salaries of officers of closely held firms. Or above-market interest may be paid to owners or members of their families.

Equally important is the problem of inventory profits and losses. Book value of inventory reflects not only the physical volume of inventories valued at current prices, but the difference in the replacement cost of inventories consumed in production as against their original cost. It is possible, in times of rapid price movements, for book values to change in a different direction from physical inventories. In such cases, the value of inventories may have a significant impact on accounting profits or losses.

Closely held firms often pay out profits as salaries to officers. Very large companies, combining separate legal and accounting identities doing business with each other, have a special problem. The profits of the separate parts of the enterprise are determined by administrative decision.

The problem of whether profits should be stated before or after taxes is equally thorny. Stating profits before taxes tends to abstract from business facts of life and to overstate actual ability to pay. Closely allied are problems attributable to excess profits taxation. It is important that the word "excess" not be used as an ethical concept. Profits are excess only in terms of relationship to something else, and definition requires selection of a base period that may be quite unfair when applied to a specific firm. Wage increases based on excess profits outlast the period when profits are declared excess and must be borne out of ordinary profits.

Equally difficult are problems of comparing profits. Should they be stated as a percentage of net worth or of sales? If the

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[46] Robert L. Dixon, "Profit-Sharing," *The Journal of Accountancy* (July, 1946), p. 15.

former is chosen, net worth must be defined. To do this the actual life of plant and equipment must be estimated and, if prices are changing, the fact that replacement cost may be quite different from original cost requires that estimates of depreciation and obsolescence cost on capital equipment be made. These estimates make profit comparison difficult.

Borrowings present another problem. Firms relying heavily on borrowed capital face serious fixed obligations and are vulnerable to adverse changes in business conditions. Equal ratios of profit to net worth, when one of the firms has borrowed heavily, may represent different levels of profitability, at least in defining ability to pay.

The size of firms may determine whether profits should be stated as a percentage of net worth or percentage of sales. The problem of which basis to use presents an additional problem of comparability.

With all of the difficulties inherent in defining and comparing present and past profits and profit positions, little imagination is required to envisage the difficulties of forecasting profits. And this is what strict usage of ability to pay would require. Wage levels are set not for the past but for the future, and tying them strictly to future profits would seem to require extreme temerity.

(2) What time period is applicable to ability-to-pay considerations? A firm may have the ability to pay for a short period a higher wage level that it could not live with for longer periods. In the long run, wages must be at a level that permits an employer to make "normal" profits, if the firm is to stay in business and maintain capital equipment. For shorter periods, it is possible for a firm to stay in business as long as receipts cover outlays. It would be essential in a strict usage of the ability-to-pay criterion to carefully define the period under discussion.

(3) What are the effects on costs of a change in wage levels? This question involves effects of such wage changes on labor productivity—not a simple matter, as will be seen in the next section. Also, it involves consideration of indirect effects of such wage changes on materials, prices, parts, and equipment.

(4) How does volume of production affect ability to pay? This question is concerned with the way costs change with volume and is complicated in multiple-product firms by the necessity of decisions

on product-mix. At different levels of production, a low-profit item may be curtailed and a high-profit item expanded. Many combinations are possible.

(5) How does the character of competition in the product market affect ability to pay? This question concerns the extent to which wage increases may be passed on as price increases, and the effect such price increases will have on sales.

(6) What rate of return is to be standard in determining ability to pay? The difficulties to be encountered here are similar to those encountered in public utility regulation. Experience with such negotiation suggests that this is not a problem to be treated lightly.

A summary of this discussion of the applicability of the ability-to-pay criterion to the problem of wage levels would stress the following points. Ability to pay or, conversely, inability to pay, will probably continue to influence wage level determination in negotiations and in unilateral employer decisions. Its effect will be felt at the extremes—in judging whether a wage adjustment apparently justifiable on other grounds can or cannot be met. Strong presumptive evidence of favorable prospects in the future causes employers to resist less stringently a prospective increase in wage levels. Similarly, strong presumptive evidence of unfavorable future prospects reduces pressure for a wage increase, especially if it is feared that such a wage adjustment might cause loss of jobs.[47] Although in a very real sense the concept is an expression of the entire process of wage level determination, it is limited by imperfections in ability to forecast the significant economic variables as they bear upon the firm.

Productivity

As a wage criterion, productivity received great impetus from the 1948 General Motors contract. The "improvement factor" provided for in that contract focused the attention of both managements and unions on productivity. Similarly, economists have pointed out that (at least in the long run) there is a close relationship between the general level of productivity and the general level of wages.[48]

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[47] Taylor, "Criteria for Wage Determination," *The Conference Board Management Record*, Vol. 11, No. 6 (June, 1949), pp. 241–242.

[48] See, for example, Slichter, *Basic Criteria in Wage Negotiations*, p. 21.

Decisions on the usefulness of this criterion for determining wage levels in specific organizations require a definition of terms. What is productivity? The usual measure offered is that of physical productivity, and is obtained by dividing units of output by man-hours worked.[49] The use of man-hours as the input variable is a convenience in that man-hours at least appear more homogeneous than, say, units of machines or materials. But it has fostered a connotation that is, perhaps, unfortunate. It has fostered the notion that increases in productivity are due solely to better skill and effort on the part of the work force. In fact, physical productivity is often referred to as labor productivity. Actually, physical productivity measures the contribution of all input factors—labor, tools, materials, management, and so on—and it has been quite well established that the major factor in increased productivity has been increased tool power (more and better capital equipment).[50]

Physical productivity can be measured at several levels. It can be measured at the job level. This result may help in solving the problem of individual wage determination [51] or be used as the basis of a wage incentive system.[52] Again, physical productivity may be measured at the plant level, or at the level of the industry. The U.S. Bureau of Labor Statistics compiles indexes of productivity at the industry level. Productivity may also be measured at the national level.[53]

It is the latter type of measure that has acquired greatest interest in wage level determination. This is the measure used in "improvement factors." As will be discussed later in this section, basing such wage level changes on productivity changes at any other than the national level would cause grave difficulties in wage level determination in an individual firm.

In wage theory, another type of productivity assumes importance —marginal, or value, productivity. Before discussing the usefulness

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[49] Peter O. Steiner and William Goldner, *Productivity* (Berkeley: Institute of Industrial Relations, University of California), p. 6.

[50] Jules Backman and M. R. Gainsbrugh, "Productivity and Living Standards," *Industrial and Labor Relations Review,* Vol. 2, No. 2 (January, 1949), pp. 163–194.

[51] See Chapter 11.

[52] See Chapter 12.

[53] See Solomon Fabricant, "Labor Savings in American Industry, 1899–1939," *Occasional Paper No. 23,* National Bureau of Economic Research (November, 1949); *Productivity and Progress* (New York: National Industrial Conference Board, 1946).

of productivity as a wage criterion, it may be useful to trace the theoretical significance of marginal productivity. Marginal productivity, according to economic theory, is of major significance as a determinant of wages.[54] Thus, wages are the result of the operation of a competitive price system's market mechanism. Consumer demand, relative to supply of a commodity, determines its price. Price, relative to cost, determines profitability. Profitability affects the businessman's anticipations and thus his decisions on the amount to produce. These decisions determine the amount of productive factors he will employ. Thus demand for labor is derived from demand for the commodity. And the wage-paying limit of the employer is dependent upon the selling price of the commodity.

Businessmen producing different goods will differ in ability to pay wages. These differences represent the alternatives available to labor and are significant in determining the supply of labor available to the employer. Workers whose alternatives are poor can be attracted at low wages. To attract workers with better alternative opportunities requires higher wages. Thus, wage-paying ability influences labor allocation. Wage-paying ability is derived from price, which reflects consumer demand.

In this way, the price system is accomplishing a basic function—directing production on the basis of consumer preference. The relation between market demand (based on marginal productivity) and market supply (based on alternative opportunities) determines the wage.

If wage determination were actually as described, wage criteria as aids in setting wage levels would be unnecessary. A level above the market rate would cause unemployment and a wage level below the market rate would be upset by employer bids. It is well known, however, that actual wages may be below, at, or above the theoretical marginal productivity level. But not for very long. Marginal productivity tends to set a ceiling on wages that cannot long be exceeded without adverse effects on production and employment.[55]

This discussion tends to show the close relationship between the ability to pay and the productivity wage criterion. In the real

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[54] See p. 10, Chapter 1.

[55] This discussion of marginal productivity has been based in part on Gitlow, *Wage Determination Under National Boards*, pp. 3–6.

world, wages above marginal productivity become obvious through inability to pay.

Marginal productivity is related to physical productivity through cost. Unit labor cost is determined by physical productivity and money wages. Increased physical productivity with unchanged wages reduces unit labor costs, thus increasing the marginal productivity of labor. Unit labor cost is the variable scrutinized by employers. An increase in physical productivity reduces an employer's unit labor cost and makes a wage increase possible.

This is the place of productivity as a criterion of wage levels. The level of productivity represents a consideration in determining where the wage level should be, and changes in productivity may permit a change in wage levels. Increases in wage levels may be made up to the limit of increased productivity without increasing labor costs. Increasing wages beyond productivity increases, however, results in increased unit labor cost.

Since 1948 an increasing number of employers have popularized productivity as a wage criterion by incorporating into labor contracts an "improvement factor" that increases wage levels each year in accordance with estimated increases in productivity in the economy. The long-term trend in national productivity is variously estimated at an increase of 2 to 2½ per cent per year.[56] About 1,285,000 employees were covered by such agreements in 1951.[57] The increases in wage levels under such arrangements were variously 3, 4, or 5 cents.

Such formula use of the productivity criterion has been encouraged by some authorities. Thus the Council of Economic Advisers [58] suggested that general wage levels in specific organizations be raised in accordance with annual increases in productivity in the economy. The thesis is that such a distribution of productivity gains is preferable to reducing prices because the latter would con-

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[56] See Backman and Gainsbrugh, "Productivity and Living Standards," *Industrial and Labor Relations Review*, Vol. 2, No. 2 (January, 1949), pp. 163–194.

[57] Harold Steiglitz, "Cost of Living and Annual Productivity Increment Compensation Programs," in *Compensation Principles and Practices, Research and Technical Report 13* (Minneapolis: Industrial Relations Center, University of Minnesota, January, 1953), p. 21.

[58] See John C. Davis and Thomas K. Hitch, "Wages and Productivity," *The Review of Economics and Statistics*, Vol. 31, No. 4 (November, 1949), pp. 292–298.

tribute to economic instability. In accordance with this reasoning it was suggested that specific organizations could raise wages each year by a percentage that approximated the annual estimated increment to productivity in the economy.

Some other economists disagree violently with this proposition. Clark Kerr has pointed out [59] that while the long-run relationship between productivity and wages is close, the short-run relationship is so variable as to raise serious doubts about the applicability of such a policy. He insists that such a policy won't work because other wage determining factors are more persuasive. Jules Backman expresses the fear that distributing productivity gains as wages in the short run may so upset the long-term trend that there will be no gains to distribute.[60] Leo Wolman [61] points out that productivity increases were not called for in the postwar period because wages far outran increases in productivity and through rising labor costs raised prices. The National Association of Manufacturers has adopted a policy adverse to productivity increases.[62]

It is sometimes stated that increases in wage levels beyond those justified by productivity increases force a firm to increase productivity.[63] But there is a thin line between high wages that force efficiency and the too high wages that make jobs disappear.

This controversy suggests that productivity is not a simple formula for wage level determination. Although there is a great deal of truth in the statement that productivity is a basis for wage increases in the long run, and in the statement that increased productivity in a specific establishment tends to reduce unit labor costs, productivity as a criterion of wage levels has serious limitations.

1. Advancing wage levels in accordance with productivity increases in specific firms would lead to chaotic wage relationships.

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[59] "The Short-Run Behavior of Physical Productivity and Average Hourly Earnings," *The Review of Economics and Statistics*, Vol. 31, No. 4 (November, 1949), pp. 299–309.

[60] Backman and Gainsbrugh, "Productivity and Living Standards," *Industrial and Labor Relations Review*, Vol. 2, No. 2 (January, 1949), pp. 163–194.

[61] Leo Wolman, "Relation of Wages to Productivity," in *Personnel Series Number 122* (New York: American Management Association, 1948), pp. 28–32.

[62] "NAM Can't See Productivity Pay," *Business Week*, February 21, 1953, p. 176.

[63] Solomon Barkin, "Relation of Wages to Productivity," in *Personnel Series Number 122* (New York: American Management Association, 1948), pp. 38–42; Mark Starr, "Relation of Wages to Productivity," *loc. cit.*, pp. 43–46.

Different firms and different industries have such varying rates of change in productivity as to throw wages based solely on productivity completely out of line with other wage considerations. Soon common labor in industries with rapid technological change would be paid more than the most skilled labor in other industries.

2. Increasing wage levels in proportion to productivity in the industry would prevent these industries from lowering prices and expanding production and employment. Thus the growth of employment would be impeded at the very places where labor was gaining most in productivity. The result would be to prevent the economy from producing the largest possible output and thus to limit the rise in the standard of living.[64]

3. Productivity statistics are far from adequate. They represent only crude approximations of secular changes in the productivity of the economy and are subject to erratic short-run variations. Likewise, industry statistics contain many uncertainties.[65] These deficiencies are not hard to understand when the difficulty of measuring physical output in some industries is remembered, not to mention the infinite varieties in product-mix.[66]

4. The cause of increased productivity between two periods is difficult to find. Output per man-hour may change as a result of many different factors: (1) a change in the level of production, (2) a change in the product-mix, (3) changes in plant and equipment, (4) increased effort on the part of the workers, (5) a change in the composition of the labor force, (6) improvements in supplies or parts, (7) the substitution of other factors as a result of a wage increase.[67] To determine which one or several of these factors is responsible for an increase in productivity is a formidable task. But it is an important one if wage levels are to be increased in accordance with productivity, because productivity increases due to increased worker skill or effort are a valid basis for a wage increase.[68]

5. The fact that productivity has increased in the past is no

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[64] Slichter, *Basic Criteria in Wage Negotiations*, p. 23.

[65] Solomon Fabricant, "Of Productivity Statistics: An Admonition," *The Review of Economics and Statistics*, Vol. 31, No. 4 (November, 1949), pp. 309–311.

[66] Dunlop, *Collective Bargaining Principles and Cases*, p. 96.

[67] Dunlop, *Collective Bargaining Principles and Cases*, p. 96.

[68] Slichter, *Basic Criteria in Wage Negotiations*, p. 22.

guarantee that it will in the future. Nor will productivity increases guarantee such an increase.[69]

6. There are many ways besides wage increases in which workers may participate in productivity gains. Other ways include lower prices, product improvement, shorter hours, welfare plans, better education, better health protection, and so on.[70] To the extent that labor takes productivity gains in other ways, a wage increase must be less than the estimated gains in productivity.

A summary of the applicability of the productivity criterion must stress the following points. Increasing physical productivity within a specific organization tends to reduce unit labor costs if wage levels remain unchanged. Decreasing unit labor costs increases an employer's ability to pay higher wage levels. The extent to which a given employer should adjust wage levels to changing productivity is determined, however, by labor market and product market considerations. To adjust wage levels strictly in accordance with a firm's productivity would disrupt wage relationships and levels of production and employment. Similar results would obtain from correlating industry wage levels to industry productivity.

As productivity statistics improve along with ability to forecast productivity changes in the economy, it may be possible to make a case for tying wage level adjustments to changes in productivity in the economy (except in periods of depression). This will, of course, depend on firm evidence that productivity is actually increasing annually. If such a policy is adopted it should permit slightly higher increases in rapidly expanding industries and perhaps slightly lower increases in declining industries. It must be recognized, however, that such a policy must be used as a limit, i.e., wage increases, including supplements, should not exceed changes in national productivity (assuming unchanged prices) and implementation of the policy might require government controls unpalatable to the parties. Until such time as such a policy becomes acceptable, productivity changes in the economy should perhaps be used as a limit to changes in wage levels fully justified by other criteria.

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[69] Gitlow, *Wage Determination Under National Boards*, p. 11.

[70] Ewan Clague, "The American Worker and American Industry," *Monthly Labor Review*, Vol. 71, No. 1 (July, 1950), pp. 8–12.

Union Pressures and Union Scales

The very existence of unionism influences wage level decisions of both union and nonunion employers. A nonunion employer may seek to equal or exceed the union scale as a means of avoiding unionization of his employees. Or he may seek to maintain a certain differential between his wage level and one which would result from union scales. Especially in prosperous periods will he pay close attention to such scales in order to assure his obtaining and keeping a labor force. In periods of depression, however, his wage level may differ materially from that resulting from union scales.[71]

To a union employer, wage scales of the union(s) holding bargaining rights in his establishment and of competing unions will be stronger influences in wage level determination. Often such scales will be the controlling factor; in other cases, a standard departed from only in the face of stronger and more compelling considerations.

In unionized organizations wage levels are set by collective bargaining. But collective bargaining is simply a mechanism by which wages are established.[72] The agreements actually arrived at reflect the play of many forces, including those already discussed in this chapter. Thus, union wage policy and union power represent only one factor among many that help to determine the wage level in a specific organization.

The influence of unionism on wage levels cannot be measured adequately by a comparison of union and nonunion rates of pay for comparable work in the same industry or the same labor market. The principal reasons are: (1) wages are determined by a variety of factors of which unionism is only one, and (2) union action is likely, directly or indirectly, to affect wages in nonunion organizations as well. For the same reasons, efforts to measure statistically the influence of unions on wages over a period of time are likely to be inconclusive.

There is disagreement among the authorities on the effect of unionism on wages. Ross made a critical examination of Paul Douglas' conclusions concerning the effect of unionism on wage

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[71] Reynolds, *Labor Economics and Labor Relations*, 2nd ed., p. 557.
[72] Douty, *Wages: An Introduction*, p. 42.

rates over the period 1890–1926 [73] and concluded that there was evidence of such influence. Dunlop does not disagree with the premise that union rates have increased more than nonunion rates over time, but believes that this is due to unions entering industries that are expanding, where rates would rise faster than others in any case.[74] Reynolds has suggested that major shifts in wages "can usually be explained tolerably well on economic grounds without resort to unionism." [75] A study by Enke and Hoffman [76] seems to show that unions can raise hourly wage rates, but not annual earnings, relative to those of unorganized workers.

Such studies and views, however, do not dispose of the question of union influence. In any historical view, unionism clearly has improved the economic status of labor. This is evident from the history of social legislation, the reduction in working hours, and the role of unionism in general wage movements. Likewise, any employer facing a union leader across the bargaining table will attest to the influence of unionism on wage levels and wage structures, and other wage administration matters as well.

How unionism actually affects wage levels, however, is not so clear. And this is the issue important to an employer attempting to solve the problem of wage levels. It is essential that he know what factors control union wage policy and union pressures for wage decisions, and how these factors change with changing conditions.

Final answers, of course, are not possible. Union policy-makers, like management policy-makers, are human beings, and their decisions are subject to all the vagaries of human decisions. Sufficient study has been concentrated in this area, however, to permit reasonably valid conclusions. The authorities are not in full agreement. But the influential factors are clear, and the conditions under which each factor controls are becoming apparent.

Understanding will be aided by discussing the different viewpoints

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[73] Arthur M. Ross, "Effect of Unionism on Wage Rates," in *Research on Wages, Pamphlet 4* (New York: Social Science Research Council, 1947), p. 13.

[74] John T. Dunlop, "The Behavior of Wage Rates and Earnings," in *Research on Wages, Pamphlet 4* (New York: Social Science Research Council, 1947), p. 11.

[75] Lloyd G. Reynolds, "Wages in the Business Cycle," *American Economic Review*, Vol. 42, No. 3 (May, 1952), pp. 84–99.

[76] Stephen Enke and Fred S. Hoffman, "Labor Unions and Employee Earnings," *Personnel*, Vol. 26, No. 5 (March, 1950), pp. 345–349.

and the resolution of conflicting points of view. To Ross,[77] union wage policy is determined largely by political factors—union rivalry, strength of different factions within a given union, need for delivery of results by union leaders if they wish to remain in power, comparison with gains made by other unions, the well-being of the union organization instead of its members. To Dunlop,[78] union wage policy is primarily determined by economic considerations—the state of the labor market, the movement of cost of living, the demand for products of the unionized employer, and competition from other employers and other industries. Also, Dunlop believes that union wage policy attempts to maximize the money income of its membership.[79]

Although these apparently divergent viewpoints may have suggested the dual nature of union wage policy, they seemed to give rise to a controversy in which both sides made strong cases by pointing to union behavior under certain circumstances favorable to their interpretation.[80] These studies have been worthwhile, however, because they have made possible a distillation of experience that provides a useful explanation, making use of both viewpoints, of union wage policy under varying conditions.

Union wage policy is influenced by both economic and political considerations.[81] In good times, when employment and profits are high, political factors predominate. What is equitable is determined

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[77] Arthur M. Ross, *Trade Union Wage Policy* (Berkeley: University of California Press, 1948).

[78] John T. Dunlop, *Wage Determination Under Trade Unions* (New York: Augustus M. Kelley, Inc., 1950).

[79] Dunlop, *Wage Determination Under Trade Unions.*

[80] See G. P. Shultz and C. A. Myers, "Union Wage Decisions and Employment," *American Economic Review*, Vol. 40, No. 3 (June, 1950), pp. 362–380, Myers and Shultz, *The Dynamics of a Labor Market;* Kirk Petshek, "Employment as an Element in the Wage Bargain," *Quarterly Journal of Economics*, Vol. 63 (November, 1950), pp. 633–641; George P. Shultz, *Pressures on Wage Decisions* (New York: John Wiley & Sons, Inc., 1951); Lloyd G. Reynolds, *The Structure of Labor Markets* (New York: Harper and Brothers, 1951); Albert Rees, "Post-War Wage Determination in the Basic Steel Industry," *American Economic Review*, Vol. 41, No. 3 (June, 1951), pp. 389–404; George Seltzer, "Pattern Bargaining and the United Steelworkers," *Journal of Political Economy*, Vol. 59 (August, 1951), pp. 319–331.

[81] The following discussion of union wage policy is based in part on Albert Rees, "Union Wage Policies," in *Interpreting the Labor Movement* (Madison: Industrial Relations Research Association, 1952), pp. 130–148; and M. W. Reder, "The Theory of Union Wage Policy," *The Review of Economics and Statistics*, Vol. 34, No. 1 (February, 1952), pp. 34–45.

by comparison with the treatment afforded to other parties in similar circumstances—the wage rates paid or the increases granted by other firms in the same industry and/or the same area; the traditional relations between wage levels of different firms. Economic restraints are at a minimum because most employers can pass on wage increases as price increases. The only restraint is the willingness and ability of the employer to take a strike. Under such conditions, "wage patterns" tend to develop and are closely followed. Unemployment in a specific firm is unlikely to result in breaking the pattern because union members will have no difficulty obtaining jobs.

Thus, pattern-setting is a phenomenon of good times. In 1952, the Bureau of Labor Statistics estimated that 147 collective bargaining contracts had been responsible for setting wage patterns.[82] But a pattern to persist must be compatible with economic survival of firms. It cannot persist when adherence to the pattern means lost jobs and lost production.[83] The ability of a firm to meet a pattern depends upon several conditions. The ratio of labor cost to total cost must not be too high. The extent of nonunion competition in the industry is a major factor. If a union firm follows the pattern while a nonunion firm does not, business may be quickly lost to the latter. Perhaps more important is the ability of the firm to pass on wage increases to consumers in the form of price increases, without losing business.

Although this last condition is largely determined by general business conditions, it may be influenced by political factors. Unions, by (1) suppressing price competition among employers, (2) inducing governments to pass minimum wage laws, public contract laws, fair trade laws, and protective tariffs, thus reducing competition, (3) inducing governments to provide a market for products and jobs (through government contract allocation), and (4) financing advertising campaigns, are sometimes able to limit the operation of economic factors and to increase the ability of firms to survive and adhere to the pattern.

During a downturn in general business conditions, union wage policies are more satisfactorily explained by economic factors.

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[82] "Who Sets Your Employees' Wages," *Business Week*, October 18, 1952, pp. 148, 150.

[83] George W. Taylor, "Criteria for Wage Determination," *The Conference Board Management Record*, Vol. 11, No. 6 (June, 1949), pp. 241–242.

When a union faces unemployment in the firms with which it bargains, this fact usually influences wage policy. The extent to which unemployment affects union wage policy, however, depends on several factors, both economic and political. If the industry is not completely organized, nonunion competition will force the union to adjust wage policy in the face of unemployment. Similarly, the feasibility of permitting one employer to maintain a lower wage level than another employer will have an effect. If this practice is feasible, the union may permit a firm with substantial unemployment a lower wage level. The extent to which this course is followed, however, will depend on whether the union believes a lower wage level will increase employment for its members. Also, an attempt will first be made to lower labor cost in various ways without tampering with the wage policy. To the extent that the latter is possible, other employers will not become aware of the discrimination.

But political considerations also enter here. The extent the union adjusts wage policy to unemployment will depend on the extent to which the union leader is convinced that taking employment considerations into account will be to union advantage. This will depend upon (1) whether or not unemployed workers are still union members, (2) the number of unemployed union members, (3) the attitude of the majority.

If unemployment in general is low, if union members express unwillingness to work at wages below union scales, and/or if wage discrimination between employers is adjudged by the union leader to be impolitic, union wage policy will be maintained and the firm will be forced out of business. This seldom occurs, however, if unemployment is general.

Union wage policy is also strongly influenced by the nature of competition in the product market of firms with which it deals. In highly competitive industries, economic forces hold sway. Unions which organize many firms competing strongly in the same product market usually pursue a standard wage policy within a given product market. The purpose of this policy is to "take labor out of competition." In this situation, unions can seldom make concessions in wages to individual firms in economic difficulties. To do so would give these firms a competitive advantage which would threaten the jobs of union members working for other employers. However, such unions might help firms in economic difficulty to lower labor costs in ways not obvious to other employers. Or they might at-

tempt to reduce competitive pressures in the industry in ways such as those described above.

In industries where competitive pressures are less effective, political factors tend to influence union wage policy more than economic influences. Thus, where unions bargain with diverse employers who do not compete in the same product market, patterns are not stressed at the expense of local conditions, especially in the case of small firms. In such instances, where a union fears that a pattern increase would hurt employment in a given firm, the pattern is broken. Because a below-pattern increase would not create a competitive threat to employment in other firms bargaining with the national union, it is accepted.

Even during periods of inflation, where such insulation from competition is present, prosperous firms are expected to follow the pattern, but in firms where employment might be adversely affected substantial deviations from union wage policy are approved. Of course, even here, an attempt is often made to reduce labor costs in the firm rather than the wage level, because the former is much less apparent to other firms.

It may also occur that economic forces may determine the union wage policy, but political considerations determine its application in specific instances. Thus economic factors may determine the wage package, but political factors determine the proportion granted in direct wages and the proportion in fringe.

In summarizing union wage policy determination, the following factors emerge: (1) the needs of the union as an organization; (2) the business conditions facing the economy, the industry, and the firm; (3) the nature of competition in the product market; (4) nonunion competition; [84] (5) membership sentiment; (6) wage programs of other unions. Although these considerations are all important, one or a few take precedence in a specific situation. When business conditions in the economy are good, union organization needs prevail and the other factors are restraining influences only. When business conditions in the economy are poor, the needs of union organizations are pushed into the background. In good times and bad, product market competition, nonunion competition, and special

[84] Dunlop, in *Wage Determination Under Trade Unions,* also includes mechanization. The effect of this factor has been considered indirectly in the discussion of employment effects and union efforts to reduce labor costs.

conditions applicable to an industry or a particular firm place firm limits on otherwise applicable policy.

One final step remains in interpreting union effects on the wage level of a particular employer—the bargain. Union wage policies determine union demands. Employers, after careful consideration of factors such as those discussed in this chapter, set a maximum level which they can accept. The actual bargain is well described by Reynolds.[85] In his eyes, the speed and harmony of the negotiations depend largely on whether the employer's maximum offer equals or exceeds the union's minimum demand. If it does, the bargain may be reached rather quickly.

If the employer's maximum falls short of the union's minimum, agreement may still be possible provided the gap is not too wide. Each side must then calculate the cost of a strike and the chance of winning it. When the employer has added this cost to his maximum offer and the union has deducted it from the wages it hopes to gain,[86] it may still be that a bargain is possible. There is also the possibility that matters other than wages can be used for trading purposes. An agreement by management to study the principle of the guaranteed wage may be worth several cents to the union. An agreement to drop demands for a union shop may be worth a certain amount to the employer.

If, however, the gap between the parties is wide, a strike is likely to occur. The actual bargain depends mainly on the economic strength of the parties. This strength depends upon (1) the size of the employer, and (2) general economic conditions. The latter is important in that, during depressions or recessions, the employer may lose less than the union by shutting down. During a period of prosperity, the reverse is true.

Labor Supplies

One consideration always present in wage level determination is the ability of the employing organization to obtain and hold an

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[85] Reynolds, *Labor Economics and Labor Relations*, 2nd ed., pp. 584–586.

[86] Reder, in "The Theory of Union Wage Policy," *The Review of Economics and Statistics*, Vol. 34, No. 1 (February, 1952), pp. 34–45, points out that a strike may at times be considered an investment to obtain "fair treatment," and thus would be amortized over the expected life of the relationship rather than the contract period.

adequate labor force. The wage level must be sufficient to perform this function or the organization cannot operate.

Perhaps the usual way this wage criterion operates is for a firm to evaluate the present effectiveness of its recruitment program and to determine whether its present level of labor turnover is too high or too low. It is true, of course, that the wage level is only one determinant of recruitment effectiveness and labor turnover. But it is an important one and evidence of its operation may be obtained from employment and exit interview records.

If no difficulty has been experienced in either of these areas, the presumption is that the present wage level is adequate to permit securing and holding a labor force. Other questions remain to be answered, however. Is the quality of the labor force being maintained, or have employees of lower efficiency been the only ones available at the present wage level? Is the quality of the present labor force adequate? Is it more than adequate? Is a change in standards of employability desirable? Can it be accomplished at the present wage and salary level?

Such questions emphasize the fact that maintenance of a labor force in a numerical sense is not sufficient. And this fact is all too often overlooked. Quality considerations are perhaps more important than quantity considerations. A labor force of low quality at a given wage level may be more costly to the organization than a labor force of higher quality obtained at a higher wage level, for the latter arrangement may yield lower unit labor costs. If an employer can lower his unit labor costs by raising his wage level and his standards of employability, such a course should receive careful consideration.

This course at least partially explains the existence of wage leaders.[87] Organizations which lead in upward movements of wage levels and those which pay "above the market" do so in the hope of attracting a higher quality labor force.[88] It is obvious, of course, that if all firms did this, none would gain.[89] But, because employers differ in their understanding of the relationship between wage levels

[87] Lester, *Company Wage Policies*, p. 29.

[88] Reynolds, *Labor Economics and Labor Relations*, 2nd ed., pp. 554–555.

[89] Another limiting factor is that workers tend to think of themselves as attached to a firm. Thus, the fruits of wage leadership take time to accomplish. See "Effect of Labor Supply on Wage Determination," in *Research on Wages, Pamphlet 4* (New York: Social Science Research Council, 1947), p. 26.

and labor costs, this course will probably continue to be available, at least to nonunion employers.[90]

Wage leadership may not only permit "skimming the cream" off the present labor force, it may ensure a continuing supply of high quality personnel from new entrants. Some companies always have a waiting list of applicants, whereas others must continually make use of an aggressive recruitment program. Several studies of the labor market have shown that most employees find jobs by applying at the firm and through information supplied by friends and relatives.[91] Such practices work to the advantage of establishments known as high-paying firms.

Decisions regarding wage levels based on labor supply considerations must, however, be made in the light of forward prospects of the firm and the industry. Firms in declining industries may be forced to allow wage levels to correspond with reduced value productivity of employees and to plan on less efficient and lower-paid work forces in the future. An expanding organization, on the other hand, may want to upgrade the quality of its work force by paying above the market and raising its standard of employability. In these ways, wages are permitted to perform one of their proper functions—that of resource allocation.

There is one other aspect of labor supplies that must be considered by the organization in the application of this criterion to wage levels. This aspect is employee motivation. Thus, in Lester's study, one of the determinants of wage policy stated by employers was a desire "to maintain a high standard of motivation and morale." [92]

As suggested in Chapter 1, while the labor supplier (the worker) may be employed at a certain wage rate, his motivation to produce is not thereby assured. In a society that emphasizes freedom for the individual, the supply of labor offered by the supplier is largely left to him.[93] To assure that each supplier offers a maximum supply of labor, the employer must make every effort to see that the em-

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[90] Some of Lester's respondents believed a policy of wage leadership is pointless when a firm is unionized. See Lester, *Company Wage Policies*, p. 43.

[91] See Herbert G. Heneman, Harland Fox, and Dale Yoder, *Minnesota Manpower Mobilities, Bulletin No. 10* (Minneapolis: Industrial Relations Center, University of Minnesota, University of Minnesota Press, 1950), pp. 20–22; also Lloyd G. Reynolds and Joseph Shister, eds., *Job Horizons* (New York: Harper and Brothers, 1949).

[92] Lester, *Company Wage Policies*, p. 29.

[93] Yoder, *Personnel Principles and Policies*, p. 345.

ployee is properly motivated. Thus, attitudes of employees toward the company and their jobs become highly important, for these attitudes presumably affect the effort employees exert on the job. If they think of the establishment as a good place to work, this may reflect in their contribution. If employees think their employer is not as satisfactory as others might be, this reaction may also be reflected in job performance.

To the extent, therefore, that an employee's motivation is related to his opinion of the adequacy of his wages, wage levels affect this personal aspect of labor supply. If an employee believes his wage is adequate, he may offer his full supply of labor. If he believes his wage is inadequate, he may restrict his output.[94]

In making use of the labor supply criterion of wage levels, then, the employer must answer the following questions. (1) What wage level will assure that the organization may secure and hold the labor force needed? (2) What wage level will assure that the organization is able to maintain the quality of personnel desired? (3) What level of wages will assure employee motivation sufficient to attain the results inherent in the employed labor force?

Purchasing Power

Some persons, in emphasizing wages as income (as against wages as cost), have come to identify wages and purchasing power. In fact, this type of thinking has been referred to as the *consumer purchasing power theory of wages.*[95] The crudest statement of this theory holds that wage cuts reduce purchasing power and consumer demand and wage increases stimulate them. The thesis that take-home pay should be maintained after the war in the face of reduced hours was probably based on this reasoning.

At any rate, the theory is based on fallacious reasoning. It as-

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[94] It should be noted that while the relationship between morale and employee productivity is assumed and widely taken for granted, it has not been proven. Studies now in process are seeking to discover more precisely the relationship. See Daniel Katz, *et al., Productivity, Supervision, and Morale Among Railroad Workers* (Ann Arbor: Survey Research Center, Institute for Social Research, University of Michigan, 1951); see also R. Marriott, "Sociopsychological Factors in Productivity," *Occupational Psychology*, Vol. 25, No. 1 (January, 1951), pp. 15–24.

[95] Gitlow, *Wage Determination Under National Boards*, p. 56.

sumes an identity between wages and total purchasing power. Actually, wages are only a part of total income. If raising wages reduces other incomes, total income remains unchanged. A further assumption is that wage-earners are more likely to spend their total income than others, thus increasing total expenditures. This is a generalization that may not be true. Many wage-earners are in income brackets that account for substantial savings.

Nor is there an identity between income and purchasing power. Actually, purchasing power is the quantity of *goods and services* which can be bought with the money income distributed to all individuals in the system. Thus, purchasing power depends on the relation between aggregate personal income and the price level. Personal income includes income from profit, interest, and so on, in addition to wage income. Moreover, the amount of wage income depends on employment as well as wage rates. There are, therefore, at least four determinants of purchasing power: money wage rates, employment, income other than wages, retail prices. Raising one of these factors, such as wage rates, will not necessarily increase purchasing power. There may be offsetting changes in the other factors.[96]

Actually, a more sophisticated formulation must make assumptions regarding the behavior of not only wages, but prices, propensity to consume, savings, investment, and productivity. And while it is possible to construct models in which increases in wages would increase, decrease, or leave employment unchanged depending on the assumptions made, none correspond closely with the real world. As a matter of practical judgment, it is difficult to feel optimistic about the possibility of producing an increase in employment by a general increase in money wage rates.[97]

From the foregoing discussion, it becomes apparent that not only is the purchasing power theory questionable, it has nothing to do with the problem of wage levels in a single organization. No single firm's wage level is so extensive as to permit changes to affect directly and appreciably the purchasing power expended on the products of the firm.[98] No wage bargain deals with the total eco-

[96] Reynolds, *Labor Economics and Labor Relations*, 2nd ed., p. 632.
[97] Reynolds, *Labor Economics and Labor Relations*, 2nd ed., p. 633.
[98] Dunlop, *Collective Bargaining Principles and Cases*, p. 107.

nomic situation.[99] Thus, purchasing power is not a wage criterion in the sense that it is of use to particular employers in solving the problem of wage levels.

Summary

Wage level determination for a specific organization is a decision-making process. The decision is reached unilaterally in the case of a nonunion employer, at the bargaining table in the case of the union employer. In either case, a number of factors influence the decision reached, the most important of which have been discussed in this chapter.

Comparative wage rates probably bears the greatest influence, for this factor plays two roles. It is a standard of comparison and a method of dispersing wage movements. Cost of living and ability to pay enter the decision as pressures for movement. They operate as initiators of wage movements. In upward movements, cost of living furnishes the thrust. Inability to pay operates as a ceiling and, in downward movements, a pressure. Productivity, an independent factor in some decisions, operates in most cases through ability to pay. Union wage policy is a force in both union and nonunion wage level determination, but only one force. The final decision must meet the test of ability to attract and hold an adequate labor force and provide it with motivation.

Minimum budgets and the concept of the living wage are too indefinite as standards to be useful. Purchasing power is too broad a consideration to be applicable to a particular wage level decision.

PERCENTAGE VERSUS FLAT INCREASES

To most organizations the problem of wage level appears in terms of changes in the wage level—the question of how large an "across-the-board" change in wage rates is to be made.[100] When the decision has been made that such a change in wage level is desirable, a question still remains—Should the general increase (or decrease) be made a flat amount or a percentage?

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[99] David Kaplan, in an address recorded in *Wages and Employment* (Madison: Industrial Relations Center, University of Wisconsin, April 29, 1950, mimeographed), p. 8.

[100] Reynolds, *Labor Economics and Labor Relations*, 2nd ed., p. 574.

Most employers probably favor a percentage change because this serves to maintain differentials between skill levels.[101] Thus a one per cent increase would give a worker earning $1.00 an hour a one-cent increase, and a worker earning $2.00 an hour a two-cent increase. A flat cents-per-hour change, however, would give both the same increase.

Unions, for political reasons, tend to favor the latter type of wage level change. In many unions, especially the industrial type, the majority of workers are in lower-pay categories and represent a politically potent group. Also, where changes in wage levels are based on changes in living costs, it is possible to argue that higher-paid workers pay less proportionately for necessities and are thus no more affected by changes in the cost of living than lower-paid workers. In this form, the argument becomes another political reason for union insistence on flat increases.

In any case, many increases in wage levels in unionized organizations have been of the cents-per-hour variety rather than percentage changes. The result is a reduction in skill differentials—less slope to the wage curve. When the process continues over a period of time, political pressures for restoration of traditional differentials begin to build up, as skilled workers become more vociferous in their demands. The result is often a demand for a flat cents-per-hour increase, with additional amounts for skilled workers in various classifications.[102] Another solution sometimes adopted is alternating absolute and percentage changes in wage levels.

Nonunion employers with formal wage and salary administration programs tend toward percentage changes in wage levels in order to maintain skill differentials between jobs. Over any significant period of time, reduction of differentials between unskilled and skilled labor may have an adverse effect on the supply of skilled labor. This is true chiefly because the time, trouble, and expense incident to acquiring such skills must be compensated for to make such skill acquisition worthwhile. While it is true that skill differ-

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[101] Skill differentials are a concern of the problem of wage structures. It should be noted, however, that the manner in which wage levels are changed can greatly affect wage structures.

[102] See "Added Raises for the Skilled?" *Business Week*, June 27, 1953, pp. 137–139.

entials have been reduced in recent years,[103] this may be partially explained by forces that decreased the relative supply of the unskilled group (declining immigration) and increased the relative supply of the skilled group (later age of leaving school).[104] There is evidence, however, that this narrowing of skill differentials has meant less incentive to acquire specialized skills.[105] At any rate, special wage increases for the skilled were instituted in several industries in recent years. In the long run, the use of differentials to induce training and the assumption of responsibility that goes with higher level jobs cannot be neglected.[106]

TANDEM WAGE ADJUSTMENTS

In many organizations, solution to the problem of wage and salary levels is complicated by the fact that only a portion of employees is unionized. Thus, collective bargaining sets the level for organized employees and the employer makes decisions unilaterally on other groups. Although such decisions are based upon considerations such as those laid down in this chapter, usual practice appears to be to make tandem adjustments, i.e., give such increases (or decreases) to unorganized groups as to prevent serious inequities from occurring.[107] Here, however, the employer is able to adhere to percentage rather than flat adjustments. For example, a flat rate adjustment to shop workers may be translated into percentage terms and applied to other groups.

Actually, the principle on which tandem adjustments are based

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[103] The Bureau of Labor Statistics estimates that, in manufacturing, skilled workers, on the average, received 80 per cent more than unskilled workers in 1931–32, but only 55 per cent more in 1947. Harry Ober, "Occupational Wage Differentials," *Monthly Labor Review*, Vol. 67, No. 2 (August, 1948), pp. 127–134.

[104] H. M. Douty, "Union Impact on Wage Structures," *Monthly Labor Review*, Vol. 77, No. 2 (February, 1954), pp. 151–153.

[105] "Added Raises for the Skilled?" *Business Week*, June 27, 1953, pp. 137–139.

[106] H. M. Douty, "Union Impact on Wage Structures," in *Annual Proceedings of the Industrial Relations Research Association* (Madison, Wisconsin, 1954), p. 76. See also Irving Lewis Horowitz, *The Metal Machinery Trades in Philadelphia—An Occupational Survey*, Philadelphia, University of Pennsylvania, 1939 (an unpublished doctoral dissertation) for the opinions of principals in one trade.

[107] Yoder, *Personnel Principles and Policies*, p. 424.

is applicable more generally. Whenever wage level adjustments are made that apply to specific groups within the organization, customary relationships should receive consideration in making wage level decisions applicable to other groups.

PART THREE

The Problem of Wage and Salary Structures

6 · *Elements of Job Evaluation*

In free economies, employees for the most part are paid according to their contribution.[1] This contribution is largely determined by the job to which an employee is assigned. It is essential, therefore, that a method be found to determine the value of jobs.

This presents some difficult problems. It was seen in previous chapters that determining merely the average wage to be paid in an organization (wage levels) presents numerous obstacles. Determining the absolute value of each job would be even more difficult. Fortunately, however, such a determination is not necessary. The objective may be realized by determining the *relative* value of jobs and pricing them so that the average wage of the jobs in the organization equals the level chosen.

THE PROBLEM OF STRUCTURE

Determining the relationship between jobs and assigning wage and salary rates in accordance with this relationship is the problem of wage structure. A solution to the problem of wage structure is just as important to the organization as a solution to the problem of wage level. While workers may be dissatisfied if, in their opinion, the level of wages in their organization is too low, even more serious dissatisfaction may occur if wages paid on the various jobs do not correspond to their conception of job importance.

In fact, certain authorities believe that employees are more sensitive to and critical of inequities in the relative value attached to

[1] Yoder, *Personnel Principles and Policies*, p. 411.

jobs than in the absolute values.[2] They believe that although qualified employees may be attracted to the organization by a proper wage and salary level, they will not remain if wages paid on jobs do not correspond with the relative significance of the jobs, as employees view them. Those familiar with employees' feelings regarding wages and salaries are convinced that employees expect more difficult and more responsible jobs to be paid more than less difficult and less responsible jobs. Substantial deviations from such a principle allowed to exist over a period of time offend the employees' sense of fairness and eventually result in loss of confidence in management.

Management, likewise, in basing compensation on contribution, accepts the principle that jobs should be valued in terms of their significance—but their significance to the organization. It is seen that a possibility of conflict exists, i.e., that job significance in the eyes of management may differ from job significance in the eyes of employees.

Actually, as will be seen in the section on Union Opinions on Job Evaluation in Chapter 10, the difference between these two views of job importance is one of inclusiveness. Management often concentrates on job content, while employees would include other factors (stability of employment, traditional relationships, promotional opportunities) as well.[3]

Thus, a solution to the problem of structure calls for some method of setting up and maintaining a relationship between jobs and wages attached to these jobs that accords with job significance. Such a method should see that jobs of higher significance are valued more highly than jobs of lesser significance.

POSSIBLE SOLUTIONS

Solution to the problem of structure can be accomplished in a variety of ways. It may be based simply on the experience and judgment of management. In very small organizations this is quite

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[2] Otis and Leukart, *Job Evaluation*, p. 2; William Gomberg, *A Labor Union Manual on Job Evaluation* (Chicago: Labor Education Division, Roosevelt College, 1947), p. 72; Pigors and Meyers, *Personnel Administration*, p. 254.

[3] See William Gomberg, "Joint Union-Management Evaluation," in *Job Evaluation Practices, Research and Technical Report 9* (Minneapolis: Industrial Relations Center, University of Minnesota, 1951), pp. 21–29.

usual. Management is familiar with job duties and job requirements, and informally sets up a hierarchy of jobs and wages based on this knowledge.

Solution may be based on collective bargaining. Where this is the case, the parties agree not only on a wage level but on wage rates for specific jobs. Although this is feasible where a limited number of jobs exist in the organization, it can become cumbersome in organizations comprising large numbers of jobs. Consequently, some unions have made use of a systematic method of determining job level along with collective bargaining.[4]

In recent years, formal job evaluation has served as a solution to the problem of structure in many organizations. Job evaluation is a systematic method of appraising the worth of each job in relation to other jobs in the organization.[5] It provides a consistent procedure that sets up and maintains a hierarchy of jobs and attaches to each job a pay rate commensurate with its status in the hierarchy. Job evaluation may be undertaken solely by management or jointly by management and the union. Occasionally, the parties have been known to evaluate jobs independently.[6] In most instances, the first of these possibilities is followed.

Because job evaluation has attained such prominence as an acceptable solution to the problem of wage structure, it is the solution stressed in this book. This chapter and the others concerned with wage and salary structures accept job evaluation as the technique most useful in this problem.

ELEMENTS OF JOB EVALUATION

Although several basic systems of job evaluation exist, as well as a number of modifications of these systems, the essential components are similar. These elements may be thought of as requisite steps in establishing the relative value of jobs. The first step is a study

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[4] See L. Cohen, "Unions and Job Evaluation," *Personnel Journal*, Vol. 27, No. 1 (May, 1948), pp. 7–19. In this study, several unions were found that formally evaluate company jobs independently of the company, to use as an aid in collective bargaining.

[5] See Otis and Leukart, *Job Evaluation*, p. 15. "Job Evaluation: The complete operation of determining the value of an individual job in relation to other jobs in the organization. . . ."

[6] See fn. 4.

of jobs in the organization. Through the process of job analysis, facts regarding the duties and responsibilities of the job are obtained, together with information regarding worker requirements for successful performance of the job. These data are obtained, analyzed, and recorded in precise, consistent language.

The next step in job evaluation is deciding what the organization "is paying for," and consists of determining what factor or factors place one job at a higher level in the job hierarchy than another, and thus at a higher rate of pay. This decision is the core of job evaluation. These compensable factors are the yardstick(s) used to determine the relative value of jobs. Unless they are applicable to the jobs to be "measured," success of the project cannot be assured.

It is for this reason that it is suggested that job analysis should precede the decision on compensable factors. Such an important decision should, it would seem, be made only when all possible information which might influence the decision is available.

It should be noted, however, that in many job evaluation installations the decision on compensable factors is made before jobs are analyzed. This permits those making the job study to make judgments on the amount of each compensable factor present in a job at the time the jobs are analyzed. The practice is not objectionable if proper care has gone into the decision on compensable factors, and if sufficient information for such a decision exists prior to job study.

Often, however, what really happens is that this essential step—determining what the organization is paying for—is not taken. A ready made job evaluation system is adopted *in toto*, and it is assumed that the factors incorporated in the system are applicable to the organization and its jobs. If the factors in the system chosen are not applicable, and there is evidence that they often are not,[7] the results are unfortunate. Those responsible for job analysis are asked to assess the amounts of inapplicable factors existing in jobs, and even more serious, these are the only factors used, for no attempt is made later in the procedure to substitute more applicable factors.

Another danger needs emphasis. If those who perform the job

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[7] See J. S. Gray, "Custom Made Systems of Job Evaluation," *Journal of Applied Psychology*, Vol. 34, No. 6 (December, 1950), pp. 378–380.

analysis are provided with the compensable factors to be used later in actual evaluation of jobs and with careful definitions of these factors and their degrees, results of job analysis may be biased. There may be a tendency, conscious or unconscious, to follow the definitions rather than what is observed on the job. And if this occurs, the time and effort given to job study have been largely wasted. Even if such definitions are not provided, a mere perusal of such information before job study begins may likewise influence results.

All this suggests that the step of deciding what the organization is paying for (compensable factors) is an essential one. Likewise, it is important enough to be based on all the facts available.

If it is adjudged possible to make the decision prior to the job analysis process, the factors may be used by those performing the job study. But they should not be permitted to see degree definitions. They should merely be asked to indicate the amounts of factors present in jobs.

Preferable practice, however, would seem to be to decide on compensable factors after job analysis. Then those performing the job study may be asked to translate the information obtained into these terms, going back to the jobs where necessary in making this translation. To the extent job requirements found in the original analysis correspond to the selected compensable factors, this backtracking would be unnecessary. A restatement of job information in terms of amounts of compensable factors is known as a job specification.[8]

It should be noted that the job evaluation procedure does not require job specifications. Those evaluating jobs may choose to work merely from job duties and responsibilities obtained from job analysis.

The third step in job evaluation involves either developing or choosing a system for appraisal of the jobs in the organization according to the factor or factors chosen. This system should permit jobs involving more of a factor or factors to be consistently placed at a higher level in the job hierarchy than those involving lesser

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[8] Note that the term "job specification" as used in this book refers to a report, prepared specifically for job evaluation purposes, in which the job is written up in terms of compensable factors. See Mee (ed.), *Personnel Handbook*, pp. 158, 166–167.

amounts. The basic methods of comparing jobs may be used, but, as the discussion in previous paragraphs suggests, ready-made systems should be closely scrutinized. A ready-made system that has operated successfully in another installation may or may not be applicable to the organization under study. Its applicability depends on whether or not the factors incorporated in the system correspond with those in the organization. If a ready-made system is found that makes use of factors similar to those specified by the company, it may be used.[9] A custom-made system based on the compensable factors existing in the organization may, however, be advisable.[10]

The basic methods of comparing jobs are: (1) the ranking method, (2) the classification method, (3) the factor comparison method, and (4) the point method. Several modifications of these primary methods have been developed, as well as various combinations.

The fourth step is making use of the system to evaluate jobs. It involves following through the operations specified by the system —holding the committee meetings, reaching and recording decisions, and setting up the job structure.

The final step in job evaluation is pricing the job structure to arrive at the wage structure. In this step, wages and salaries are assigned to jobs in accordance with their position in the job hierarchy. The process varies somewhat with the method of job comparison used. Likewise, if a union is involved, the final wage structure may be a compromise. It may represent a tempering of the findings of job evaluation to union needs. When the wage structure is completed, it serves to spell out the decision reached on the wage level. At this point the organization's jobs are priced, and the average of these prices accords with the wage level determined.

The purpose of this discussion of the elements of job evaluation has been two-fold: (1) to point out the underlying logic of this method of solving the problem of structure; (2) to establish a framework for discussion.

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[9] This is not to imply that ready-made systems of job evaluation are rarely applicable. Many installations of ready-made job evaluation systems are in successful operation.

[10] Otis and Leukart, *Job Evaluation*, p. 200.

COLLECTING JOB FACTS

The job evaluation process begins with securing facts about jobs. This step must be taken if the wage structure eventually developed is to meet the needs of the organization. Failure to secure complete job facts has been cited as a primary reason for job evaluation failure.[11] In addition, carrying out later steps in job evaluation procedure is virtually impossible without these facts. A decision regarding what the organization is paying for (compensable factors) resting on any other basis must be considered questionable. And, as emphasized previously, this is the heart of the process. Nor can an applicable system of job evaluation be developed or chosen without complete job information.

Job information is obtained through a fact-collecting process known as job analysis. Job analysis is defined as the process of determining, by observation and study, and reporting pertinent information relating to the nature of a specific job.[12] Pertinent information is of three types: (1) the identity of the job, (2) a complete and accurate description of the tasks involved in the job, and (3) a specification of the requirements the job makes upon the worker.

Job analysis is a tool of many uses, of which job evaluation is only one. Fortunately, the three items mentioned above are basic to all uses. One of these uses of job analysis, that of determining job comparability in wage surveys, was mentioned in Chapter 4. Thus, job analysis as advocated here is applicable for usage in many of the personnel programs. It must, however, be sharply distinguished from time and motion study and methods analysis. As the titles imply, much more detailed information is obtained in these procedures, which will be discussed in Chapter 12.

A tremendous amount of effort has been wasted through the practice of making a specialized job study for each specific use.[13] Thus

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[11] John A. Patton and Reynold S. Smith, Jr., *Job Evaluation* (Chicago: Richard D. Irwin, Inc., 1949), p. 259. See also Otis and Leukart, *Job Evaluation*, p. 178.

[12] War Manpower Commission, Division of Occupational Analysis, *Training and Reference Manual for Job Analysis* (Washington: United States Government Printing Office, 1944), p. 1.

[13] Carroll L. Shartle, *Occupational Information* (New York: Prentice-Hall, Inc., 1952), p. 30.

a job analysis is often made as a prelude to job evaluation, only to discover six months later that, for training purposes, another analysis has to be made because certain information was not obtained in the original one. This suggests that the various departments should be polled before job analysis gets under way to determine the various needs for job facts. Then sufficient information should be obtained to satisfy the several purposes.

A general job analysis of the type suggested here will provide information not only for job evaluation, but for other purposes as well. The main reason for this is that the second category of information obtained (a complete description of job tasks) is the basic information needed in most uses of job analysis data. When complete job information is available, it is possible to extract from it information needed for specific purposes.

The information which must be obtained and reported in order to meet the requirements for a complete analysis of a job has been formalized into the "Job Analysis Formula" by the Division of Occupational Analysis of the United States Employment Service.[14] The "formula" includes four categories of information: (1) what the worker does, (2) how he does it, (3) why he does it, and (4) the skill involved in the doing.

In most uses of job information, there is need for (1) an indication of the exact nature and scope of the tasks involved in a job, and (2) a definition of the level of difficulty of those tasks. The first three parts of the formula, the "what," "how," and "why," bring out the nature and scope of the tasks. The last part, the "skill involved," is concerned with the degree of difficulty of the tasks and with defining the nature of the required skills in order to indicate their difficulty.

Jobs

In order to study a job, it is necessary to know what a job is. The term has so many meanings in lay language that it needs careful definition before it can be used here. Also, its meaning will be clearer if two other terms are explained first and this information used in the definition of the word *job*. The other terms are *task* and *position*.

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[14] United States Employment Service, *Guide for Analyzing Jobs* (Washington: United States Government Printing Office, 1946).

A *task* exists whenever human effort must be exerted for a specific purpose. When sufficient tasks accumulate to justify the employment of a worker, a *position* exists. Thus, a *position* is *an aggregation of duties, tasks, and responsibilities requiring the services of one individual.*[15] It is seen from this definition that in any organization there are as many positions as workers.

If it were necessary to study every position in an organization, the task involved would be tremendous and probably impractical for many organizations. Fortunately, it is not necessary that every position be studied. Because many positions are identical, it is possible to study jobs.

Thus, a *job* may be defined as *a group of positions which are identical* with respect to their major or significant tasks.[16] An example will perhaps make the distinction between position and job more apparent. A local retail store employs 18 people consisting of the manager, two office employees, ten sales people, three people involved in receiving, marking, and stocking merchandise, and two people involved in delivery. Let us assume that the tasks are so aligned that the positions involved in each of the functions are identical. Thus the store contains 18 positions, but only five jobs. The five jobs might be titled as follows: (1) manager, (2) bookkeeper, (3) salesman, (4) stock-keeper, (5) deliveryman. It is seen from this example that analyzing each position would be uneconomical. All that is necessary is to analyze the five separate jobs.

Before job study is undertaken in an organization, it is necessary to determine what jobs exist in the organization. An organization chart may be of use in this connection. Likewise, listing existing positions by departments provides a useful beginning point. To determine the number of jobs, it is often necessary to go into a department and analyze a group of positions to find the basic units, and to discover the exact nature of the jobs in the department. Careful questioning of supervisors may also aid in determining the jobs to be found in the organization.

As an example, suppose an establishment employs ten workers who operate drill presses. Each of these workers occupies a position. Although there may be minor differences among the ten

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[15] War Manpower Commission, Division of Occupational Analysis, *Training and Reference Manual for Job Analysis* (Washington: United States Government Printing Office, 1944), p. 7.

[16] *Ibid.*, p. 7.

positions with respect to operations performed, materials worked on, and types of machine setup required, all ten workers are operating the same kind of machine, performing operations of a comparable difficulty. Thus, these ten positions have identical major tasks and constitute one job. If, on the other hand, five of the workers set up their own machines and do complex work whereas the other five have their machines set up for them and do only routine work, there are two jobs involved.

Jobs should be studied *as they exist* at the time of the analysis in the organization under study. Though it is well recognized that jobs change, job analysis is concerned with the job as it is performed at the time of the study.

Before analysis begins it is useful to prepare an inventory of jobs, called a *staffing schedule*. This is a listing of jobs by department, indicating the number of employees on each job by sex. A staffing schedule not only indicates the scope of the project, but tends to eliminate duplication. An example of a staffing schedule is shown in Figure 10.

Figure 10

STAFFING SCHEDULE

Dept. No. and Name	*Job Number and Title*	*Number Employed* Male	Female
1. ADDRESSOGRAPH ( )			
	1.02 Chief Addressograph Operator		1
	1.03 Addressograph Operator		1
2. CARDING—Fly and Leader ( )			
	2.00 Supervisor		1
	2.01 Supervisor's Assistant		1
	2.02 Fly and Leader Carder		5
	2.03 Fly and Leader Packer		4
3. CARDING—Snelled Hook ( )			
	3.00 Supervisor		1
	3.02 Snelled Hook Carder		14
	3.03 Snelled Hook Packer		3
4. FLY ( )			
	4.00 Supervisor		1
	4.02 Trainer		1
	4.03 Fly Tier—I		20
	4.04 Fly Tier—II		10
	4.05 Fly Tier—III		34
	4.06 Fly Tier—IV		8
	4.07 Fly Tier—V		6

Figure 10 (Cont.)

Dept. No. and Name	*Job Number and Title*	*Number Employed* Male	Female
5. FLY—Inspection ( )			
	5.00 Supervisor		1
	5.02 Fly Inspector		2
	5.03 Order Clerk		1
	5.04 Stock Clerk		1
6. FLY—Painting ( )			
	6.00 Supervisor		1
	6.01 Chief Fly Painter		1
	6.02 Fly Painter and Assembler		7
7. JOB STOCK ROOM & SHIPPING ( )			
	7.00 Supervisor	1	
	7.02 Shipping Clerk	1	
	7.03 Packing Clerk	1	
	7.04 Coiling Machine Operator (10 yd.)		2
	7.05 Coiling Machine Operator (100 yd.)		2
	7.06 Leader Materials Boxer		1
	7.07 Leader Materials Dyer		2
	7.08 Specialty Mixer		2

Once it has been determined what jobs exist in the organization, a job analysis should be made of each job. In individual cases, however, there are complicating situations that may occur and that must be handled in a consistent manner. For example, a situation may exist where workers are interchangeable and frequently change from one set of tasks to another. In some organizations this is done to relieve monotony. The essential point here is that all workers can and do perform all of the tasks. In such a case, the tasks should be considered *one job* and analyzed collectively.

Another situation is where workers are interchangeable and do change to another set of tasks in an *emergency*. Here, it is necessary to analyze the separate jobs. If there is any doubt as to whether one or more than one job is involved, it is better to make separate analyses rather than a combined one.

Job Analyzers

Obviously, job study requires people to accomplish the process. On this matter there is much variation in practice. Some employers delegate the task to employees by furnishing them with a questionnaire which they are asked to fill out. Some assign the work to supervisors, whereas others have the preliminary work done by employees and ask supervisors to check the information furnished.

The trend of present practice, however, is to have job study conducted by job analysts. Such job analysts are individuals who have been trained in the process of job analysis and know what to look for and what questions to ask.

Shartle [17] states that persons with various educational backgrounds have been successful job analysts—that persons with engineering training are no better than any other group of equal intelligence and interest. He has had very limited success in selecting analysts with tests so far employed. It is accepted, however, that it is possible to train job analysts.

Job analysis is learned by doing. Although study into the purpose and procedures of job analysis should precede actual analysis, the job analyst's basic training is obtained through analyzing jobs and going over the results with his supervisor or trainer. Shartle has found that after a week of intensive training on purposes and procedures, it takes at least six months under close supervision for most analysts to become reasonably proficient.[18]

Trained job analysts know what to look for and what questions to ask, but when brought in from outside, they must spend time learning the organization. Employees and supervisors, on the other hand, know a good deal about the organization but are lacking in training in how to analyze jobs. An organization starting a program will probably find that the best procedure is to hire a trained job analyst who possesses the attributes of a trainer. Such an individual will be able to train analysts from among present employees and supervisors.

Methods of Obtaining Job Information

The methods used in obtaining information about jobs are (1) questionnaire, (2) observation, (3) interview, (4) combinations of (1) and (2), (1) and (3), and particularly (2) and (3). While it is usually agreed that a combination of observation and interview is the best method, there is sufficient variation in practice to suggest that discussion of other methods would be useful.

The questionnaire has many drawbacks, and present practice tends

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[17] Shartle, *Occupational Information*, p. 43.
[18] Shartle, *Occupational Information*, p. 44.

to limit its use to clerical and executive job analysis. For an example of such a questionnaire, see Figure 11. The basic objections to use of a questionnaire in job analysis are: (1) variations among workers in ability to express themselves in writing, (2) resentment on the part of some workers when asked to fill out forms, (3) the time taken by workers on the questionnaire, and (4) loss of production.[19]

Figure 11 *

EMPLOYEES' QUESTIONNAIRE FORM

Title of Position _____

Department _____ Section _____

Division _____ Date _____

Please read all of the questions before making any entries; then answer each one as briefly as possible, consistent with complete information. Return this description within one week to the Job Analyst, Personnel Department.

DESCRIPTION OF DUTIES

1. What is the general purpose of your work?
2. What duties do you personally perform in the usual course of your work? (Tell from where you receive your work, what you do with it, and where you send it. In answering this question, discuss your daily routine.)
3. What duties do you perform only at stated periods, such as weekly, monthly, etc.?
4. What occasional duties do you perform at irregular intervals?
5. How many employees do you supervise? (List job names and number of people in each job.)
6. To whom are you directly responsible?
7. What, if any, instructions do you receive as to how the work is to be done, and from whom are they received?

PERFORMANCE OF DUTIES

A. Mental Requirements

8. What is the lowest grade of grammar school, high school, or college education that should be required of a person starting in your position?
9. If any special courses are needed in order to perform your duties satisfactorily, name them.

B. Skill

10. What past experience is it necessary for a new employee to have in

[19] Otis and Leukart, *Job Evaluation*, p. 189.

Figure 11 (Cont.)

order to learn to perform the duties of your position? Name the kind of experience, where and how it could be obtained, and the time required to secure it.

11. Having the above education and experience, what would a new employee have yet to learn, and how long would it take the employee to reach the point at which he would be barely satisfactory?
12. In what lower positions could an employee receive training for your position?
13. For what higher positions in the company does your present work train you?
14. What, in your opinion, is the most difficult part of your work, and why is it difficult?

C. *Physical Effort*

15. Roughly, what proportions of your time are spent in:
Standing, —%; sitting, —%; moving about, —%; other, —%?
16. What machines or other equipment do you personally operate; regularly or only occasionally?
17. Roughly, what proportion of your time is spent in operating each machine you use? State also what degree of speed is required on each machine.
18. What, if any, are the physical requirements for the proper performance of your duties? (Strength, height, dexterity, etc.)
19. Please list any other requirements not covered above, and any personal qualifications and characteristics which you believe a candidate for your position should have.

RESPONSIBILITY

20. What is your responsibility for money, securities, or other valuables?
21. What is the nature and extent of your responsibility for the employees under your supervision?
22. Give the nature and extent of any responsibility you may have other than for men or money.
23. What personal dealings with customers do you have in performing the duties of your position? State the nature of your business with the customers.
24. Roughly, what proportion of your time is spent in dealing with customers?

WORKING CONDITIONS

25. What are your usual working hours?
26. What are the disagreeable features of your work?

Use this space and additional sheets of paper, if necessary, for any special features of your work not covered above, and for answers to questions for which more space is needed.

Your Name _____ Years in this position _____

* Source: Policyholders Service Bureau, Group Insurance Division, Metropolitan Life Insurance Company, *An Introduction to Job Evaluation* (1947), pp. 16–17.

In spite of the general validity of such objections, there are those who use the questionnaire as the first step in a job analysis program. The reason for this is that one of the requirements of a successful job analysis program is that it be "sold" to employees; if employees have an opportunity to state the duties and requirements of their job and if they are shown the final results, they tend to accept the essential fairness of the program.

Actual observation of the work is readily admitted to be necessary if all job facts are to be obtained. Probably only in this way can the relative importance of the various tasks be properly adjudged.

Likewise, an interview with the employee and with his supervisor is essential to complete information. Often the importance of tasks can be determined only after knowing where a task fits into the work of the unit. Such information is best obtained by interview.

It can be seen that observation and interview are essential to securing facts about most jobs. Questionnaires may also be used, but, with the possible exception of analysis of clerical and executive jobs, mainly for the purpose of selling the program.

Information to Be Obtained

Essentially, the information to be obtained by job analysis fits into three categories: (1) identification, (2) work performed or duties, and (3) worker requirements. This information is entered on a job analysis report or job analysis schedule and is later transferred to a job description or job specification or both.

The job analysis report is merely a form for recording job information as obtained through job analysis. As such, it may take any number of forms and may be extremely detailed. Probably the most inclusive form is the job analysis schedule worked out by the Occupational Research Division of the United States Employment Service and reproduced in Figure 12. The Physical Demands Form and the Worker Characteristics Form, though bearing separate titles, are part of the total schedule.

Figure 12 *

JOB ANALYSIS SCHEDULE

1. Job title_____ 2. Number_____
3. Number employed M_____ F____ 4. Establishment No._____
6. Alternate titles_____ 5. Date_____
Number of sheets_____
8. Industry_____
9. Branch_____
7. Dictionary Title and Code_____ 10. Department_____

11. WORK PERFORMED:

Continue on Supplementary Sheets

Analyst_____ Reviewer_____

Figure 12 (Cont.)

SOURCES OF WORKERS

12. Experience: None_____ Acceptable_____

13. Training Data: Minimum Training Time
    a. Inexperienced Workers
    b. Experienced Workers

Training	Specific Job Skills Acquired Through Training
In-Plant Training	
Vocational Training	
Technical Training	
(SRW) Eng. General Education	
Activities and Hobbies	

14. Apprenticeship: Formal_____ Informal_____ Length Required_____
15. Relation to Other Jobs:
    a. Promotions from and to, transfers, etc.:_____
    b. Supervision Received: General_____ Close_____ By (Title)_____
    c. Supervision Given: None_____ Number Supervised_____ Titles_____

The following items must be covered on supplementary sheets:

PERFORMANCE REQUIREMENTS

16. Responsibility (Consider material or product, safety of others, equipment or process, cooperation with others, instruction of others, public contacts, and the like)
17. Job knowledge (Consider pre-employment and on-the-job knowledge of equipment, materials, working procedures, techniques, and processes)
18. Mental Application (Consider initiative, adaptability, independent judgment, and mental alertness)
19. Dexterity and Accuracy (Consider speed and degree of precision, dexterity, accuracy, coordination, expertness, care, and deftness of manipulation, operation, or processing of materials, tools, instruments, or gages used)

COMMENTS

20. Equipment, Materials, and Supplies
21. Definition of Terms

Figure 12 (Cont.)

PHYSICAL DEMANDS FORM

Job Title_____ Occupational Code_____

Dictionary Title_____

Firm Name & Address_____

Industry_____ Industrial Code_____

Branch_____ Department_____

Company Officer_____ Analyst_____ Date_____

PHYSICAL ACTIVITIES			
1	Walking	16	Throwing
2	Jumping	17	Pushing
3	Running	18	Pulling
4	Balancing	19	Handling
5	Climbing	20	Fingering
6	Crawling	21	Feeling
7	Standing	22	Talking
8	Turning	23	Hearing
9	Stooping	24	Seeing
10	Crouching	25	Color Vision
11	Kneeling	26	Depth Perception
12	Sitting	27	Working Speed
13	Reaching	28	
14	Lifting	29	
15	Carrying	30	

WORKING CONDITIONS			
51	Inside	66	Mechanical Hazards
52	Outside	67	Moving Objects
53	Hot	68	Cramped Quarters
54	Cold	69	High Places
55	Sudden Temp. Changes	70	Exposure to Burns
56	Humid	71	Electrical Hazards
57	Dry	72	Explosives
58	Wet	73	Radiant Energy
59	Dusty	74	Toxic Conditions
60	Dirty	75	Working with Others
61	Odors	76	Working Around Others
62	Noisy	77	Working Alone
63	Adequate Lighting	78	
64	Adequate Ventilation	79	
65	Vibration	80	

DETAILS OF PHYSICAL ACTIVITIES:

DETAILS OF WORKING CONDITIONS:

DETAILS OF HAZARDS:

Figure 12 (Cont.)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

WORKER CHARACTERISTICS FORM

Job Title_____ Schedule No._____

Indicate the amount of each characteristic required of the worker in order to do the job satisfactorily by putting an X in the appropriate column. Following are the definitions of each level:

O—The characteristic is not required for satisfactory performance of the job.
C—A medium to very low degree of the characteristic is required in some element or elements of the job.
B—An above-average degree of the characteristic is required, either in numerous elements of the job or in the major or most skilled element.
A—A very high degree of the characteristic is required in some element of the job.

When in doubt between A and B, rate B; when in doubt between B and C, rate B; when in doubt between C and O, rate C. If some characteristic not on this list is required, write it in, rate it, and define it briefly at the bottom of the form.

Amount				Characteristics Required	Amount				Characteristics Required
O	C	B	A		O	C	B	A	
				1. Work rapidly for long periods.					26. Arithmetic computation.
				2. Strength of hands.					27. Intelligence.
				3. Strength of arms.					28. Adaptability.
				4. Strength of back.					29. Ability to make decisions.
				5. Strength of legs.					30. Ability to plan.
				6. Dexterity of fingers.					31. Initiative.
				7. Dexterity of hands and arms.					32. Understanding mechanical devices.
				8. Dexterity of foot and leg.					33. Attention to many items.
				9. Eye-hand coordination.					34. Oral expression.
				10. Foot-hand-eye coordination.					35. Skill in written expression.
				11. Coordination of both hands.					36. Tact in dealing with people.
				12. Estimate size of objects.					37. Memory of names and persons.
				13. Estimate quantity of objects.					38. Personal appearance.
				14. Perceive form of objects.					39. Concentration amidst distractions.
				15. Estimate speed of moving objects.					40. Emotional stability.
				16. Keenness of vision.					41. Work under hazardous conditions.
				17. Keenness of hearing.					42. Estimate quality of objects.
				18. Sense of smell.					43. Unpleasant physical conditions.
				19. Sense of taste.					44. Color discrimination.
				20. Touch discrimination.					45. Ability to meet and deal with public.
				21. Muscular discrimination.					46. Height.
				22. Memory for details (things).					47. Weight.
				23. Memory for ideas (abstracts).					48. _____
				24. Memory for oral directions.					49. _____
				25. Memory for written directions.					50. _____

Definitions for additional characteristics:

* Source: War Manpower Commission, Bureau of Manpower Utilization, Division of Occupational Analysis and Manning Tables, *Training and Reference Manual for Job Analysis* (Washington, D. C., June, 1944).

Because of the varied uses of job information in USES, the forms contain a greater number of items than most such forms. Page one of the form (page 142) includes the identification items (1–10), and item 11, work performed, is the heart of the analysis. Page two of the form (page 143) covers items regarding sources of workers, performance requirements, and comments. The Physical Demands form (page 144) and the Worker Characteristics form (page 145) also include identification items and may be used separately if desired as well as with the first two pages. In fact, as will be seen in Chapter 8, the Worker Characteristics form has been investigated as a job evaluation method.

Such detailed forms tend to spell out what to look for in worker requirements. Although this is a convenience to the analyst, it may be a questionable practice from the standpoint of the usage of the data. It may be possible to include in such a form the majority of the requirements for most jobs; but it is questionable as to whether all the factors applicable to jobs are recorded.[20]

Returning to the logic of job evaluation for a moment, remember that we are seeking job facts from which to select a factor or several factors that we are paying for. Listing such factors on the job analysis report could easily bias the facts obtained. The job analyst could be unconsciously influenced by the fact that a factor is or is not listed.

For these reasons, it seems advisable to provide only three broad categories of information on the job analysis report and permit the analyst to record the information he finds. These categories would be: (1) identification, (2) work performed, (3) worker requirements.

Identification

Here, such information will be provided as will serve to identify the job under study. The job title as actually used on the job should be used, i.e., the title that would be used by the employer in requesting referral of an applicant, or one used by the workers in

[20] I make this statement even though the authors insist that "it has been established by thorough and careful investigation that the factors included in this section are entirely adequate and comprehensive to bring out properly the skills, knowledges, abilities, and other characteristics required of a worker by any job, regardless of whether the job is manual, craft, professional, clerical, or other type." War Manpower Commission, *Training and Reference Manual for Job Analysis*, p. 24.

referring to the job. If more than one title is used, the alternate titles should be listed. Also, the number employed on the job should be recorded; this may be pertinent in determining the importance of the job to the organization. If a numbering system is used by the organization to identify jobs, the job number should be noted, along with the department where the job is to be found.

Finally, if the job being analyzed can be identified in the *Dictionary of Occupational Titles*,[21] the *Dictionary* title should be entered. Such an entry can be made, however, only when the job under analysis is identical in all significant respects to the job defined in the *Dictionary*. Wherever possible, such information should be recorded because it may be extremely useful in making comparisons between jobs.

Work Performed

This section is intended to present a clear, concise, accurate statement regarding the tasks performed by a worker in accomplishing the purpose of his job. To define the scope of the job, the work performed section must describe what the worker does, how he does it, and why he does it.

This section should give a correct portrayal of the purpose, content, and requirements of each job. It should consist of a summary statement that gives an over-all identification to the job in as few words as possible, followed by an orderly series of statements which describe each step of the job.

The function of the summary statement is to give the reader an over-all concept of the purpose, nature, and extent of the tasks performed and how the job differs generally from all other jobs. The selection of words is most important. Such vague terms as "designs," "lays out," and "adjusts" are not sufficiently precise to point up the important aspects of the job nor to distinguish a job from others.

The rest of the work performed section should expand upon the summary statement and explain the important details of the job so logically, concisely, and specifically that an uninformed reader can visualize the tasks and understand the job. Generally, in describing

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[21] United States Employment Service, *Dictionary of Occupational Titles* (Washington: United States Government Printing Office, 1939).

the duties of the job, it is desirable to record the information in chronological order. This is not always possible, however. The organization of the tasks will vary with the job, but they should be set up in such a way as to provide all of the information on one phase of the job in one place. The primary consideration in organization is to present the material so that the uninformed reader can obtain a clear picture of the work performed on the job. The number of tasks into which the work performed section is broken down must, of course, vary from job to job. There is room, however, for decision on the part of the analyst. The tasks may be limited in number with each broad task spelled out in narrative form; [22] or a more detailed breakdown may be used.[23] It has been suggested that the latter approach permits job analysis to be accomplished more quickly.

Especially important in giving a clear concept of the work performed is the style used. The presentation should be a concise, well-worded, easily read, informative narrative built upon the organization plan. In such a narrative, the job is constructed as it is analyzed. The conciseness desired must come from well-chosen words with specific meanings and not from a "telegraphic" style. The information given must be specific and in sufficient detail to give the "what," "how," and "why," but should not contain a mass of unimportant facts.

In writing the body of the work performed section to obtain the clearest presentation, the job is divided into its major tasks and one numbered statement devoted to each. Each task is introduced with a "flag" statement which shows generally what is being done, followed by a detailed account of how and why it is done. See Figure 13.

The style to be followed should conform to four basic rules of writing: [24]

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[22] Otis and Leukart, in *Job Evaluation*, p. 237, suggest that three to eight tasks suffice for most jobs.

[23] John W. Thompson, "Functional Job Descriptions," *Personnel Journal*, Vol. 30, No. 10 (March, 1952), pp. 380–388.

[24] War Manpower Commission, *Training and Reference Manual for Job Analysis*, p. 16.

Figure 13

EXAMPLE OF WORK PERFORMED SECTION*

Job title *Engine Lathe Operator, First Class*

WORK PERFORMED:

Sets up and operates an Engine Lathe to turn small airplane fittings from brass or steel bar-stock or from unfinished aluminum or magnesium alloy castings, finishing the fittings down to specified close tolerances.

1. *Examines written instructions or job orders received together with blueprints or parts from FOREMAN, to determine the number and kinds of parts required and the kind of metal stock or rough castings from which the finished pieces are to be made. Requisitions and obtains the required amount of bar-stock or rough castings from the stockroom and carries the stock to the workplace by hand, hand truck or by monorail crane. As necessary, measures the bar-stock and rough cuts it with a Power Hacksaw into lengths suitable for machining (1—percentage of time negligible).*
2. *Sets up lathe: Carefully examines blueprints to determine the dimensions of the part to be machined, using shop mathematics to calculate any dimensions not given directly on the prints or to calculate machine settings.*
   a. *Sets up lathe to turn stock held in a chuck: Attaches to lathe the accessories, such as* Chuck *and* Toolholder, *necessary to perform the machining, threading and locking the chuck on the headstock spindle, and setting and tightening the toolholder in the* Tool Post *with a setscrew (tool post screw) and wrench. Opens the chuck jaws to the approximate size of the workpiece with a* Chuck Wrench, *inserts the workpiece between the jaws, and tightens the jaws down on it. Carefully centers the workpiece in the chuck jaws, locating a* Dial Indicator *against the workpiece, rotating the chuck and workpiece by hand, and making coincident minor adjustments to the chuck jaws until all "wobble" in the workpiece disappears as shown by the needle of the dial indicator.*

* Example only, not complete.

1. A terse, direct style should be employed.
2. Each sentence should begin with a functional verb.
3. The present tense should be employed throughout.
4. All words that do not impart necessary information should be omitted.

Each sentence and phrase of the work performed section should be measured when written against the Job Analysis Formula. If what has been written answers each of the three questions (what, how, why), the quality of the information is assured. If, however, any of these questions remain unanswered, the statement must be revised to supply the deficiency.

Words should be used that have only one possible connotation and that specifically describe the manner in which the work is accomplished. For example, it is inadequate to state merely that the worker "feeds the machine." Does he *insert* the pieces one at a time, does he *hold* the workpiece, or does he *clamp* it in a jig?

The work performed section should include duties performed infrequently, as well as normal tasks. Such "occasional" tasks should be described with a notation concerning their frequency of performance. If, however, any of these duties consume enough of the worker's time to permit recording a percentage of time, it is unnecessary to indicate frequency in the narrative. In presentation, these occasional tasks follow major tasks.

Where particular tasks of a job may be performed by one worker or by another, these tasks should be included and their description introduced by the word "may." The word "may" should be reserved solely for this use. These tasks should follow the regularly and usually assigned elements of a job. In the tasks of the work performed section careful mention must be made of all tasks and equipment which the worker uses.

The tasks of the job are thus presented as consecutively numbered and paragraphed statements. At the end of each paragraph is a notation giving the approximate percentage of time involved in the performance of the task described.

Worker Requirements

Although not all job evaluation systems require the information, the job analysis process usually secures information on worker requirements. It is this section which rounds out an explanation of the difficulty of the job.

This portion of job analysis requires that the analyst be more than an observer. Here, judgment enters in.[25] In arriving at and reporting these judgments, the analyst makes a detailed analysis and interpretation of the basic minimum skills, knowledges, abilities, and responsibilities required of the worker for successful performance of the job.[26]

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[25] Otis and Leukart, *Job Evaluation*, p. 254.

[26] War Manpower Commission, *Training and Reference Manual for Job Analysis*, p. 24.

In arriving at these decisions, the job analyst should review carefully each task recorded in the work performed section. Careful review of each task suggests attributes the worker must possess. Analysis and interpretation permit a decision not only on presence or absence of the factor, but on the degree to which it is present. This suggests that the worker requirements section should be completed soon after the work performed section.

In recording worker requirement information, the analyst should avoid the use of generalized words such as "normal," "great," and "careful." These words mean little except in a relative sense and may have greatly different connotations for different individuals. It is usually possible to cite specific examples, draw comparisons, or prescribe limits which will define accurately the degree of the factor present. Further, it is often useful to report the nonexistence of given worker requirements, the presence of which might be inferred from other sections.

JOB DESCRIPTIONS

The job analysis report contains the information secured in the job analysis process. It was suggested at the beginning of the discussion on job analysis, however, that such information finds many uses in the personnel program. Consequently, this report may contain more detail than is necessary for job evaluation. It is customary, therefore, to write job descriptions and/or job specifications from the job analysis report in terms of the specific use to be made of them. This section and the one following deal with these forms as used in job evaluation.

The purpose of writing job descriptions and job specifications is to record the job information in a standard form preparatory to job evaluation. To accomplish this purpose, the information is presented in the most accurate, meaningful, and readable fashion. More important, the organization is standardized so that the information is comparable.

Job evaluation may be based upon job descriptions, job specifications, or both. Job descriptions normally include identifying data and job content and scope. Job specifications customarily contain job requirements and worker qualifications.

Job descriptions for wage purposes include a standard job title

for each job. As a result of the job analysis process, it should be possible to adopt a standardized nomenclature and a single title for each job. The title selected should be (1) similar or identical to one applied previously, (2) set up in natural (not inverted) form, (3) brief, (4) descriptive, (5) conversational, (6) indicative of skill and supervisory level, (7) capable of consistent usage.[27]

When used in job evaluation, job descriptions should identify, define, and describe jobs. A clear picture of the duties and responsibilities of the job should be provided. And, in case job descriptions alone are used as a basis of evaluating jobs, they should provide sufficient detail to permit evaluators to judge the difficulty-level of the job. However, no more detail should be furnished than is necessary to appraise the level of difficulty.

In form, the job description includes three parts: (1) identification, (2) summary statement, and (3) work performed. These sections correspond with the identification and work performed sections of the job analysis report. Items to be included and style of writing were discussed previously and need not be included here. The work performed section of the job description may, however, quite possibly include less detail than the job analysis report. Figures 14 and 15 are examples of job descriptions for job evaluation.

More and more, job evaluation is being based upon job specifications, either in conjunction with job descriptions or alone. Job specifications are primarily descriptions of the skill involved in the job and other requirements that the job makes upon the worker. For job evaluation purposes, however, these reports are written in terms of compensable factors. For this reason, discussion of job specifications is deferred until consideration has been given to determining compensable factors.

DETERMINING WHAT THE ORGANIZATION IS PAYING FOR

After jobs have been studied and job facts have been obtained, the next step in job evaluation is to determine what the organization is paying for. Using available job information as a basis, a decision

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[27] Otis and Leukart, *Job Evaluation*, pp. 226–227.

Figure 14

OFFICE JOB DESCRIPTION

General Office Clerk	*1 M 2 F*	*114*
Job Title	Number Employed	Job Number

WORK PERFORMED:

Summary: *Performs a variety of stenographic, clerical, bookkeeping and cashier duties in the general office.*

Details of Operation:

1. *Operates bookkeeping machine to post accounts payable and to prepare accounts receivable invoices: places selected form of record on the flat writing surface of machine; depresses keys to type descriptive data, unit costs, and to calculate totals and net amounts; uses hand-operated adding machine to compute totals required on various records and reports.* 40%
2. *Performs stenographic duties: takes correspondence dictation from Office Manager and department buyers in shorthand and transcribes on the typewriter.* 10%
3. *Performs usual duties of cashier: receives sales slips from salesclerks via Lawson vacuum tube system; verifies customer's charge account status and returns duplicate sales slip via same system, and enters charge purchases on customer's account card; operates cash register and makes change when necessary; makes refunds when proper slips are submitted; maintains 3" x 5" file of COD sales slips and credit refunds.* 20%
4. *Performs variety of general office duties: answers telephone; files correspondence, records and reports; prepares monthly statements and places same in envelopes, using envelope sealer, affixs stamps, and mails; assists Office Manager process applications for charge accounts.* 30%

Figure 15

SHOP JOB DESCRIPTION

1. Job Title *Chief Maintenance Man* 2. Job Number *13.01*
3. Number employed: Male *1* Female ____ 4. Date of Analysis ____
5. Alternate Titles ____ 6. Department *Rec. & Maint.*
7. Base Rate ____ Incentive? ____ 8. Analyst ____
9. WORK PERFORMED

Summary Statement:

Supervises housekeeping of building and does general repair, carpentry and electrical maintenance work.

Details of Operation—% of time

Does general repairs involving carpentry, plastering and masonry: builds

Figure 15 (Cont.)

partitions; hangs doors; makes and installs wooden machine guards; patches plaster; lays brick. (60%)

Performs various electrical maintenance duties: cleans and changes fluorescent tubes; re-wires work tables with heating elements; installs additional lights and fixtures. (25%)

Supervises housekeeping of building to maintain cleanliness and sanitary standards: checks janitor's work and tests sprinkling and air systems daily: during winter, supervises firing and maintenance of plant boiler and heating system. (15%)

is reached on the compensable factor or factors that determine the relative worth of jobs.

As has been stressed repeatedly, this step is probably the most important step in the entire job evaluation process. As such it is deserving of whatever time and effort is needed to reach a decision. Similarly, it is a decision that must be reached at top management level either as a result of thorough study by top administrators or through approval of such a study made by officials at a lower level.

Factors

Factors specified as applicable to the organization must possess certain characteristics. (1) They must be present in different amounts in the various jobs. It is apparent that an attribute found in equal amounts in all jobs would be worthless in comparing jobs. (2) If it is found that many compensable factors exist, the most important should be selected. (3) If more than one factor is chosen, they must not overlap in meaning. To the extent that two factors overlap, double weight may be given to one factor. (4) Whenever possible, factors chosen should be those that determine job significance from both management and worker viewpoints. (5) Factors selected must be found in all jobs or at least the jobs under study.[28]

Entire Organization versus Job Series

The last point involves the consideration of whether one factor or set of factors can be found that is applicable to all jobs in the organization, or whether the jobs must be divided into groups or series to which different factors apply. Thus, when the question "What

[28] Otis and Leukart, *Job Evaluation*, pp. 95–96.

is this organization paying for?" is raised, the immediate answer may be, "That depends on the type of job being considered." If it is decided that no one factor or set of factors applies to all jobs in the organization, the problem becomes one of determining the factor(s) for groups of jobs. On the other hand, it is perfectly possible that a given organization may decide that one factor or one set of factors encompasses what the organization "is paying for" on all jobs. It may be decided, for example, that the establishment (on all jobs) is paying for job difficulty or the importance of the job to the organization. Similarly, it may be decided that the compensable factors applicable to all of the jobs in the organization are skill, responsibility, effort, and working conditions. Or, factors such as job security or fatigue potential [29] may be chosen. The important consideration is that the factor or factors selected come from a conscious, careful judgment made in full possession of job facts.

It is apparent that this decision-making process requires thought and analysis. It may happen that a long list of factors suggests itself at first but that careful analysis will reveal that one or a limited number of factors will suffice. Those making the decision will do well to remember that the factor(s) chosen need not explain why a certain job is paid a certain amount, but only why one job is paid more than others.

Key Jobs

In large organizations it may be found that because of the large number of jobs, too many job facts exist to permit proper digestion and use of the information. In this case, key jobs may be selected [30] and used instead of all jobs in the organization. Properly selected key jobs are representative of the entire range of jobs. Thus, working with key job facts may lighten the burden of detail without any appreciable loss in the accuracy of the final decision. Actually, key jobs may be used without loss in accuracy if tentative decisions based on key job facts are checked against a limited number of other jobs before decisions become final.

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[29] It has been suggested that research on fatigue has progressed sufficiently to permit use of fatigue potential in evaluating jobs. See *Business Week*, June 13, 1953, p. 124.

[30] See Chapter 4, p. 48 for criteria for selection of key jobs.

Job Series [31]

Perhaps more frequently than not, the conclusion will be reached early in the process that no one compensable factor or set of factors applies to all of the jobs in the organization. In this case, it will be necessary to classify the jobs into groups. Thus, for example, an organization's jobs may be divided into (1) shop jobs, (2) clerical jobs, (3) sales jobs, (4) engineering jobs, (5) supervisory jobs, and (6) executive jobs.

Such a classification of jobs into "series" may, in most organizations, be justified by experience. Experience justifies the prediction that the wages of people in different job series will not always move together and in equal amounts. Because there are differences in timing and amplitude of movement of values for different types of services, job series differentiation has an economic justification. Then there are practical reasons for not welding together groups in different job series. Strategically located groups, capable of pressing their advantage, may be able by force of bargaining power to increase their wages. If the groups are too closely tied together, the wage structure may be distorted.

Jobs in the same series [32] thus appear to be influenced by one set of economic factors and would seem to have their own set of compensable factors. If the organization's jobs do belong to different job series, tying all jobs together by using one set of compensable factors would not only make resulting job evaluation excessively difficult, but would also, in all probability, make the resulting wage structure impossible to administer.

Thus, if a study of job information yields the conclusion that more than one job series exist in the organization, separate compensable factors should be selected for each series. This selection should be based on facts pertaining to jobs in the series. All jobs may be used, or only key jobs representative of the group.

In this way, it may be decided that the "clerical series" is being paid for: (1) academic content of jobs, (2) length of the preparatory training period, (3) variety of problems encountered and dealt

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[31] The term "job series," as used in this book, refers to jobs related economically and in the same promotional chain, such as shop jobs, clerical jobs, and so forth.

[32] Evidenced by promotional chains.

with on the employee's responsibility, (4) seriousness of possible errors, (5) responsibility for handling confidential information, and so on. In the executive series, the compensable factor selected may be the level of basic types of responsibilities delegated. Thus, for one series, there may be only one factor selected, whereas for another series several may be needed.

Where different compensable factors are found to be applicable to different series, there is justification for carrying through the entire evaluation of jobs in one series at a time. This is what happens in most organizations. Shop jobs, for example, may be evaluated first, followed by clerical jobs, and so on.

Methods of Determining Factors

Regardless of whether all jobs are considered together or divided into job series, several methods are available to aid in selecting compensable factors. First, those charged with the decision may be asked to distill factors directly from job information. Sufficient study of job data, it is believed, should suggest the primary compensable factors.

Another technique is to examine (along with job information) a list of factors that other organizations have found applicable. A list such as that included in Figure 16 would be made available. Use of such an inventory, although of assistance in suggesting possible factors, has the disadvantage that factors applicable to the particular organization may not be included.

Figure 16 *

FACTORS SELECTED FOR FACTORY POINT-RATING SYSTEMS

Skill	
Education	Accuracy
Education or Mental Development	Ingenuity
Education or Trade Knowledge	Initiative and Ingenuity
Schooling	Judgment and Initiative
Experience	Mental Capability
Previous Experience	Intelligence
Experience and Training	Resourcefulness
Training Time	Versatility
Time Required to Become 80% Efficient	Job Skill
Training Required	Manual Dexterity
	Dexterity

Figure 16 (Cont.)

FACTORS SELECTED FOR FACTORY POINT-RATING SYSTEMS

Time Required to Learn Trade
Time Required to Adapt Skill
Job Knowledge
Knowledge of Machinery and Dexterity with Tools
Knowledge of Materials and Processes
Knowledge
Mentality
Degree of Skill and Accuracy
Manual Accuracy and Quickness
Physical Skill
Details
Aptitude Required
Difficulty of Operation
Ability to do Detailed Work
Social Skill

Effort

Mental Effort
Mental Application
Mental or Visual Demand
Concentration
Visual Application
Physical Effort
Physical Application
Physical Demand
Physical or Mental Fatigue
Muscular or Nerve Strain
Fatigue Due to Eye Strain
Fatigue
Honesty of Effort
Monotony of Work
Monotony and Comfort

Responsibility (for)

Safety of Others
Material or Product
Equipment or Process
Machinery and Equipment
Material and Equipment
Work of Others
Supervision of Others
Supervision Exercised
Cost of Errors
Effect on Other Operations
Necessary Accuracy in Checking, Counting and Weighing
Spoilage of Materials
Protection of Materials
Equipment
Product
Physical Property
Plant and Services
Cooperation and Personality
Dependability
Adjustability
Coordination
Details to Master
Quality

Working Conditions

Unavoidable Hazards
Hazards Involved
Exposure to Health Hazard
Exposure to Accident Hazard
Occupational Hazard Disease
Danger—Accident from Machinery or Equipment
Danger—from Lifting
Surroundings
Dirtiness of Working Conditions
Environment
Job Conditions
Difficulty in Locating Work Elsewhere
Attendance
Disagreeableness

Figure 16 (Cont.)

FACTORS SELECTED FOR CLERICAL POINT-RATING SYSTEMS

Skill

Mental Requirement	Education
Mentality	Preparation for the Job
Mental Application	Essential Education and Knowledge
Creative Ability	Basic Knowledge and Experience
Judgment	Experience, Knowledge and Training Necessary
Analytical Ability	
Initiative	Previous Experience
Resourcefulness	Training Time
Versatility	Experience and Training
Skill Requirements	Capacity for Getting Along with Others
Complexity of Duties	
Personal Qualifications Needed for the Job	Capacity for Self Expression
	Social Skill
Personal Requirements	Ability to do Detailed Work
Ability to Make Decisions	Ability to do Routine Work
Managerial Techniques	Manual or Motor Skill
Character of Supervision Given	Office Machine Operation
Difficulty of Work	Manual Dexterity

Effort

Physical Requirement	Manual Effort
Physical Application	Pressure of Work
Physical Effort	Mental Effort
Physical Demand	Volume of Work
Physical or Mental Fatigue	Attention Demand

Responsibility (for)

Executive Responsibility	Material
Personnel	Equipment
Supervision of Others	Records
Work of Others	Confidential Data
Monetary Responsibility	Methods
Commitments, Property, Money or Records	Determining Company Policy
	Market
Company Cash	Contact with Others
Dependability and Accuracy	Contact with Public, Customers, and Personnel
Accuracy	
Details	Goodwill and Public Relations
Quality	Cooperation and Personality
Effect of Errors	

Working Conditions

Job Conditions	Personal Hazard
Tangible Surroundings	Monotony
Intangible Conditions	Attention to Details
Working Conditions	Out-of-Town Travel

* Source: Jay L. Otis and Richard H. Leukart, *Job Evaluation* (New York: Prentice-Hall, Inc., Copyright, 1948), pp. 90–91. Reprinted by permission.

Still another method, suggested by Riegel,[33] makes use of wage differentials between key jobs. Compensable factors are determined from attempts to explain reasons for the differentials. Riegel sees this technique as especially useful when jobs are divided into series, because differentials between jobs in the same series can be explained by the same factor or factors.

Throughout the process of selecting compensable factors, it is well to remember that the factor or factors chosen need not explain why a certain job is paid a certain absolute amount of money, but only why one job receives or should receive higher compensation than another.

JOB SPECIFICATIONS

Because many job evaluation systems work mainly with job specifications, these specifications are written in terms of the compensable factors selected as applicable to the jobs under study. For this reason, discussion of job specifications was deferred until inquiry had been made into determination of compensable factors.

Job specifications describe the extent to which each compensable factor exists in a job and the particular level of the factor found in that job. For example, if experience is one of the factors, job specifications must indicate not only the amount of experience required but the level or type of experience. This illustrates the need for very specific information in the job specification.

Such specificity is essential because it is this information which becomes the basis and the justification of job values assigned in the job evaluation process. Those charged with evaluating jobs form their judgments from the amount and level of compensable factors reported in job specifications as existing in jobs.

As previously stated, the worker requirements section of the job analysis report is the basic source of information for job specifications. This section is carefully analyzed and translated into terms of the compensable factors. In addition, job descriptions are carefully scrutinized for further indications. Materials used, stage of processing, tools and materials employed all suggest factors present

[33] John W. Riegel, "Determining the Wage and Salary Structures," in *Personnel Management Conferences* (Urbana: University of Illinois, 1949, mimeographed).

in jobs. It may also be necessary to go back to the job when writing job specifications, to make sure that no information was missed that might suggest the presence or absence of a given factor or that might indicate the level of a factor adjudged to be present. Additional observation and further discussion with workers and supervisors may thus aid in the translation of job information into terms which indicate amounts and levels of compensable factors present in or absent from jobs.

Regardless of the particular compensable factors selected as a basis for job evaluation, job specifications normally include certain kinds of information. These include responsibility of the worker, job requirements, mental application, dexterity and accuracy, physical activities required by the job, surroundings, and hazards involved in the work.

It is seen that the translation of job information into compensable factor terms calls for certain attributes on the part of the writer of job specifications. More than the ability to discover and record facts is required. Inferences from and judgment concerning the facts are the data for job specifications. Actually, the writer of job specifications is beginning the evaluation of jobs by making these judgments for the evaluators. It is essential, therefore, that such individuals be impressed with the importance of their task, the need for careful analysis, and the necessity of vigilance against personal bias. Best results are obtained where job specification writers back up the judgments made with specific reasons for their decisions.

The style of writing job specifications need not be as rigid and formal as that in job descriptions. Certain suggestions, however, may be made. Complicated sentences should be avoided. Unnecessary detail should not be included. Terms indicating quantity, degree, or duration of a factor should be the most precise available. Devices, tools, and equipment should be carefully identified and the manner of use specified, and judgments must be backed up with justification.

When job specifications have been written in first draft form, it is wise to submit them to workers assigned to the job and the supervisor for approval. This step not only helps to insure accuracy but helps convince the readers of the sincere attempt at accuracy. This procedure may be followed with job descriptions as well.

While the particular form and organization of job specifications

are dictated largely by the compensable factors chosen for use, an example will assist the reader to perceive the general form. Such an example is provided in Figure 17.

Figure 17

JOB SPECIFICATION—PATTERN MAKER—WOOD

Job Title *Pattern Maker—Wood*

Dictionary Title _____ Code No. *540-*

Department *1521*

Education

This job involves the use of decimals, fractions, and geometry. The incumbent must work from complex drawings. He must have a thorough knowledge of the pattern-making trade, including basic design and construction of pattern equipment, use of hand and power woodworking tools, knowledge of foundry and machine shop practice.

Experience

Up to 9 years are required to become familiar with the design and construction of large and complicated pattern equipment.

Initiative—Ingenuity

This job involves highly diversified work. The employee must construct, alter and repair wooden pattern equipment that is used to produce large castings of complicated design. He must possess a high degree of judgment, initiative, and ingenuity to convert engineers' casting specifications into layouts and models, make allowances for coremaking, molding, cleaning and machining operations, construct all pattern, core box and related equipment necessary to produce a rough casting of desired size and shape.

Physical

Light physical effort is required to use hand tools. Power woodworking operations may involve handling of average weight boards or pattern sections for short periods of time.

Mental—Visual

This job requires concentrated mental and visual attention necessary to work out problems involving the design construction, alteration, and repairing of complicated pattern equipment. The employee must be able to visualize pattern construction, core assembly, mold construction, and casting.

Equipment—Process

The equipment used consists of power saws, planers, joiners, shapers, hole shooter, drill press, lathe, and a wide variety of hand tools. Probable damage is seldom over $50.

Figure 17 (Cont.)

JOB SPECIFICATION—PATTERN MAKER—WOOD

Material—Product

Probable damage to materials due to errors in construction seldom over $100. Pattern-checkers follow the job from start to finish.

Safety of Others

Compliance with standard safety precautions necessary as careless use of hand or power tools, improper handling or positioning of patterns or lumber may result in injury to others.

Work of Others

The employee is responsible only for his own work.

Working Conditions

Some wood dust while performing sanding or turning operations. Infrequent job assignments may involve working in foundry for brief periods.

Unavoidable Hazards

There is a possibility of hand or arm injury while using power woodworking equipment or sharp edged hand tools. Improper handling or positioning of lumber or patterns by others may result in injury.

7 · *Job Evaluation—Nonquantitative Methods*

DEVELOPING OR CHOOSING A SYSTEM

After compensable factors have been chosen, the next step in job evaluation is to develop or select a system that will make it possible to evaluate jobs in accordance with the amount and level of the factors present in jobs. In this step, the organization may adopt a ready-made system in use in another organization, modify an existing system, or develop a new one.

Actually there are only a limited number of methods of comparing jobs. These methods are incorporated into the basic job evaluation methods, i.e., ranking, classification, factor-comparison, and point methods. Any job evaluation system adopted by an organization will make use of a basic method of comparing jobs.

Whether to use a ready-made system or a custom-built system, however, depends mainly on whether a ready-made system can be found that has as its basis compensable factors identical with those selected by the organization. If such a ready-made system can be found, it may be advantageous to use it. Otis and Leukart [1] feel that there are advantages to be gained by using a system operating successfully in another organization, where such system fits the needs of the organization under study. Among these advantages are ease of comparing wage data and standardization of job titles.

When, however, the compensable factors selected by the organization are not found in a ready-made system, a system must be

[1] Otis and Leukart, *Job Evaluation*, p. 48.

developed. This may involve modification of a ready-made system or developing a completely new system. The former is applicable where only a few of the compensable factors in the organization differ from those in the ready-made system. If many differences are apparent, a custom-built system is called for.

In any case, the job evaluation system finally applied to the organization must be based upon the compensable factors determined by the organization to be applicable to its jobs.[2] Any apparent advantage to be gained from the use of a ready-made system is lost if factors inherent in the system do not apply to the organization.

Probably the first decision must be on the method to be used in comparing jobs. The ranking and classification methods are relatively simple, in that no attempt is made to obtain quantitative measures of job value. For this reaon, they are often referred to as nonquantitative methods.[3] The factor-comparison and point methods of job comparison are more complex. They may be referred to as quantitative methods because of the quantitative job values developed through the use of the methods. As a basis for the decision on the method of job comparison to be employed and the job evaluation system to be utilized, it will be useful to examine the basic methods and some modifications of these methods.

THE JOB-RANKING METHOD

As the title implies, the ranking method ranks the jobs in the organization from highest to lowest. It is the simplest of the job evaluation methods and the easiest to explain. Another advantage is that the ranking method takes less time to accomplish than other methods.

Its disadvantages are attributable more to the way the method is used than the method itself. For example, the ranking method has often been employed without first securing job facts. The lack of job facts has made it essential to find individuals in the organization who know all or many of the jobs well. The difficulty of finding such people is cited as a disadvantage of the ranking method. It is

[2] J. S. Gray, "Custom Made Systems of Job Evaluation," *Journal of Applied Psychology*, Vol. 34, No. 6 (December, 1950), pp. 378–380.

[3] *Industrial Job Evaluation Systems*, Department of Labor, United States Employment Service, Occupational Analysis Branch (October, 1947), p. 64.

seen that the availability of job facts makes this disadvantage a less serious one.

Similarly, rankers are asked to keep the "whole job" in mind and merely given instructions to rank the jobs. This results in differing bases of comparison between raters, and conscious or unconscious influence by such factors as present pay rate, competence of job incumbents, and prestige values of jobs. This difficulty can be overcome by selecting one or more compensable factors and informing raters to rank jobs on the basis of those factors. Such instructions give the rater not only a basis for job comparison, but also a method of eliminating outside influences.

When the ranking method is set up in accordance with the elements of job evaluation laid down in the previous chapter, it may be expected to yield the advantages cited and minimize the disadvantages.

Steps in the Ranking Method

1. Obtain Job Information

As specified by the elements of job evaluation, the first step is job analysis. Job descriptions for each job should be prepared. A useful technique is to write each job description on a small card so that the rater may have the job facts before him at all times.[4]

Sometimes job specifications also are prepared. Because those using a ranking method will probably limit compensable factors to one or perhaps two, however, it is difficult to write job specifications in these terms. What may be more desirable, if specifications are desired, would be to use general job requirements such as those included in the USES job analysis report. See Figure 12.

2. Select Raters and Jobs to Be Rated

Most organizations have too many jobs to permit raters to know all the jobs well. Since this is adjudged to be desirable, the usual procedure is to rank jobs by department. In fact, for this reason the ranking method is sometimes called the *departmental order-of-importance* method. It is less difficult to find raters who know the jobs in a single department.

Another reason for a breakdown by department is that it is diffi-

[4] Otis and Leukart, *Job Evaluation*, p. 54.

cult to rank different series of jobs together. Thus, for example, it is very difficult to compare directly shop jobs and clerical jobs.[5] However, if one compensable factor is selected for all jobs, comparison in terms of this factor is possible.

Raters who will attempt to make unbiased judgments must be selected. They must be trained in rating procedure, although less training is required for ranking than for other types of rating.[6]

3. Select Compensable Factor(s)

This step determines the basis on which job comparison is to be made. One factor such as job difficulty may be used, or more than one factor may be used. Also, a procedure must be laid down for the consistent application of the factor(s). Finally, the definition of the factor(s) must be carefully explained to the raters so that rankings will be based on the factor(s) selected. If job specifications are to be written in terms of the compensable factor(s) selected, they are written at this point.

4. Rank Jobs

Either of two methods may be used for obtaining job ranks—the card-sorting method or the paired-comparison method. In the former, raters are furnished with cards (one for each job) on which job titles and job descriptions are written. Actually, though less convenient, actual job description sheets or even job specifications might be used. Then the raters are asked to rank the jobs from highest to lowest.

Although ranking may be accomplished in this manner when a limited number of jobs are involved, it becomes difficult to make distinctions when many jobs must be ranked. Otis and Leukart suggest a method that may be advantageous in such circumstances.[7] It might be called the "best of the best and poorest of the poorest" method of ranking and involves separating jobs into piles. First, jobs are divided into two piles. Then, each of these piles is divided, and so on, until sufficient breakdown is achieved.

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[5] W. F. Cook, "The Technique of Wage Negotiation and Adjustment," *Personnel Series No. 30* (New York: American Management Association, 1937), pp. 8–16.

[6] John F. Mee, ed., *Personnel Handbook* (New York: The Ronald Press, 1951), p. 308.

[7] Otis and Leukart, *Job Evaluation,* pp. 55–56.

The paired-comparison method is perhaps capable of yielding the most accurate and reliable rankings. In this method, the rater compares each job with every other job on which ratings are required. Either of two techniques may be used to facilitate this comparison. In the first, the rater is provided with slips of paper on which two jobs appear, and he is asked to indicate which of the two he places higher. Sufficient slips are provided so that each job is compared to every other job at least once and, preferably, twice. To guard against unconscious bias, the order in which jobs appear on the slips is randomized, and an effort is made to see that a particular job appears last as often as it does first.

A second technique is to provide the rater with a table such as that illustrated in Figure 18, and ask him to check the higher of two jobs indicated by the cells of the table. The number of times a job is checked establishes its rank. The latter technique is more convenient for the rater to use.

Figure 18

PAIRED-COMPARISON TABLE

	Cost Clerk	File Clerk	Addresso-graph Opr.	Ledger Clerk	Junior Typist	Order Clerk	Mes-senger	Total
Cost Clerk								
File Clerk								
Addresso-graph Opr.								
Ledger Clerk								
Junior Typist						•		
Order Clerk								
Messenger			•					

5. Combine Ratings

It is advisable to have several raters rank the jobs independently. When this step has been completed, a method of combining these ratings into a composite rating must be found. This is not a difficult matter except where some raters have failed to rank all of the jobs. Though this occurs less often when raters are provided with job information, it does occur. The difficulty results from the fact that series of ranks do not constitute a scale of equal units, although they appear to.

A strict solution calls for reducing each set of rankings to the same scale. Hull recommends converting ranks into equivalent linear scores by using a 10-point scale.[8] Garrett, however, states that averaging the ranks assigned to a job by several raters is sufficiently accurate and is much simpler and requires much less time.[9] Also, furnishing raters with job facts should make incomplete rankings unnecessary.

6. Dovetail Departmental Rankings

When job ranks have been obtained for each department, the next step is to combine departmental rankings into a single ranking. Ideally this task would be accomplished by one person who is familiar with all of the jobs in the organization. Since this is virtually impossible, a reasonable compromise would seem to be a committee made up of the department heads involved. To facilitate action, this committee should be provided with a table containing departmental ranks of all departments listed in such a way that interdepartmental comparisons can be made. This is probably best secured by an organization chart which lists each department on a separate line with its rankings of individual jobs extended horizontally. Individual jobs and departments, too, can then be compared vertically and the relationships among them determined. From the organizational ranking obtained by collating departmental

[8] Clark L. Hull, *Aptitude Testing* (Yonkers-on-Hudson, New York: World Book Co., 1928), pp. 386–390.

[9] H. E. Garrett, "An Empirical Study of Various Methods of Combining Incomplete Order of Merit Ratings," *Journal of Educational Psychology*, Vol. 15, pp. 157–172.

rankings, it is possible to determine the number of grades [10] of jobs that exist in the organization. These grades may then be carefully defined to permit evaluation of new or revised jobs.[11]

THE JOB CLASSIFICATION METHOD

The classification or grade-description method of job evaluation involves defining a number of classes or grades of jobs and fitting jobs into the classes provided. Figuratively, the method may be described as a series of carefully labeled shelves in a bookcase. The primary task is describing each of the classes so that no difficulty is experienced in fitting each job into its prope niche. Jobs are then classified by comparing each job to the descriptions provided.

This method of comparing jobs has the major advantage that most organizations, and employees as well, tend to classify jobs. With this fact as a beginning point, it is relatively easy to secure agreement about the classification of most jobs. Another advantage of the classification method is that it promotes thinking about job classes among both executives and employees. When jobs are thought of as belonging in a certain grade, all of the problems of wage and salary administration become easier to solve. In fact, many organizations, after completing job evaluation by another method, classify jobs into grades to aid in wage administration.

A disadvantage of the method is the difficulty of writing grade descriptions. In practice many classification systems have been based on job duties and responsibilities rather than compensable factors, and it is not a simple matter to write a grade description sufficiently general to include different types of duties and sufficiently specific to permit classification of jobs. Writing grade descriptions in terms of carefully selected compensable factors could largely eliminate this difficulty. Riegel [12] has suggested using supervision, cooperation, probability and consequence of errors, initiative and resourcefulness, and minimum experience and educational requirements as compensable factors in writing grade descriptions.

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[10] Grades (labor grades) are groupings of jobs determined by job evaluation to be of approximately equal worth.

[11] *Industrial Job Evaluation Systems,* Department of Labor, United States Employment Service, Occupational Analysis Branch, pp. 6–7.

[12] Riegel, *Wage Determination,* pp. 63–64.

Other disadvantages of the classification method may result when grade descriptions are written in terms of duties and responsibilities. First, this fact may encourage employees and supervisors to use "high-sounding" words in job descriptions in an effort to obtain a higher classification for the job. This, according to Shartle,[13] occurs frequently in the classification system used in the Federal service. Second, it often happens that a job has tasks that fall at several levels. Thus, grade descriptions written in terms of duties and responsibilities require a decision on whether one duty requiring high skill is sufficient to place the job at a higher level, or whether the duty must occur several times a day, and so on. It is important to note that the force of these disadvantages can be greatly reduced by writing grade descriptions in terms of compensable factors.

Steps in the Classification Method

1. Obtain Job Information

The classification method, like the ranking method, to function properly must begin with job analysis. Job descriptions are written for each job. Job specifications written in terms of compensable factors may be prepared, but usually more general specifications are written if used at all. The reason is that compensable factors in the classification method are usually limited to one or a very few.

2. Separate Jobs by Type

The next step in the grade-description method is to classify jobs by kind. Well-defined classes are used, such as shop jobs, clerical jobs, sales jobs, and so on. Even if only one compensable factor is to be used in classifying all jobs by level, it is wise to grade each kind of job individually.

3. Select Compensable Factors

At this stage a decision must be made on the factor(s) to be used in grading jobs. One factor such as job complexity may be selected for all kinds of jobs; or several factors such as those suggested by Riegel [14] may be used.

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[13] Shartle, *Occupational Information*, p. 146.

[14] See page 170.

4. Develop Grade Descriptions

The next step is writing grade descriptions that describe each class in terms of amount or level of compensable factor(s) present in jobs. This may be accomplished by writing one statement applicable to a given class or by writing a series of grading rules that, when used, enable raters to classify all jobs of a given kind.

Part of this step is deciding the number of classes or grades. The number of classes into which types of jobs are to be grouped will depend upon: (1) tradition, (2) the range of skills, (3) the wage or salary range of the jobs in the group, and (4) whether the organization prefers to promote employees by moving them to a job in a higher grade or merely increasing wages within a grade. Where a union is involved and a joint union-management job evaluation is being conducted, the number of grades is normally a matter of joint decision. In general, seven to fourteen classes will meet the needs of most types of jobs. Also, it is possible for different types of jobs to make use of different numbers of classes. Thus, shop jobs may have eight grades whereas clerical jobs have fourteen. In small organizations the number of classes may be smaller. Gray,[15] for example, describes a system using three classes for clerical jobs and five for shop jobs.

A committee is usually assigned the task of writing the grade descriptions or grading rules. In this task use is made of job information applying to the jobs to be evaluated. Usually, the grade descriptions of the two extreme grades are written first, then the others. Where grading rules are used, these rules specify the amount or level of the compensable factor(s) that places a job in a particular class.

Actually, grade descriptions may be written either before or after classification of jobs. Gray [16] suggests that in small companies jobs may be classified and the job information applicable to jobs in a grade used in writing grade descriptions. More rigorous application of the elements of job evaluation suggests that a system be built

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[15] Robert D. Gray, "Classification of Jobs in Small Companies," *Bulletin No. 5* (Pasadena: Industrial Relations Section, California Institute of Technology, 1944), p. 21.

[16] Gray, *ibid.*, pp. 15–18.

before it is used. Accordingly, it is recommended that grade descriptions or grading rules be written before job classification begins. Figure 19 is an example of grade descriptions used in job classification. Grade descriptions may include typical jobs that fall into the class.

Figure 19*

CLERICAL POSITIONS—GRADE DESCRIPTION

Class	*Description of Work*
A	Messenger service jobs. Frequently combined with sorting and the operation of simple machines, to fill in time; but the messenger service is the chief duty, characteristic of the class.
B	Manual clerical operations requiring knowledge of a limited number of well-defined rules. This class of positions includes some of the filing jobs, some of the identification work, some of the posting and computing jobs, and, in general, those jobs where only a definite and specific change is made in the material handled. Doing the work, subject to check Checking the work, or doing the work without subsequent check, or having charge of a small unit of the work
C	Positions in which the operations require knowledge of a large number of rules which are, however, precise and explicit. Any points not clearly covered by these rules are referred to the supervisor. Doing the work, subject to check Checking the work, or doing it without subsequent check, or handling the more difficult C details, or having charge of a small unit of C work
E	Positions in which the operations require complete and intensive knowledge of a restricted field and action on questions not previously raised, calling for application of a general rule to a particular transaction. Doing the work, subject to check Checking the work, handling doubtful papers, requiring adjustments of difficulties, making special calculations or doing the more complicated E work
G	Positions calling for technical training, professional background, or knowledge of the general principles of the business. Doing the usual work on this level Handling the more complicated problems

* Source: John W. Riegel, *Salary Determination* (Ann Arbor: Bureau of Industrial Relations, University of Michigan, 1940), p. 112. Reprinted by permission.

5. Classify Jobs

The committee charged with writing grade descriptions is often also assigned the task of classifying jobs. Job classification involves comparing job information with grade descriptions or grading rules. Each job is placed in its appropriate niche by the process of checking its job description and/or job specification against the grade descriptions or grading rules.

Sometimes the process of classifying jobs is combined with the process of writing grade descriptions. Thus, descriptions of the two extreme grades are written first and jobs classified into these grades. Then the remaining jobs have two extreme classes. These two grade descriptions are then written and jobs are classified. The process continues until all jobs are classified.

The Basic Abilities System

Ells [17] has developed a job classification system based upon unusual compensable factors. He calls it the *basic abilities system.* The compensable factors used in the system are the basic (minimum) abilities and knowledges required by jobs. These abilities and knowledges are uncovered during job analysis and job specifications are written in these terms.

Basic abilities, according to Ells, are of two levels—semi-skills and skills. Semi-skills are those abilities and knowledges which take from three to six months to acquire. Skills are those which take at least twelve months to acquire. Examples of such skills are provided in Figure 20.

Figure 20 *

EXAMPLE OF SKILLS USED IN THE BASIC ABILITIES SYSTEM

A. *Semi-skills* (or those if they can be acquired, take from 3 to 6 months in the acquisition).
   1. Knowledge of company and departmental procedures.
   2. Ability to get along with people.
   3. Ability to meet the public.
   4. Ability to handle confidential information.

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[17] Ralph W. Ells, *The Basic Abilities System of Job Evaluation* (Madison: Bureau of Business Research and Service, University of Wisconsin, 1951).

Figure 20 (Cont.)

5. Ability to work under unpleasant conditions.
6. Ability to type.
7. Knowledge of bookkeeping.
8. Ability to take dictation.
9. Ability to transcribe dictation.
10. Knowledge of mechanical drawing.
11. Ability to trace.
12. Ability to operate a bookkeeping machine.
13. Ability to operate a calculating machine.
14. Ability to operate address-o-graph equipment.
15. Ability to operate a key-punch.
16. Ability to operate a PBX switchboard.
17. Ability to operate multigraph machine.
18. Ability to operate tabulating equipment.
19. Ability to operate a billing machine.
20. Etc.

B. *Skills* (or those abilities if they can be acquired, take at least 12 months or more in the acquisition).
1. Knowledge of company products.
2. Ability to organize and direct the work of others.
3. Ability to plan the work of others.
4. Ability to exercise independent judgment.
5. Ability to work under hazardous conditions.
6. Ability to create or design new products.
7. Ability to develop new procedures and methods.
8. Knowledge of accounting.
9. Knowledge of sales techniques.
10. Knowledge of engineering.
11. Knowledge of library techniques.
12. Knowledge of nursing.
13. Knowledge of law.
14. Knowledge of chemistry.
15. Knowledge of buying techniques.
16. Knowledge of employment techniques.
17. Knowledge of traffic rates and tariffs.
18. Ability to make designs or layouts.
19. Ability to wire tabulating equipment.
20. Etc.

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* Source: Ralph W. Ells, *The Basic Abilities System of Job Evaluation* (Madison: Bureau of Business Research and Service, University of Wisconsin, 1951), pp. 20–21. Reprinted by permission.

When job specifications have been written in terms of basic abilities, a committee is assigned the task of determining grades, writing grading rules, and classifying jobs. The number of grades used

varies with the size of the organization, from a minimum of eight to a maximum of fourteen. An illustration of general classification and grade numbers appears in Figure 21.

Figure 21

EXAMPLE OF GENERAL CLASSIFICATION AND GRADE NUMBERS

Small Organizations		*Large Organizations*	
Classification	Grade Number	Classification	Grade Number
Unskilled	1	Unskilled	1
	2		2
Semi-skilled	3	Semi-skilled	3
	4		4
Skilled	5	Skilled	5
	6		6
Specialists	7	Specialists	7
Executive	8		8
		Executive	9
			10
			11
			12
			13
			14

Grading rules are based on compensable factors—the basic abilities and knowledges required by jobs. These rules provide the guideposts for classifying jobs into grades. In general, such rules are based on the classification of basic abilities into skills and semi-skills. Thus, a certain number of semi-skills places a job into a given grade, a given combination of semi-skills and skills specifies another class, and a given number of skills serves to place a job in a higher grade. Typical grading rules used by Ells are shown in Figure 22.

Figure 22 *

EXAMPLE OF GRADING RULES USED IN THE BASIC ABILITIES SYSTEM

Grading Rule #1. Classifications that require a basic skill or knowledge that can be acquired in only three to six months shall originally be graded to salary grade III, while classifications that require a basic skill or knowledge which takes a year or more to acquire shall originally be graded to salary grade V.[1]

Grading Rule #2. Classifications which do not require the ability to exercise independent judgment shall be moved up *one salary grade* if in addition to basic skills or knowledge they require one of the following:

Figure 22 (Cont.)

(a) Knowledge of department procedures or company procedures.
(b) Ability to work under unpleasant conditions.
(c) Ability to act as a group leader directing two or four employees.
(d) Ability to get along with people or meet people.

Grading Rule #3. Classifications which do not require the ability to exercise independent judgment shall be moved up *two salary grades* if in addition to basic skills and knowledge they require one of the following:

(a) Knowledge of company procedures and products.
(b) Ability to work under hazardous conditions.
(c) Ability to organize and direct the work of four or more employees.

Grading Rule #4. Classifications which because of some combination of grading rules #1, #2, and #3 are in salary grade V shall be moved up *two salary grades* to grade VII, whenever the requirement to exercise independent judgment is added. No job classification shall be graded to VII or above unless it requires the ability to exercise independent judgment and no classification in the first six salary grades can possess this requirement.

Grading Rule #5. Classifications which are in salary grade VII, because of rule #4, shall be moved up *one salary grade* if in addition to basic skills or knowledges and independent judgment they require one of the following:

(a) Knowledge of company procedures and products.
(b) Ability to work under hazardous conditions.
(c) Ability to plan, organize and direct the work of others.
(d) Ability to create or design company procedures or products.

Grading Rule #6. Supervisory classification must be graded at least one salary grade above the majority of the classifications supervised. For purposes of this rule, the lead man, who is ordinarily the senior member of a group of three or five workers, is not considered a supervisor. With this elimination the three supervisory classifications are:

1. *Group leaders*—who direct the work of from two to four employees engaged in the same type of work as their own,
2. *Group supervisors*—who organize and direct the work of from four to eleven employees engaged in the same general type of work, and
3. *The foremen, department heads and assistant department heads*—who plan the work of other employees as well as organizing and directing it. All employees in this group must exercise independent judgment.

As a result of the operation of rules #2 through #5, group leaders will commonly be graded one grade above the employees supervised and higher supervisory classes two or more grades above the employees supervised. Rule #6 has an independent effect only in those cases where the condition which it states is not already met as a result of rules #2 through #5.

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* Source: Ralph W. Ells, *The Basic Abilities System of Job Evaluation* (Madison: Bureau of Business Research and Service, University of Wisconsin, 1951), pp. 43–45. Reprinted by permission.

† In these grading rules and in the salary grades which follow, three degrees of skill are identified according to the time required for acquisition; one to 30 days (unskilled); three to six months (semi-skilled); and one year or more (skilled); unskilled jobs, except for the most elementary types, are originally graded to salary grade II.

After grading rules are written, jobs are placed in grades by making use of these rules. When this task is completed, jobs possessing identical basic abilities are given standard job titles. Similarly, standard job titles are used for given organizational levels. For example, jobs involving supervision of workers in a given grade all have the same job title.

Installations of the basic abilities system have been confined largely to clerical jobs including supervisory and executive levels. It is probably applicable to shop jobs as well, but the basic abilities would be more difficult to isolate and grading rules harder to establish.

The basic abilities system of job evaluation capitalizes on the advantages of the job classification method and minimizes the disadvantages of this method by basing grading rules on compensable factors. Where the basic abilities (compensable factors) are determined independently for the organization under study and where grading rules are likewise developed by the organization, this system accords with the elements of job evaluation. If, however, basic abilities found to exist in one company are assumed to apply in another and if grading rules developed for one organization are used in another, the results may be neither defensible nor useful.

Organization Chart Job Classification

Another use of the job classification method of comparing jobs is especially useful for executive job evaluation. It might be called Organization Chart Job Classification. This method involves construction of an organization chart showing levels of responsibility. Thus, if executives of two different levels of responsibility report to a higher executive, the different levels of these subordinate executives would be shown on the chart (see Figure 23). Relationships between salaries are then set up in terms of organizational relationships.

This approach to classifying executive jobs corresponds with existing executive salary structures.[18] It is also justified by studies of patterns of executive relationships.[19] Companies typically have a

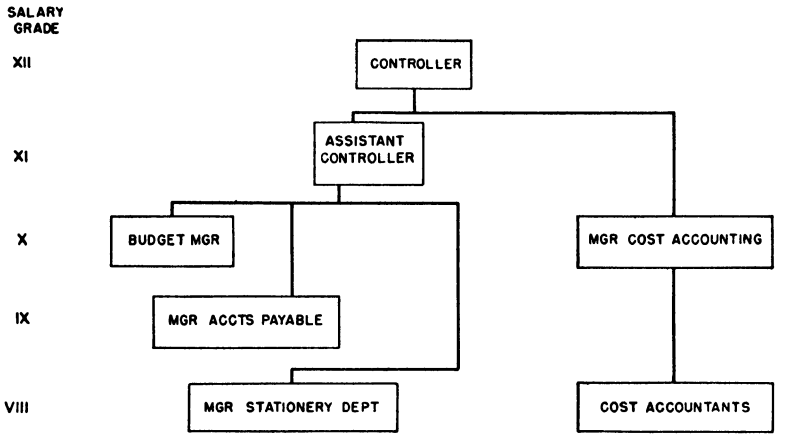
[18] See Arch Patton, "How Much Should an Executive Be Paid," *Executive Compensation: Company Policies and Practices, Financial Management Series No. 97* (New York: American Management Association, 1951), pp. 16–22.

[19] Andrew R. Towl, "Patterns of Executive Compensation," *Harvard Business Review*, Vol. 29, No. 4 (July, 1951), pp. 25–36.

pattern of executive responsibilities. This pattern appears as an executive structure set up to correspond with what the organization considers to be "proper" relationships between executives. Using this pattern as a basis for the executive salary structure would seem

Figure 23 *

ORGANIZATION CHART ARRANGED ACCORDING TO LEVELS OF RESPONSIBILITY—COMPANY Y



* Source: Ralph W. Ells, *The Basic Abilities System of Job Evaluation* (Madison: Bureau of Business Research and Service, University of Wisconsin, 1951), p. 54. Reprinted by permission.

to be justified at least for top level jobs. Ells believes that this method is particularly effective for the four top levels of responsibility.[20]

SUMMARY

The job-ranking and job classification methods of job evaluation comprise the nonquantitative methods. These two methods of job comparison place the jobs into a hierarchy (a job structure) without any attempt to attach numerical values to jobs. In this they differ from the quantitative methods (factor-comparison and point), which result in scores or values as well as a job structure.

[20] Ells, *The Basic Abilities System*, p. 55.

It was seen in this chapter that the nonquantitative methods may be successfully utilized in all types of organizations and jobs. If proper safeguards are applied, they result in a defensible job structure and they achieve this result with a minimum of time and effort. Although apparently more applicable to smaller organizations, they are used with success in larger organizations as well.

8 · *Job Evaluation—Quantitative Methods*

NONQUANTITATIVE METHODS OF JOB EVALUATION WERE DESCRIBED IN the previous chapter. This chapter deals with the quantitative methods. The latter differ primarily from nonquantitative methods in two ways. First, they provide numerical values for jobs in addition to a job structure. Secondly, they break the job down into parts for consideration, instead of dealing with the whole job as in the ranking and classification methods. Thus, in the quantitative methods of job comparison, separate judgments are made on each factor, a numerical value is attached to each factor, and these values must be summed before a job value obtains.

Proponents of the quantitative methods believe that making several separate judgments with respect to each job and attaching numerical values to these judgments make the results of job evaluation more precise. They believe that such methods make possible a more thorough analysis of job value and a finer classification within job structures.

The two major job evaluation methods using numerical values in deriving a job structure are the factor-comparison method and the point method. The former may be thought of as a refinement of the ranking method because jobs are compared directly in both. Similarly, the point method is similar to the classification method in that jobs are compared indirectly through a written scale.

FACTOR-COMPARISON METHOD

The factor-comparison method of job evaluation compares jobs by making judgments concerning which jobs contain more of certain compensable factors than others. Jobs are compared to one another, one factor at a time. Original judgments pertain to key jobs. These judgments permit construction of a job comparison scale to which other jobs may be compared. The compensable factors used in the method are usually (1) mental requirements, (2) physical requirements, (3) skill requirements, (4) responsibility, and (5) working conditions, or combinations of these factors. It is apparent that the authors of the method [1] consider these to be "universal factors" to be found in all jobs. Thus, one job comparison scale applicable to all jobs in the organization would be possible. This practice is often followed in installations of the factor-comparison method. A separate job comparison scale, however, can be developed for each job series.

Advantages

A major advantage of the factor-comparison method is the requirement that a custom-built installation be made in each organization. Thus, whenever the method is used, a job comparison scale is constructed in terms of the jobs found in the organization. This practice of tailor-making a job evaluation system tends to make the results more useful to the organization. Previous discussion on the elements of job evaluation stressed the desirability of such an approach. The flexibility permitted by the custom-built nature of installations has been cited as an additional advantage of the method.[2]

Another advantage of this method is the availability of careful instructions covering steps in installation.[3] In fact, the originators believe that the method is sufficiently clear to permit comparable

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[1] Benge, Burk, and Hay, *Manual of Job Evaluation.*

[2] William Gomberg, "Joint Union-Management Evaluation," *Job Evaluation Practices, Research and Technical Report 9* (Minneapolis: Industrial Relations Center, University of Minnesota, 1951), pp. 21–28.

[3] Benge, Burk, and Hay, *Manual of Job Evaluation;* also Eugene J. Benge, *Job Evaluation and Merit Rating* (Deep River, Conn.: National Foremen's Institute, Inc., 1941).

results whether used by management, representatives of employees, or an outside consultant.

The type of job comparison utilized by the factor-comparison method may be cited as another advantage. Jobs are compared to other jobs to determine a relative value. Since relative job values are the results sought, this method of comparison is logical. Actually, this advantage has encouraged job comparison in other methods of job evaluation. For example, it has been mentioned that grade descriptions used in job classification methods often mention titles of jobs representative of that grade. Similarly, some point systems include job titles in defining degrees of factors.

Limiting factors to five or less is another advantage of the factor-comparison method. A limited number of factors tends to reduce the possibility of overlapping, with consequent over-weighting of factors. Research into job evaluation practices [4] suggests that a limited number of factors yields similar results with much less time and effort.

Still another advantage is the ease with which the resulting job comparison scale can be used. It is not difficult to train employees and union representatives in the use of the scale. Also, once employees have become familiar with a job comparison scale covering one type of job, evaluating other types of jobs may be simplified because of the agreement made possible by understanding.

The use of a monetary unit in many systems employing the factor-comparison method is considered by some to be an advantage in that use of a job comparison scale often permits pricing the job as soon as job level is established. It is questionable, however, whether this advantage is sufficient to offset the disadvantage of possible bias being introduced by use of such units.

Disadvantages

Perhaps the major disadvantage of the method is the use of "universal" factors. As emphasized in the discussion of the elements of job evaluation, it is important that each organization, through analysis of what it is "paying for," determine compensable factors. Likewise, it was pointed out that these factors may differ

[4] See pp. 225–239 in this chapter.

for the various types of jobs in the company. Use of the same factors for all organizations and for all jobs in an organization violates this principle.

Another disadvantage concerns the use made of key jobs by the factor-comparison method. Key jobs are selected using several criteria,[5] of which the major one for this purpose is that the wage rate is accepted as correct. Making use of existing rates as an aid in setting up job and wage structures would seem to be based upon questionable logic. And where the wage structure is subject to controversy, it might prove difficult to find even one job upon which agreement is possible.

It is these key jobs that are the basis of the job comparison scale. Thus, the usefulness of the scale depends upon anchor points represented by these jobs. But jobs change, sometimes slowly and imperceptibly. To the extent that one or more key jobs change over time either without detection or without correction of the scale, users of the job comparison scale are basing decisions on what might be described figuratively as a badly warped ruler. This is a serious disadvantage of the factor-comparison method.

Where monetary values of jobs are used in development of the job comparison scale, another disadvantage exists. Those charged with making the numerous judgments involved may be biased by such information and unconsciously assign higher levels of the factors to a highly paid job even if such assignment is not justified. It should be noted that not all applications of the factor-comparison method use existing wage rates as a basis for judgment. Where used, however, bias is probably encouraged.

Similarly, in using a job comparison scale after it has been completed, the fact that dollar-and-cent units are used may influence the evaluation of other than key jobs. Those using the scale are constantly reminded of the absolute values of jobs while they are attempting to determine the relative value of jobs. For purposes of reducing bias, it is helpful to clearly separate these two processes.

A serious disadvantage of the factor-comparison system is its complexity. The numerous and complicated steps involved in building the job comparison scale make it difficult to explain. Where there is a question of confidence on the part of employees

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[5] See Chapter 4, p. 48.

or their representatives, this complexity can make acceptance of the resulting wage structure difficult or even impossible.

The Basic Method

Since the inception of the factor-comparison method of job evaluation, several variations in the basic method of comparing jobs have appeared.[6] Some of the variations were devised for the purpose of removing some of the disadvantages just discussed. All such modifications, however, are based upon the original method as developed by Benge. For that reason, steps in the original method are outlined in detail before discussion of variations.

1. Analyze Jobs; Write Job Descriptions and Job Specifications

As in other job evaluation methods, the factor-comparison method begins with the securing of job information. Jobs are analyzed by job analysts, and job descriptions are written covering duties of each job. Although this is usual practice, a variation sometimes employed is to analyze only key jobs at this point, securing information on the remaining jobs after completion of the job comparison scale. This latter practice is not recommended. It would seem to eliminate any possibility of using factors or factor definitions corresponding to the actual needs of all jobs in the organization.

Job specifications are written in terms of the five factors usually used with the factor-comparison method. Those writing job specifications are provided with a set of factor definitions such as those in Figure 24 to aid them. Job specifications are recorded on a form similar to Figure 25.

Figure 24 *

FACTOR DEFINITIONS USED UNDER THE FACTOR COMPARISON SYSTEM

Mental Requirements

When we speak of mental requirements, we have in mind those activities of a job which call upon the use of the intellect; also those personal traits

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[6] See Edward N. Hay, "Four Methods of Establishing Factor Scales in Factor Comparison Job Evaluation," *The AMA Handbook of Wage and Salary Administration* (New York: American Management Association, 1950), pp. 56–65.

Figure 24 (Cont.)

required by the job such as judgment, patience, ability to work with others, etc. The individual that has these job requirements brings them to the job and does not have to acquire them later.

In addition, most jobs call for a certain amount of education. A job may call for the ability to read and write and do some simple addition. On a job specification, this is indicated by a certain number of years of education. It does not mean that an individual must have attended school for that length of time, as he may have taught himself without the actual formal education.

Another sub-division of the mental requirement is work knowledge. If you were to hire a person to do messenger work throughout the city, you would want someone who knew the streets and how to go between specific points. This is an example of what we mean by work knowledge. It is basic information that a person must have relative to job requirements before he would be considered for the job.

Skill Requirements

Skill is the experience factor and is developed by actually doing the job. A person might learn what all the duties of a job are, but merely knowing the duties does not mean that he can do them speedily and accurately until he has had the necessary experience.

One type of skill is manual skill. This is the ability to develop muscular coordination by repetitive use of the hands, feet, arms, etc., as required on a job. A person must develop skill in such simple things as lifting, shoveling; as well as in more complex operations such as using a typewriter. They all take practice to do them properly, and practice simply means that muscles are trained to do that type of work.

Generally manual skills are learned fairly rapidly—some take a few hours and others a few weeks to gain the necessary speed and accuracy to do the work properly.

Another type of skill is what is termed sensory. Certain jobs require that certain senses such as sight, hearing, taste, touch, and smell be developed above the average to do the job properly. As an example, an auto mechanic learns to diagnose motor trouble by the sound of the running motor. A crane operator, through training his sense of sight, knows how to swing out the boom to proper position in order to place or pick up material without any lost time. This type of skill is generally more difficult to learn than a manual skill.

The third type of skill may be called mental skill. It is the type of skill which is used in making decisions based on past experience. It differs from mental requirements, which, as pointed out, are those mental abilities which a person brings to the job with him.

Mental skill can be seen in the decisions a supervisor makes in a given situation in order to get a certain piece of work out on time. From experience he knows how long it will normally take to do a job, given a certain number of workers, and he assigns them with this in mind. He has learned how to do these things by experience on the job; hence we term his ability "mental skill." It is very complex and is a higher type of skill than the other two.

Sub-divisions of the skill factor include necessary prior experience and time to learn and to become proficient.

Figure 24 (Cont.)

Physical Factors

This factor refers to the demands of a job upon the human body. We will try to determine the exertion of bodily power, either in single actions or in a continued series of activities directed toward doing the job. We will consider whether the job demands standing, walking, sitting, lifting, bending, carrying, etc., and endeavor to break down total work time into the percentage spent on each type of physical effort.

The matter of comparing physical effort exerted on different jobs should not offer any great difficulty, and we will leave to committee discussions any clarifications of this factor. We might point out here that we are not trying to measure physical effort scientifically, but are endeavoring to arrange jobs in their relative positions with regard to this factor.

Responsibilities

There are certain responsibilities in every job for which the worker is accountable and must answer for nonperformance or wrong performance of his duties. Responsibility is evaluated in terms of the cost of failure to perform the duties properly, assuming the man is properly trained. Obviously, it is also assumed that he is not crazy or angry, or a saboteur who would willfully destroy.

Job specifications will endeavor to set out responsibilities in each job. We will specify whether the job calls for responsibility for equipment and whether it is for maintenance, operation of such equipment, or other factors relative to these. Also, we will consider responsibilities for tools and materials—for purchases, sales, sorting, storing, etc. Another division of responsibility is record-keeping, and others are supervision of men, directing and instructing others, money, methods and public contact.

Working Conditions

Under this factor, consideration is given to those influences which tend to make the job pleasant or disagreeable. It includes such items as place of work, whether it is indoors or outdoors, whether the job conditions are dirty, crowded, damp, hot, cold or otherwise unpleasant.

Under working conditions also are considered the hazards of a job, and type of accidents that may be inherent in the job.

* Used by permission of Benge Associates, Management Engineers.

2. *Select Key Jobs*

With job information in hand, 15 to 25 key jobs [7] are selected by the job evaluation committee. Criteria for selection are similar to those outlined in Chapter 4.[8] The task of selecting key jobs is an important one; the entire method is built upon them. In the original method, key jobs are assumed to carry correct rates of pay. In methods to be discussed later, this is not a requirement.

[7] Otis and Leukart, *Job Evaluation*, p. 142.

[8] Page 48.

Job descriptions and job specifications are helpful in selecting key jobs. Committee discussion of this information should make possible selection of the requisite number of key jobs.

Figure 25

JOB SPECIFICATION

Job Title		Dept.	Date	
Job Duties:			No. Employed	
Mental	*Skill*	*Physical*	*Responsibility*	*Working Conditions*
—yrs. general education	Kind—	Kind of physical effort:	Equipment	Work place
Special ed.:			Materials	Type of work
Kind of work knowledge:	Desirable prior experience:	—% Standing —% Walking —% Sitting	Methods	Surroundings
Math used:	Time & proficiency:	Strength Fatigue	Records	Conditions
What records prepared?	Co. jobs which train for this:	Sex M— F—		
Personal traits required:	This job leads to:	Eyesight requirements:	Supervisory	Hazards
	Other skill factors:	Other physical factors:	Other	

*Prepared by*_____ *Approved by*_____

3. Rank Key Jobs by Factors

Next, committee members are asked to rank the key jobs on each of the five factors, using job information as a basis for judgment. They are asked to make this ranking several different times to solidify their judgments. Then a meeting is held and some method found of obtaining composite ranks representing the judgment of the committee. Averaging may be employed if agreement among members is close. If not, discussion may be continued until a group decision is reached. Committee rankings on key jobs by factors are exemplified by Table 4. Note that in the table the jobs are called "tentative" key jobs. They remain tentative until several judgments are made, after which they are either eliminated or become "true" key jobs.

TABLE 4

AVERAGE RANKS OF 16 TENTATIVE KEY JOBS AS ASSIGNED BY COMMITTEE

Job	Average Rank in				
	Mental Requirements	Physical Requirements	Skill Requirements	Responsibility	Working Conditions
Gager	2	13	2	3	15
Pattern Maker	1	12	1	1	16
Common Laborer	16	1	16	16	1
Power Shear Opr.	11	11	9	5	4
Plater	10	6	6	12	9
Riveter	12	3	12	14	8
Blacksmith	13	2	8	13	7
Punch Press Opr.	14	4	13	15	5
Automatic Screw Machine Opr.	4	8	3	2	13
Casting Inspector	3	7	4	4	10
Millwright	9	10	5	6	11
Tool Crib Attendant	7	16	14	10	14
Arc Welder	8	9	7	9	3
Electric Truck Operator	6	15	11	8	12
Crane Operator	5	14	10	7	6
Watchman	15	5	15	11	2

4. Distribute Wage Rates by Factors

The next step is for committee members to divide up the present wage being paid on each key job among the five factors, in accordance with their judgments as to the importance of the factors to the job. For example, if the present wage for the job of common laborer is $1.08, this might be divided as follows:

Mental requirements	$ .12
Physical requirements	.40
Skill requirements	.14
Responsibility	.09
Working conditions	.33
	$1.08

This distribution is made for all key jobs. In making these judgments, the rankings illustrated in Table 4 may be used as guides. When each member of the committee has made the distribution of money several times independently, the committee meets and agrees on the amount of money to be assigned to each factor for each key job. See Table 5. This committee action, like that referred to in the previous step, may result from averaging or discussion and eventual agreement.

5. Compare Vertical and Horizontal Judgments

The next step involves cross-checking the judgments already made. Figuratively, the two judgments may be thought of as judgments from two different directions, i.e., the original rankings may be thought of as vertical comparisons and the money distributions as horizontal comparisons. If a key job is assigned the same position in both comparisons, the judgments appear to check each other. Also, it may be adjudged that if in the case of a given job the two judgments do not coincide, that job is not a true key job. To make this comparison, the money distributions may also be ranked and the two ranks compared. See Table 6.

Examination of Table 6 shows that four jobs are sufficiently out of line to make it necessary to eliminate them as key jobs. The others are close enough so that they may be retained. As suggested in note ‡ of the table, however, before the job comparison scale is constructed certain adjustments in the money distribution may be made. Comparison of vertical and horizontal rankings may suggest that on certain jobs the ranks can be adjusted by moving a small amount of money from one factor to another.

TABLE 5

AVERAGE DISTRIBUTION OF PRESENT WAGES

Job	Average cents per hour assigned to					
	Mental	Physical	Skill	Responsibility	Working Conditions	Present Rate
Gager	.48	.25	.68	.34	.30	2.05
Pattern Maker	.60	.26	.75	.40	.15	2.16
Common Laborer	.12	.40	.14	.09	.33	1.08
Power Shear Opr.	.27	.28	.34	.32	.28	1.49
Plater	.29	.34	.39	.20	.21	1.43
Riveter	.26	.37	.27	.17	.22	1.29
Blacksmith	.22	.39	.45	.18	.32	1.56
Punch Press Opr.	.20	.36	.20	.15	.25	1.16
Automatic Screw Machine Opr.	.41	.32	.65	.38	.16	1.92
Casting Inspector	.42	.33	.41	.33	.19	1.68
Millwright	.32	.30	.60	.31	.18	1.71
Tool Crib Attendant	.35	.17	.19	.23	.16	1.10
Arc Welder	.33	.31	.35	.24	.29	1.52
Electric Truck Opr.	.38	.21	.29	.25	.17	1.30
Crane Operator	.40	.24	.33	.30	.24	1.51
Watchman	.13	.35	.15	.21	.30	1.14

6. *Construct the Job Comparison Scale*

The next step is setting up the job comparison scale. The basis for this scale is the corrected money distribution allocated to true key jobs by the previous step. See Table 7. In some installations, however, these values are multiplied by a constant. This computation results in point values. Since the job comparison scale is the instrument used in evaluating jobs other than key jobs, the use of point values instead of money removes one source of bias.

7. *Use the Job Comparison Scale*

The job comparison scale is an instrument for use in evaluating the organization's jobs. The committee may begin by selecting 25 to 50 supplementary key jobs and slotting them into the scale.

TABLE 6

DIFFICULTY RANK VS. MONEY RANK

Jobs	Factors									
	Mental		Physical		Skill		Responsibility		Working Conditions	
	D	M	D	M	D	M	D	M	D	M
Gager *	2	2	13	13	2	2	3	3	15	4
Pattern Maker †	1	1	12	12	1	1	1	1	16	16
Common Laborer †	16	16	1	1	16	16	16	16	1	1
Power Shear Opr.†	11	11	11	11	9	9	5	5	4	6
Plater †	10	10	6	6	6	7	12	12	9	10
Riveter †	12	12	3	3	12	12	14	14	8	9
Blacksmith *	13	13	2	2	8	5	13	13	7	2
Punch Press Opr.†	14	14	4	4	13	13	15	15	5	7
Automatic Screw Machine Opr.†	4	4	8	8	3	3	2	2	13	14
Casting Inspector *	3	3	7	7	4	6	4	4	10	11
Millwright ‡	9	9	10	10	5	4	6	6	11	12
Tool Crib Attendant †	7	7	16	16	14	14	10	10	14	15
Arc Welder *	8	8	9	9	7	8	9	9	3	5
Electrical Truck Operator †	6	6	15	15	11	11	8	8	12	13
Crane Operator †	5	5	14	14	10	10	7	7	6	8
Watchman †	15	15	5	5	15	15	11	11	2	3§

* These are *not* true key jobs.

† These may be accepted as key jobs.

‡ Note that the job has a higher rank in money on the skill factor and a lower rank in money on the working conditions factor. This means that the job has been given too much for skill and too little for working conditions. In this case the committee may want to make an adjustment.

§ Note that when a tie in money rank occurs, the difficulty ranking decides which ranks first.

This process serves somewhat to check the original scale. It also serves to fill in some of the gaps in the scale.

Supplementary key jobs are selected by the committee. The major criterion is the substantial correctness of the wage rate. Committee members individually rate these jobs using job specifica-

TABLE 7

JOB COMPARISON SCALE

Factors

Cents	Mental	Physical	Skill	Responsibility	Wk. Cond.
.75			Pattern Maker		
.74					
.73					
.72					
.71					
.70					
.69					
.68					
.67					
.66					
.65			Automatic Screw Machine Operator		
.64					
.63					
.62					
.61					
.60	Pattern Maker		Millwright		
.59					
.58					
.57					
.56					
.55					
.54					
.53					

TABLE 7 (Cont.)

Factors

Cents	Mental	Physical	Skill	Responsibility	Wk. Cond.
.52					
.51					
.50					
.49					
.48					
.47					
.46					
.45					
.44					
.43					
.42					
.41	Automatic Screw Machine Operator				
.40	Crane Operator	Common Laborer		Pattern Maker	
.39			Plater		
.38	Elec. Truck Opr.			Automatic Screw Machine Operator	
.37		Riveter			
.36		Punch Press Opr.			
.35	Tool Crib Att.	Watchman			
.34		Plater	Power Shear Opr.		
.33			Crane Operator		Common Laborer
.32	Millwright	Automatic Screw Machine Operator		Power Shear Operator	
.31				Millwright	
.30		Millwright		Crane Operator	Watchman

TABLE 7 (Cont.)

Factors

Cents	Mental	Physical	Skill	Responsibility	Wk. Cond.
.29	Plater		Electric Truck Operator		
.28		Power Shear Opr.			Power Shear Opr.
.27	Power Shear Opr.		Riveter		
.26	Riveter	Pattern Maker			
.25				Electric Truck Operator	Punch Press Operator
.24		Crane Operator			Crane Operator
.23				Tool Crib Att.	
.22					Riveter
.21		Electric Truck Operator		Watchman	Plater
.20	Punch Press Opr.		Punch Press Opr.	Plater	
.19			Tool Crib Att.		
.18					Millwright
.17		Tool Crib Att.		Riveter	Elec. Truck Opr.
.16					Tool Crib Att.
					Automatic Screw Machine Operator
.15			Watchman	Punch Press Opr.	Pattern Maker
.14			Common Laborer		
.13	Watchman				
.12	Common Laborer				
.11					
.10					
.09				Common Laborer	

tions and the job comparison scale as guides. If ratings by individual members vary by any great amount, the job is eliminated by the committee. Others are fitted into the job comparison scale and serve to provide additional bench marks for use by the committee. Any errors that appear in the scale should be corrected at this point.

The remaining jobs are evaluated in the same manner. Each job is compared to the job comparison scale one factor at a time by first reading carefully the job information on the job and then comparing it with job information on jobs in the scale. Individual ratings are discussed in committee until agreement is reached and the job is slotted into the job comparison scale. A completed job evaluation will see all the organization's jobs in appropriate positions on this scale. As new or changed jobs appear they are evaluated in the same way.

The Per Cent Method

One of the disadvantages of the factor-comparison method was attributed to the use of dollar-and-cent units in developing job comparison scales. Also, it occasionally occurs that key jobs with essentially correct wage rates cannot be found. The per cent method of deriving job comparison scales was developed as an answer to these problems.

Two such methods have been developed. The original, devised by Turner,[9] involves rather extensive computations, but according to its author takes less committee time [10] than a simpler method developed by Hay. Turner [11] likewise regards as questionable certain short cuts and assumptions used by Hay. The Hay per cent method [12] is much simpler in operation. Short cuts in computation are used that result in a small difference in results when the two

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[9] William D. Turner, "The Per Cent Method of Job Evaluation," *Personnel*, Vol. 24, No. 6 (May, 1948), pp. 476–492; and Turner, "The Mathematical Basis of the Per Cent Method of Job Evaluation," *Personnel*, Vol. 25, No. 2 (September, 1948), pp. 154–160.

[10] William D. Turner, "Some Precautions in the Use of the Per Cent Method of Job Evaluation," *Journal of Applied Psychology*, Vol. 33, No. 6 (December, 1949), pp. 547–552.

[11] Turner, *ibid.*

[12] Edward N. Hay, "Creating Factor Comparison Key Scales by the Per Cent Method," *Journal of Applied Psychology*, Vol. 32, No. 5 (October, 1948), pp. 456–464.

methods are compared.[13] Hay's final job comparison scale is based upon "Weber's Law," [14] which appears to need further experimental verification. His explanation of the method does, however, permit understanding of the logic of the method. And the small loss in accuracy is probably offset by ease of understanding. Accordingly, the following explanation of the per cent method of devising job comparison scales leans heavily on Hay's article.

The first three steps in the per cent method are identical with those in the Benge method. The third step involves ranking jobs by factors. In the examples, both factors and jobs are reduced to three for convenience of explanation. In actual practice, usually 15 to 25 key jobs are used, as well as the customary five factors. Table 8 shows the jobs ranked by factors.

Step 4 involves translating these ranks into percentages. It is assumed that the highest rank is 100 per cent. The committee then agrees on percentages for the ranks. In the example of the skill

TABLE 8 *

RANK OF JOBS BY FACTOR
(Read down)

Job Number	*Skill*	*Decisions*	*Responsibility*
1	2	1½	1
2	1	1½	2
3	3	3	3

* Source: Tables 8 through 17 from Edward N. Hay, "Creating Factor Comparison Key Scales by the Per Cent Method," *Journal of Applied Psychology*, Vol. 32, No. 5 (October, 1948), pp. 456–464. Published by the American Psychological Association. Reprinted by permission.

[13] An average percentage discrepancy of 1.8% on identical data according to Turner. Turner, "Some Precautions in the Use of the Per Cent Method of Job Evaluation," *Journal of Applied Psychology*, Vol. 33, No. 6 (December, 1949), pp. 547–552.

[14] A general statement of the law is: In any given kind of perception, equal relative (not absolute) differences are equally perceptible. According to Hay, experimental evidence shows this law applies to job comparison and that "just noticeable differences" are 15 per cent. Turner's experience leads him to disagree. See Edward N. Hay, "Characteristics of Factor Comparison Job Evaluation," *Personnel*, Vol. 22, No. 6 (May, 1946), pp. 370–375; Hay, "The Application of Weber's Law to Job Evaluation Estimates," *Journal of Applied Psychology*, Vol. 34, No. 2 (April, 1950), pp. 102–104. Also Turner, "Some Precautions in the Use of the Per Cent Method of Job Evaluation," *Journal of Applied Psychology*, Vol. 33, No. 6 (December, 1949), pp. 547–552.

factor, rank 2 was adjudged to be the equivalent of 75 per cent. See Table 9. In other words, the decision is made that job one requires only 75 per cent as much skill as job two.

TABLE 9

FACTOR % RATINGS
(Read down)

Job Number	*Skill*	*Decisions*	*Responsibility*
1	75%	100%	100%
2	100	100	85
3	50	33	25
	225	233	210

Step 5 involves a decision on the importance of the factor to the job, i.e., the relative importance of the three factors in the value of the individual job. This is the equivalent of the money distributions in the basic method. Here, a ranking process is used and results appear in Table 10.

Step 6 translates these horizontal rankings into percentages.

TABLE 10

RANK OF FACTORS IN JOBS
(Read across)

Job Number	*Skill*	*Decisions*	*Responsibility*
1	2	3	1
2	1	3	2
3	1	3	2

Again it is assumed that rank 1 equals 100 per cent and the committee determines the percentage equivalents of other ranks. Results appear in Table 11.[15]

TABLE 11

JOB % RATINGS
(Read across)

Job Number	*Skill*	*Decisions*	*Responsibility*
1	85%	40%	100% = 225
2	100	40	75 = 215
3	100	25	75 = 200

[15] The Hay and Turner methods are identical through step 6.

At this point the object is to compare the vertical and horizontal judgments in an effort to determine relative value. Because the percentages derived are noncomparable, some method must be devised to attain comparability. In step 7 the percentages in Tables 9 and 11 are shrunk to total 100 per cent. Table 9 is totaled vertically, and the column totals are each reduced to 100 and the individual job values reduced proportionately. Results appear in Table 12. Similarly, Table 11 is reduced by making row (horizontal) totals equal to 100 per cent, resulting in Table 13.

TABLE 12

F % VALUES
(Read down)

Job Number	*Skill*	*Decisions*	*Responsibility*
1	33	43	48
2	45	43	40
3	22	14	12
	100	100	100

TABLE 13

J % VALUES
(Read across)

Job Number	*Skill*	*Decisions*	*Responsibility*
1	38	17	45 = 100
2	46	19	35 = 100
3	50	12	38 = 100

Step 8 involves dividing each vertical judgment by the corresponding horizontal judgment. Thus each cell in Table 12 is divided by the corresponding cell in Table 13. By this operation the relative total values of jobs are determined. In addition to these divisions, some other computations are involved in this step. Rows are totaled, yielding relative job value totals derived from horizontal judgments. Reciprocals of totals of columns provide relative factor value totals derived from vertical judgments. Reciprocals are adjusted to permit equation of the row total with the column total. See Table 14.

Step 9 completes the computation and provides the committee with comparable values for each of the individual judgments made

in steps 4 and 6. The computation involves: (1) distributing the row (job) totals from Table 14 among the factors in the same percentages as those shown in Table 13, transforming results to whole numbers; (2) distributing corrected reciprocals from Table 14 among

TABLE 14

F%/J% Ratios

Job Number	*Skill*	*Decisions*	*Resp.*		*Totals*
1	.87	2.53	1.07	=	4.47
2	.98	2.26	1.14	=	4.38
3	.44	1.17	.31	=	1.92
	2.29	5.96	2.52		10.77
Reciprocals	.437	.168	.397		1.002
Reciprocals, adjusted	.470	.180	.427		1.077

the jobs in the same percentages as those shown in Table 12, transforming the figures to whole numbers. The resulting table (Table 15) contains two sets of values for each factor and each job; one set

TABLE 15

Comparison of Horizontal and Vertical Judgments

	Skill		*Decisions*		*Responsibility*			
Job No.	F	J	F	J	F	J		
		170		76		201	=	447
1	155		77		205			
		202		83		153	=	438
2	212		77		171			
		96		23		73	=	192
3	103		26		51			
	470		180		427		=	1077

derived from the judgments of the committee as to the importance of each factor of each job in relation to other factors in the job; and the other derived from committee judgments as to the importance of each factor of each job in relation to the importance of the same factor in other jobs. Differences between pairs of values within each cell in the table result from variations between the two sets of judgments.

It should be noted that steps 7 through 9 do not involve judgment,

but simply computation. As a result, these steps may be safely delegated by the committee. It is on this basis that Turner justifies his more rigorous approach. He contends that if an extra hour's computation, which does not take committee time, can provide the committee with better data, such extra time should be taken.

Step 10 is performed by the job evaluation committee. It involves reconciling the differences in the two sets of judgments which appear in Table 15. The committee must determine whether one of the two values is correct or whether a value between the two is more appropriate. Turner suggests starting with instances where the smallest discrepancy occurs and using the standards of judgment that evolve in resolving the other differences. Hay suggests taking one or the other or averaging the two.

The result of committee action in step 10 is the job comparison scale. The single values selected by the committee for each cell of Table 15 are the values that appear on the scale. Hay, however, makes a final adjustment by correcting these committee judgments to the closest value in a table of "equal appearing intervals." See Table 16. The job comparison scale is shown in Table 17.

TABLE 16

15% INTERVALS BASED ON 100

200	100	50	25	12
174	87	43	22	10
152	76	38	19	9
132	66	33	16	8
115	57	29	14	7

The final step in the per cent method is identical with that in the basic method. The job comparison scale is used to evaluate the rest of the jobs by comparing them with those already slotted into the scale.

Profile Method

A further adaptation of the per cent method of factor comparison has been developed by Hay.[16] It is called the profile method and

[16] Edward N. Hay and Dale Purves, "The Profile Method of High-Level Job Evaluation," *Personnel*, Vol. 28, No. 2 (September, 1951), pp. 162–170.

TABLE 17

FACTOR SCALES

Factor Values (15% Intervals)	Skill	Decisions	Responsibility
230			
200	Job 2		Job 1
174			Job 2
152	Job 1		
132			
115			
100	Job 3		
87			
76		Jobs 1 & 2	
66			Job 3
57			
50			
43			
38			
33			
29			
25		Job 3	
22			

was developed for executive jobs. In this method, job comparison is basically of the factor comparison variety, but new techniques of making the comparisons were devised.

As in all methods of job evaluation, the first step is job analysis. Hay [17] suggests emphasis on functions rather than duties in writing job descriptions of high-level jobs. Job specifications may be written in terms of the factors, which are, in the profile method, knowledge, mental application, and accountability—the counterparts of skill, mental application, and responsibility in lower-level jobs.

Step 2 involves development of a profile of each job. The profile is a distribution in percentage terms of the importance of the three factors to the job. Thus a profile of a sales manager's job might be: knowledge, 33 per cent; mental application, 27 per cent; and accountability, 40 per cent. Experience in making such profiles, according to Hay,[18] suggests that certain patterns exist. For example, in lower-level jobs knowledge predominates, with mental

[17] Hay and Purves, *ibid.*
[18] Hay and Purves, *ibid.*

application and accountability much less important. In jobs at higher levels the percentages attributable to these latter factors increase greatly at the expense of the knowledge factor. And in top administrative jobs, accountability is paramount, with knowledge second and mental application third.

It is seen that this profiling process is merely a technique for making the horizontal judgments required by the other applications of the factor-comparison method previously discussed. It is the equivalent of the money distribution in the basic method and the distribution of factors on specific jobs in the per cent method.

Step 3 involves vertical judgments. The jobs are first ranked on the knowledge factor, with the highest rank going to the job adjudged to require the most important and most extensive knowledge. Then values are attached to these ranks by making use of 15 per cent intervals. (See Table 16.) The number of intervals separating jobs is a matter of judgment. Hay describes this judgment process as follows: [19] (1) if (after a study of job information) no difference is apparent, jobs are assigned the same value; (2) if you *think* you see a difference (after study) in knowledge requirements, a one-step (15 per cent) difference probably exists; (3) if you are *sure* you see a difference (after study), two steps of difference probably exist; (4) if you see a difference *clearly* without careful study, the difference is probably three steps or more.

In step 4 values are assigned to mental and accountability factors of each job by making use of the knowledge value from step 3 and the profile from step 2. For example, for a job having a profile of K—33%, M—27%, and A—40% and a knowledge value of 175, the other factor values would be computed as follows: (1) mental $=$ $27/33 \times 175$ or 143; (2) accountability $=$ $40/33 \times 175$ or 213. These values are then corrected to step values (see Table 16).

The final step involves a careful comparison of each job against every other job, factor by factor, using the profiles and evaluations developed in previous steps. Such analysis provides a final job profile and job score. For example, the process of comparing two jobs would proceed as follows:

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[19] Hay and Purves, "The Profile Method of High-Level Job Evaluation," *Personnel*, Vol. 28, No. 2 (September, 1951), pp. 162–170.

	Job 1	*Job 2*
Tentative profile (from step 2)	K—33% M—27% A—40%	K—42% M—31% A—27%
Knowledge value (from step 3)	175	57
Tentative evaluation (from step 4)	175 + 143 + 213 = 531	57 + 42 + 37 = 136
Nearest step values (from step 4)	175 + 150 + 200 = 525	57 + 43 + 38 = 138
From comparison of all jobs, factor by factor, it is concluded that job 1 has one step less mental and job 2 one step more accountability than originally decided:	175 + 133 + 200 = 508	57 + 43 + 43 = 143
Final profile	K—34% M—26% A—40%	K—40% M—30% A—30%

Note that the profile method is not based on key jobs, but on all jobs under study. This practice is not unusual when other factor comparison methods are installed in small organizations.

Training Job Method

Another method of devising job comparison scales has been developed by Hay.[20] It is called the training job method. It is the simplest method of devising scales and can be done very quickly. If jobs to be evaluated are not similar to the training jobs, however, the method is not useful.

The first three steps are those of the basic factor-comparison method: (1) collect job information, (2) select key jobs, and (3) rank key jobs by factors.

The next step is to compare key jobs to training jobs taken from the installation at the Pennsylvania Company. After sufficient study of these training jobs and the points allocated to factors in these jobs, evaluators assign points to factors in the key jobs of the organization under study. This process is accomplished one factor at a time. When a job comparison scale has been devised for key jobs in the organization, remaining jobs are evaluated in the usual manner.

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[20] Edward N. Hay, "Four Methods of Establishing Factor Scales in Factor Comparison Job Evaluation," *The AMA Handbook of Wage and Salary Administration* (New York: American Management Association, 1950), pp. 56–65.

The training job method is perhaps based as much on the point method as the factor-comparison method. The factor-comparison method compares jobs by factors to develop a job scale. In the training job method, an existing job comparison scale is used as a basis for another such scale. As will be seen in the next section, this approach approximates that of the point method.

THE POINT METHOD

The point method of job evaluation involves breaking down the job into several compensable factors, giving each job a numerical score on each of these factors, and summing these scores to obtain the value of the job. It is similar to the classification or grade-description method in that a scale is set up against which jobs are measured. The difference between the two methods is that, whereas one scale is developed for the classification method, a scale for each compensable factor is developed in the point method.

The point method makes every attempt to be objective. A carefully worded rating scale is constructed for each compensable factor. This rating scale includes a definition of the compensable factor, several divisions (called degrees) of each factor carefully outlined, and a point score for each such degree.

These rating scales may be thought of as a set of rulers to be used to measure jobs. If the rulers measure components known to be present in the jobs and if they are carefully constructed, they become sufficiently accurate to measure jobs at the time of installation and to measure new and changed jobs.

This figurative language, however, perhaps suggests accuracy that is impossible in job evaluation. The so-called rulers must be constructed of words and the so-called measurements are still judgments. And all of this is another way of saying that the method is no more accurate than the rating scales developed and used.

Advantages

Probably the major advantage of the point rating method is the stability of the rating scales devised and used. Once the scales are developed, they may be used for a considerable period. Jobs may change without changing the scales. Only a change in what the

organization is paying for requires building a new yardstick. This permits the operation of another advantage, i.e., point plans increase in accuracy and consistency with use.

The point method makes use of the types of rating scales which are usually regarded as most reliable and valid.[21] Graphic rating scales and check lists were devised to reduce rating error and the influence of bias on ratings. Agreement among raters is close even when ratings of employees, supervisors, and personnel executives are compared.[22]

Because the point rating method permits development of a scale for each compensable factor adjudged to exist in the organization, acceptance of results by the parties is likely. When compensable factors are chosen, those which the parties decide are important can be used.

Job classes are easily set up in a point plan. The point values make for simple classification either in terms of arbitrary point ranges or on the basis of agreement. Point values also aid in job pricing. When each job or class of jobs is assigned a point value, consistent assignment of monetary values is made possible.

In the point rating method the influence of human judgment is minimized. As rating scales are developed, every effort is made to provide the rater with aids in reaching decisions. Factors and degrees are carefully defined. Examples are provided. Judgment is not eliminated, of course, but careful steps are taken to reduce errors to a minimum.

Finally, the point method of job comparison permits job evaluation procedure to follow the principles laid down in the discussion of the elements of job evaluation. In this method, the logic of job evaluation may be followed precisely.

Disadvantages

The point rating method is difficult to develop. This probably represents the major disadvantage of the method. Compensable factors must be carefully and clearly defined. Degrees of factors

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[21] Otis and Leukart, *Job Evaluation*, p. 92.

[22] See Alice Mary Jones, "Job Evaluation of Nonacademic Work at the University of Illinois," *Journal of Applied Psychology*, Vol. 32, No. 1 (February, 1948), pp. 15–19.

must be blocked out in terms carrying the same meaning for all raters. Weights must be allocated to factors in accordance with their importance. Point values must be assigned to degrees.

The method also takes time to install. Even after scales are developed, each job must be compared to the scale by at least two or three raters. Considerable clerical detail is involved in recording and collating the ratings.

Nor are the details of the method easy to explain. Terms such as degrees, point values, and weights are not easily interpreted to employees. They are concepts unfamiliar to most laymen, and unless careful instruction is provided in simple language, antagonism may be aroused.

Steps

The point rating method is the most commonly used method of job evaluation.[23] Countless variations of the method are in use.[24] Fortunately, however, the steps involved are somewhat standardized and one explanation of the steps in the point method will suffice. Any variations that occur will be discussed as modifications later in this chapter.

1. Determine Type(s) of Jobs to Be Evaluated

Although it is possible to develop one point rating plan for all jobs in the organization, this is not usual practice. Often compensable factors are quite different for different series of jobs within the organization. And even if one compensable factor or set of compensable factors applies to all jobs, objective wording of rating scales probably requires a separate point plan for each series of jobs. Thus, the decision may be to evaluate shop jobs, or clerical jobs, or executive jobs; and a plan is developed for the job series selected. This is not to say that all jobs will not be evaluated. They should be. But the point method will be developed for only one group at a time. Consequently, the first step in the point method is to select the type of jobs to be evaluated.

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[23] Shartle, *Occupational Information*, p. 142.

[24] Franklin G. Moore, "Statistical Problems in Job Evaluation," *Personnel*, Vol. 23, No. 2 (September, 1946), pp. 128–129.

2. Collect Job Information

The next step involves job analysis. Detailed information is collected on each job to be evaluated and is recorded in a job analysis schedule. A job description recording job facts is written for each job.

3. Select Compensable Factors

When job information is available, compensable factors are selected that are applicable to the jobs under study. Criteria for selection of factors and actual selection procedure were discussed in Chapter 6.[25] Also, a list of possible factors was provided in Figure 16.

Additional emphasis may be required here, however, on the necessity for care and study in this step. On this step rests the workability of the plan and acceptance of results. Factors must be selected that are applicable to the organization and to the jobs under study. It is possible that factors found applicable in other organizations will fit the needs of the particular organization, but it is equally possible that they will not. Thus some use may be made of a list of factors such as that in Figure 16. Careful analysis of what the organization is paying for may suggest factors other than those listed.

For example, many studies have shown that employees set great store by job security. It is certainly possible that a given organization is paying for job security (or lack of it). Use of such a factor might consider (1) average hours of work, (2) probability of layoff, (3) whether the job represented a growing or declining occupation, and so on.

Similarly, promotional opportunity might be considered as a factor. Jobs which are dead-end jobs may be considered by employees to be worth higher rates of pay than jobs of equal difficulty considered to be stepping-stone jobs. Also, jobs requiring skills peculiar to the organization may be considered underpaid if they are assigned wage rates only equal to those paid for equivalent jobs employing more universally needed skills.[26] Thus, career prospects

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[25] Pages 152–160.

[26] Pigors and Myers, *Personnel Administration*, pp. 260–261.

of jobs may be considered as a compensable factor. In addition, according to Dr. Lucien Brouha of du Pont's Haskell Laboratory of Industrial Toxicology, research into fatigue has proceeded far enough to permit use of fatigue potential as a factor in job evaluation.[27]

The number of factors chosen must also depend upon the organization. At least the most important factors should be included, and which these are should be decided by the parties. Although several studies have shown that three or four factors are sufficient,[28] prudence suggests that enough factors should be employed to obtain acceptance of results.

When the compensable factors have been selected, job information may be reported on job specifications in terms of these factors. Such specifications are useful tools in comparing jobs to rating scales. Writing job specifications is advised at this point rather than earlier, to prevent coloring job information.

4. Define Compensable Factors

When compensable factors have been chosen that are specific to the organization and the jobs under study, definition of the factors is not difficult. Such definition is, however, an important step, for this formal statement of the significance or meaning of the factor is used extensively in later steps in the evaluation. Those charged with rating jobs will be constantly checking back against this definition as evaluation proceeds. Unless the statement is sufficiently clear to carry the same connotation to all readers, rating errors will result. Consequently, graphic language should be employed. Failure of the statement to yield a precise impression of factor meaning can seriously affect results.

The more specific the factors chosen, the more precise the definitions may be. General factors are broader and must be defined in more general terms. Some examples of factor definitions are shown in Figure 26.

5. Define Factor Degrees

Use of the factors in job evaluation requires that they be broken up into divisions or degrees so that raters may adjudge the amount

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[27] "Research Briefs," *Business Week*, June 13, 1953, p. 124.

[28] See section on Research below, pp. 225ff.

Figure 26 *

FACTOR DEFINITIONS

Education

This attribute refers to the academic or technical training which is considered prerequisite for learning the job. Such training may be acquired through formal schooling or its equivalent and provides a basis or background necessary for the development of adequate job skill and knowledge.

Knowledge

This refers to what a person should know, beyond the knowledge given by the prerequisite schooling, in order to perform the job satisfactorily. This knowledge is generally gained through actual job experience or on-the-job training. It is broken down into three aspects: Knowledge of (1) procedures and methods; (2) organization; and (3) company practices and policies.

Mental Requirements

This refers to the general mental requirements of the job as expressed in resourcefulness in dealing with unfamiliar problems, interpretation of data, initiation of new ideas, creative or developmental work, etc.

Accuracy

This refers to the necessity for performing work accurately and thoroughly and the loss which may result from failure to be accurate. Errors include those of judgment as well as those of a mechanical nature, but do not include those of a voluntary nature.

Effort

This refers to the mental and physical expenditures required in the performance of a job. Physical environment and the continuity or monotony of the work, as well as other conditions leading to nervous and/or physical strain, are to be considered.

* A. T. Kearney and Company, Chicago.

or level of a factor existing in jobs. For example, the working conditions (surroundings) factor may be composed of the following degrees:

Degree	*Definition*
A	Inside machine shop or average factory type of building. Slightly dirty, noisy, and not uniformly heated.
B	Heat in summer due to proximity to furnace of hot materials. Inside and outside conditions, but not required to remain out in extreme weather. Outside weather conditions, but protected part of time by roofs, pulpits, or cabs.

Degree	*Definition*
	Continually dirty or greasy work, or exposure to wetness and some fumes and smoke.
C	All weather conditions where weather is severe. Exposed to considerable wetness, acids, fumes, dust, or glare necessitating the wearing of protective clothing or devices. Extreme conditions of dirt where man becomes covered with obnoxious dirt such as tar, paint, etc. Extreme heat for intervals but not for extended periods. Exposed to intense noise for extended periods.
D	Exposed to extreme heat of intense degree and for considerable time.
E	Exposed to extreme heat approaching the point of endurance where relief from surroundings at regular intervals is a necessity.

Source: Agreements between Carnegie-Illinois Steel Corporation and the United Steelworkers of America (CIO), (October 23, 1945; April 15, 1946; May 8, 1946; January 13, 1947 as amended; and January 27, 1947), pp. 48, 49.

The process of determining degrees may be compared figuratively to determining inch marks on a rule. It is first necessary to decide the number of such divisions, then to ensure that they are either equally spaced or represent known distances, and finally to see that they are carefully defined. The number of degrees, like the factors themselves, depends upon the organization and the jobs under study. If, for example, working conditions are apparently identical for most jobs, and those jobs with working conditions that differ from the general rule have, among themselves, similar surroundings, then two degrees of this factor are sufficient. If, on the other hand, seven or even more categories are clearly discernible, that number of degrees should be specified.

The phrase "clearly discernible" is important, however. The differences between degrees must be sufficiently great to permit sound and consistent judgment in comparing jobs. Hay, in his work in job evaluation, finds that differences must be of 15 per cent to be noticeable.[29] He states that Weber's Law applies in this way to job evaluation.

The major problem in determining degrees is to make each degree equidistant from the two adjacent degrees. This problem is solved in part by selecting the number of degrees actually found to exist

[29] Hay, "Creating Factor Comparison Key Scales by the Per Cent Method," *Journal of Applied Psychology*, Vol. 32, No. 5 (October, 1948), pp. 456–464.

and in part by careful definition of degrees. Otis and Leukart [30] have stated a number of rules to aid in the process of determining and defining degrees for each factor in a rating scale. The number of degrees should be no more than is necesary to distinguish adequately and fairly between jobs. Unless one or more jobs fall at the level specified by a certain degree, it should not exist. The applicability of the degree to the job or jobs should be apparent. Degree definitions should employ terminology workers can understand. Fortunately, shop language is usually descriptive and graphic, and this is exactly what is needed in degree definitions. Terms such as *small, average,* or *fairly,* are too imprecise. Objective terms should be used; i.e., instead of "lifts heavy weights," use "lifts weights up to 100 lbs." Examples should be employed wherever possible. Using standard job titles as part of degree definitions is becoming usual practice.

Determining and defining degrees is a crucial step in the point method. These are the "inch marks on the ruler," and unless they are clearly marked and meaningful, resulting scales will produce unreliable and inaccurate ratings. Figure 27 illustrates some degree definitions as used in clerical and executive jobs. It should be noted that many of these definitions could be improved by using more precise words.

In order to attain maximum flexibility in the use of factors, some plans employ what might be called two-dimension degrees. For example, one plan in developing degrees of the factor "knowledge of job procedures and methods" uses what amounts to nine degrees by defining three degrees of complexity and three degrees of versatility and permitting raters to use the nine possible combinations. See Figure 28.

6. *Determine Relative Values of Factors*

Only rarely are compensable factors assigned equal weight in determining job value. It is usually determined that some factors are more important than others. In fact, the relative importance of factors becomes apparent when compensable factors are chosen. It is wise to delay the weighting process, however, until factors and degrees are carefully defined. In this way it is assured that the judges are making their decisions in terms of identical concepts.

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[30] Otis and Leukart, *Job Evaluation,* pp. 103–107.

Figure 27 *

DEGREE DEFINITIONS—CLERICAL JOBS

Preparation for the Job.

1– 2 No experience, high school education, average intelligence.
3– 4 Requires some special training such as typing, stenography, negotiable instruments, loans, law, etc.
5– 8 Experience in several jobs leading to this one.
9–10 Requires fair knowledge of some particular field such as accounting, investments, loans, law, etc.
11–12 Requires a thorough knowledge of at least one field and also some knowledge of related fields.
13–14 Requires knowledge covering several fields sufficiently to discuss them intelligently. Requires wide experience.

In connection with above, consider special skills required.

Accounting	Investments	Secretarial
Correspondence	Languages	Shorthand
Filing	Law	Special Accounting
Income Tax	Negotiable Instruments	Typing

Contact with the Public, Customers, and Personnel.

1– 2 Jobs rarely coming into contact with others.
3– 4 Contact generally with others in the same group.
5– 6 Jobs having some contact outside the group. (Do not include contacts of a delivery nature.)
7– 8 Jobs coming into contact with the public and employees regularly on routine matters.
9–10 Jobs for which personality and the ability to get along with people are primary qualifications.
11–12 Jobs having major contacts with either customers, public, or personnel.

Degree of Executive Responsibility.

0 None.
1– 2 Oversees work for a group doing routine work under direction of a supervisor. Not responsible for methods. (Responsible only for proper completion of assigned work.)
3– 4 Supervisor of ordinary work group under supervision of a manager. (Doing routine work; not responsible for methods.)

— or —

Manager of a small independent department doing routine work.

— or —

Assistant to the head of a large division.

5– 6 Supervisor of a large division in a large department doing routine work. Somewhat responsible for methods. Responsible to a manager and an officer.

— or —

Supervisor of a group doing individual work under a manager or an officer.

Figure 27 (Cont.)

— or —

First assistant to the head of a large division.

7– 8 Manager of a large department doing routine work. Responsible for methods to Comptroller and responsible for all workers.

9–10 Manager of a large division doing routine work. (Responsible for methods and workers.)

— or —

Manager of a department doing individual work. (Responsible for methods and workers.)

* Source: William R. Spriegel and Elizabeth Lanham, *Job Evaluation in Banks* (Austin, Texas: Bureau of Business Research, University of Texas, August, 1951), pp. 129–131.

Figure 28 *

EXAMPLE OF TWO-DIMENSION DEGREES

Complexity	*Versatility Required*		
	Col. A 0–1 Limited variety of tasks required.	Col. B 2–4 Variety of tasks required.	Col. C 5– Wide variety of tasks required; new tasks added frequently.
Row 1 0–1 Routine tasks involving very simple procedures.			
Row 2 2–4 Semi-routine tasks which follow established or standardized procedures.			
Row 3 5– Non-routine tasks which follow only generally established procedures or methods.			

* Source: A. T. Kearney and Company, Chicago.

The relative values of factors are usually assigned on a percentage basis. Thus 100 per cent will be divided among the factors on the basis of their adjudged importance. For example, a common ready-made point plan allocates 50 per cent to skill, 15 per cent to effort, 20 per cent to responsibility, and 15 per cent to job conditions.[31] In many presently operating systems, the percentage allocation is similar to this distribution.

It is seen that this step is an important one. The weights chosen greatly influence the resulting job and wage structures. Unless the parties are cognizant of the importance of their decision and are able to agree on the weights chosen, trouble may result. For this reason, a committee decision is recommended, and union or employee representation on the committee would seem to be called for.

A useful procedure for determining factor weights is to (1) have committee members carefully study factor and degree definitions, (2) have each member rank the factors in order of importance and have the total committee agree on a ranking, and (3) have each member distribute 100 per cent among the factors individually, and once more have the committee reach agreement.

Studies of operating job evaluation plans [32] show that weights specified by the committee are not always attained in operation. This occurs when certain factor degrees are so defined as to be rarely used in the actual evaluation. To see that the weights specified are actually carried out in the evaluation, a simple statistical procedure is required which will correct for differences in application of the scales before committee weights are applied.[33] If the complete range of each scale is used, however, such correction may be unnecessary.

7. *Assign Point Values to Factors and Degrees*

When the relative value of factors has been decided upon, the next step is to assign points to the factors and to the degrees. These

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[31] The National Metal Trades Association plan.

[32] See C. H. Lawshe, Jr., and G. A. Satter, "Studies in Job Evaluation I: Factor Analyses of Point Ratings for Hourly-Paid Jobs in Three Industrial Plants," *Journal of Applied Psychology*, Vol. 28, No. 3 (June, 1944), pp. 189–198.

[33] See Joseph Tiffin, *Industrial Psychology* (New York: Prentice-Hall, Inc., 1952), pp. 505–509.

are the values that will be used in determining the total point values of jobs.

The total points assigned to a factor has been determined in percentage terms in the previous step. Here, all that is required is a decision on the total number of points to be used in the plan. If, for example, 500 points are to be used, the value of each factor is 5 times the percentage value. This procedure also determines the point value of the highest degree of each factor. Thus, if a given factor (say, working conditions) is assigned 20 per cent of the weight, and 500 points are to be used, the total number of points allocable to working conditions is 100 and the highest degree of the factor would also carry 100 points.

Total points for each factor are assigned to degrees usually by either (1) arithmetic progression, or (2) geometric progression. In the former, increases are in equal amounts from the lowest to the highest degree, i.e., 20, 40, 60, 80, 100. In the latter, increases are in equal percentage steps, i.e., 5, 10, 20, 40, 80, 160. Actually, where the plan has been developed for a specific job series rather than for the entire organization, it matters little which method is followed; and few point plans apply to all the jobs in the organization. Where all jobs are covered, however, it is well to remember that when the job structure is priced, an arithmetic progression tends to produce a wage line which curves upward, whereas a geometric progression tends to produce a wage line that is more linear.

The above discussion assumes that degrees have been defined with sufficient precision to permit the assumption that they represent equal steps along a scale. Where it is believed that this is not the case, the committee must decide how the total points allocated to a factor should be divided up among the degrees. Most plans, however, assume that each degree of a factor represents a step equivalent to other degrees.

It was pointed out in step 5 that factors may employ differing numbers of degrees. Thus, one factor may have three degrees and another eight. Where this is the case, the simplest procedure (using arithmetic progression) to follow in assigning point values to degrees is: (1) set the value of the highest degree (as explained above) by multiplying the percentage allocated to the factor by total possible points; (2) set the minimum degree at the actual percentage figure (thus, if a given factor were allocated 30 per cent of the

points and the total possible points were set at 500, the highest degree of the factor would be 150 and the lowest degree 30); (3) subtract the two figures; (4) divide the result by the number of steps from the lowest degree to the highest (the number of degrees minus one); (5) add this figure successively to the lowest degree. Thus, if the factor in the example has seven degrees, points would be assigned as follows: 30, 50, 70, 90, 110, 130, 150; if five degrees: 30, 60, 90, 120, 150.

8. Write Up the Job Evaluation Manual

A final step in preparing for job evaluation by the point method is to consolidate the factor and degree definitions and point values into a job evaluation manual. This step places in convenient form the yardsticks to be used by raters in evaluating jobs. An example of the general form of such a manual is provided in Figure 29.

9. Rate the Jobs

When the manual is complete, job rating can begin. Raters, usually in committee, use the scales to evaluate jobs. The jobs may be taken in any order. Or key jobs may be rated first and used as additional definitions of factor degrees. In fact, key jobs may be employed throughout steps 3 through 7 as an economy device. Use of key job information rather than the information on all jobs under study may save a great deal of time and effort on the part of the committee.

As the jobs are rated, a record of the rating on each factor is recorded on a substantiating data sheet (see Figure 30). This becomes a permanent record of the points assigned to each factor and the reasons for assigning the particular degree of the factor to the job. Substantiating data should come from job descriptions and job specifications.

Custom-Built vs. Ready-Made Systems

Throughout the discussion of job evaluation as a solution to the problem of wage and salary structures, it has been emphasized that the system chosen should be based upon what the organization is paying for. This suggests that often a custom-built system is superior to a ready-made system or that, if the latter is adopted, it

may require substantial modification. The steps provided for the point method were based on this assumption.

The popularity of the point method is, however, largely attributable to wholesale adoption of certain ready-made plans. Understanding of the method will be aided by some discussion of these plans.

NEMA and NMTA for Factory Jobs

The most widely used system is that of the National Electrical Manufacturers Association and the National Metal Trades Association for factory jobs. The system has been widely sold to members of these associations on the assumption that there are advantages to be obtained from the use of a system that has been applied elsewhere. The reasoning involved is based on convenience of exchanging wage data. It is questionable if the reasoning is correct

Figure 29 *

JOB EVALUATION MANUAL

In order to assure conformity of thinking with respect to the job requirements considered in each factor, the following factor definitions, considerations, and degrees have been prepared as a guide to evaluating jobs.

Factor 1—JOB KNOWLEDGE

1. *Factor Definition*

This factor considers the education, knowledge, and experience the worker must have to perform the job satisfactorily. It is measured by the complexity of practical knowledge the worker must possess, whether it be gained by on-the-job experience, prior training and education, or both. It is limited by the nature of instructions received regarding work tasks and by the degree of supervision received.

Knowledge of a job is three-fold:

(1) Knowledge of Equipment—the machine to be operated or maintained, what to set up and adjust; or what to assemble and dismantle and repair, and tools to be used for each.
(2) Knowledge of Methods and Processes—the manufacturing process, the methods of set-up and adjustment or maintenance, repair, and construction.
(3) Knowledge of Materials—recognition, uses, and working properties.

Scope of knowledge required is measured in three degrees:

(1) Casual—incidental or casual knowledge and little or no experience.
(2) Working—general or workable knowledge, average skill, and some experience.
(3) Expert—exceptional knowledge and skill and considerable experience.

Figure 29 (Cont.)

2. *Factor Considerations*

(1) Base knowledge—need or use of reading and writing whole numbers, decimals and fractions, advanced mathematics.
Special knowledge of subject.
Broad knowledge of subject.
Technical engineering.

(2) Instruments—use and complexity of:
Trade instruments
Laboratory instruments
Inspection or production control instruments

(3) Machinery and tools—use, type and kind of:
Hand tools
Auxiliary equipment
Production equipment

(4) Methods—variety of complexity of:
Production and process methods
Maintenance and shop methods
Inspection and corrective methods
Set-up methods
Safety

(5) Materials—recognize or work with:

Steel, bars and sheets	Plastics	Wire
Iron	Rubber	Lumber
Brass	Pipe or Conduit	Paints
Aluminum	Oils and Lubricants	Miscellaneous

3. *Factor Degrees*

Degrees	*Points* Scope of Knowledge		
Knowledge of	Casual	Working	Expert
(1) Equipment and Tools			
1. Rough and simple hand tools, simple equipment	0–1	3	6
2. Precision tools, simple to ordinary equipment	2	5	8
3. Average to semi-complex equipment	3	6	9
4. Complex to very complex equipment	4	8	11
(2) Methods and Processes			
1. Simple work	1	3	6
2. Average methods	2	5	8
3. Complicated methods	3	7	10
4. Very complicated methods	4	9	13
(3) Materials			
1. Common material easy to recognize or learn about	0–1	2	4
2. Wide variety of materials used repetitively	2	4	6
3. Wide variety of materials used in complex or nonrepetitive operations	3	6	8

* Source: The Maytag Company, *Job Evaluation Plan* (Newton, Iowa, mimeographed).

Figure 30

SUBSTANTIATING DATA SHEET—OFFICE JOBS

Job Title _____ Code No. _____

	Degree	*Points*
EDUCATION		
JOB KNOWLEDGE		
SUPERVISION EXERCISED		
TRUST IMPOSED		
ERRORS		
NATURE OF WORK		
CONTACTS WITH OTHERS		
PHYSICAL—MENTAL STRAIN		

Date Rated _____ Date Re-rated _____ TOTAL POINTS _____

when it is recalled that organizations are so different that the degree of fit of the system varies. And if this advantage is illusory, the advantages of a common system largely disappear.

The factors, together with point scores and weights, appear below.

NEMA and NMTA [34]

Skill

1. Education	70 (14%)
2. Experience	110 (22%)

[34] From NEMA, *Job Rating Manual*, 1946 ed., p. 2.

	Skill	
3.	Initiative & Ingenuity	70 (14%)
	Total	250 (50%)
	Effort	
4.	Physical Demand	50 (10%)
5.	Mental or Visual	25 (5%)
	Total	75 (15%)
	Responsibility	
6.	Equipment, Process	25 (5%)
7.	Material or Product	25 (5%)
8.	Safety of Others	25 (5%)
9.	Work of Others	25 (5%)
	Total	100 (20%)
	Job Conditions	
10.	Working Conditions	50 (10%)
11.	Hazards	25 (5%)
	Total	75 (15%)
	All	
	500 (100%)	

Some critics point to what they call the overemphasis on skill and underemphasis on working conditions. Answers to such critics, of course, must point out the necessity of choosing and weighting the factors that apply to a particular organization.

An idea of the factor and degree definitions used in the system may be obtained from the definition of the Physical Demand factor.[35] This factor appraises the amount and continuity of physical effort required. The effort expended handling material (the weight and frequency of handling), operating a machine or handling tools, and the periods of unoccupied time are considered.

1st Degree

Work requiring little physical effort.

2nd Degree

Working regularly with light weight material or occasionally with average weight material. Operate machine tools where machine time exceeds the handling time.

3rd Degree

Sustained physical effort, requiring continuity of effort, working with light or average weight material. Usually short cycle work requiring continuous activity, the operation of several machines where the handling time is equivalent to the total machine time.

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[35] NEMA, *Job Rating Manual*, 1946 Edition, p. 6. Reprinted by permission.

4th Degree

Considerable physical effort working with average or heavy weight material, or continuous strain of difficult work position.

5th Degree

Continuous physical exertion working with heavy weight material. Hard work with constant physical strain or intermittent severe strain.

It is seen that the definitions are quite general. This was necessary to enable broad application of the system. Such broad definitions, however, have not harmed adoption of the system. Advocates insist that the scales can be used very effectively by the committee simply agreeing what the definitions mean to them.

Modifications of NEMA and NMTA

Many modifications of the NEMA-NMTA plan have been made in practice. Individual organizations and consultants have made changes to make the plan more adequately fit the organization under study. An example is the plan adopted by a large organization,[36] from which the following excerpt is taken.

FACTORS	MAXIMUM POINT VALUES	TOTAL POINTS
I. *Skill*		42
1. Job Knowledge	32	
2. Judgment & Ingenuity	10	
II. *Effort*		20
3. Physical Effort	15	
4. Mental or Visual Effort	5	
III. *Responsibility for*		20
5. Equipment and Process	5	
6. Material and Product	5	
7. Safety of Others	5	
8. Directing Work of Others	5	
IV. *Working Conditions*[37]		18
9. Surroundings	10	
10. Unavoidable Hazards	8	
		100

[36] The Maytag Company, *Job Evaluation Plan* (Newton, Iowa, mimeographed).

[37] Note the relatively greater weight placed on working conditions.

Factor No. 3—PHYSICAL EFFORT

1. *Factor Definition*

This factor considers the amount and continuity of physical effort required to perform a job. It is measured by the amount of weight per unit handled, awkwardness and position of handling. It is limited by the frequency of occurrence.

2. *Factor Considerations*

(1) Amount and frequency of weight handling
(2) Awkwardness of handling
(3) Work or handling position:

Walking	Stooping
Balancing	Crouching
Climbing	Kneeling
Crawling	Sitting
Standing	Reaching
Turning	

(4) Method of handling:

Trucks	Crowbar
Dollies	Carrying
Skids	Pulling
Crane	Pushing
Rollers	

(5) Periods of rest or unoccupied time

3. *Factor Degrees*

	Actual or Equivalent Weight Handled			
Continuity of Effort	(A) Very light 0–5#	(B) Light 5–30#	(C) Medium 30–75#	(D) Heavy 75# or More
(1) Infrequent exertion	0–1	2	4	6
(2) Intermittent to ordinary exertion	2	4	6	9
(3) Average to steady exertion	4	6	9	12
(4) Constantly sustained exertion	6	9	12	15

NEMA for Salaried Jobs

The National Electrical Manufacturers Association has developed a point job evaluation system for salaried jobs. Factors and scores appear at the top of page 224.[38] The definitions of the factor "monetary responsibility" and of degrees of this factor follow.[39]

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[38] John F. Mee (ed.), *Personnel Handbook* (New York: The Ronald Press, 1951), p. 164. Reprinted by permission.
[39] *Ibid.*, p. 165. Reprinted by permission.

Factors	*Degrees and Points*							
	1st	2nd	3rd	4th	5th	6th	7th	8th
1. Education	20	40	60	80	100	120		
2. Experience	25	50	75	100	125	150	175	200
3. Complexity of Duties	20	40	60	80	100			
4. Monetary Responsibility	5	10	20	40	60			
5. Contacts	5	10	20	40	60			
6. Working Conditions	5	10	15	20	25			
Add for Supervisory Jobs Only								
7. Type of Supervision	5	10	20	40	60			
8. Extent of Supervision	5	10	20	40	60			

Point Range	*Grade*
Up to 120	A
125–160	B
165–200	C
205–240	D
245–280	E
285–320	F
325–360	G
365–400	H
405–440	J
445–480	K
485–520	L
525–560	M

Monetary Responsibility—This factor evaluates the responsibility for profit or loss to the company as a result of actions or decisions which involve items such as equipment, material, labor, cost estimates, prices, forecasts, purchase commitments, investments. Consider the extent to which the work is checked or verified, the effect of actions or decisions on operating costs or profits, monetary loss, production delays or effect on employees or customers.

1st Degree

Little or no monetary responsibility.

2nd Degree

Limited monetary responsibility since the work is usually checked or verified or errors are apparent in later steps before the work leaves the section or department.

3rd Degree

Monetary responsibility confined to departmental areas such as proper utilization of labor, material, equipment, preparation of estimates, reports or quotations as a basis for decisions, setting standards, requisitioning material, which are subject to approval or review by others or where periodic reports as to results are available.

4th Degree

Substantial monetary responsibility since actions or decisions involve approval or review of situations listed in Third Degree, as a preliminary to top management approval or to final action thereon.

5th Degree

Considerable monetary responsibility since actions or decisions involve major expenditures for equipment and material, preparation or approval of estimates and quotations, making important commitments, or handling important customer accounts, any of which may appreciably affect operating costs or profits.

RESEARCH ON JOB EVALUATION

Job evaluation methods have been the subject of much research in recent years. Much of this research may be attributable to Viteles' statement [40] that job evaluation was ignoring the "law of parsimony" in using too many factors. At any rate, job evaluation methods and particularly some of the ready-made systems (such as NEMA) have been subjected to close scrutiny.

For example, Lawshe and his associates at Purdue have published in the *Journal of Applied Psychology* a series of "studies in job evaluation," [41] in which existing job evaluation methods have been

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[40] Morris D. Viteles, "A Psychologist Looks at Job Evaluation," *Personnel*, Vol. 17, No. 3 (November, 1941), pp. 165–176.

[41] C. H. Lawshe, Jr. and G. A. Satter, "Studies in Job Evaluation I: Factor Analysis of Point Ratings for Hourly-Paid Jobs in Three Industrial Plants," Vol. 28, No. 3 (June, 1944), pp. 189–198; Lawshe, "Studies in Job Evaluation II: The Adequacy of Abbreviated Point Ratings for Hourly-Paid Jobs in Three Industrial Plants," Vol. 29, No. 3 (June, 1945), pp. 177–184; Lawshe and A. A. Maleski, "Studies in Job Evaluation III: An Analysis of Point Ratings for Salary-Paid Jobs in an Industrial Plant," Vol. 30, No. 2 (April, 1946), pp. 117–128; Lawshe and S. L. Alessi, "Studies in Job Evaluation IV: Analysis of Another Point Rating Scale for Hourly-Paid Jobs and the Adequacy of an Abbreviated Scale," Vol. 30, No. 4 (August, 1946), pp. 310–319; Lawshe and R. F. Wilson, "Studies in Job Evaluation V: An Analysis of the Factor Comparison System As It Functions in a Paper Mill," Vol. 30, No. 5 (October, 1946), pp. 426–434; Lawshe and Wilson, "Studies in Job Evaluation VI: The Reliability of Two Point Rating Methods of Job Evaluation," Vol. 31, No. 4 (August, 1947), pp. 355–365; Lawshe, Edward E. Dudek, and R. F. Wilson, "Studies in Job Evaluation VII: A Factor Analysis of Two Point Rating Methods of Job Evaluation," Vol. 32, No. 2 (April, 1948), pp. 118–129; Lawshe and Patrick C. Farbro, "Studies in Job Evaluation VIII: The Reliability of an Abbreviated Job Evaluation System," Vol. 33, No. 2 (April, 1949), pp. 158–166; M. C. Miles, "Studies in Job Evaluation IX: Validity of a Check List for Evaluating Office Jobs," Vol. 36, No. 2 (April, 1952), pp. 97–102. See also Lawshe and E. J. McCormick, "What Do You Buy with the Wage or Salary Dollar?" *Personnel*, Vol. 24, No. 2 (September, 1947), pp. 102–106.

examined and several modifications tested out. Study I found that the NEMA plan for hourly-paid jobs actually weighted the skill factor from 77.5 per cent in one plant to 99 per cent in another, rather than the 50 per cent weight allocated in the rating scale. This is due, as pointed out previously,[42] to differences in degrees available and degrees used in the various factors.

In the same study he found that two or three factors actually carried almost the entire weight in the plans studied. And although the existing factors (besides skill) were different in different plants, this suggested to Lawshe the feasibility of an abbreviated scale.[43] Accordingly, Study II is an attempt to test the adequacy of an abbreviated scale. It was concluded that an abbreviated scale of three or four factors would probably yield results practically identical with the more complex systems. At this point in the research, however, the important factors in each plant were so different as to suggest that in order to make an abbreviated scale it would first be necessary to use the more complex scale and later reduce it to the factors shown statistically to actually carry the weight. Otis and Leukart point out that this approach would result in little savings.[44]

Studies III, IV, VI, and VIII pursued the matter of an abbreviated scale. An experimental abbreviated scale including four factors (learning period, general schooling, working conditions, and job hazards) was found to be (1) more reliable in total than the NEMA scale, (2) more reliable in each factor than counterpart NEMA scales, and (3) more reliable on skill factors (learning period and general schooling) than on the other two. It was also found that when a committee of labor and management members installed the system in a going organization: (1) management ratings were more reliable than union ratings, (2) a high correlation existed between committee ratings and independent ratings, (3) the skill factors were most stable for all raters.

These conclusions on the adequacy of an abbreviated scale were independently confirmed by others.[45] In all these studies, how-

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[42] See p. 215.

[43] It probably should have suggested that organizations using ready-made plans should correct the weighting of factors after ratings had been made.

[44] Otis and Leukart, *Job Evaluation*, p. 98.

[45] In the *Journal of Applied Psychology:* R. C. Rogers, "Analysis of Two Point Rating Job Evaluation Plans," Vol. 30, No. 2 (December, 1947), pp. 579–585; David J. Chesler, "Reliability of Abbreviated Job Evaluation Scales," Vol.

ever, the abbreviated scales developed statistically have different factors even when applied to the same types of jobs. Studies of plans covering salaried workers like those covering wage earners show the applicability of an abbreviated scale, but the factors differ for each installation.

In Study VII, however, Lawshe still appears to question whether the simplified system has isolated all the factors that apply to factory jobs. Also, he points out the probable necessity of retaining certain factors, even though they carry little weight, if these factors help make the system more acceptable to the parties using the system.

This last point is well taken. At a recent wage and salary seminar for industry people, one of the participants was thinking of dropping a plan employing eleven factors and adopting an abbreviated plan. The other members discouraged him. The consensus was: "Several factors make it possible to explain job evaluation and to handle wage grievances." One participant was more specific: "We have a plan using eighteen factors. Recently we conducted a statistical study [46] that shows that six factors will give us substantially the same results. We are still using and will probably continue to use the eighteen factor plan. I don't want to try to justify total points on a job using a plan with only six factors."

Thus far research results on simplified scales may be summarized as follows: (1) a limited number of factors will provide a workable system; (2) applicable factors vary from one organization to another and from one job series to another; (3) sufficient factors to satisfy the desires of the principals appear desirable. These conclusions suggest to this author that a job evaluation system tailor-made to the organization and the jobs under study is superior to a ready-made system, whether complex or simplified.

32, No. 6 (December, 1948), pp. 622–628; Milton K. Davis and Joseph Tiffin, "Cross Validation of an Abbreviated Point Job Evaluation System," Vol. 34, No. 4 (August, 1950), pp. 225–228; Chesler, "Abbreviated Job Evaluation Scales Developed on the Basis of 'Internal' and 'External' Criteria," Vol. 33, No. 2 (April, 1949), pp. 151–157; A. H. Howard and H. G. Schutz, "A Factor Analysis of a Salary Job Evaluation Plan," Vol. 36, No. 4 (August, 1952), pp. 243–246. In *Personnel:* Norman Locke, "Few Factors or Many?—An Analysis of a Point System of Classification," Vol. 25, No. 6 (May, 1949), pp. 442–448; John A. Oliver and Alexander Winn, "An Abbreviated Job Evaluation Plan for Salaried Personnel," Vol. 28, No. 3 (November, 1951), pp. 225–229.

[46] Oliver and Winn, "An Abbreviated Job Evaluation Plan for Salaried Personnel," *Personnel,* Vol. 28, No. 3 (November, 1951), pp. 225–229.

Several studies have confirmed this viewpoint. Gray [47] has found that factors in ready-made systems do not differentiate between jobs and that some ready-made systems result in inaccurate evaluations.[48] These studies validate the approach to job evaluation taken in this text.

Lawshe Study V [49] studied the factor comparison method statistically and found that major weight in that method also is carried by a very few factors. In the paper mill studied, the skill factor carried 98 per cent of the weight. Chesler compared several point and factor comparison systems and found that they produced highly similar results when applied to the same jobs.[50] The jobs selected, however, were office jobs, and no study has appeared comparing the different systems applied to factory jobs.

Several studies have been concerned with the reliability of ratings in job evaluation. Ash [51] found a high degree of reliability among raters and concluded that such consistency of rating is a function of the factor rated and the job information available. This finding reinforces the importance of job analysis as a basis for job evaluation. Lawshe Study VI confirmed these results. Jones [52] found that the reliability of ratings of employees, supervisors, and members of the personnel department agreed closely. Stewart [53] shows that rater reliability can be improved by statistically seeking out rater bias and informing raters of their tendencies.

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[47] J. S. Gray, "Custom Made Systems of Job Evaluation," *Journal of Applied Psychology*, Vol. 34, No. 6 (December, 1950), pp. 378–380.

[48] J. Stanley Gray and Marvin C. Jones, "Ready Made versus Custom Made Systems of Job Evaluation," *Journal of Applied Psychology*, Vol. 35, No. 1 (February, 1951), pp. 11–14. See also "Pitfalls in Job Evaluation," *The Management Review*, Vol. 41, No. 6 (June, 1952), p. 351.

[49] See footnote 41.

[50] David J. Chesler, "Reliability and Comparability of Different Job Evaluation Systems," *Journal of Applied Psychology*, Vol. 32, No. 5 (October, 1948), pp. 465–475.

[51] Philip Ash, "The Reliability of Job Evaluation Rankings," *Journal of Applied Psychology*, Vol. 32, No. 3 (June, 1948), pp. 313–320.

[52] Alice Mary Jones, "Job Evaluation of Nonacademic Work at the University of Illinois," *Journal of Applied Psychology*, Vol. 32, No. 1 (February, 1948), pp. 15–19.

[53] Dwight A. Stewart, "Improving Job Evaluation Results," *Personnel*, Vol. 25, No. 5 (March, 1949), pp. 356–365.

Check List Method of Job Evaluation

Part of the research effort has been devoted to the development of new approaches to job evaluation. Bellows and Estep,[54] for example, have attempted to utilize the United States Employment Service Occupational Characteristics Check List (Figure 12, Worker Characteristics Form, Chapter 6) for job evaluation purposes. They found a correlation of 0.74 between the results of a job evaluation plan and OCCL scores. The Life Office Management Association [55] has conducted research in a similar direction and has developed a list of 149 clerical operations which have been distinguished and their relative values determined.

Further work has been done on this approach by Lawshe and his associates.[56] Building on the work of the Life Office Management Association, a check list of 139 items has been developed and tested for clerical jobs. A portion of the check list is reproduced in Figure 31. The check list may be used for both describing and evaluating jobs. As a job description, it is filled out separately by the employee and his supervisor and a discussion between them straightens out any discrepancies.

Each item in the check list has an operational weight determined statistically from studies of operations involved in clerical jobs. These weights are used as point values in determining the relative

Figure 31 *

EXAMPLE OF CHECK LIST ITEMS

——— 1. Makes simple calculations such as addition or subtraction with or without using a machine † ..... (—)
——— 2. Performs ordinary calculations requiring more than one step, such as multiplication or division, without using a machine or requiring the use of more than one set or group of keys on a calculating machine † ..... (—)

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[54] Roger M. Bellows and M. Frances Estep, "Job Evaluation Simplified: The Utility of the Occupational Characteristics Check List," *Journal of Applied Psychology*, Vol. 32, No. 4 (August, 1948), pp. 354–359.

[55] L. W. Ferguson, *Clerical Salary Administration* (New York: Life Office Management Association, 1948).

[56] M. C. Miles, "Studies in Job Evaluation IX: Validity of a Check List for Evaluating Office Jobs," *Journal of Applied Psychology*, Vol. 36, No. 2 (April, 1952), pp. 97–102.

Figure 31 (Cont.)

3. Performs numerous types of computations including relatively complicated calculations involving roots, powers, formulae, or specific sequences of action with or without using a machine †.. (—)
4. Balances specific items, entries, or amounts periodically with or without using a machine † ..... (—)
5. Keeps a running balance of specific items, entries, or amounts, with or without using a machine † ..... (—)
6. Copies desired data from one form or record into the proper place on another form or record by longhand ..... (—)
7. Copies desired data from one form or record into the proper place on another form or record using typewriter or some type of office machine ‡ ..... (—)
8. Makes simple or routine entries in record books or on special or standard forms by longhand or using a typewriter ..... (—)
9. Makes simple or routine entries in record books or on special or standard forms using some type of office machine ‡ ..... (—)
10. Records on special forms or records all items of particular type(s) or classification(s) by longhand ..... (—)
11. Records on special forms or records all items of particular type(s) or classification(s) using a typewriter or some type of office machine ‡ ..... (—)
12. Makes out various routine forms such as checks, receipts, invoices, form letter addresses, or other items, according to standard operating procedures by longhand ..... (—)
13. Makes out various routine forms such as checks, receipts, invoices, form letter addresses, or other items, according to standard operating procedures using a typewriter or some type of office machine ‡ ..... (—)
14. Prepares routine lists of specific items, numerical and/or verbal, according to designated system by longhand ..... (—)
15. Prepares routine lists of specific items, numerical and/or verbal, according to designated system using a typewriter or some type of office machine ‡ ..... (—)
16. Composes routine correspondence or memoranda, following standard operating procedures ..... (—)
17. Composes correspondence requiring specific knowledge of methods, procedures, policies, or other information ..... (—)
18. Prepares routine reports, based on information at hand, following standard operating procedures ..... (—)
19. Selects and/or gathers specific data, information, or desired items, according to standard operating procedures, or upon request ..... (—)
20. Consults or studies specific books, manuals, catalogs, or other sources in order to obtain desired information ..... (—)
21. Searches indexes, manuals, files, records, or other sources for desired or missing information on specific subjects ..... (—)
22. Prepares reports requiring the investigation of various sources of information, and systematic organization and presentation .. (—)
23. Prepares analyses or summaries of programs, reports, specific operational items, or other data ..... (—)

Figure 31 (Cont.)

——— 24. Compiles lists of numerical, verbal, or other descriptive data ..(—)
——— 25. Compiles numerical or statistical data for tables, charts, rate schedules, or other uses with or without using a machine .....(—)
——— 26. Prepares or compiles financial, statistical, or numerical statements and/or accompanying descriptive reports .....(—)
——— 27. Draws up contracts, specifications, or other forms requiring specific knowledge of methods, procedures, policies, or other information .....(—)
——— 28. Makes out routine schedules of work, production, appointments, arrivals, departures, or other matters .....(—)
——— 29. Determines need for and/or makes routine orders for necessary supplies, materials, or other items .....(—)
——— 30. Makes assignments of facilities, vehicles, equipment, or similar items to provide for efficient and optimal use .....(—)

* Source: C. H. Lawshe, *The Job Description Check-List of Office Operations* (Lafayette, Indiana: Occupational Research Center, Purdue University, April, 1952), pp. 2, 3. Reprinted by permission.

† Machines that may be used in items No. 1, 2, 3, 4, 5 include machines such as: adding machine, billing machine, rotary-driven calculating machine, high-keyboard type of bookkeeping machine, posting machine, cash register, key-driven calculating machine, typewriter-accounting type of bookkeeping machine.

‡ Machines that may be used in items No. 7, 9, 11, 13, and 15 include such machines as: high-keyboard type of bookkeeping machine, typewriter-accounting type of bookkeeping machine, billing machine, posting machine, fanfold machine, check-writing machine, cash register.

value of jobs. Miles' study [57] showed that the five most important items found in the job should carry most of the weight. Thus, in calculating point values, the average value of these items is quadrupled before the addition of the average value of the rest of the items to obtain a total point value for the job.

The check list method of job evaluation is an adaptation of perhaps the newest form of employee rating. The check list as a rating method was developed to improve the reliability of ratings and to reduce the effect of rater bias.[58] It is essentially a series of carefully worded statements whose weights have been developed statistically and are unknown to the rater. The rater uses the check list by checking the statements which apply. The check list is then turned in for scoring.

[57] M. C. Miles, "Studies in Job Evaluation IX: Validity of a Check List for Evaluating Office Jobs," *Journal of Applied Psychology*, Vol. 36, No. 2 (April, 1952), pp. 97–102.

[58] For a more complete description of the check list rating method, see Mee (ed.), *Personnel Handbook*, pp. 299–305, 318–321.

Steps

If continued research shows the check list to be a useful instrument for evaluating clerical jobs, there is no reason why it cannot be applied to other types of jobs as well. Accordingly, the following is an outline of the steps to be taken in constructing a check list for job evaluation purposes.

1. Determine the jobs for which a check list is to be made.
2. Collect job facts.
3. Secure a large number of statements describing:
   a. specific amounts or levels of compensable factors existing in the jobs, or
   b. a specific worker requirement necessary for efficient performance of the jobs, or
   c. specific tasks or duties of the jobs.

   These statements may be either positive or negative.
4. Revise and edit statements to prevent duplication and to insure clarity and specificity.
5. Classify statements. Statements are typed out on cards. Each stack of cards should be given individually to a group of judges who are asked to decide which statements indicate different job levels. Each judge sorts the cards into several piles (usually 7, 9, or 11), where pile number 11 would be the highest level and number 1 the lowest level, and so on.
6. Assign weights. After several judges have classified the cards, statements which the judges were not able to classify consistently are thrown out. Remaining statements are assigned a scale value. This may be accomplished by averaging the categories into which statements were assigned by the various judges. Categories may be assigned values such as category 1, 10 points; 2, 20 points; and so on, or the center category may be set at zero with those below carrying minus values and those above positive values.
7. Assemble statements into a check list. Weights are not placed on the check list, however. They are kept in a central place for scoring completed ratings.
8. Use the check list. Job raters compare job information to the check list and check the items that apply to the job in question.

The Steel Plan

The job evaluation plan adopted by most steel-manufacturing companies and United Steel Workers (CIO) might be dubbed a research approach to job evaluation. This system, often called the steel plan, is representative of neither the point nor the factor-comparison method but includes elements of both. The job evaluation manual and the manner in which the scales are used in evaluating jobs are like the point method. The manner in which the rating scales were developed resembles the factor-comparison method, in that factor weights are based upon the existing wage structure. Actual factor weights, however, were derived statistically instead of through the application of judgment.

Steps in the method as described by Edwards [59] were as follows:

1. Select jobs to be covered. The plan covers only factory jobs but is applicable to other job series.
2. Select compensable factors and define them. Eight to ten factors are suggested as most practical.
3. Select a large sample of representative jobs. If the series selected has a limited number of jobs, all jobs should be included instead of a sample.
4. Collect job information. Write job descriptions and job specifications in terms of the factors.
5. Rank the jobs on each factor. This step is identical with one found in the factor-comparison method. Jobs are ranked one factor at a time by several judges and agreement is reached on the final rankings.
6. Group rankings into factor degrees. Ranks obtained in step 5 are combined into degrees. A study of job information usually suggests such degrees. If there is doubt as to the proper number, a larger number of degrees is preferred.
7. Rank jobs by wage rates. All jobs are arranged in order of their rates. If some inequities are apparent at this stage or if some modification in the wage structure is desired by the parties, minor adjustments may be made in this step.
8. Group job wage ranks into labor grades. The ranks obtained

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[59] Paul M. Edwards, "Statistical Methods in Job Evaluation," *Advanced Management*, Vol. 13, No. 4 (December, 1948), pp. 158–163.

in step 7 are grouped into convenient intervals. The grouping is purely a matter of convenience and may employ equal steps or geometric progression. Steps including three- or five-cent intervals are practical and common. Labor grades are used in the computation of weights rather than points. This removes one source of complexity.

9. Derive weights for factors and degrees. Compensable factors divided into degrees and present wage structure divided into labor grades are used in the solutions. The weights derived are those that yield the smallest total deviation from the present wage structure while eliminating inequities. Weights arrived at are stated in terms of labor grades. Thus the total labor grade of job *X* is equal to the degree assigned in factor 1 times the weight of factor 1 in labor grades, plus degree assigned in factor 2 times the weight of factor 2, and so on. Or in symbols, total L.G. $= D_1W_1 + D_2W_2 + D_3W_3 \ldots$. Each job in the sample has such an equation.

Factor and degree weights are obtained by rather involved computations. First, factor weights are obtained by the method of multiple linear correlation. This involves a "normal equation" for each unknown factor weight and simultaneous solution of the equations to determine the average weight of each factor.

Second, distortions in the weights resulting from intercorrelation of the factors are eliminated. When intercorrelation approaches 0.9, one of the factors may be eliminated. Third, factor weights are distributed over degrees by methods of curvilinear correlation. In this way the forces that influenced the wage structure in years past are used to set degree weights. Results of this latter analysis often show that intervals between degrees may represent neither simple arithmetic nor geometric progressions. For example, in the analysis of the surroundings factor, the first degree carried an increment of about .005, degree two of .015, degree three of .5, degree four of .95, and degree five of 2.25. It is seen that little harm would derive from combining the lowest two or three degrees.

10. Define degrees of factors. After degree weights are obtained, the next step is to define the degrees. Work elements are used in these definitions. Definitions of degrees are quite

detailed and include examples of bench-mark jobs. See Figure 32.

Figure 32 *

DEGREE DEFINITIONS

Hazards			*Numerical Classification*
Code	*Likelihood and Nature of Injury*	*Bench Mark Jobs*	
A	Accident hazard low and usual injuries consist of minor cuts, bruises, and burns. Operate machines, machine tools, material handling equipment, or control movement of material when only occasionally exposed to moving machinery. Perform repetitive manual tasks, such as feeding or piling product or material.	Hot Bed Opr.—Bil. Mill Speed Opr.—H.S. Craneman—H.S. Blower—Bess. Mill Janitor Coupling Tap. Opr.	Base
B	Accident hazard moderate and probable injuries consist of severe cuts, bruises or fractures such as encountered when performing routine crane hooking, operating tractors and trucks, regularly adjusting moving machinery or product. Exposed to falls such as may occur when walking or climbing over bins, stock buggies, and low scaffolds. Occasionally exposed to hot objects that may cause moderate burns. Exposed to flying objects such as chips and scale. Handle or work near caustic, inflammable or volatile liquids or gases. (Closed vessels or pipes.)	Tractor Opr.—Ram Tandem Mill Roller Nail Machine Opr. Stocker—O.H. Bricklayer "A" Scarfer—Cond. Bottom Maker—S.P. Chipper—Cond. Saturator Opr.—B.P. Dryerman—B.P. Laborer Pickler Loader—Batch	.4
C	Exposed to burns from molten metal splashes.	Charging Mach. Opr. —O.H.	

Figure 32 (Cont.)

Code	Hazards: Likelihood and Nature of Injury	Bench Mark Jobs	Numerical Classification
	Regularly manipulate hot product with tongs or hooks. Handle or control caustic inflammable or volatile liquids. (Open vessels or handling containers.) Exposed to falls such as might occur when working on high scaffolds, structures and roofs. Occasionally exposed to high voltage electricity. Exposed to severe injury from crane hooking where difficult rigging or lifting devices are involved. Perform heavy maintenance work involving climbing and rigging to repair, set up, or tear down equipment and mills. Climb on moving rolling stock.	Strander—Bar Mill Hi Mill Plugger—Pipe Seamless Agitator Opr.—B.P. Pipefitter "A" Motor Inspector—B.M. Stock Unloader—B.F. Millwright—B.M.	.8
D	Exposed to severe burns from handling, transporting or controlling the flow of molten metal.	Keeper—Blast Furnace 2nd Helper—O.H.	1.2
E	Frequent exposure to a hazard where failure to exercise extreme care and judgment might cause an accident which would result in total disability or a fatality.	High Tension Lineman	2.0

* Source: Agreements between Carnegie-Illinois Steel Corporation and the United Steelworkers of America (CIO) (October 23, 1945; April 15, 1946; May 8, 1946; January 13, 1947 as amended; and January 27, 1947), pp. 50, 51.

11. Write a job evaluation manual. The rating scales are now ready to be assembled for use. The resulting manual includes factor definitions, degree definitions, and weights. Degree and factor weights of the steel plan appear in Figure 33.

Figure 33 *

STEEL PLAN—DEGREE AND FACTOR WEIGHTS

Factor	Degrees								
	A	B	C	D	E	F	G	H	J
1. Pre-employment training	Base	.3	1.0						
2. Employment training and experience	Base	.4	.8	1.2	1.6	2.0	2.4	3.2	4.0
3. Mental skill	Base	1.0	1.6	2.2	2.8	3.5			
4. Manual skill	Base	.5	1.0	1.5	2.0				
5. Responsibility for materials	Base	.3–2.3	.5–3.7	.8–8.5	1.2–10.0				
6. Responsibility for tools and equipment	Base	.2–.5	.4–1.0	.7–2.0	1.0–3.0	1.5–4.0			
7. Responsibility for operations	Base	.5	1.0	2.0	3.0	4.0	5.0	6.5	
8. Responsibility for safety of others	Base	.4	.8	1.2	2.0				
9. Mental effort	Base	.5	1.0	1.5	2.5				
10. Physical effort	Base	.3	.8	1.5	2.5				
11. Surroundings	Base	.4	.8	1.6	3.0				
12. Hazards	Base	.4	.8	1.2	2.0				

* Source: Agreements between Carnegie-Illinois Steel Corporation and the United Steelworkers of America (CIO) (October 23, 1945; April 15, 1946; May 8, 1946; January 13, 1947 as amended; and January 27, 1947).

12. Use the manual to evaluate jobs. To evaluate remaining jobs or new or changed jobs, the job evaluation manual is utilized just as it is used in the point method. Jobs are rated by "measuring" jobs against the scales.

It is apparent that the steel plan is based upon exceedingly complex computations. Edwards [60] states that if there are more than one hundred jobs in the sample and more than eight factors, mechanical computation is a virtual necessity. Such a plan would be very difficult to explain to employees. It does, however, have the distinct advantage of being rooted in the existing wage structure and of being based upon factor weights which ruled in the past. At least

[60] Edwards, "Statistical Methods in Job Evaluation," *Advanced Management*, Vol. 13, No. 4 (December, 1948), pp. 158–163.

one union leader, namely Gomberg,[61] approves this approach because of this latter feature, which tends to incorporate the effects of collective bargaining into the plan.

The Time Percentage Job Evaluation Plan

An interesting example of how the point method of job evaluation may be modified to meet the particular needs of an organization is the "time percentage evaluation" used by the Dow Chemical Company.[62] This plan includes several modifications of the basic point method. First, time study is used in collecting job facts for the purpose of obtaining more accurate judgments of the actual time spent on certain operations. Second, job elements are combined into "work components" and time percentages for each component computed. Examples of work components are shown in Figure 34.

Figure 34 *

WORK COMPONENTS

Skill Number	
10	Labor work, janitor type of cleaning, washing glassware.
11	Handling materials and containers by numbers, cleaning equipment, caring for laundry.
12	Operating simple equipment, making simple tests, routine clerical summarizations, minor repairs, weighing and stenciling containers.
13	Operating such equipment as reactors, extruders, mechanical driers, etc., analytical weighing, routine calculations, variety packing, making such tests as viscosities, simple distillations, etc.
14	Ordinary clerical duties, repair work such as replacement of pipe and pipe fittings, fabricating equipment safety guards, etc., color grading, double and point titrations.
15	Operating complex equipment like fractionating columns, multiple effect evaporators, gas reaction units, making and interpreting complicated laboratory tests or analysis.

* Source: L. E. Bennett and C. J. Mitchell, "How Dow Chemical's Job Evaluation Plan Works," *Factory Management and Maintenance*, Vol. 110, No. 5 (May, 1952), p. 134. Copyright by McGraw-Hill Publishing Company, Inc. Reprinted by permission.

[61] Gomberg, "Joint Union-Management Evaluation," *Job Evaluation Practices, Research and Technical Report 9* (Minneapolis: Industrial Relations Center, University of Minnesota, August, 1951), pp. 22–28.

[62] L. E. Bennett and C. J. Mitchell, "How Dow Chemical's Job Evaluation Plan Works," *Factory Management and Maintenance*, Vol. 110, No. 5 (May, 1952), pp. 132–135.

Thus, each job consists of a number of work components each one of which takes a certain percentage of total time.

The plan employs nine typical factors: (1) skill demand, (2) physical demand, (3) visual demand, (4) working conditions, (5) unavoidable exposure, (6) mental application, (7) responsibility for equipment, (8) responsibility for material, product, data, (9) responsibility for work of others. The last four factors are rated as in the typical point method.

On the first five factors, however, an unusual approach is used. Essentially, point values are obtained by multiplying the value assigned to each work component found in a job by the time percentage which applies to that component. For example, in evaluating skill demand, assume that a job included several work components. Each component has a skill value assigned by the job evaluation committee and included in the manual. The skill value for each component is multiplied by its time percentage. The sum of these values provides the point value on the skill demand factor.

Similarly, rating factors 2, 3, and 4 requires a rating on each component. These values times their respective time percentages are summed to provide a point value for the factor. After ratings are obtained on all nine factors, the points are summed to arrive at a total point value for the job.

This plan may be thought of as employing usual factors but quite different degree definitions. Also, in rating the first five factors, two-dimensional degree definitions are used; i.e., difficulty of the component and time percentage. Although apparently complicated, it is administered jointly by management and the union, and employees were represented at every stage of the development.

9 · *Pricing the Job Structure*

WHEN THE JOB STRUCTURE IS AVAILABLE FROM APPLICATION OF SOME method of job evaluation, the next step is pricing this job hierarchy. Pricing the job structure results in the wage structure. Depending upon the job evaluation method employed, there may be one job structure covering all jobs in the organization or several job structures, one for each job series. The latter is more likely for most organizations. However, whether one or more job structures exist, the task of pricing the structure(s) follows a pattern that depends upon (1) whether or not a union is involved, and (2) the job evaluation method used to obtain the job structure.

Where a union is involved,[1] several possibilities are likely. If job evaluation is a joint union-management venture, the union will be represented on the committee that prices the job structure. If job evaluation is conducted on a unilateral basis by the employer, pricing the job structure may be the result of collective bargaining. In this case, considerations other than the job structure may influence the final wage structure. The union may, for example, insist on bargaining to set the wage rates of certain key jobs. Or they may insist that factors not included as compensable factors in the plan be permitted to influence the final wage structure. The union may accept the job structure developed through job evaluation, they may accept part of it, or they may ignore it. The resulting wage structure comes more from a bargaining than a straight price conversion process. To some managements, this influence is a disturbing one because such a pricing process may introduce inequities

[1] See section on Union Opinions of Job Evaluation in Chapter 10.

that the job evaluation plan was designed to eliminate. To others, collective bargaining is seen as introducing into the system the flexibility needed. In any case, management will want a logically developed job structure, if only as a point of reference.

Where a union is not involved or where the project is a joint one, the task of pricing the job structure is one for the job evaluation committee. The pricing method employed is determined largely by the job evaluation method used to develop the job hierarchy.

RANKING METHOD

Where the ranking method is employed, the jobs are first listed in order of ranking (from rank 1 to the highest rank used). Second, the present rate for each job is recorded. Third, any discrepancies between rank and wage rate must be resolved by the committee. The process involved may be observed from an examination of Table 18.

TABLE 18

RATE STRUCTURE BASED ON RANKING METHOD OF JOB EVALUATION

Rank	*Job*	*Old Rate*	*Corrected Rate*
1	Pattern Maker	2.16	2.16
2	Automatic Screw Machine Operator	1.92	1.92
3	Millwright	1.71	1.71
4	Power Shear Operator	1.49*	1.55
5	Crane Operator	1.51*	1.51
6	Plater	1.43	1.43
7	Riveter	1.29*	1.35
8	Electric Truck Operator	1.30*	1.30
9	Tool Crib Attendant	1.10*	1.20
10	Punch Press Operator	1.16*	1.16
11	Watchman	1.14	1.14
12	Common Laborer	1.08	1.08

* Out of line.

The top and bottom rates may be considered correct by the committee. The starred rates, it is observed, are out of line with the ranks developed by job evaluation and must be corrected. Several possibilities are apparent: (1) rates too low for their rank may be raised; (2) rates too high for their rank may be lowered; and (3) both "overpaid" and "underpaid" rates may be changed just

sufficiently to balance the structure but offsetting any increase with a decrease. Note that the corrected rate in Table 18 is based on the first alternative. Because the wage rates attached to ranks result from a committee decision, the other possibilities may be equally likely.

CLASSIFICATION METHOD

After grades or classes have been established by the classification method, these classes must be priced. The process is very similar to that described above. Present job rates are used as a basis, and the committee determines the rate for each grade. Table 19 serves to explain the process.

TABLE 19

RATE STRUCTURE BASED ON CLASSIFICATION METHOD OF JOB EVALUATION

Grade	*Job*	*Present Rate*	*Grade Rate*
7	Pattern Maker	2.16	2.16
6	Automatic Screw Machine Operator	1.92	1.85
	Millwright	1.71	
5	Power Shear Operator	1.49	1.50
	Crane Operator	1.51	
4	Plater	1.43	1.45
3	Riveter	1.29	1.30
	Electric Truck Operator	1.30	
2	Tool Crib Attendant	1.10	1.15
	Punch Press Operator	1.16	
	Watchman	1.14	
1	Common Laborer	1.08	1.10

In the table present rates describe those in force at the present time on jobs. The grade rate is the wage rate determined by the committee as applicable to the grade in question. Note that the grade rate applies to all of the jobs in the grade. For this reason, the committee will want to be sure that the grade rate is at least equal to most of the former job rates in the grade.

Where methods of job evaluation other than the classification method are used, jobs are often combined into labor grades. This process is described in a section on labor grades at the end of this chapter. Pricing labor grades where other methods of job evaluation are used is usually done after jobs have been priced. The wage rate attached to each labor grade is normally some type of average of the rates of jobs in the grade.

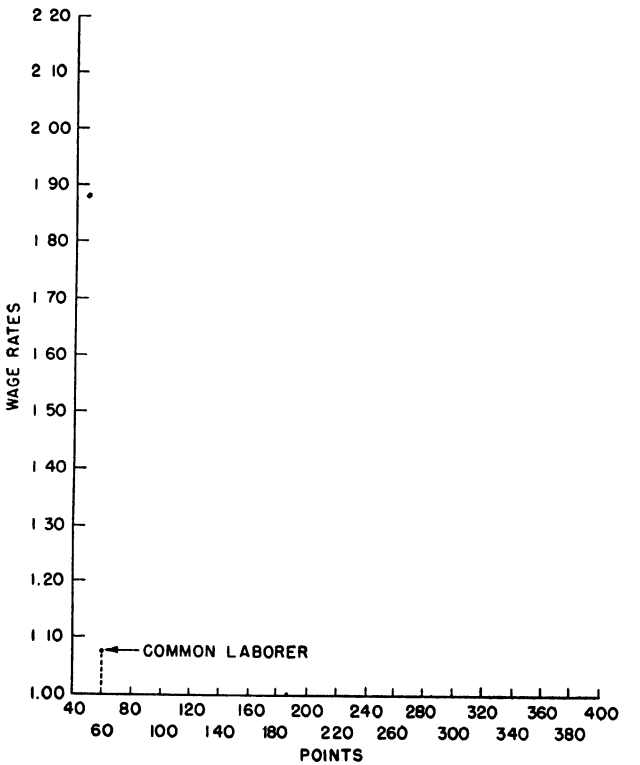
POINT METHOD

In the point method of job evaluation, a more precise relationship between the job hierarchy and job prices can be established. After installation of a point system, each job evaluated has a point score assigned to it. There remains the establishment of a wage rate corresponding to the points assigned to each job.

The usual method of attaching wage rates to jobs is through the use of a freehand line drawn so as to depict the trend of the plotted points. The line may be straight or curved and may be obtained mathematically or in a less formal manner.

Figure 35

GRAPH FOR PLOTTING POINTS AND WAGE RATES



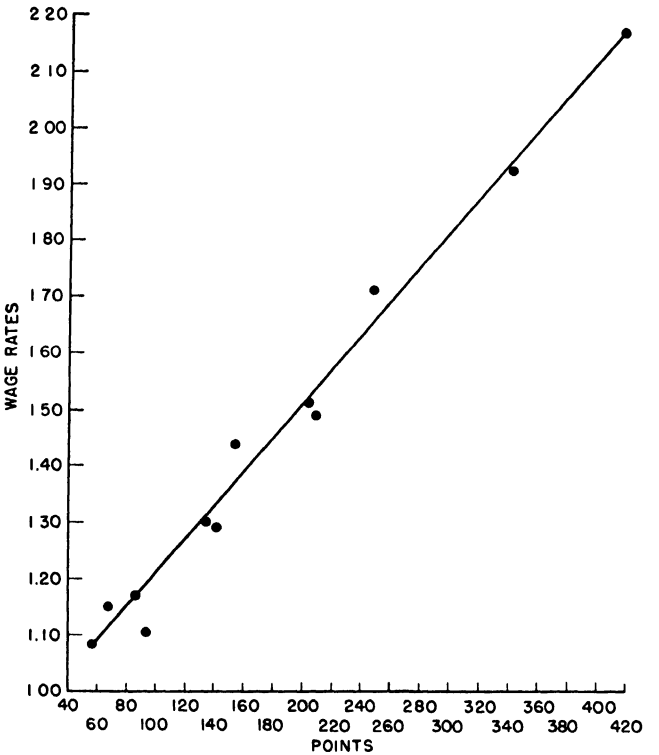
To plot a line, a graph is drawn. The horizontal scale of the graph is used to plot the points. The vertical scale is used to plot present wage rates. Thus in Figure 35 the job of Common Laborer has been assigned 60 points and the present wage rate is $1.08. To plot this job, proceed along the horizontal scale to 60 points, then rise vertically to the position of $1.08 on the vertical scale.

Low-High Line

One method of determining job prices is to plot the point scores and wage rates of the highest and lowest jobs and to connect these two points with a straight line. This method is illustrated in Figure 36. The points and wage rates were obtained from Table 20.

Figure 36

LOW-HIGH WAGE LINE



When the line has been drawn connecting these two points, the intervening job rates should be made to fall on the line. In actual practice, however, what is usually done is that low paid jobs are immediately increased and high paid jobs left above the line until a policy is established as to their disposition.[2]

TABLE 20

RATE STRUCTURE BASED ON POINT SYSTEM—LOW-HIGH LINE

Job	*Points*	*Present Rate*	*Rate on Line*	*Difference*
Pattern Maker	420	2.16	2.16	0
Automatic Screw Machine Opr.	345	1.92	1.93	+.01
Millwright	250	1.71	1.65	—.06
Power Shear Operator	210	1.49	1.52	+.03
Crane Operator	205	1.51	1.51	0
Plater	155	1.43	1.37	—.06
Riveter	140	1.29	1.32	+.03
Electric Truck Operator	137	1.30	1.30	0
Tool Crib Attendant	92	1.10	1.19	+.09
Punch Press Operator	85	1.16	1.16	0
Watchman	69	1.14	1.10	—.04
Common Laborer	60	1.08	1.08	0

It is noted that the low-high line is based on the assumption that the high and low jobs are properly paid at the present time. It should also be observed that with a straight line it is easily possible to reduce the wage structure to cents per point.

If the wage structure is to be the result of bargaining as well as job evaluation, the low-high line is especially useful. If, for example, the decision is made that the wage rates of lower level jobs are too low, then raising the low point of the line will accomplish the purpose. If it is decided that higher level jobs are too low, the high point can be raised.

Freehand Line

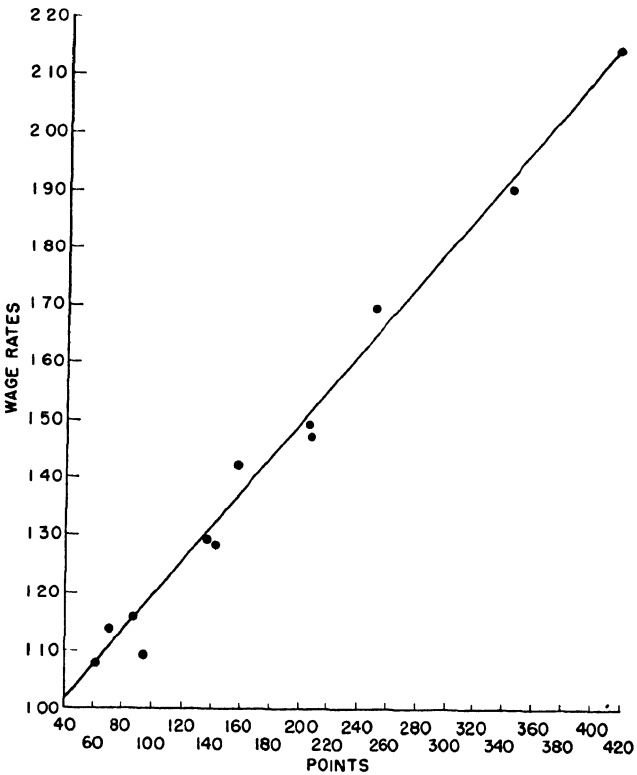
After the point scores and wage rates of jobs have been plotted on the chart, often the trend of the data can be easily visualized. When such conditions exist, it is probably best to draw a freehand line that best describes the plotted points. In drawing such a line, it is useful to follow the principle that vertical deviations from the

[2] Policy on out-of-line rates is discussed in Chapter 10.

line should be minimized as the line follows the obvious slope of the data. Although the line may be either straight or curved, it is probably best to use the freehand line only when a straight line adequately describes the plotted points. Figure 37 is an example of such a freehand line.

Figure 37

FREE-HAND LINE



The obvious advantages of using a freehand line are that it is simple to accomplish and simple to explain. It is often found that fitting the line mathematically produces such a small margin of additional accuracy that this advantage is not worth the time and trouble of computation, let alone of explanation.

"Least Squares" Line

Actually the line obtained visually and described above should differ very little from the line determined mathematically by the method of "least squares." In both cases the desire is to plot a line that best describes the data.

Where the parties desire the least squares line, it may be fitted by: (1) calculating the equation for the line as illustrated in Table 21 and (2) plotting the line obtained from the solution.

TABLE 21

FITTING WAGE LINE BY METHOD OF LEAST SQUARES

Job	*Points (X)*	*Rate (Y)*	*XY*	X^2
Pattern Maker	420	2.16	907.20	176,400
Automatic Screw Machine Opr.	345	1.92	662.40	119,025
Millwright	250	1.71	427.50	62,500
Power Shear Operator	210	1.49	312.90	44,100
Crane Operator	205	1.51	309.55	42,025
Plater	155	1.43	221.65	24,025
Riveter	140	1.29	180.60	19,600
Electric Truck Operator	137	1.30	178.10	18,769
Tool Crib Attendant	92	1.10	101.20	8,464
Punch Press Operator	85	1.16	98.60	7,225
Watchman	69	1.14	78.66	4,761
Common Laborer	60	1.08	64.80	3,600
Total	2168	17.29	3543.16	530,494

The equation for the straight line which most closely represents the trend of the data in the table is: $Y = a + bX$ (where a is the point where the line crosses the Y axis and b is the slope of the line).

Steps:

(1) Normal equations: (*a*) $\Sigma Y = Na + b\Sigma X$
(*b*) $\Sigma XY = a\Sigma X + b\Sigma X^2$

(2) From totals above (*a*) $17.29 = 12a + 2168b$
(*b*) $3543.16 = 2168a + 530{,}494b$

(3) Find a number that will equate one term in the two equations

$$\frac{2168}{12} = 180.667$$

(4) Equate one term (*a*) $180.667\ (17.29 = 12a + 2168b)$
$3123.73 = 2168a + 391{,}686.06b$
(*b*) $3543.16 = 2168a + 530{,}594b$

(5) Solve simultaneously for b

TABLE 21 (Cont.)

$$(b)\quad 3543.16 = 2168a + 530{,}494.00b$$

minus

$$(a)\quad \underline{3123.73 = 2168a + 391{,}686.06b}$$

$$419.43 = \qquad 138{,}807.94b$$

$$.003 = b \text{ (slope of line)}$$

(6) Solve for a:

$$17.29 = 12a + 2168\ (.003)$$

$$17.29 = 12a + 6.504$$

$$12a = 10.786$$

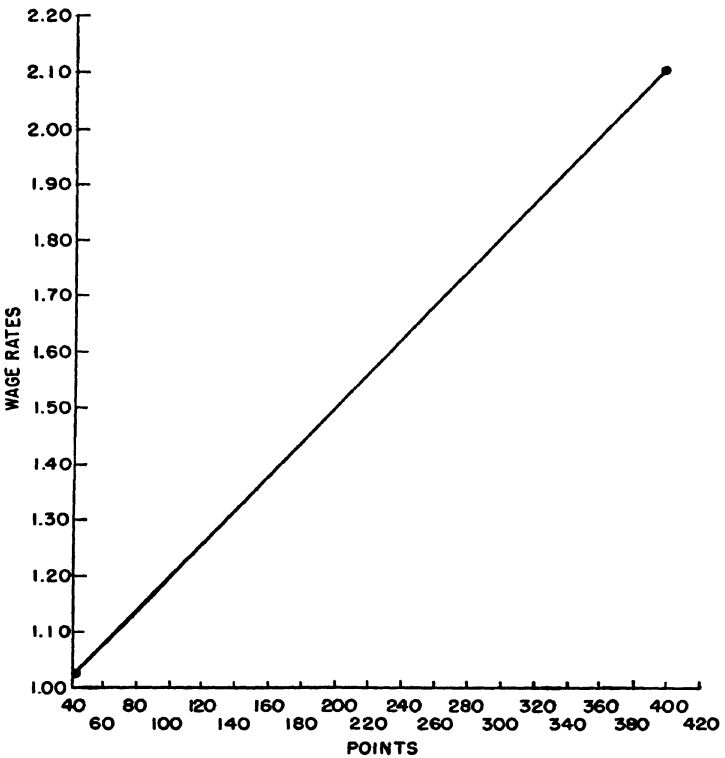
$$a = .899 \text{ (point where line crosses } Y \text{ axis)}$$

(7) Equation for line:

$$Y = .899 + .003X$$

Figure 38

LEAST SQUARES LINE



In plotting the equation on Figure 38, two points are required. Normally, one point is plotted where the line crosses the Y axis (where $X = 0$). Because the X scale has been shortened to save space, however, there is no X value of 0 and it is necessary to substitute two values of X into the equation $Y = .899 + .003X$. Thus where $X = 40$, $Y = .899 + .003(40) = 1.019$ and where $X = 400$, $Y = .899 + .003(400) = 2.099$.

Other Types of Lines

After the data are plotted, it may occasionally be observed that a straight line will not properly describe them. In that case, any simple line that describes the data may be used. It also may be drawn freehand or calculated mathematically.

FACTOR COMPARISON METHOD

It is also necessary to attach wage or salary rates to jobs when the factor comparison method of job evaluation has been used. Although key jobs have been used in developing the scale and the wage rates of these jobs were accepted at the outset as correct, a method must now be used to price the entire hierarchy of jobs.

Graphs are used for this purpose in much the same way as in developing the wage structure from the point method. The major difference is in the horizontal scale. Here, instead of evaluated points, evaluated rates are plotted.

Figure 39 is an example of the chart used in plotting jobs evaluated by the factor comparison method. To plot data on this graph, first the evaluated rate is found on the horizontal scale; then the vertical distance is that of the present rate. The plotted point is where a perpendicular from each of the two axes drawn from these points would intersect.

The line to be used to price jobs evaluated by the factor comparison system can also take several forms. Basically, however, it is possible to reduce the discussion to a description of two types.

Key Job Line

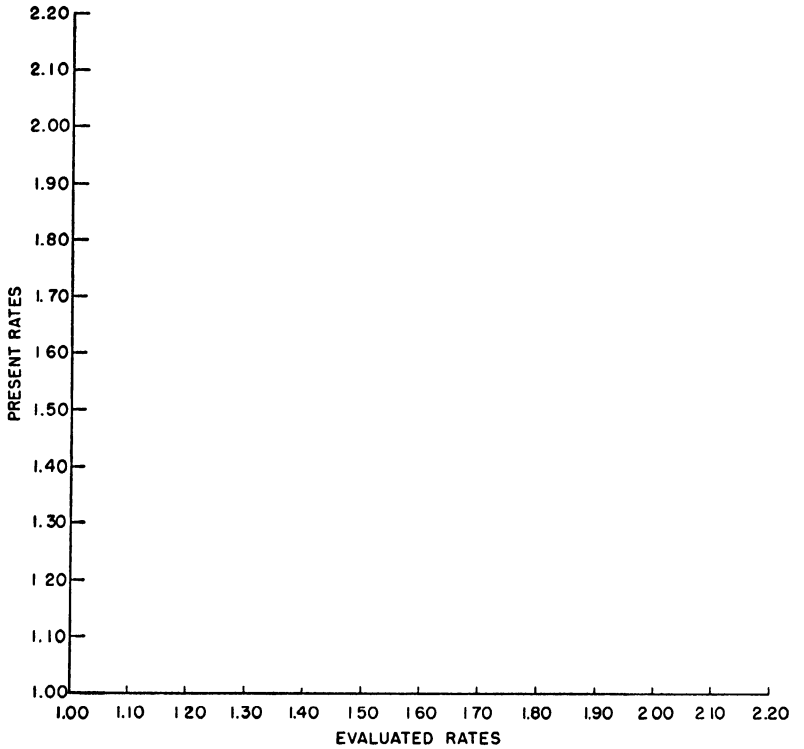
A line may be drawn through points plotted by using only the key jobs. Such a line will be a straight line that rises at a 45-degree angle because, in the case of key jobs, the evaluated rate and the

present rate are identical. Figure 40 is an example of a key job line.

In making use of the key job line to determine job rates, any job rate that does not fall on the line needs correction. And correction consists of raising or lowering the rate to make it fall on the line.

Figure 39

CHART FOR PRICING JOBS EVALUATED BY THE FACTOR COMPARISON METHOD



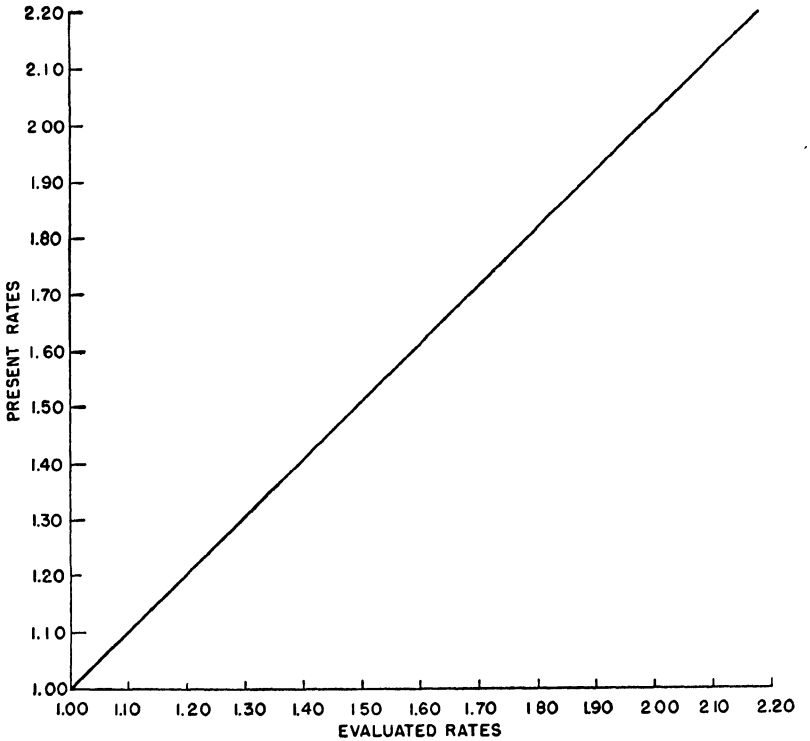
Other Lines

The other method of pricing jobs evaluated by the factor comparison method consists of plotting the evaluated rates and present rates of all jobs. Then a line is fitted to these plotted points in any of the several ways described in the discussion of pricing jobs

evaluated by the point system. Thus, a low-high line, a freehand line, or a "least squares" line may be fitted, as well as several others. The proper method to use is determined by committee action or by collective bargaining if a union is involved.

Figure 40

KEY JOB LINE



DIVISION OF STRUCTURE INTO LABOR GRADES

After wage rates have been assigned to all jobs, jobs are sometimes divided into classes or grades. The purpose of these grades (usually called labor grades) is to avoid part of the administrative detail involved in working with hundreds of different wage rates. When jobs are assigned to labor grades, all jobs within a labor grade

have one wage rate. In the classification method, this step is already accomplished. In other methods, however, if labor grades are desired, some method must be found for grouping jobs.

There is no optimum number of labor grades for a particular job evaluation plan or for a particular plant. In practice, labor grades vary from as few as four to as many as sixty. If the number of grades is small, the number of jobs in each grade will be large, and the increments from one grade to another will be large. If, on the other hand, the number of labor grades is large, the number of jobs in each grade will be small, and the increments between grades small.

To determine the proper number of labor grades, it is often useful to plot the jobs on a chart. When this has been done, it is found that a certain point spread (say, 50 points), will work quite satisfactorily. Sometimes, however, clusters of jobs are found which dictate that judgment be used in allocating jobs to labor grades. To obtain a workable system, careful attention should be paid to these job clusters. For example, in Figure 41, an unworkable system would obtain if the cluster in the center of the chart were divided into two labor grades.

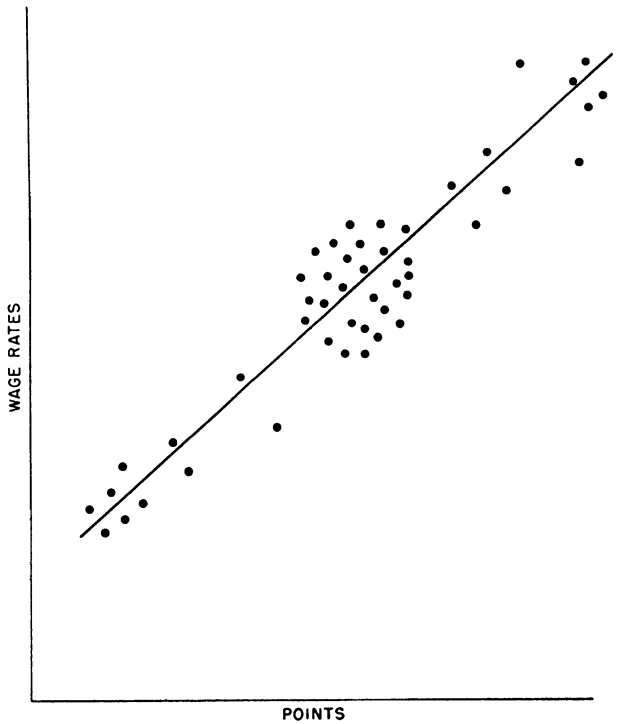
Before final determination of labor grades, it is wise to determine not only how many jobs, but how many employees are affected by the number of grades and the division chosen. Figure 41, for example, plots only jobs and wage rates. Each plotted point includes one or more employees. Thus, before final determination of labor grades, it is wise either to plot each employee on such a chart or to note on a chart similar to Figure 41 the number of employees represented by each plotted point. It is seen that by manipulation of labor grades, large numbers of employees are affected. For this reason great care and fairness must be used in final determination of labor grades. Grievances can be avoided by seeing that labor grades with large numbers of employees are not affected adversely.

Once labor grades are set, it is a simple matter to determine the payroll effects of the job evaluation plan. The wage rate for each grade multiplied by the number of employees in each grade may be compared to present payroll.

Some organizations prefer to work with the job values and wage rates developed from the job evaluation system rather than to lump

Figure 41

SCATTER DIAGRAM FOR SELECTING LABOR GRADES



jobs into labor grades. They state that the administrative convenience of labor grades is lost when the difficulty of explaining the basis on which labor grades are set is considered, and that labor grades sometimes encourage department heads to try to have jobs at the upper end of labor grades upgraded into the next grade.[3]

Job Classifications

Some organizations find it useful to employ an intermediate breakdown between jobs and labor grades called job classifications.

[3] David C. Childs, "A Salary Grade for Each Point Value," *Personnel Journal*, Vol. 31, No. 5 (October, 1952), pp. 173–175.

They find, for example, that jobs with identifical duties are found at different levels in the organization because of differences in materials worked on, responsibility, and so on. Thus, they may have several levels of Toolmaker, for example, which carry job titles of Toolmaker A, Toolmaker B, and Toolmaker C. The job classification (sometimes called an occupation) is Toolmaker, and the specific jobs may be found in several labor grades. Toolmaker A may be found in labor grade 11, whereas Toolmaker C may be found in labor grade 9.

It should be understood that this practice is followed for administrative convenience. Equivalent results could be obtained by ignoring the relationship between the various jobs and treating them as separate jobs, which they are.

PRESENT RATES VERSUS MARKET RATES

Throughout the discussion of pricing the job structure to arrive at the wage structure, present wage rates were used as points of reference. This practice was dictated by the desire to keep separate the solution to the problem of structure and the solution to the problem of levels. Solving the two problems separately emphasizes the fact that the wage structure (if properly maintained) is a relatively permanent solution, whereas the wage level may change frequently. Thus, a wage structure developed from present wage rates may be raised or lowered in accordance with changes in the wage level.

As mentioned in Chapter 2, some organizations price the job structure using current market rates. Also, some unions desire to bargain current job rates as the job structure is priced. There is nothing incorrect about such practices, but the parties should be made aware of the fact that they are providing simultaneously solutions to both the problem of levels and the problem of structures. The danger is that they may fail to see the two problems as separate. If the parties becomes aware that there is much to be gained by (1) arriving at a relatively permanent wage structure and (2) changing wage levels by shifting the entire structure, wages and salaries will perform their many functions in a much more efficient manner, to the satisfaction of all concerned.

Where the two problems are not recognized as separate and dis-

tinct, any change in wage rates requires a new solution to both problems. Not only is this practice costly and time-consuming, it may disturb relationships to the detriment of employee morale and productivity.

For these reasons this book treats the problem of structures separately from the problem of levels. The wage structure, though never a permanent solution, can, if properly maintained (see Chapter 10), be useful for years. The wage level, however, changes frequently—once a year or even more often in periods of expanding business activity. A solution to the problem of level may be put into practice by merely shifting (up or down) the wage structure.

10 · *Job Evaluation Issues*

In the installation and operation of job evaluation plans a number of questions arise and require answers. Such questions are: Who should participate? Should responsibility be assigned to one or more committees or should it be vested in individuals? Is hiring a consultant desirable? What is the place of a union in job evaluation? How should out-of-line jobs be handled? In what manner should employees and supervisors be informed of the program? How much does job evaluation cost? What procedures should be followed to keep the plan up-to-date? It is the task of this chapter to provide answers to these questions.

RESPONSIBILITY FOR JOB EVALUATION

The installation and operation of job evaluation requires people. The various responsibilities outlined in the elements of job evaluation (Chapter 6) must be assigned. Several possibilities are apparent. One or more committees may be selected. A department may be specifically set up or an existing one assigned the responsibility. Outsiders such as a consulting organization may be brought in. Actually these possibilities are not mutually exclusive. All three possibilities may be employed at various stages.

Committees

Top management support is essential for successful job evaluation. Such support is needed for several reasons: (1) to establish the purposes to be served by job evaluation; (2) to assure that the effort has the confidence of lower level officials and employees; (3) to determine the jobs to be covered; (4) to delegate respon-

sibility to subordinates charged with obtaining job facts. Perhaps the most important responsibility of top management is the determination of what the organization "is paying for." This determination provides the compensable factors, the basis for the job evaluation system.

The medium through which top management carries out its responsibilities in job evaluation is usually a committee. This committee may be formed for the purpose at hand, or it may be an existing one. In any case, it should probably include the heads of all major operating departments and the top operating official.

This committee begins its work by hearing an explanation of job evaluation as a method for solving the problem of wage and salary structure. This explanation may be provided by the Wage and Salary Administrator or an outside consultant. It should include various purposes that job evaluation may be expected to accomplish, a rough time schedule, and an estimate of the cost of the program. The committee makes the decision to install job evaluation, decides what jobs are to be covered and in what order, and determines the purposes the program is to accomplish. Approval is given for the program to begin, and job analysts are assigned the task of collecting job facts.

Procedure from this point varies with the size of the organization and the extent to which the organization has developed a pattern of assigning personnel matters to committees. In smaller organizations, the entire job evaluation procedure may be accomplished by a committee of top operating officials with the aid of a technical staff. The staff includes a person trained in job evaluation methods or a consultant hired for the purpose. Some organizations prefer to hire a permanent employee with this training and experience or to have a present employee secure such training before the project begins. Others prefer to hire an outside consultant with the provision that a permanent employee be trained by the consultant during the installation process. Other members of the job evaluation staff are job analysts.

In larger organizations, either of two alternatives may be chosen. An operating job evaluation committee may be established on a permanent basis. It usually includes the Wage and Salary Administrator and a limited number of executives who have (1) the qualities needed and (2) the time required. If a consultant is em-

ployed, he will be a member of this committee during the installation process.

A second alternative is to delegate the job evaluation process (both installation and operation) to a department. Thus, the Wage and Salary Section may be assigned the job and the department head and a number of job analysts appointed to carry it out.

In both cases, however, the committee of top management officials must be kept informed of progress, and at regular meetings must provide general supervision and policy direction. This committee, for example, must decide what the organization "is paying for." The decision on the compensable factors to be employed in the job evaluation system cannot be delegated, although, if necessary, preliminary perusal of job facts and tentative recommendations may be made by the operating committee or wage department. This decision is, however, the heart of job evaluation and, as emphasized previously, must be made by top management.

Whatever decision is reached on the group to be charged with evaluating jobs, the organization may wish to consider employee representation in these decisions. A workable arrangement, for example, is to have employee representatives rotate, i.e., representatives of employees whose jobs are being evaluated are brought in and remain until that part of the evaluation is completed. Then employee representatives from the next department are brought in, and so on.

If the organization is unionized and the union or unions are interested in taking part in the program,[1] two or more union members, preferably officers, should be on the committee. Depending upon the type of participation desired, such representatives may be present during all deliberations involved in job evaluation.

Job evaluation committees should have at least four members and preferably from six to ten.[2] Final ratings on jobs are the result of pooled judgment. This means that ratings are made individually and either averaged or a solution agreed upon as a result of discussion. It is not a matter of majority rule, but of minorities being sufficiently convinced to permit them to go along with the majority.

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[1] See section on Union Participation in Job Evaluation, below.

[2] Edward N. Hay, "Techniques of Securing Agreement in Job Evaluation Committees," *Personnel*, Vol. 26, No. 4 (January, 1950), pp. 307–312.

Committee members must be trained. Where the steps outlined in the elements of job evaluation have been followed, however, committee members have received a good deal of training in the process of building or choosing a job evaluation system. It only remains to teach them to guard against personal bias and the two common rating errors, (1) halo effect, i.e., allowing the rating on one factor to influence ratings on others; and (2) constant errors, i.e., being consistently too lenient or too severe in rating, or having a tendency to rate average.[3] Committee decisions plus good job information tend to reduce the incidence of rating error.

UNION PARTICIPATION IN JOB EVALUATION

It was mentioned above that union representation on job evaluation committees depends upon union interest in participation in job evaluation installation and maintenance. Union participation ranges from formal job evaluation studies conducted independently by the union, through joint union-management job evaluation, through reviews of management findings, to complete indifference as to the existence or lack of existence of a job evaluation plan in the organization.

Union Job Evaluation

Cohen [4] found some unions in his study that professed to evaluate formally all jobs in an organization independently of the company. The information was used as an aid in collective bargaining with the employer. This use of job evaluation is not surprising in view of Gomberg's statement that ". . . any collective agreement is but the result of the use of the ranking and classification methods of job evaluation." [5] But Gomberg was referring to a more informal evaluation of jobs. It is interesting to note that some unions make use of formal job evaluation independently.

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[3] See Yoder, *Personnel Principles and Policies*, pp. 450, 463.

[4] L. Cohen, "Unions and Job Evaluation," *Personnel Journal*, Vol. 27, No. 1 (May, 1948), pp. 7–12.

[5] William Gomberg, "A Collective Bargaining Approach to Job Evaluation," *Labor and Nation* (November and December, 1946), p. 52.

Joint Union-Management Job Evaluation

Some job evaluation plans have been installed and maintained as a joint venture.[6] In such a case, union and management representatives work together from the point of inception of the program. Sometimes such plans result from union demands for job evaluation. More often, the company desires to install a job evaluation plan and asks the union to participate.

From the standpoint of the company, joint union-management job evaluation is desirable. Union interest and understanding is assured. And the not inconsiderable task of explaining the plan to employees is largely taken over by the union. Likewise, there is evidence that such joint plans are more successful than unilateral plans.[7]

In many of the studies of union opinions on job evaluation, union leaders have been found who favor joint plans. Cohen [8] found that 6 out of 18 industrial unions favored joint union-management job evaluation. Zimmerman [9] found that 13 out of 15 union leaders interviewed favored such plans. Levitan [10] found that four international unions would accept job evaluation on no other basis. Baker [11] found three locals and four internationals that favored joint evaluation. Gomberg's [12] suggestion that unions make counter-proposals of job evaluation plans that would be acceptable to labor suggests that in his opinion unions should favor joint plans.

The mechanics of joint union-management job evaluation can take several forms. A consulting service can be employed to install the plan. In this way, the parties can be advised as installation pro-

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[6] See, for example, Bennett and Mitchell, "How Dow Chemical's Job Evaluation Plan Works," *Factory Management and Maintenance*, Vol. 110, No. 5 (May, 1952), pp. 132–135.

[7] Helen Baker and John M. True, *The Operation of Job Evaluation Plans* (Princeton: Industrial Relations Section, Princeton University, 1947), pp. 85–86.

[8] L. Cohen, "Unions and Job Evaluation," *Personnel Journal*, Vol. 27, No. 1 (May, 1948), pp. 7–12.

[9] John Zimmerman, "Wisconsin Union Attitudes on Job Evaluation" (an unpublished study made under the direction of the author).

[10] S. A. Levitan, "Union Attitudes Toward Job Evaluation and Ingrade Progression," *Industrial and Labor Relations Review*, Vol. 4, No. 2 (January, 1951), pp. 260–273.

[11] Baker and True, *The Operation of Job Evaluation Plans*, p. 73.

[12] Gomberg, "A Collective Bargaining Approach to Job Evaluation," *Labor and Nation* (November and December, 1946), pp. 51–54.

gresses and called into conference as their help is needed. If such a procedure is adopted, it may be wise to ask the union to choose the consultant in order to forestall any possible criticism of the neutrality of the consultant.

But perhaps what such an arrangement would gain in convenience it would lose in the applicability of the plan installed. A better approach would seem to be the formation of a union-management committee that would follow the elements of job evaluation as presented in Chapter 6. In getting job facts, job analysts should be employed and the job descriptions carefully reviewed by the committee. Otherwise all of the steps in job evaluation could be accomplished by the committee. A joint plan should reflect the views of the parties on compensable factors and should yield a workable job hierarchy.

Review

Most unions in organizations using job evaluation plans have adopted a policy of reviewing the findings after management has completed its study and, in many cases, installation.[13] This review may range from simple use of the grievance procedure if a union member objects to his rate, through collective bargaining on the job hierarchy developed, to a complete review of each step as management completes it.

In the first case, the position the union takes is very similar to complete indifference. The union recognizes the existence of a job evaluation plan only if and when it affects adversely the pay of an employee.

In the second case, the union reviews the results of the plan. If the plan results in a different job hierarchy than the union believes is correct, a compromise is bargained.

In the final case, the union is interested in the process and may set up formal review committees. Job descriptions are written by management, but reviewed by the union and revised where necessary until each description bears the approval of both parties. Also, job rating and classification are performed by a management committee and the results are turned over to a union committee that approves or requests revision before approval. Final job classifications bear

[13] Otis and Leukart, *Job Evaluation*, p. 399.

the approval of both parties. This procedure is followed in the steel plan.[14] It can be seen that such a thorough review borders on a joint installation.

No Participation

Many job evaluation installations are unilateral—made solely by the employer. Although some employers prefer this arrangement, most employers invite union participation, realizing the advantages of such practices in promoting employee understanding and acceptance of the plan. Some unions, however, refuse to participate in or even to recognize the existence of an operating plan.

In such instances, the employer installs the plan unilaterally, recognizing the necessity of a logical hierarchy of jobs in administering wages and salaries. The findings of the plan are used in negotiations. If the wage structure developed through bargaining differs from the job hierarchy developed through job evaluation, such deviations may be recognized as exceptions and an effort made to correct them in future negotiations.

Union Opinions of Job Evaluation

It is impossible to state flatly that unions are in favor of or opposed to job evaluation. Nor can it be said that either the AFL or the CIO is more in favor of job evaluation or more opposed to it than the other. Similarly, it is impossible to say that, in general, internationals or local unions favor or oppose the technique. Perhaps the reason is best expressed in the foreword of William Gomberg's *Manual on Job Evaluation:*

> It is no more possible to pass judgment on the merits of job evaluation, as such, than to pass judgment on the weather, as such. Job evaluation may be good or bad, depending on the nature of the industry, the background of industrial relations, the skill with which an installation is made, the way it is administered, and many other factors.[15]

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[14] See "Inequities Program Agreements," Carnegie-Illinois Steel Corporation and the United Steelworkers of America, CIO.

[15] William Gomberg, *A Labor Union Manual on Job Evaluation* (Chicago: Labor Education Division, Roosevelt College, 1947), p. 7. Reprinted by permission.

On the other hand, certain generalizations may be made about union opinion of job evaluation, its useful results, fallacies, defects, and pitfalls. Though union opinion is not unanimous on any of these matters, certain patterns appear to have emerged.

A Job Hierarchy

Almost without exception unions favor the principle that more difficult and more responsible jobs should receive more pay than less difficult and less responsible jobs. They point out that collective bargaining has always followed this principle.[16] Many union leaders feel that, in this sense, they were using job evaluation long before management discovered and formalized it. Some officers make their own job evaluations regardless of whether or not a plan exists in a firm.[17]

One of the reasons for union acceptance of this principle of job hierarchies is that workers approve the principle. Workers tend to compare wages on the basis of job difficulty and are quick to complain if they find inequities in such comparisons. It is observed that workers are often more interested in relative than absolute wages.[18]

On the other hand, some union leaders feel that approving the principle of a job hierarchy and the usefulness of job facts in determining a job hierarchy does not call for approval of a formal system of job evaluation. They feel that using job descriptions or even a working knowledge of job facts is sufficient.

Paying the Job

Likewise, many union leaders are in favor of paying the job rather than the man. They feel that paying jobs makes for a more workable payment arrangement—one that can be explained and justified to union members. Even union leaders who oppose formal job

[16] "The wage scale in any collective agreement was but the result of the use of the ranking and classification methods of job evaluation." William Gomberg, "A Collective Bargaining Approach to Job Evaluation," *Labor and Nation* (November and December, 1946), p. 52.

[17] L. Cohen, "Unions and Job Evaluation," *Personnel Journal*, Vol. 27, No. 1 (May, 1948), pp. 7–12.

[18] "How many trade union officers have found that the membership is far more keenly interested in how much they receive compared to what some of their fellow workers in other occupations are receiving than in any absolute level of wages for the whole factory." Gomberg, *A Labor Union Manual on Job Evaluation*, p. 72. Reprinted by permission.

evaluation are in favor of job rates rather than personal rates.[19] Unions as well as managements desire a more rational foundation for wage structures and have found that paying the job is a step in this direction.

On the other hand, there are differences in interpretation of what is involved in the job. Management advocates of job evaluation often believe that job content should be the controlling factor in determining wages, whereas union leaders point to other factors surrounding the job, such as promotional sequence, traditional position in the hierarchy, and continuity of employment.

Reducing the Number of Rates

Management and unions likewise appear to agree on the necessity of reducing the number of different wage rates existing in a plant. Thus, the principle of grouping similar jobs for wage purposes appears to be mutually acceptable.[20]

On the manner of accomplishing this objective, however, the agreement is less close. Some union leaders believe it can be accomplished without job evaluation. Others believe that job evaluation is the logical approach to the problem.

A Rational Basis for Determining Wage Differentials

Union leaders as well as management representatives agree that a rational basis for determining wage differentials is essential. According to Fish, ". . . American labor has always accepted and recognized the wage differential for different crafts, and has always been interested in working out some orderly procedure for differential wages." [21] On how to accomplish this objective, however, union opinions are many and varied. Some union leaders desire joint union-management job evaluation. Some favor a plan proposed by the union. Some vote for simple plans such as the ranking

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[19] Solomon Barkin, "Wage Determination: Trick or Technique," *Labor and Nation* (June and July, 1946), p. 25.

[20] Gomberg, "A Collective Bargaining Approach to Job Evaluation," *Labor and Nation* (November and December, 1946), pp. 51–54; and Barkin, "Wage Determination: Trick or Technique," *Labor and Nation* (June and July, 1946), pp. 24ff.

[21] Hy Fish, "Job Evaluation and the Union," *Proceedings of Personnel Management Conferences* (Urbana, Illinois: University of Illinois, 1949, mimeographed).

or classification systems. And some believe that unhampered collective bargaining will provide the only workable solution.

Controversial Issues

While there are substantial areas of agreement on the principles of job evaluation, there are also areas of disagreement. And when the realm of job evaluation practice is entered, many more controversial areas appear. Many union leaders, for example, have pointed out that job evaluation is not scientific. They point to the numerous judgments used in all systems to show that job evaluation is not infallible and is certainly not a complete answer to determining rates of pay.

Although such statements are not alarming or controversial to serious students of job evaluation, they perhaps reflect the use of the technique by some organizations. Unfortunately, job evaluation systems have been installed and operated as if they were sufficiently exact to be labeled scientific, and some managements have followed a system blindly, attempting to base all wage decisions on the system. Such unreasoning acceptance of the technique may perhaps be attributed to: (1) a human tendency to regard numerical data as indisputable fact, and (2) the understandable desire for a mechanical system that will solve the knotty problems of wage determination.

A more realistic approach to job evaluation is taken by most managements and many union leaders, namely, that job evaluation is a systematic approach to the problem of setting wage differentials. They recognize that all systems involve judgment but that the technique, because it can help solve real problems, should be analyzed and improved instead of rejected. Such an approach suggests using job evaluation as a method of setting a hierarchy of jobs and improving its effectiveness, at least until a better method is discovered.

Another charge made by some union critics of job evaluation is that it is too rigid a device to use in wage determination. They point to changes that inevitably occur in jobs and in the market place, and express the belief that job evaluation systems cannot adjust to these changes.

Perhaps the major reason for such statements is a lack of understanding of the place of job evaluation in wage and salary admin-

istration. Such statements appear to be founded on the belief that wages and salaries are determined by job evaluation alone. If these critics were shown that the function of job evaluation is merely to set up a hierarchy of jobs as an aid to solving the problem of wage structure and that it is not a solution to the problem of wage levels, many of their objections would undoubtedly disappear.

Certainly the criticism of the ability of job evaluation to adjust to changes in the market place would be reduced by this understanding. And the belief that job evaluation cannot adjust to job changes could be answered by a proper maintenance program that searches for changes in jobs regularly, and includes a method for immediately re-evaluating changed jobs as evidence of change comes in.

Some critics of job evaluation have charged that job evaluation is an attempt to base wages solely on one set of considerations, namely, job content. They point out that neither prices nor profits are defined or derived in such a way and that any businessman would seriously object if he were told that his prices and profits must be based on certain factors only.

Such critics go on to point out a few of the considerations that they believe should accompany job content in determining the status of jobs in the hierarchy. Tradition is one of these factors. It is asserted that when a job has customarily held a certain position in the job hierarchy, changing its position may cause dissension and difficulty—that the sights of other workers have been set on this job over a period of time and a change forces them to realign their sights.

In answer to this criticism it should be said that all job evaluation installations should carry a policy on out-of-line jobs. Normally, the wage paid for an over-paid job remains unchanged while the present employee holds the job. In other cases, the job is allowed to retain its position for a certain definite period, after which time it is placed in its evaluated position in the hierarchy. This is the familiar problem of "ringed rates," and the two solutions given here are by no means all that have been suggested and used.

It will be noted that the second solution offers an answer to the problem of sights set by promotion-minded workers. These employees are given a period of time in which to adjust their sights. This should be sufficient. It would hardly be logical to suggest

that a traditional position in the job hierarchy should be allowed to prevail against the position set by a systematic plan based on considerations accepted by the parties and used to set up a consistent hierarchy. To argue otherwise would be to argue that the traditional position is correct. And anyone who has observed a traditional job hierarchy can point to instances where highly-placed jobs attained their position for bizarre and illogical reasons.

It is desirable for workers to set their sights on higher-level jobs. But the employer owes the worker a job hierarchy based on some systematic, consistent method.

Another set of considerations often brought forward arises from jobs that have similar job content and also job requirements, but are said to be different in the eyes of workers. For example, if two jobs have similar content but one is a stepping-stone job and the other is a dead-end job, it has been contended that the latter job should carry a higher rate of pay. Again, two jobs may have similar content, but one job may be found only in the employing organization, whereas the other is found in numerous other establishments in the community. It has been contended that the former job should receive higher pay because a worker on such a job may require retraining should he decide to leave or should his employment be terminated. Another example would be jobs identical in content, but one permitting steady employment and the other only irregular employment. It has been suggested that the latter job be paid at a higher rate to compensate for employment instability.

These three examples have in common the fact that, because of factors other than job content, the jobs are likely to be different in the eyes of the workers. And if a job evaluation plan produces results that vary from job status in the minds of the workers and the bases of this variation are as real as those described, the job evaluation is not satisfying its purpose of removing inequities.

There are methods by which problems such as these could be solved in accordance with good wage and salary administration. (1) Such considerations could be made compensable factors and be built into the job evaluation system. (2) They could be handled as problems of individual wage determination,[22] in which case individuals on the jobs would be paid more because of the factors

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[22] Individual Wage Determination is discussed in Chapter 11.

mentioned. (3) These factors may be left to collective bargaining.

Another consideration that some union leaders insist should be included in job evaluation plans is the effect of supply and demand. The justification is stated in terms of other prices. For example, it is pointed out that product prices may be based somewhat upon product content, but often they are based more upon the consumers' willingness to pay, which in turn is based upon economic considerations. Thus it is pointed out that jobs for which workers are in short supply should reflect this shortage in higher wages.

There are several answers to this contention. First, supply and demand are considered when solutions are sought to the problem of levels. Here the average wage of the complete hierarchy of jobs should be determined with reference to many considerations, of which supply and demand factors are probably the major ones. If the structure is properly determined, supply and demand factors should affect all of the jobs in the structure in the same way. A given job evaluation plan should include only jobs within one series, and a characteristic of a job series is that the jobs are similarly affected by economic considerations. This would suggest that if a job appears to call for different treatment regarding supply and demand factors, it does not belong in the series under consideration. Handling the problem in this way is the logical solution.

Another solution used by some managements is to treat the problem as a part of the problem of individual wage determination. In this way, jobs for which workers are in short supply are paid more and the organization installs a training program in an effort to alleviate the shortage. This solution is less logical but expedient when an organization has a job evaluation plan which covers the complete range of jobs in the organization.

A third solution is to bargain collectively on the structure obtained through the use of the job evaluation plan. In this way the final wage structure is not obtained until it has gone through the tempering forces of collective bargaining.

The most often heard union criticism of job evaluation is that it tends to limit collective bargaining. What is usually meant by such criticism is that a job evaluation plan can limit bargaining to across-the-board increases. Thus any settlement would start with the wage structure and move the entire structure.

It is true that many students of job evaluation would prefer that

a structure derived through job evaluation be used in this way. It may be suspected that many union leaders would also prefer it if (1) they were convinced that the structure was proper, and (2) it was politically feasible. In fact, where a joint installation is in effect, bargaining often tends to follow this pattern.

Because of considerations such as those discussed in preceding sections, however, most union leaders will probably want to bargain on certain key jobs at least. Even if they feel that the structure as developed by job evaluation is essentially correct, they want to examine it and subject it to the other considerations mentioned.

Employers with union contracts are gradually coming around to a viewpoint very similar to the one just expressed. They tend to agree that a structure developed by job evaluation but bargained with respect to certain anchor jobs will give the structure the flexibility needed for harmonious operation. Where such practice is followed, job evaluation does not limit collective bargaining.

Union leaders have criticized job evaluation techniques as being too complicated, with the result that workers are left with the opinion that an attempt is being made to set wages by using a "magic formula." Where this opinion is held, workers and union leaders cannot be blamed for resistance and suspicion. "Magic formulas" have been offered them in the past with unsatisfactory results.

There are two answers to criticisms of this type. The first is further careful education of union leaders and members on principles and techniques of job evaluation. Only with such knowledge and understanding can job evaluation be approached objectively. Once union leaders and members realize that job evaluation is merely a systematic approach toward goals that are as much theirs as managements', they will come to realize that job evaluation is not a complicated management technique but a sincere effort to solve the problem of setting wage structures.

A second answer to these criticisms is the development and use of less complicated systems. Many students of job evaluation agree to the necessity of this. Union leaders have often professed that the simpler systems not only are acceptable but were used by unions long before management formalized them. For this reason, some managements have installed ranking and classification systems. Perhaps an equally fruitful approach is the one suggested in this book,

namely, that the interested parties build a system applicable to their organization. Such a system need be only as complicated as the parties desire.

Certain union leaders, of which Solomon Barkin is an example, state that job evaluation is committed to the theory of area wage rates.[23] This is far from universally true. Though area wage rates may be used in the solution of the problem of wage levels, they have nothing to do with the use of job evaluation to solve the problem of structures. A job hierarchy can be set up by job evaluation without any reference to area wage rates.

Some union leaders have looked upon job evaluation as a management technique to be approached in the same way as any other technique that management brings forward. This is another way of saying that labor should be suspicious of any technique proposed by management.

Enough has been said so far to point out that the principles of job evaluation belong no more to management than to labor. In fact, several union leaders have insisted that the origins were in the labor movement. Others have suggested that unions develop their own plans and submit them as counterproposals. And certain unions have developed their own plans, which are used to analyze a company's wage structure during negotiations.

Thus at the present time job evaluation could as easily be called a union technique as a management technique. And many students of job evaluation see plans such as the steel plan as indicators of the future of job evaluation.

Some union leaders feel that job evaluation leads to skill dilution. They feel that once a job evaluation system is installed, a work improvement program is undertaken that dilutes the skills required by jobs and reduces the rates.

The answer to this contention is not hard to find. First, there is no causal connection between work improvement and job evaluation. Work improvement studies go on all the time whether a job evaluation plan is in operation or not. Actually, there is some evidence that any causal connection between technological progress and job evaluation is that job dilution precedes job evaluation

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[23] Barkin, "Wage Determination: Trick or Technique," *Labor and Nation* (June and July, 1946), pp. 24ff.

rather than following it. Job evaluation is merely a by-product of the continuing technological revolution.[24]

Labor's interest in the matter of skill dilution is twofold. (1) Unions are concerned with status questions, as was discussed previously, but cannot afford to stand in the way of technological progress. They have learned that increases in our standard of living come largely through improved technology.

(2) Unions are concerned with maintaining and increasing the wages of members. Here the concern is with how much jobs are paid rather than job status. This, then, is the problem of wage levels, and unions have gradually learned that a general wage increase is a satisfactory offset to the march of job dilution. Where this is not sufficient, a wage incentive system [25] may be the answer.

Certain union leaders have professed to be disturbed by what they describe as the double standard of job evaluation. By this they mean that a different system is used for executive jobs, or that executive jobs are not evaluated at all, and that although the maximum range of abilities is said not to exceed 1 to 3, the values of the lowest and highest jobs in an organization seldom have such a low ratio.

It is difficult to determine how much such statements may be attributed to lack of understanding of the function of job evaluation and how much to "tongue in cheek" heckling. At best such statements are hard to reconcile with those of other union leaders who state that management jobs are different and must be evaluated on a different scale.[26]

The answer to the assertion of a double standard in job evaluation is that job evaluation is *not* a solution to all the problems of wage and salary administration. Its function is merely to determine a job hierarchy. To determine this hierarchy with precision, it may be necessary to break the complete range of jobs into job series. Then a different job evaluation plan is usually developed for each job series. Once the structure is developed, the average wage within the structure is found by solving the problem of wage levels. If

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[24] Gomberg, *A Labor Union Manual on Job Evaluation*, p. 13.

[25] To be discussed in Chapter 12.

[26] Zimmerman, "Wisconsin Union Attitudes on Job Evaluation" (an unpublished study made under the direction of the author); Cohen, "Unions and Job Evaluation," *Personnel Journal*, Vol. 27, No. 1 (May, 1948), pp. 7–12.

the wage level of a certain job series is considered too high by union leaders, the answer must be an economic one. To disagree would be to support a value judgment, but it would argue against collective bargaining.

Another controversy on the subject of job evaluation is concerned with whether or not job evaluation reduces wage grievances. Here opinion appears sharply divided. Studies into union opinion on job evaluation that have mentioned wage grievances appear to lean toward the view that wage grievances are reduced. Baker [27] found that unions did not believe job evaluation reduced wage grievances. Cohen,[28] on the other hand, found that almost all the unions in his study found fewer wage grievances as a result of job evaluation. Similar results were found in a study of Wisconsin unions made by Zimmerman.[29]

From the previous discussion it is seen that there is sufficient basis for union-management agreement on the technique of job evaluation as a solution to the problem of wage and salary structures. Where such agreement is possible, its basis is full information. Management should provide union officials with information on the need for job evaluation as a basis for sound wage structures and request union participation in the process.

INFORMING EMPLOYEES

Whether a union is present in the organization or not, however, it is essential that employees be informed of the projected job evaluation process. It is essential that the cooperation and active support and participation of employees be solicited. Employees must have a general understanding of what is being done, what is expected of them, and what the objectives of the program are. Unless this understanding and consequent cooperation are obtained early, misunderstandings, suspicion, and antagonism are likely to be encountered.

Employees should be informed when the organization is con-

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[27] Baker and True, *The Operation of Job Evaluation Plans.*

[28] Cohen, "Unions and Job Evaluation," *Personnel Journal*, Vol. 27, No. 1 (May, 1948), pp. 7–12.

[29] Zimmerman, "Wisconsin Union Attitudes on Job Evaluation" (an unpublished study made under the direction of the author).

sidering the advisability of installing a job evaluation system. After top management has been exposed to the implications of job evaluation, the same information should be passed down the line. Meetings may be held, at which minor executives and supervisors receive this information before the process of collecting job information begins.[30] In order that there be no misunderstandings, supervisors should be provided with information and explanation in writing. Employees should also receive information in writing. And where time permits, supervisors should be encouraged to hold meetings on the subject with employees. Such meetings and written information give all employees from top management down an opportunity to correct any misunderstandings regarding the objectives of job evaluation and the steps necessary to carry out the process.

An excellent practice is a letter from the top executive to employees containing the following information: (1) an announcement that a job evaluation plan will be installed, (2) an explanation of what job evaluation is, (3) a specific statement of the objectives of the organization in the undertaking, (4) some information on how the process will be carried out, and (5) perhaps, a statement on how employees will or will not be affected by the plan. Such a letter may be used as a basis of discussion with supervisors. A careful discussion of its contents should place supervisors in a position to answer most employee questions on the subject. A sample letter is shown in Figure 42.

Figure 42

LETTER TO EMPLOYEES

To All Employees:

Our company is a growing company. In the last fifty years we have grown from humble beginnings to a dominant place in the business; our quarters have grown from a small frame house to the modern plant in which we now work.

But growth is not always easy. It is sometimes costly to the company as a whole and to the individuals of which it is composed. In the past, the company has frequently failed to recognize the value of each individual to the company. That may have been one of the "growing pains." We want to

[30] Some organizations follow the practice of regularly training supervisors in job evaluation concepts. Such training enables supervisors to be ready to explain job evaluation to employees. See Roger Hubbell, *Job Evaluation* (Milwaukee: Allis Chalmers Manufacturing Company, 1949, mimeographed).

Figure 42 (Cont.)

correct that now; we want to make our company an even better place to work. For that reason, we are about to begin a careful, systematic study of the positions in our company for the purpose of assuring that the rate of pay for every position is fair and equitable.

The company wishes to assure you that *no employee's salary or wages will be reduced nor will any layoffs occur as a result of this study.* What will occur is that those who have not been receiving enough money for the job they have been doing will have their wages increased. We are as anxious to correct any inequities that exist as you probably are to have them corrected. Naturally, such an important study will take time. And its success will be largely up to you through the cooperation you render.

It is not a simple matter to study all the jobs in our plant because so many different things are done. We intend to train a number of employees to do the study in such a way that they analyze the jobs—not the people who perform them. We are interested only in comparing jobs so that those jobs which require more skill, more effort, more responsibilities will, in turn, be paid more. We intend to compare jobs to each other using a number of points of comparison. In this way, we can learn the difficulty of each job. We shall not attempt to learn how well each individual does his work. We are concerned with the jobs themselves.

For this reason, these trained employees will want to know more about the job you do, how you do it, and why the job is done. They may watch what you do in your job or they may ask you about your job. In this way, a description of each job in the company can be written. Your cooperation, then, is essential to improving our wage structure.

We are undertaking this project because we sincerely believe that it will be of benefit to all of us. Management will learn more about the jobs and their relationship to each other. Employees will be assured of an equitable pay scale and the elimination of rates of pay which are too low in comparison to the job performed. Because of the success of similar programs elsewhere, and because we know we can expect wholehearted cooperation and support from everyone in the company, we look forward to the success of our program.

Because of the technical nature of the study, it would be very difficult to explain the study in more detail in this brief letter. However, your supervisors have been told all of the details and they will thus be able to answer your questions. So, if you have any questions, your supervisor will be glad to answer them.

Sincerely,

POLICY ON OUT-OF-LINE JOBS

The major purpose of job evaluation is to establish a rational wage structure. Through the techniques of job evaluation, a job hierarchy is developed on a systematic basis and wage rates are attached to jobs or labor grades in accordance with their relative position in the job structure. To accomplish this, (1) all jobs in the job series

included must be evaluated, (2) the wage structure should follow the job structure, and (3) a policy must be adopted for adjustment of out-of-line rates. Such a policy must call for raising the job rates which fall below the evaluated rate and reducing the job rates which exceed the evaluated rate. In carrying out such a policy, however, two questions emerge. How quickly should these adjustments be made? Should the wage rates of present employees be affected?

Preferable practice on timing of job rate changes calls for immediate adjustment upward to correspond to the evaluated rate. Downward adjustment of a job rate change may be deferred for a certain period or accomplished in several steps. But all job rates must eventually be brought into line.

It is usual practice in job evaluation installations, however, to guarantee employees that their rates will not be reduced because of the plan. Thus, although job rates may be reduced, the rates of present employees must remain unchanged. This produces the familiar problem of "ringed," "red circle," or "personal" rates, which will be discussed further in the next chapter.

COST OF INSTALLING JOB EVALUATION

The costs of installing a job evaluation plan are of two kinds: (1) costs of actual installation and (2) the effect on the payroll. The first consists of the time spend on the project by top executives, job analysts, supervisors, committees, and employees whose jobs are being evaluated. It may also include the fee of a consultant.

This type of cost varies so greatly from one installation to another that comparative cost information would have little meaning. The type of plan adopted, the amount of preliminary education considered to be necessary, peculiarities of the company organization, size of committees; all have an effect upon costs and make estimates virtually meaningless.

It is possible, however, to compare payroll effects of job evaluation installations. As stated above, job and employee wage and salary rates found to be below evaluated rates are customarily brought up. The increase in total payroll required to make these adjustments is usually considered part of the cost of job evaluation. This cost information may be expressed as a percentage of total payroll.

Benge has estimated this percentage as ranging from one half of one per cent to four per cent, depending upon the wage payment method used.[31] The National Industrial Conference Board found in 1950 that one third of reporting organizations experienced an increase of less than one per cent, and almost two thirds of them reported two per cent or less.[32]

There is some question about the usefulness of even these figures, however. A solution to the problem of wage and salary structures must be obtained by some method—if not by job evaluation then by some other technique. And if the method chosen is less efficient, it would be necessary to add such indirect costs as higher labor turnover, additional wage grievances, and lower morale. A true cost of job evaluation to an organization can only be obtained by subtracting from direct costs of installing and maintaining a plan the indirect costs of doing without job evaluation.

MAINTENANCE OF WAGE AND SALARY STRUCTURES

Although job evaluation can provide a solution to the problem of wage and salary structures, such structures require maintenance. Jobs change by the addition or subtraction of duties as required by the work of the organization. Jobs also change as a result of changes in methods and machines. In addition, new jobs are added and old jobs may no longer be required. The wage structure must adapt itself to these changes.

Maintenance of job evaluation is necessary to keep the wage structure correct. It consists of (1) keeping job descriptions and job ratings up to date and (2) seeing that employees are actually performing the jobs outlined in job descriptions. A central agency is required to: (1) analyze and evaluate new or changed jobs, (2) see that job changes are reported, (3) see that old descriptions and evaluations are still adequate, (4) see that identical jobs have identical job titles, and (5) receive and process appeals and grievances with respect to job ratings.

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[31] Eugene J. Benge, *Job Evaluation and Merit Rating* (Deep River, Conn.: National Foremen's Institute, Inc., 1941).

[32] Herbert S. Briggs, "Cost of Installing a Job Evaluation Plan," *Management Record,* Vol. 13, No. 12 (December, 1951), pp. 422–423.

Supervisors are responsible for advising this department of any changes in job content that they are planning to make or have made. They are likewise responsible for seeing that employees are asked to perform only duties included in the job descriptions. To facilitate carrying out these responsibilities, supervisors may be required to review at regular intervals with each employee the job description of his job and, where the job description is not adequate, to request a new analysis and evaluation. A form for such requests is shown in Figure 43.

Figure 43 *

REQUEST FOR JOB EVALUATION OR RESTUDY

DEPARTMENT _____

Yes No

JOB TITLE: _____ NEW JOB: ___ ___

PRESENT JOB CODE NO. _____

1. Has job content changed since last evaluation? Yes___ No___
2. Describe change _____
3. A. When did change occur? _____

   B. Or, did change occur over an extended period of time? Yes___ No___
4. Has this work been performed in another department? Yes___ No___

   If so, in what department? _____
5. REMARKS: _____

FOREMAN: _____

DATE: _____

SUPERINTENDENT

Original to Wage Administration
1 copy for Superintendent
1 copy for Works Manager
1 copy for Foreman's follow up

* Source: Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin. Reprinted by permission.

Some organizations require that approval for job changes be obtained before such change is made. It is doubtful that such a practice can be justified in a dynamic organization. If job changes are reported and consequent re-evaluations made promptly, such rigidity would not seem to be called for. If, however, supervisors are guilty of shifting duties in order to manipulate pay rates, some method must be found to discourage such practice.

In addition to supervisory requests for job restudy, other methods may be used to maintain the system. First, the central wage department should be set up to audit jobs by department on a continuing basis. Thus, each department's jobs would be subject to audit at one- or two-year intervals. Interim checks might be made, however, by checking departmental job lists at regular intervals against a list of standard job titles.

Another device is to limit the life of job descriptions. Thus, a job description would be valid only for a certain definite period, after which time the job must be restudied.

A further check on the adequacy of job information and the correctness of job values is the grievance or appeal procedure. Employees should be encouraged to appeal whenever they believe their job description or job rating is incorrect. If the organization is unionized, the regular grievance procedure may be used. If the organization is nonunion, an appeal procedure should be devised. In either case, a request for restudy of the job should be made early in the procedure. After the wage department has made a re-evaluation of the job, if the matter is still not settled, it is sent up the line until agreement is reached.

Standard job titles are an essential part of job evaluation maintenance. Such standard titles should apply to all jobs that entail identical duties and responsibilities wherever found in the organization. A central department should police the use of these job titles to see that they are used only where they apply.

SUMMARY OF THE PROBLEM OF WAGE STRUCTURES

Solution to the problem of wage and salary structures requires that rates of pay be assigned to the organization's jobs. This may

be accomplished by relying on (1) traditional relationships between jobs, (2) collective bargaining, or (3) job evaluation.

Job evaluation has become widely accepted as a useful solution to the problem of wage and salary structures. This technique divides the solution into two parts: (1) constructing a job structure and (2) pricing the job structure to arrive at a wage structure. Job evaluation systematically (1) studies the jobs and (2) appraises their relative worth in terms of compensable factors selected as yardsticks by the parties. Several methods of comparing jobs are available, but any one of them will yield a workable structure if the elements of job evaluation are carefully followed. The resulting job hierarchy or job structure when priced becomes the wage structure. When the average wage in the wage structure is made to correspond to the wage level selected, solutions have been obtained to both the problem of levels and the problem of structures.

PART FOUR

The Problem of Individual Wage Determination

11 · *Determination of Pay Rates of Individuals*

ONCE A SOLUTION TO THE PROBLEM OF STRUCTURES HAS BEEN OBtained, pay rates for jobs are available. But it is the individual employee who receives the paycheck. A decision becomes necessary at this point as to whether or not all employees on a given job will receive the same pay.

Most organizations [1] have answered this question in the negative, resting the decision on individual differences in employee proficiency. Workers assigned to the same job differ greatly in productivity. Tiffin,[2] for example, found differences in percentage of normal production as great as 60 to 145 per cent among workers on an electric assembly job. Such differences in productivity among employees on the same job suggest that paying the same wage or salary rate is grossly unfair and that some method should be found for paying higher rates to more efficient employees.

Not all jobs, however, permit such variation in individual productivity. Some types of work—for example, jobs on the assembly line in an automobile plant—offer little scope for variation in individual performance. Each employee is asked to perform in a specific way at a fairly definite rate of speed. In some other situations, processes are timed exactly for technical reasons. In still other situations, the work requires such a large measure of judgment that to encourage speed would be to discourage quality.

[1] Otis and Leukart, *Job Evaluation*, p. 371.
[2] Tiffin, *Industrial Psychology*, p. 11.

For these and other reasons some employers have decided that the job rate (structure rate) should apply to all employees on a given job.[3] They employ a *flat rate* or single rate for each job or each labor grade. Any employee assigned to a given job receives the rate for the job. Such a system is simple to administer; and it can operate without difficulty (1) where little variation in output is possible, and (2) where it is acceptable to the parties. Some unions favor the single rate principle [4] and have bargained it into many labor contracts in recent years. Obviously, where single rates are employed no problem of individual wage determination exists.

Where the flat rate principle is accepted, either job rates or grade rates may be used. If the job rate is used, a wage line such as those shown in Figures 36–40 provides the job rates. If the grade rate is used, rates for labor grades appear as in Figure 44. Thus, any job rated from 40 to 90 points carries a wage rate of $1.10, any job rated from 90 to 140 points, a rate of $1.20, and so on.

Where different levels of performance are possible, however, the wisdom of a single rate policy may be questioned. If two workers of widely different efficiency are assigned to the same job, it is quite likely that the more efficient worker will feel that he is being treated unfairly. Too many instances of this type may result in high turnover of efficient employees with a consequent standardization of the work force at a lower level of efficiency. Such an occurrence may result in increased labor costs. Some managements have refused to accept the single rate principle on the grounds that to do so would be to abdicate their responsibility.

THE PROBLEM OF INDIVIDUAL WAGE DETERMINATION

The decision to pay employees on the same job different rates of pay brings forth the problem of individual wage determination, which involves finding some consistent manner of paying employees for individual performance on the job. The structure rate is the

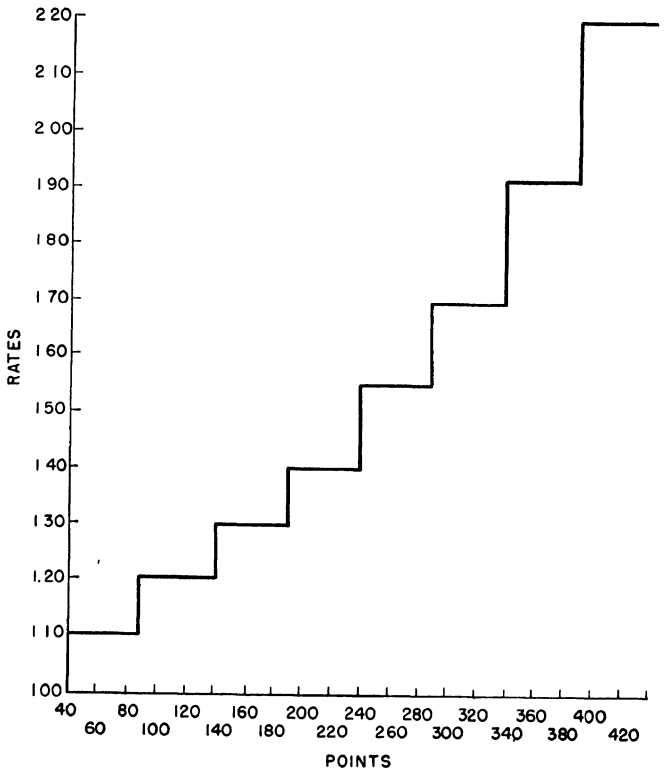
[3] It should be noted, however, that this decision is not necessary under these conditions. Especially in the second and third cases, an incentive system based upon quality is possible. And in all three, individual efficiency may be shown in ways other than speed, permitting the operation of a merit system.

[4] Otis and Leukart, *Job Evaluation*, p. 368; also Zimmerman, "Wisconsin Union Attitudes on Job Evaluation" (an unpublished study made under the direction of the author).

rate applicable to the average successful employee on the job. The individual rate, however, may be above or below the structure rate, in accord with the employee's performance.

Figure 44

RATES FOR LABOR GRADES



Possible Solutions

Solution to the problem of individual wage determination can take one of two forms, namely: (1) some form of incentive plan, or (2) a wage or salary range. In the former, the job rate (or some constant percentage of it) becomes the base rate for all employees assigned to the job. To obtain earnings above the base rate, an employee's productivity must exceed a specified standard.

No maximum rate is set, customarily, since the employee's performance determines his rate.

A wage range consists of a minimum rate and a maximum rate with sufficient spread between these extremes to permit several increases in wages. Thus the wage or salary rate of an employee may be at the minimum, the maximum, or somewhere between.

In current practice a given organization customarily applies either an incentive system or a wage range to a given class of jobs. It is possible, though unusual, to combine the two methods of pay on the same job. Most companies make use of the wage range within which the rates of individual employees in a certain job or labor grade are to be found.[5] For this reason the present chapter is devoted to this solution to the problem of individual wage determination. Discussion of incentive systems is deferred to the section on Wage Payment Methods (Chapters 12–14).

In organizations which employ a wage or salary range, there are two viewpoints on the proper placement of an average, qualified employee in the range. According to one viewpoint, which appears to be gaining favor—especially in lower-level shop jobs, a fully-qualified employee receives a rate at the top of the range. New employees are brought in at a starting rate and in a relatively short period they are advanced to the maximum, often through a series of steps. In such plans the structure rate is the maximum of the rate range. Such ranges, which may be job rates or rates for labor grades, are portrayed in Figures 45 and 46. Often move-

Figure 45

JOB RANGE

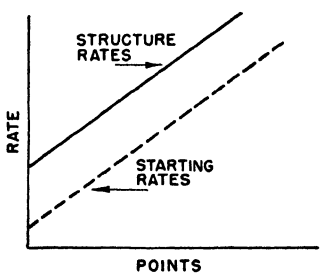
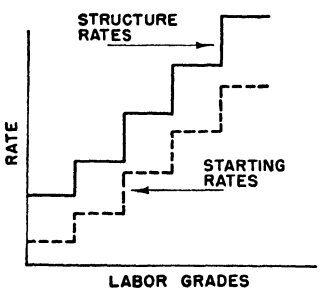


Figure 46

LABOR GRADE RANGE



[5] Otis and Leukart, *Job Evaluation*, p. 371.

ment through the range is automatic, based upon length of service. Where this is true, in actual practice the single rate is being employed, since all employees are expected to reach the maximum rate.

According to the other, more usual viewpoint, structure rates are placed at the midpoint of the range. Thus, average employees are expected to attain the structure rate after they become proficient on the job. Below-average employees remain at rates below the midpoint. And only superior employees receive rates in the upper half of the range. Such ranges are depicted in Figures 47 and 48.

Figure 47

JOB RANGE

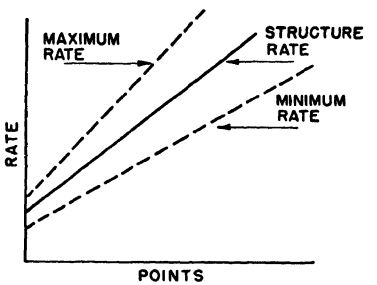
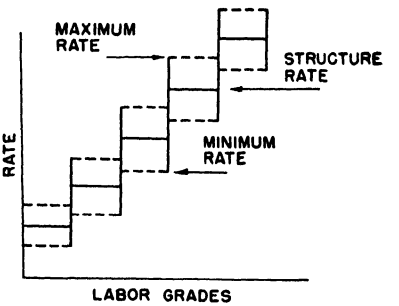


Figure 48

LABOR GRADE RANGE



It is seen that this type of range provides an incentive for the employee to turn in above-average performance. This arrangement also provides an opportunity for administrative control, as will be seen in the final chapter. If only superior employees are paid at rates above the midpoint and below-average employees kept below this point, not only wage rates but labor costs are kept in line.

In a way, the first type of range illustrated may be thought of as half of a range—the half below the structure rates. The portion reserved for superior performance is missing. This form is often the result of union negotiations and is in line with the union practice of "standardization" [6]—the establishment of a standard rate for all workers on a given class of work. If jobs are such that after a period of time all workers have reached a uniform standard of performance and further improvement is unlikely or impossible, this

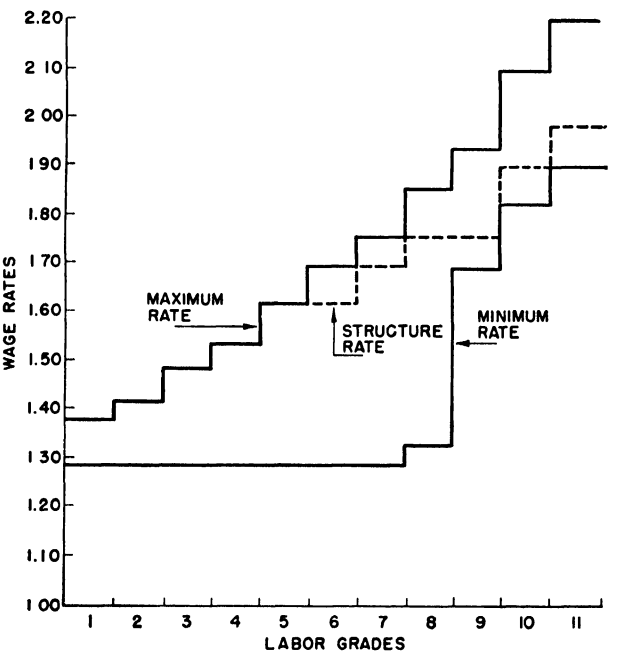
[6] Dale Yoder, *Personnel Management and Industrial Relations* (New York: Prentice-Hall, Inc., 1948), p. 683.

type of range may be justified. It will, of course, be a narrower range than the more usual wage range.

Some authorities [7] distinguish between the two types of ranges by asserting that the first type is applicable to shop jobs and the second to office jobs. This is an over-simplification. In recent years, ranges of the first type have been used for lower-level office jobs as well as shop jobs. Similarly, the second type of range is frequently used in shop jobs, especially those requiring a high level of skill. It is possible to find both types used in the same organization, even on the same type of jobs. Figure 49 shows an example of such an approach.

Figure 49

EXAMPLE OF RATE RANGES WITH VARYING SPREADS



[7] Otis and Leukart, *Job Evaluation.*

ESTABLISHING RATE RANGES

The range must be sufficiently wide to reflect the difference between the best and poorest workers on the job.[8] Thus, the type of organization and the type of jobs under consideration affect the width of ranges. Shop jobs, for example, usually employ narrower ranges than clerical and supervisory jobs. Shop jobs may carry a range as small as 10 cents per hour for lower-level jobs and seldom employ a spread as great as 20 per cent even on highly skilled jobs. The spread of the range may also vary from one labor grade to the next. For example, the first several labor grades may have a common starting rate but a different maximum rate. See Figure 49. This figure illustrates an example that is interesting in that it employs both types of rate range mentioned previously. In the first five labor grades, the maximum rate is the structure rate. In the rest of the labor grades, the structure rate is between the minimum and the maximum.

Labor grades for salaried jobs usually employ a wider spread than hourly jobs. They vary from a minimum of 20 per cent to a maximum of 50 per cent. According to Smyth and Murphy,[9] a range of less than 20 per cent will not provide sufficient incentive. Riegel [10] recommends 15 per cent above and 15 per cent below the standard rate and states that company practice is a spread of 20 to 25 per cent at the lower end of the scale and 30 to 35 or even 40 per cent at the upper end.

The width of ranges may be set arbitrarily or empirically. In the former method a decision is made on the spread and lines are drawn in around the wage line (see Chapter 9). If labor grades are to be employed, a maximum and minimum rate is established for each labor grade. If, for example, it is decided that the range shall be 10 per cent above and 10 per cent below the wage line, lines are drawn in at these levels. Grade range minimums and maximums are determined by drawing lines parallel to the base of the chart at the

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[8] Otis and Leukart, *Job Evaluation*, p. 373.

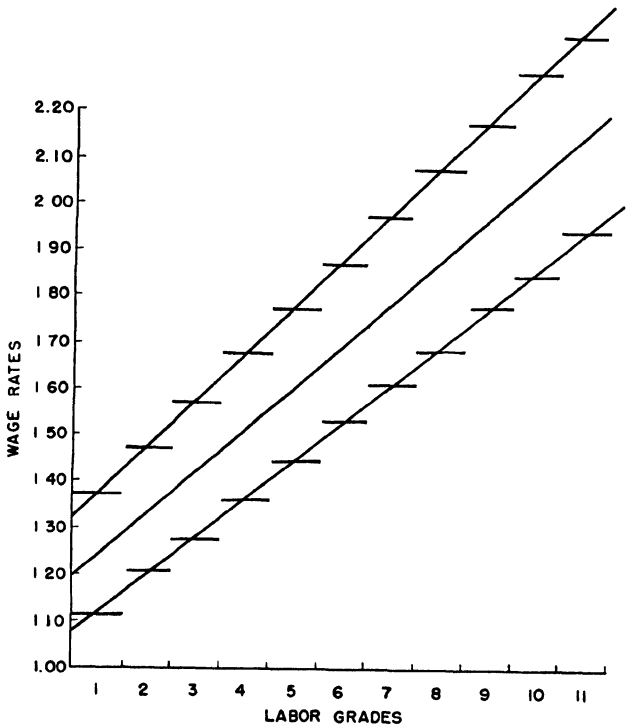
[9] Richard C. Smyth and Mathew J. Murphy, *Job Evaluation and Employee Rating* (New York: McGraw-Hill Book Company, 1946), p. 129.

[10] John W. Riegel, "Adjustment in Personal Rates of Pay," in *Personnel Management Conferences* (Urbana: University of Illinois, 1949, mimeographed).

height where the lines cross the midpoint of the grade. See Figure 50.

Figure 50

SETTING RATE RANGES FOR LABOR GRADES



The spread of the range may be either a constant dollar amount or a percentage spread. Where only a small difference in performance is possible on all jobs, the former practice may be followed. Usually, however, a percentage spread is used, because employees on higher-paying jobs require a larger increase for it to be noticeable to them. In fact, many ranges increase the percentage spread at higher levels on the scale.

Overlap

Examination of Figure 50 suggests two related considerations that influence the spread of ranges: (1) the number of labor grades,

and (2) the slope of the wage line. It is seen that the spread of ranges can be greater and the number of labor grades larger, without producing overlapping wage ranges, when the slope of the wage line is great. Overlap occurs when the maximum rate in a lower labor grade is more than the minimum rate of a higher labor grade. If it is desired to prevent overlap when a wage line has little slope, a small number of labor grades and perhaps a narrow spread are required.

Wide ranges, in any case, increase overlap. And too great an overlap can cause worker unrest [11] because of workers in a lower grade receiving a higher rate than workers in a higher labor grade. Thus it is desirable to reduce overlap as much as possible. The trend of company practice is in that direction.[12] Most organizations, however, find it impossible to eliminate overlap completely. And some approve a reasonable amount of overlap as an aid in administering transfers and promotions. Hay [13] doesn't believe the amount of overlap is a very important consideration. Taking all this into consideration, it would appear best to attempt to eliminate overlap, not between adjacent grades, but between nonadjacent labor grades. For example, grades 1 and 2 may overlap, but not grades 1 and 3, and so on. See Figure 51.

Ranges with no overlap or even with gaps between them have been suggested.[14] It is doubtful, however, that such procedures can be followed in most organizations and still accomplish the purpose for which ranges are set up, namely, to reward superior performance.

Empirical Method

A preferable method of determining ranges might be called the empirical method. Here the decision is based upon past practice in the company. Actual practice in the past on pay rates for jobs is examined on the theory that this represents what management has been attempting to do. A scatter chart may be constructed on which the job values and wage or salary rates of employees are

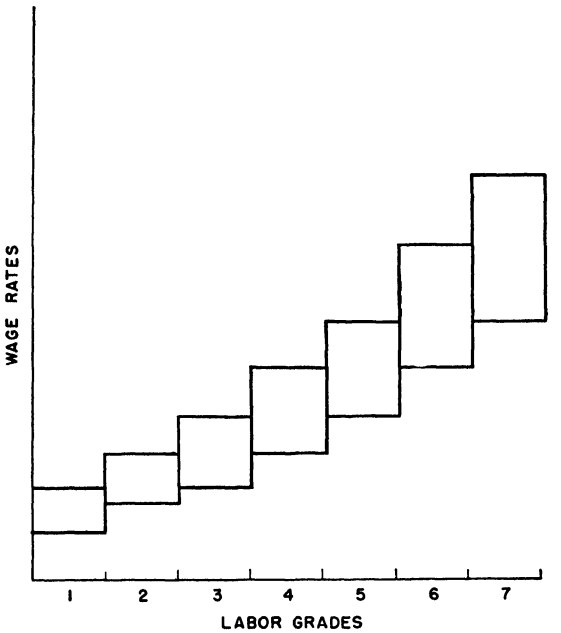
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[11] Otis and Leukart, *Job Evaluation*, p. 385.
[12] Otis and Leukart, *Job Evaluation*, p. 385.
[13] Edward N. Hay, "A Program of Salary Administration," in *The AMA Handbook of Wage and Salary Administration* (New York: American Management Association, 1950), p. 238.
[14] Michael, *Wage and Salary Fundamentals and Procedures*, pp. 142–143.

plotted. See Figure 41. Using this as a basis, ranges may be set to include most employees. There is always the likelihood of exceptional rates, of course, that may for valid reasons be left out of consideration.

Figure 51

EXAMPLE OF OVERLAP BETWEEN ADJACENT LABOR GRADES WITH NO OVERLAP BETWEEN ALTERNATE LABOR GRADES



The above discussion should suggest to the reader the possibility of determining labor grades and wage ranges at the same time. Observation of the scatter chart discloses clusters which help in determining both labor grades and range limits. According to Riegel,[15] if the additional precaution is taken to include in a given class only jobs the values of which differ by four per cent or less, a very satisfactory system of labor grades and accompanying ranges

[15] Riegel, "Adjustment in Personal Rates of Play," in *Personnel Management Conferences* (Urbana: University of Illinois, 1949, mimeographed).

can be determined. Obviously, if the clusters dictate wider limits, such percentage limitations are impractical.

CLASSIFYING EMPLOYEES

Before any system of individual wage determination can operate, it is necessary to see that employees are properly classified.[16] The employee classification process is one of deciding for each employee which job description identifies the work he is doing. Only when employees are properly classified can an employee's job rate or rate range be determined. And the latter information is necessary to determine the proper wage or salary for the employee.

The employee classification process may be accomplished in one of two ways: (1) it may be done by the supervisors or (2) it may be done by the employee or his representative. In the latter procedure, the job description is taken back to the employee for his approval and/or the approval of his representative. Although this method is convenient, some authorities believe it dangerous [17] in that errors in classification may result in distrust on the part of the employees.

Preferable practice is to have each supervisor, with the help of a job analyst who is familiar with the job information, classify the employees reporting to him. Calling each supervisor into the wage and salary administration department to perform the task probably assures accomplishment of the process in the shortest possible time.

As each employee is classified, an employee clasification record is prepared which includes: (1) name, (2) clock number and possibly social security number, (3) department, (4) job title, (5) job number, (6) present wage rate, (7) job value (points), and (8) labor grade.

Great care should be taken to ensure that the classification made actually represents the job the employee is performing. Any question should be resolved by going to the employee's job for verification. If none of the job descriptions is found to fit, a new job analysis and evaluation must be made. Special care must be taken when several levels of a job exist in the organization.[18] In such

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[16] Employee classification is essential, of course, even if a flat rate system is used.

[17] Otis and Leukart, *Job Evaluation*, p. 335.

[18] See section on Job Classifications, Chapter 9.

cases caution is required to ensure that the employee is classified at the proper level. Here the job analyst must be on guard against a tendency on the part of the supervisor to classify employees on the basis of skills possessed by the individual rather than skills required by the job. Present rate of the employee is of some aid in this task.

Another difficulty may arise where higher-level tasks are occasionally performed by the employee. A policy must be laid down on this for the guidance of the job analyst. One of the tasks of the job analyst in this process is to see that the policy is consistently followed.

Needless to say the employee classification record must be kept current at all times to insure that employees are properly paid. To maintain this record it is necessary that all employee and job changes be reported. Thus all accessions, separations, transfers, and promotions necessitate changes in the employee classification record, as do new jobs or changes in existing jobs.

CORRECTING OUT-OF-LINE RATES

When wage and salary ranges have been determined and employees have been classified, it will be discovered that some employees are being overpaid and some underpaid according to the rate ranges set up. Though the action to be taken is a policy decision that must be made by the organization, the alternatives deserve discussion.

Underpaid Employees

Underpaid employees, if they are to be retained, should have their wages raised to the minimum of the rate range. This may be accomplished immediately or in one or two steps. Riegel [19] suggests that, in the case of salaried employees, morale considerations dictate moving slowly in making up a large deficiency. He cautions, however, that all salaries should be raised to the minimum of the range before the salary scale is discussed with employees. In the case of hourly employees, especially where a union is present, it may be advisable to increase the employee's rate to the minimum

[19] Riegel, *Salary Determination,* pp. 145–146.

of the range immediately or to secure agreement with the union on slower adjustment. In a way, if the employee is adequately performing the job on which he is classified, the difference between his rate and the minimum of the range is an account payable of the employer.

It is possible, of course, that the employee is not worth the rate at the minimum of the range. There are several possibilities here. First, if the labor market is so tight that such marginal employees must be retained, a lower classification of the job may be established.[20] Similar reasoning would apply to handicapped or superannuated employees unable to perform the regular job. A second and preferable alternative is either to transfer the employee to a job he can perform or to release him from the organization. Another possibility exists where new employees have not yet learned the job—a learning classification at a lower rate.

Overpaid Employees

Overpaid employees present more of a problem, but a problem so common that special terminology has been developed to cover it. The rates involved have been variously called "red-circle rates," "ringed rates," or "over-rates." Various solutions are possible, namely: (1) reduce the rate to the maximum of the range; (2) leave the employee's rate as it is, but attempt to correct the situation by (a) transferring or promoting the employee to a job that will carry his rate, (b) retiring employees of retirement age, (c) increasing the duties and responsibilities of the job to enable it to carry a higher rate; (3) reduce the rate to the maximum of the range and promise the employee the first promotion that will carry his former rate; (4) continue the present rate for a certain specified time after which it is reduced; [21] (5) try all the methods in (2) and if they don't work, reduce the rate to the maximum of the range; (6) leave the rate where it is, but do not give the employee the full benefit of any general increases until his rate is in line.

Although all of these are possibilities, it has been general practice to avoid reducing the rate of an employee in such circumstances.[22]

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[20] Otis and Leukart, *Job Evaluation*, p. 410.
[21] Riegel, *Salary Determination*, p. 146.
[22] Otis and Leukart, *Job Evaluation*, p. 407.

Such overpayment obviously is not the fault of the employee. Management set his pay where it is, and reducing it would be making the employee pay for management's mistakes. Also, unions have insisted that the rates of present employees not be reduced in such cases.[23] It is usual company practice, however, to keep a record of "red-circle rates" and attempt to correct them at every opportunity to the mutual satisfaction of the parties.

MOVING EMPLOYEES THROUGH RATE RANGES

Rate ranges make it possible to advance the pay of employees in accordance with their proficiency in their work. To operate such ranges requires a method of moving employees through the range as their efficiency improves. Such a method would specify a starting position for a novice and other positions within the range for various levels of individual efficiency.

Step-Rates

To facilitate use of ranges, some organizations divide the entire range into a series of steps. Thus, for example, the range for a given job may be $1.30 to $1.60 per hour with intermediate step-rates of $1.35, $1.40, $1.45, $1.50, and $1.55. Or a salaried job with a range of $200 to $260 per month might have intermediate step-rates of $210, $220, $230, $240, and $250. Three or more steps are usually provided within the range.[24] The size of the steps will vary, of course, with the size of the range, and the number of steps will depend upon management's viewpoint on the period of time required to move from the minimum to the maximum of the range.

Step-rates facilitate the process of granting increases. A given increase may consist of one or at the most two steps, and the amount is specified by the step-rates. This removes the necessity of making a decision on the size of the increase.

Other organizations object to the inflexibility of such an arrangement, preferring to determine in each instance what the amount of the increase shall be. They feel that some of the incentive value of the range is lost when the amount of an increase is specified.

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[23] Gomberg, *A Labor Union Manual on Job Evaluation*, p. 51.

[24] Three to five according to Otis and Leukart, *Job Evaluation*, p. 371.

Whether or not step-rates are employed will depend somewhat on the method of progression through the rate ranges. Automatic progression requires the use of steps. Merit progression may or may not make use of step-rates.

Methods of Progression

Methods of progression through rate ranges are: (1) automatic progression, (2) merit progression, and (3) a combination of (1) and (2). A given organization may confine its use of one of the methods to certain types of jobs, or it may use all three methods on one type of job. Some organizations, for example, use all three methods of progression on shop jobs in the following manner: (1) labor grades 1–5 employ automatic progression throughout the range, (2) labor grades 6–9 use automatic progression to the midpoint of the range and merit thereafter, (3) labor grades 10 and above employ merit progression entirely.

Automatic Progression

Automatic progression (sometimes referred to as scheduled increases) refers to wage increases based automatically on length of service. Thus, in the automobile industry a common rule is a small increase at the end of the first month and another one at the end of three months.[25] One firm in heavy industry has a starting rate, a three months' rate, a six months' rate, and a rate granted automatically at the end of one year's service for all shop jobs. Another firm has two automatic increases at three-month intervals for labor grade 1, three such increases for labor grade 2, four for labor grade 4, and five for labor grade 5. In all these cases, the last automatic increase is the end of the progression because it is anticipated that the worker will be fully proficient at the end of that period.

Many such progression systems are installed at the insistence of a union which is not convinced that a merit system will be handled fairly. In the last firm mentioned, recent negotiations have seen one or more labor grades added to the automatic progression plan.

A fully automatic progression plan is actually a variation of the single or flat rate system. The single rate is the maximum of the

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[25] Riegel, "Adjustment in Personal Rates of Pay," in *Personnel Management Conferences* (Urbana: University of Illinois, 1949, mimeographed).

range and is attained by all employees completing a given period of service.

In some automatic progression plans, the scheduled increase is granted only if the employee's proficiency has progressed to the degree expected. If the employee is adjudged not deserving of the increase, under some plans it may be withheld. This is true especially where such a plan is applied to clerical workers. Often, however, an employee not granted the increase is transferred to another job for another chance or released from the organization.[26] It is seen that this type of automatic progression includes an element of merit and necessitates a method of determining whether or not the employee deserves the scheduled increase.

Some element of merit may be permitted also in fully automatic plans, although in a limited way. Under some such plans an employee may be granted a scheduled increase before it is due. For example, an employee may be adjudged to have progressed sufficiently after one month to receive the three months' rate, or after three months to receive the six months' rate. Thus, merit may be used to speed up the progression. It may not be used, however, to slow down progression.

Automatic Progression to Midpoint

It was pointed out at the beginning of the discussion of methods of progression that combinations of automatic progression and merit increases have been employed. Some such combinations have already been mentioned. In one, fully automatic progression was employed for lower labor grades and merit increases for higher labor grades. In another, automatic increases were granted only to those that were adjudged to deserve them.

Probably most usual of the combinations, however, is fully automatic progression to the midpoint of the range, with merit controlling from that point on. This plan is based on the reasoning that all employees may be expected to reach average proficiency in the time required to reach the midpoint of the range. To receive a rate above the midpoint, however, requires above-average proficiency.

To the extent that all employees do achieve average efficiency by

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[26] Otis and Leukart, *Job Evaluation,* p. 373.

the time they have reached the midpoint of the range, the plan may be justified from a labor cost standpoint. To the extent that they do not, the purpose of rate ranges is being violated and labor costs rise.

Automatic progression plans are simple to administer since they are purely mechanical. Introducing the element of merit complicates administration, but may permit a fairer solution to the problem of individual wage determination. It is well known that individual differences in performance do not disappear after employees have a certain period of service with an organization. Nor are employees with long service with the organization always more proficient than those with less service.[27]

Merit Progression

Merit progression is based on the theory that wage or salary increases should be earned through increased proficiency or quality of performance and that such increases should be viewed by employees as incentives toward further improvement. To the degree that merit increases can be consistently and fairly administered, this is sound.

As previously mentioned, a rate range consisting of a minimum rate, a midpoint or standard rate, and a maximum rate is particularly applicable to a system of merit progression. In such a system employees of less than average proficiency receive rates below the midpoint, average employees are paid the standard rate for the job, and only employees exhibiting superior performance are paid rates above the midpoint. Thus employee incentive is provided and labor costs are kept in line.

Theoretically, under such a system an employee could be paid any rate in the range that was in accord with his level of proficiency at a particular time. Thus, in theory, when an employee's performance dropped below standard his wages would be reduced just as his wage or salary rate would be increased if his performance was above standard.

Actually, however, a merit progression system operates somewhat differently. Wage increases are granted for increased proficiency

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[27] See Riegel, *Wage Determination*, p. 111; Dickinson, *Compensating Industrial Effort*, p. 261.

and wage increases may be withheld when performance is below standard, but wage or salary rates are *not* reduced when employee proficiency drops. To take the latter course would probably reduce morale all out of proportion to any reduction in wage costs.

As a practical matter therefore, increases based upon merit must be granted with caution. Mistakes are difficult to correct. If, for example, a marginal employee is granted an increase that places his rate above the midpoint, not only is the incentive value of the rate range destroyed for other employees, but also the marginal employee, being overpaid, will not leave the organization. Such overpaid marginal employees represent a major problem to organizations that have failed to control the merit progression plan.

Mistakes in the operation of merit progression plans arise from improper or inconsistent appraisal of employee performance. For example, if an employee's proficiency is gauged against his performance in the past, there is a great temptation to grant increases that may not be due. Similarly, if the merit system is used to issue a general wage increase by granting merit increases to all employees, a precedent is created that may make consistent operation of the merit progression plan impossible.

Fair and consistent merit increases dictate appraisal of employee performance in terms of a standard of satisfactory performance and against the performance of other employees on the same job. Such employee appraisal systems have been variously called merit rating, service rating, employee rating, personnel rating, and performance rating. Because the specific purpose of employee appraisal in this instance is to determine eligibility for a wage or salary increase, the term performance rating will be used here.

PERFORMANCE RATING[28]

It is necessary to carefully distinguish rating for wage and salary purposes from rating used for other personnel purposes such as transfer and promotion.[29] When rating is conducted for purposes

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[28] For an excellent manual on merit rating see Joseph M. Dooher and Vivienne Marquis (eds.), *Rating Employee and Supervisory Performance* (New York: American Management Association, 1950).

[29] Riegel, "Adjustment in Personal Rates of Pay," in *Personnel Management Conferences* (Urbana: University of Illinois, 1949, mimeographed).

of pay adjustment, the chief concern should be the quality and quantity of the work the individual turns out on his present job. Rating for transfer and promotion, on the other hand, should give consideration not only to performance on the present job but to personal qualities, experience, skill, and other matters that have a bearing on the individual's usefulness, not only in his present job but on a number of other jobs.

This suggests that ratings for pay adjustment purposes should not be concerned with personality traits or other matters apart from the performance of the present job. Not only are such ratings beside the point, but many of them are difficult to defend. They are often largely matters of opinion and reflect the supervisor's personal standards. Thus, the first approach to rating of performance for purposes of individual wage determination should be on the basis of the job description, i.e., on the basis of what the worker is asked to do in his present job.

The next consideration in performance rating is the standard(s) of performance that governs the individual's work on his present job. The third consideration is the extent to which the employee is measuring up to those standards of performance. It is reasonable to ask the supervisor to appraise the performance of his subordinates in these terms. Also, the duties and responsibilities of a job can be weighted in terms of their importance if that is thought desirable. In this way the individual who performs an unimportant duty very well but who performs a major duty poorly will not receive a rating that overrates his total performance.

This type of rating stresses performance standards. Although precise standards are desirable, they are not required for this purpose. Sufficient precision for administrative purposes is attainable in most cases. For example, one standard for a sales correspondent might be a set of specimen letters. Performance can be easily appraised by comparing carbon copies of letters written with the quality of the specimen letters. Again, one standard for a janitor might be a clean floor. Often a sample of the finished product can provide a standard of performance. These examples are provided to show the possibility of obtaining performance standards even where objective, numerical standards are not available. In rating for pay adjustment purposes, the important requirement is an appraisal of performance.

The supervisor is the key to performance rating. His ability to rate and his cooperation are essential. He must have the opportunity to judge the work of his subordinates. The number of observations must be sufficient and so distributed over time as to provide a fair sampling of performance.

Types of Merit Rating Systems

Although there are many variations of merit rating systems, the basic methods may be classified into three types. Individual plans usually are one of the three basic methods, but they may embody certain aspects of two or more of the basic types. The basic methods have been classified by Mee [30] as follows:

1. Rating scales, including
   a. Graphic rating scale
   b. Multiple-step rating scale
2. Employee comparison systems, including
   a. Paired comparison system
   b. Rank-order system
   c. Forced distribution system
3. Check lists
   a. Weighted check list
   b. Preference check list

All of these methods are in use. Often an organization will employ a different rating system for each purpose to be served.

Rating Scales

Rating scales involve comparing employees to a "standard." They ask the rater to appraise the "degree" of a trait that best describes the employee. The various degrees of the separate traits are usually assigned point values to permit obtaining a total score for each employee when rating is completed.

Rating scales may be figuratively described as "rulers" against which employees are compared. One ruler is developed for each factor or trait to be rated. Then each scale is divided into "inchmarks" or degrees. The traits and degrees are defined to permit

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[30] Mee (ed.), *Personnel Handbook*, p. 289.

the rater to choose the degree which in his judgment best describes the employee.

In form, rating scales typically provide a line for each trait, with the various degrees arrayed along the line in either increasing or decreasing order. See Figure 52. In the graphic rating scale, the line is thought of as a continuum, and the rater may place a check anywhere along the line. In the multiple-step rating scale, one or

Figure 52

EXAMPLE OF A GRAPHIC RATING SCALE

Quality of Work—Accuracy

How would you rate this individual with respect to the quality of the work he turns out, the neatness and accuracy evident in the job he does?

Careless worker. Tends to repeat some types of errors.	Work is sometimes unsatisfactory because of errors or untidiness.	Usually turns out acceptable work. Not many errors.	Checks and observes his work. Quality can be relied upon.	Work is of highest quality. Errors extremely rare, if any. Little wasted effort.

Comments: _____

more boxes are provided in each degree for the rater's check mark. Typically, the extreme degrees have only one box and the intermediate degrees two or more. Thus the multiple-step scale is not a continuous scale—it provides definite marks which the rater must choose from. In actual practice, the degrees in a graphic rating scale come to be regarded as steps and used in that manner.

Rating scales are the most commonly used of merit rating methods and, as a consequence, have the advantage of familiarity. Another advantage is the information available for a discussion of the rating with the ratee. To the extent that those who use the scale all attach the same meaning to the degree and trait definitions, the concept of a "standard" against which employees are compared is an advantage.

If, however, raters do not agree on the meanings of degrees and traits, the "standard" is illusory and becomes a disadvantage. Another disadvantage is a tendency often observed to use the same scale on jobs only roughly similar in nature. In so far as the jobs require

different performance traits, different scales are required. A third disadvantage appears when a total score is obtained after rating. This assumes that good performance on one trait can offset poor performance on another, and this may not be true. Also, it is difficult to find traits or factors that represent separate aspects of performance. To the degree that there is overlapping, one aspect may be inadvertently over-weighted.

Rating scales for employee rating are similar to the rating scales used in the point method of job evaluation. In the discussion of point systems it was pointed out that actual weighting of the scales may be quite different from the weights specified when the system is developed. Thus it is essential that weights be applied after ratings have been completed and checked statistically. This point applies equally to rating scales used for appraising personnel and may be considered by some to be a disadvantage of this method.

Employee Comparison Systems

The employee comparison (ranking) systems provide for comparison of the *relative* performance of the employees in a group, as contrasted to rating scales, which compare employees to a "standard." In many cases where these systems are used, relative over-all performance is rated, rather than performance on each of several factors. The techniques are equally applicable, however, to the use of several factors or traits.

The paired-comparison method was discussed as a technique of ranking jobs in the ranking method of job evaluation. Here, each employee on a given job is "paired" with every other employee on the job. The rater then determines which of the two employees in each pair is better in terms of over-all performance or in terms of each of the factors selected.

The rank-order system of merit rating is a simple, direct method of appraising relative performance of employees on a given job. The rater simply ranks the employees on the job, using as a basis for judgment either over-all performance or separate performance traits or factors. A convenient device to facilitate ranking is to provide raters with a pack of cards, one for each employee. The rater then simply numbers them in sequence.

In both the paired-comparison and the rank-order system it is

possible to obtain a total score by averaging the ranks given an employee by several raters.

In the forced-distribution system the rater is required to distribute the employees among a limited number of categories (usually 5) in such a way that a specified per cent of employees is assigned to each category. Typically, the distribution is as follows: (1) lowest 10 per cent, (2) next 20 per cent, (3) middle 40 per cent, (4) next 20 per cent, (5) highest 10 per cent. Employees may be rated once on over-all performance or several times, once for each of several factors. A simple facilitating procedure is to type each employee's name on a separate card, provide the raters with the pack of cards and ask them to distribute the cards into piles in the percentages specified.

Advocates of employee comparison systems cite as their major advantage greater accuracy of employee appraisal as compared to systems using an absolute standard. They point, for example, to psychological experiments to support the viewpoint that judgments of performance based on such a relative comparison are usually more adequate than those based upon a defined standard. The relative simplicity of rating employees by comparison with each other is an advantage. Because of this simplicity, rater training may be less intensive when employee comparison systems are used. Of the employee comparison systems, probably the simplest and yet most reliable judgments can be obtained from the paired-comparison method.[31]

Such systems encourage comparison only of employees on a given job. Because of this, they provide more useful employee appraisals than systems that use the same scale, for example, to compare employees on different jobs.

A disadvantage of the employee comparison systems is the lack of substantiating information attached to the ratings. Normally only a rating is available, with no further information explaining why that rating was given. If ratings are to be discussed with employees, this lack may be serious. Employee comparison systems, especially the forced-distribution system, assume that employee

[31] C. H. Lawshe, N. C. Kephart, and E. J. McCormick, "The Paired Comparison Technique for Rating Performance of Industrial Employees," *Journal of Applied Psychology*, Vol. 33, No. 1 (February, 1949), pp. 69–77.

performance should follow the normal curve. Obviously, to the extent that an employee selection system is operating successfully, the number of employees at the low end of the scale will be reduced. Forcing a distribution into the normal form where such form does not represent the true picture does not improve the validity of ratings.

A final disadvantage of employee comparison systems obtains when it is desired to compare the ratings of employees on different jobs. Such cross comparison is impossible under such systems because, to be reliable, ratings must be obtained only for employees on a given job.

Check Lists

Merit rating check lists provide a list of statements or phrases regarding employee performance. The rater checks those that apply to the individual in question. Each item in the list has a score that has been derived statistically. The final rating score is obtained by summing the values of the items checked.

The form of the weighted check list and steps in its development were described in Chapter 8 in a discussion of check list job evaluation. A check list for merit rating purposes is made up of a list of statements regarding job performance. In the list are included statements characterizing both good and poor performance.

The preference check list (sometimes called the forced choice technique)[32] includes a number of sets of statements, phrases, or words describing job performance. The rater is required to choose from each set the items most descriptive and least descriptive of the individual. In a set of four items, two are favorable and two are unfavorable. Only one of the favorable items adds to the total score; only one of the unfavorable items detracts from it. The value of the items is determined as in the weighted check list by statistical analysis of items based upon the performance of successful and unsuccessful employees.

The essential feature of the check list method is the difficulty faced by the rater should he wish to determine which of several

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[32] See E. Donald Sisson, "Forced Choice—the New Army Rating," *Personnel Psychology*, Vol. 1, No. 3 (Autumn, 1948), pp. 365–381; Marion W. Richardson, "Forced Choice Performance Reports," *Personnel*, Vol. 26, No. 3 (November, 1949), pp. 205–212.

favorably appearing items are most favorable, and vice versa. This feature is intended to reduce the influence of bias and to result in more objective ratings. The score values are not available to the rater. He is forced to check items which in his judgment are characteristic of the individual. Inherent in this feature are two advantages of check lists. First, reducing rater bias is advantageous.

Second, in the check list the rater is only asked to *report* observations, not to evaluate what he has observed. In other types of merit rating the rater is asked to evaluate the individual's performance, i.e., to form a judgment based upon his observations. In the check list he is only asked to report his observations. The evaluation is performed by the statistical method used to derive the item score.

To be most useful, check lists should be developed for specific jobs or groups of closely related jobs. Thus the items provide a wealth of material for discussion if ratings are to be discussed with employees.

A major disadvantage may accrue from asking the rater to choose from among items the relative value of which is not known to him. This may contribute to lack of acceptance of the system. A disadvantage of the forced choice technique is cited by Yoder.[33] If a rater is forced to make a judgment on something about which he has no knowledge, a principle of merit rating is violated.

The time and expense necessary to develop a check list may make the system too expensive for the smaller organization. Finally, if ratings are discussed with employees, the supervisor is at a disadvantage in that he does not know which items contribute most to successful performance.

Rating Factors

Whatever merit rating method is employed, merit rating for individual wage determination should appraise employee performance. One factor—over-all performance—may be used, or several factors or items which when taken together comprise over-all performance.

Several approaches to the problem of finding performance factors for use in rating are possible. One approach is to use the factors in the job evaluation plan. Where job evaluation factors are written

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[33] Yoder, *Personnel Principles and Policies*, p. 461.

in terms of employee qualifications, the same factors may be used in performance rating.[34] Here rating takes the course of determining the extent to which the employee, as observed on the job, lives up to the requirements.[35] In this way job evaluation determines the standard, and merit rating compares employee performance with this standard.

Another approach is to obtain the performance factors to be rated from the supervisors who will rate the employees. Certainly no one is better able to decide what performance factors are important to the work and which are most important than the responsible supervisor. Such an approach not only yields applicable factors, it also familiarizes the raters with the factors and their definitions.[36] To obtain applicable performance factors and definitions of these factors the conference method is useful.

In a performance rating plan reported by Riegel,[37] executives selected from the following list five or more qualifications on which employees on given types of work were to be rated:

Accuracy	Thoroughness	Interest in work
Speed	Appearance	Supervision required
Cooperation	Dependability	Planning of work
Knowledge of work	Loyalty	Quick and accurate decisions
Ability to learn	Initiative	Letter writing
Courtesy	Tact	Solution of new problems

A qualification, to be selected, must be observable in three or more degrees.

A third approach requires a consideration of the major duties of each job, their relative importance, and how well the employee performs them. Each supervisor is required to weight the several duties of the job according to their relative importance by allocating 100 points among the duties. In rating the employee, the supervisor considers how well the employee is performing each duty. Standard performance is par, or 100. An employee may be performing a given duty at par, above par, or below.

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[34] Riegel, *Salary Determination*, p. 169.

[35] "How to Use a Job Evaluation Plan for Merit Rating," *Factory Management and Maintenance*, Vol. 110, No. 2 (February, 1952), pp. 118–119.

[36] Roger Chartier and A. H. Fuerstenthal, "Merit Rating," *Industrial Relations*, Vol. 8, No. 1 (December, 1952), pp. 85–100.

[37] Riegel, *Salary Determination*, p. 154. Reprinted by permission.

A final approach has been suggested by Flanagan.[38] He proposes that "critical incidents" be used as a factual basis of evaluating performance. "Critical incidents" come from "reports of behavior which were critical in the sense that they made the difference between success and failure in the observed work situation." By obtaining a number of such incidents, factors or items for performance rating are available.

Rating Procedure

Performance ratings for purposes of individual wage determination should be made as often as policy calls for adjustments in pay. The most common interval is six months. Consistent employee comparison requires that all employees in a group be rated at the same time. Rating different employees on similar work at separate times permits variation in the standards of judgment used by raters.

Ratings should be made somewhat in advance of pay adjustments. Riegel [39] suggests one month or more. Having ratings submitted with requests for adjustments in individual rates provides a strong temptation to the supervisor to see that the rating supports the recommendation. Wherever possible two or three persons should rate each employee. This practice tends to offset favoritism and to promote reliability.

Rater Training

Also, raters must be trained. The value of rater training has been repeatedly demonstrated.[40] The practice of having the raters develop the factors and the rating method is an excellent training device. At each rating period, however, it is wise to retrain raters in (1) the necessity of objectivity, (2) use of the rating technique, and (3) how to avoid common rating errors such as central tendency, halo effect, and leniency.

Central tendency or ratings that show little spread are particularly

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[38] John C. Flanagan, "A New Approach to Evaluating Personnel," *Personnel*, Vol. 26, No. 1 (July, 1949), pp. 35–42.

[39] Riegel, *Salary Determination*, p. 153.

[40] Lee Stockford and H. W. Bissell, "Factors Involved in Establishing a Merit Rating Scale," *Personnel*, Vol. 26, No. 2 (September, 1949), pp. 94–115; Clifford E. Jurgensen, "How'm I Doing?" *Personnel Psychology*, Vol. 4, No. 1 (Spring, 1951), pp. 49–62.

amenable to rater training. When raters are cautioned to make ratings conform to the actual dispersion of individual performance, rating results are improved. Halo effect, the tendency to carry the influence of one factor throughout the rating, is also reduced by awareness of the tendency. Leniency can be reduced by ensuring that raters agree on the meaning of the factors or items used.

Rater training is so effective in improving the usefulness of rating results [41] that it is surprising to find its use limited. Spicer,[42] for example, found that many organizations were using merit rating with no rater training whatsoever, and eight companies out of ten in his survey had trained raters less than five hours since the inception of the program.

Research

Finally, any organization employing merit rating should make a continuing study of the forces that affect rating results. They should study the reliability (consistency) of ratings in various uses and using different techniques. They should make inter-departmental comparisons. Results of such research should be used to improve performance rating,[43] particularly through training raters in the factors that influence results.

Union Participation

If a union is present in the organization, union participation in the performance rating program may be desirable. According to rulings of the National Labor Relations Board, merit rating is a proper subject for bargaining. Joint development of the program may be possible. If so, the task of explaining merit rating to employees is facilitated and a more workable system may result. In many cases, however, the union may wish to limit its participation to use of the grievance procedure or some other form of review of results.

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[41] Stephen Habbe, "Better Ratings Through Better Training," *The Conference Board Management Record*, Vol. 11, No. 7 (July, 1949), pp. 310–311.

[42] L. G. Spicer, "A Survey of Merit Rating in Industry," *Personnel*, Vol. 27, No. 6 (May, 1951), pp. 515–518.

[43] Yoder, *Personnel Principles and Policies*, p. 465.

Use of Ratings

After performance ratings of employees have been prepared, their use in individual wage determination may vary from informal guides to a formal dollars-per-point conversion. Many organizations compare ratings of individual employees to those of other employees on the same job or similar jobs and to a standard of performance. The wage or salary adjustment is based in part on these comparisons but is in actual practice an administrative decision made after ratings, length of service, date and amount of last increase, and the budget have all been considered.

For example, one organization employs the following procedure. Employees are rated in April and October on the form shown in Figure 53. Each rating is scored in the wage administration depart-

Figure 53

EMPLOYEE RATING REPORT

Name _____ *Clock No.* _____ *Dept.* _____

Job Name _____ *Code No.* _____ *Employee Rating* _____

CHECK *ONE* ONLY

Please answer the questions below. Don't guess—if you don't know, so state.	*Rarely*	*Occasionally*	*Often*	*Most Always*
1. Does employee exceed time allotted for rest periods?	____	____	____	____
2. Does employee start work promptly morning and noon?	____	____	____	____
3. Does he notify the Supervisor when he is out of a job?	____	____	____	____
4. Does he leave his job for long periods without permission?	____	____	____	____
5. Does he keep his desk and work place clean and orderly?	____	____	____	____
6. Does he return files and equipment promptly?	____	____	____	____
7. Does he willingly accept a different type of job?	____	____	____	____
8. Does he think ahead on his job to avoid errors and waste of time?	____	____	____	____

Figure 53 (Cont.)

	Rarely	*Occasionally*	*Often*	*Most Always*
9. Is he careless with office machinery and equipment?	____	____	____	____
10. Does he assume responsibility for his own faulty work?	____	____	____	____
11. Does he stop work before quitting time?	____	____	____	____
12. Is he cooperative toward general Company policies?	____	____	____	____
13. Does he comply with standard safety precautions and use of safety equipment?	____	____	____	____

Days absent _____ tardy _____ Since _____

A. *Quality of Work*—Consider the employee's neatness, accuracy and ability to perform work that meets established quality standards regardless of volume.

Work is inaccurate with frequent errors and high waste ..... ____

Work is of sub-standard quality, requires checking ..... ____

Work is of acceptable quality with occasional errors ..... ____

Work is of standard quality with occasional errors ..... ____

Work is of better than average quality with few errors ..... ____

Work is of high quality with few errors and minimum of waste ... ____

REMARKS: _____

B. *Quantity of Work*—Consider quantity of satisfactory work produced by the employee under normal conditions in a given period of time.

Frequently fails to do required amount of work ..... ____

Output is reasonably satisfactory with frequent prodding ..... ____

Turns out a satisfactory volume of work with occasional prodding .. ____

Turns out a satisfactory volume of work; normal speed ..... ____

High volume producer, fast worker ..... ____

Unusually high volume producer, very fast worker ..... ____

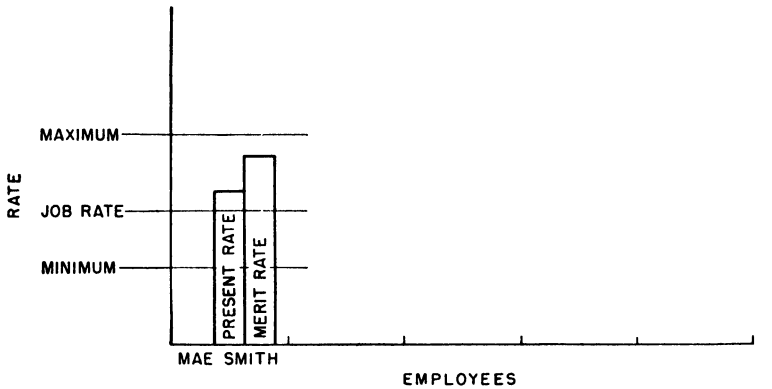
REMARKS: _____

ment by use of a key known only to the administrator. Then a table of conversion points is used to translate the rating scores into wage rates. Next a chart similar to that shown in Figure 54 is

prepared for each department, to show present rate, minimum rate, job rate, maximum rate, and the rate to which each employee is entitled according to his rating.

Figure 54

MERIT REVIEW CHART



After these charts are prepared, the supervisor and wage and salary administrator confer on the pay adjustment due each employee. The agreed-upon adjustment may be zero, the amount justified by performance rating, or some other figure depending upon the other considerations mentioned.

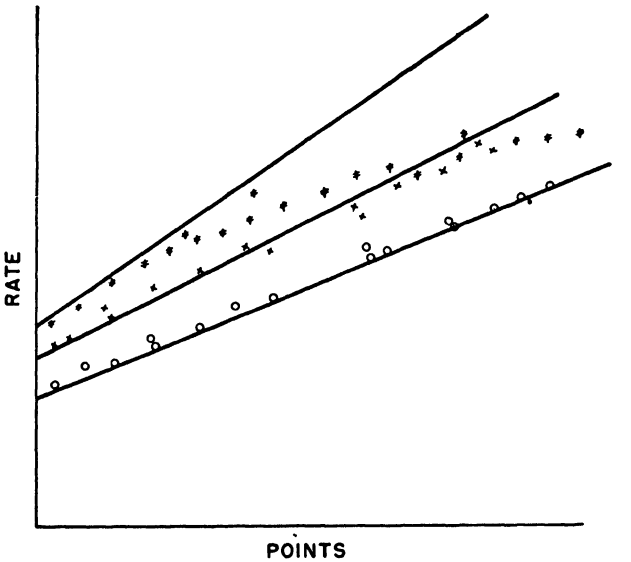
Before the individual wage adjustments are put into effect, however, a chart such as that in Figure 55 is prepared. This chart covers all employees in all departments, with different symbols for each department. This chart is examined by the executive committee (all company officers) as a proposal. If this committee determines that no department is out of line and that the proposal is within the budget, all pay adjustments are approved.

Many organizations, of course, employ a much less formal procedure. For instance, requests by supervisors for employee wage increases may be compared to (1) the minimum, maximum, and midpoint of the applicable range, (2) the employee's performance rating as a ratio of average performance, (3) his last wage increase, and (4) the budget. If all comparisons are favorable, the increase is approved.

A procedure even more formal than the example cited may, however, be used. Riegel,[44] for example, reports several plans in which the performance rating score converted to dollars becomes the new rate of the employee. In some plans, the employee rating is compared to the job rating and the conversion table used in pricing jobs is used to determine the rate of the incumbent.

Figure 55

INTERDEPARTMENTAL COMPARISON CHART



NOTE: (1) EACH EMPLOYEE'S WAGE AND JOB SCORE ARE PLOTTED.
(2) DIFFERENT DEPARTMENTS HAVE DIFFERENT SYMBOLS.

MAXIMUM RATES

Where wage or salary ranges are employed, a maximum rate for the job or labor grade is established. Maximum rates are desirable because an individual's rate on a given job should not be raised indefinitely. Such a practice would tend to force the wage structure out of alignment and to create inequities. It should be understood,

[44] Riegel, *Salary Determination*, pp. 154–169.

however, that maximums do not limit any individual's earnings over any long period of time in well-run organizations. Together with individual wage determination should go promotion policies that open channels for advancement and enable individuals to move from jobs at lower levels in the job structure to jobs at higher levels.

In many organizations, however, there are individuals at the maximum of the range who deserve to be there but who are not worthy of promotion. Continuing such employees at the same wage or salary rate over a period of time concerns some employers. They realize that it would be extremely undesirable to pay a rate above the maximum—that this would create more problems than it would cure—but they worry about the motivation and attitudes of such employees.

Length of Service Bonuses

Some organizations have found a solution to this problem in length of service bonuses. A rubber company, for example, pays such a bonus for multiples of five years' service with the organization. The same amount goes to all employees with the same number of years of service regardless of their job. Thus five-year employees get a certain amount, ten-year employees a larger amount, and so on. The amount is kept small—$100 a year is the maximum bonus. The company reports that the program is sufficient to permit rigid observance of maximum rates.

Other organizations have similar plans. A pharmaceutical company gives a $10 bonus to employees who have between three months and one year of service, two per cent of annual earnings to employees with between one and four years' service, and increases the amount by one fourth of one per cent of annual earnings for each year of service beyond four. The National Industrial Conference Board surveyed forty-five companies in 1947 and found that ten companies provided such length of service bonuses.[45]

Other payments, such as profit-sharing bonuses, that might be employed in this way are discussed later. Length of service bonuses were discussed here to show the possibility of handling the problem

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[45] Geneva Seybold, "Recent Trends in Service Award Plans," *The Conference Board Management Record*, Vol. 9, No. 2 (February, 1947), pp. 21–25.

of employees permanently at the maximum of the range without destroying the integrity of rate ranges.

SUMMARY

Individuals, not jobs, receive paychecks. Most organizations pay different employees on the same job different rates of pay on the theory that individuals differ in proficiency. This raises the problem of individual wage determination. The solution calls for a wage or salary range and a method of paying individuals within the range. Ranges normally consist of a minimum rate and a maximum rate, with a midpoint corresponding to the job rate obtained from the solution to the problem of structure. Individuals may be placed within the range automatically according to length of service, or by merit, or a combination of the two may be employed. Merit progression is accomplished by evaluating the performance of employees. This performance appraisal is called merit or performance rating. In theory at least, employees turning in superior performance should receive rates near the maximum of the range and marginal employees should receive rates at or near the minimum. Merit progression has been replaced in many jobs in recent years by automatic progression. To many managers this represents an abdication of management responsibility.

PART FIVE

The Problem of Wage Payment Method

12 · *Incentive Plans for Wage Earners*

THE PROBLEM OF WAGE PAYMENT METHOD

Wage payment method must take one of two forms. One method is to pay the man for the time he spends on the work. The other method entails paying him for the amount of work he does.[1] All other arrangements involve combinations of these basic methods. The problem of wage payment method requires for its solution: (1) a decision on which of these two basic methods of wage payment will be employed, and (2) policies and procedures for implementing this decision.

Actually, the two methods of calculating compensation are not as diverse as the above statements suggest. As emphasized previously, contribution is the basis upon which employees are paid in free economies. Employees are placed on jobs that call for effort and some form of result. At that point, the question emerges—Should employees be paid for time spent on that job or for results obtained while spending this time? Thus although the two methods of calculating payment are basically different, they both represent payment for contribution. The difference is in the way such contributions are measured.

Any organization employing people is faced with the problem of wage payment method. Two organizations may have identical wage levels and even identical wage structures and yet base compensation on different methods of payment. Further, each organ-

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[1] H. L. Gantt, *Work, Wages, and Profit* (New York: McGraw-Hill Book Company, Inc., 1913), p. 61.

ization may be justified in believing that its particular method is best for it.

This suggests that the problem of wage payment method is best approached by an examination of the relative advantages and disadvantages of the two basic methods of wage payment. Also pertinent are the conditions under which each method seems particularly appropriate.

TIME WAGES VS. OUTPUT WAGES

The majority of workers in the United States are paid on a time basis.[2] Rates are fixed by the hour, day, week, or some other period without direct relation to worker output. Time payments probably stem from agricultural systems where the worker got his share either in produce or money at the end of the season. Historically, there is a basis for time payments in church rulings which fixed a fair and just wage on an annual basis.[3]

Time wages are simple to calculate. Once the hourly wage rate and the hours worked are given, simple multiplication provides weekly earnings. From a wage accounting standpoint, therefore, time wages are the more convenient. The fact that some unions prefer time wages may be another advantage. Some organizations prefer time wages for employee relations reasons. They base their reasoning on studies showing the complexity of employee motivation [4] and take the position that such motivation is attainable more directly through good personnel practices than through relating wages directly to output.

Systems of time wages may be installed and maintained for another reason, not too often discussed. According to one authority, in plants where scheduling is loose and where frequent delays occur, management may prefer time wages to cover up basic weaknesses in routing and scheduling production.[5]

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[2] Douty, *Wages: An Introduction*, p. 11.

[3] H. G. Heneman, Jr., "Methods of Wage Payment," in *Personnel Management Conferences* (Urbana: University of Illinois, 1949, mimeographed).

[4] See, for example, Lawrence G. Lindahl, "What Makes a Good Job?" *Personnel*, Vol. 25, No. 4 (January, 1949), pp. 263–266.

[5] Heneman, "Methods of Wage Payment," in *Personnel Management Conferences* (Urbana: University of Illinois, 1949, mimeographed).

To some, the fact that time wages are not related to output is a disadvantage of this method of wage payment. They state that such arrangements provide no recognition of individual differences among employees, that the employee is often unable to see a relationship between what he does and what he gets paid, and that time wages penalize outstanding employees.[6]

Others emphasize disadvantages to employers. They refer to the fact that time wages make for difficulty in planning unit labor costs in advance. Or, more seriously, that a "fair day's work" is normally not attainable under a system of time wages. Michael,[7] for example, states that it is estimated that time workers produce at only about 60 to 70 per cent of the average level of output attained by incentive workers because of the time spent by the former in talking and other nonproductive activities and because they do not work so hard.

A smaller but growing proportion of employees is paid some form of output wages.[8] One estimate places the number of employees in U.S. industry covered by incentive systems at about 50 per cent and reports a prediction that by 1962, 60 per cent of all employees will be on incentive.[9]

Historically, incentive wages or piecework wages were paid to craft workers because they turned out pieces of product, and payment by the piece seemed logical. Systems of industrial homework which characterized the transition between the guilds and the factory system were difficult to supervise. Because of the difficulty in deciding how long it took to turn out a given product, payments to such workers were made by the piece.

Incentive wage plans were used in some factories from the beginning of the factory system.[10] Expanding interest in such plans appeared early in the nineteenth century as factories grew larger. It remained for Frederick Taylor, however, to spotlight interest in output payment methods. As will be seen later, this renewed

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[6] Heneman, *ibid.*

[7] Michael, *Wage and Salary Fundamentals and Procedures,* p. 175.

[8] John W. Roberts, "Trends in Incentives for Production and Maintenance Employees," *Advanced Management,* Vol. 18, No. 1 (January, 1953), p. 49.

[9] "The Controversy Is Still Going Strong," *Business Week,* March 7, 1953, pp. 112–114.

[10] Mee (ed.), *Personnel Handbook,* p. 202.

interest served to stimulate the birth of numerous incentive plans distinguishable mainly by the names of their authors.

Output wages possess the advantage of basing compensation directly upon results obtained from work. Employers are thus able to estimate reliably their unit labor costs. Also, individual differences in employee performance are recognized and compensated. Employees are able to perceive clearly the relationship between what they do and what they get paid. But most important to the exponents of output wages is the fact that employees under such plans turn in a "fair day's work" for a "fair day's pay." [11]

Output wages also have disadvantages. They may increase accounting and wage administration costs, for example. Further, they require uniform and dependable conditions of work. Measurement difficulties in defining a "fair day's work" represent a disadvantage which will be elaborated upon later in this chapter.

Probably the most serious disadvantage of output wages, however, is the opportunities they provide for disrupting employer-employee relations. Employee attitudes toward the incentive principle may be unfavorable. The intense competition between employees which may result from the plan may disrupt social relationships. Wage inequities may appear that are costly in terms of employee morale.[12] Fortunately, most of these opportunities for discord can be forestalled by proper regard for employee and union opinion before and after installation of an incentive wage system.[13] In fact, careful attention to human problems of incentive wage plans may be more essential than attention to technical aspects.[14]

Criteria for Decision

The above discussion of the relative advantages and disadvantages of time wages and incentive wages seems to suggest that the matter is one for the individual employer to decide—that either type of wage payment method may be used in any situation. Actually, the

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[11] Michael, *Wage and Salary Fundamentals and Procedures*, p. 175.

[12] See Whyte, "Economic Incentives and Human Relations," *Harvard Business Review*, Vol. 30, No. 2 (March–April, 1952), pp. 73–80.

[13] Pigors and Myers, *Personnel Administration*, pp. 272–276.

[14] Warren N. Whitlinger, *The Human Aspects of Industrial Engineering* (Madison: Industrial Management Institute, University of Wisconsin, March 17, 1953, mimeographed).

problem is not quite that simple. There are situations where time wages have been found particularly applicable and circumstances where output wages are preferable. Such criteria are useful in pointing out the general conditions under which each of the two wage payment methods is particularly applicable.[15]

Time wages appear preferable when (1) units of output are difficult to distinguish and measure, (2) employees are unable to control quantity of output, (3) there is not a clear relationship between effort and output, (4) delays in the work are frequent and beyond employee control, (5) quality considerations are especially important,[16] (6) good supervision exists and supervisors know what a "fair day's work" consists of, (7) precise advance knowledge of unit labor costs is not required by competitive conditions.

Similarly, output wages appear more desirable when (1) units of output can be measured, (2) there is a clear relationship between employee effort and quantity of output, (3) the job is standardized, the work flow is regular, and delays are few or consistent, (4) quality is less important than quantity or, if quality is important, it is easily measured, (5) supervision is poor or supervisors have too many demands on their time to permit close attention to individual performance, (6) competitive conditions make it imperative that unit labor costs be definitely known and fixed in advance of production.[17]

These criteria suggest that there are conditions under which time wages are especially appropriate and circumstances where output wages are more desirable. It is clear that neither output nor time wages is preferable under all circumstances. The considerations are, however, sufficiently general to leave a good deal of room for employer decision.

A method of wage payment cannot be selected wisely until the parties are familiar with the workings, advantages and disadvantages, and conditions of best usage of specific plans. For that reason this chapter is devoted to an examination of wage payment plans applicable to rank and file employees and to principles of installation,

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[15] See Sumner H. Slichter, *Union Policies and Industrial Management* (Washington: Brookings Institution, 1941), Chapter X; Dickinson, *Compensating Industrial Effort*, Chapter 5.

[16] Although it is possible to base an incentive system entirely upon quality. See Mee (ed.), *Personnel Handbook*, p. 232.

[17] Slichter, *Union Policies and Industrial Management*, pp. 288–291.

operation, and maintenance of incentive wage plans. The following chapter deals with wage payment methods for supervisors and executives and Chapter 14 with profit sharing and guaranteed wage plans, which represent wage payment methods sufficiently distinct to require separate treatment.

WAGE PAYMENT PLANS

It was suggested previously that the dichotomy—time wages and output wages—was not in actual practice clear-cut and distinct, that there were various combinations of these basic wage payment methods. It will be useful, therefore, to discuss first the pure time payment method and the plans that shade into the output payment methods. Then the various systems of output (incentive) wages can be considered.

Daywork

Where the method of wage payment is based upon time on the job, the wage plan is often called "daywork." The usual time unit is an hour, and wage rates are stated in hourly wage rates. Wages are computed by multiplying hours worked by rate per hour. Where an employee works overtime and either contract provisions or legislation requires premium payments for such overtime, the hourly rate is increased for overtime hours.

Advantages and disadvantages of daywork were outlined previously in the discussion of time wages. Conditions of applicability were also specified. Where daywork is employed, individual wage determination follows the pattern laid down in Chapter 11.

Measured Daywork

Where "measured daywork" is employed, employees are paid under the daywork system, but hourly rates are revised periodically in accordance with employee performance. Employee performance is judged relative to standards [18] which are formally set. Employee

[18] "Standard: A unit of measurement expressing a desired level of performance which it is necessary to attain under a wage payment or other plan." *Glossary of Terms Used in Methods, Time Study, and Wage Incentives* (New York: Society for Advancement of Management, 1952), p. 23.

performance is evaluated by the use of merit rating, usually quarterly, and wage rates are adjusted in accordance with such ratings.

It will be observed that this plan is similar to methods outlined in Chapter 11. One difference is that standards employed in measured daywork are usually more formal than those employed under the usual daywork plan, and employee review is more frequent. Time study [19] may be and often is used in setting standards under measured daywork. Another difference is that usually revision of the hourly rate may be either up or down.

Some advantages attributed to this system are: (1) workers can understand the plan; (2) foremen are brought closer to employees because individual supervision is necessary and because the foreman must rate his employees; (3) time standards may be changed without arousing fear and antagonism in the worker; (4) workers cooperate in improvements in methods because this improves their ratings; (5) faster workers are paid in accordance with their efforts; (6) all job standards are time standards rather than money standards, and as such facilitate interdepartmental and time-to-time comparisons.[20]

Disadvantages of the measured daywork plan may be: (1) a gradual decline in effort may occur, (2) some exceptionally fast workers may be discouraged by failure of the plan to compensate properly for their exceptional productivity because a limit is often placed upon hourly rates of jobs, (3) a gradual departure from absolute standard has been observed.[21]

Measured daywork is applicable where measurement of output is feasible but a strong incentive is not deemed desirable. Strong supervision is a definite requirement of the plan. This plan has been used successfully by General Motors with approval of UAW-CIO.[22] This type of plan is often employed in clerical incentive installations.

It should be noted that measured daywork can be used without

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[19] For a discussion of time study, see section on technical requirements later in this chapter.

[20] Russell A. Hedden, "Measured Daywork," *The Conference Board Management Record*, Vol. 8, No. 10 (October, 1946), pp. 321–322.

[21] Hedden, *loc. cit.*

[22] Robert W. Collett and Robert Joy, *The Pros and Cons of Wage Incentives* (Madison: Industrial Management Institute, University of Wisconsin, January 9, 1951, mimeographed), p. 3.

the incentive feature. Thus actual production may be compared to standard, but wage rates may not be changed in accordance with results. In these instances it is used as an aid to supervision and a control of labor costs.[23]

Multiple-Time or Double Daywork

The "multiple-time" plan is similar to straight daywork in that compensation is calculated by multiplying hourly rate by time worked. Two hourly rates are employed, however. One applies to all employees who fail to make standard. The other (usually 20 per cent higher) applies to all workers who equal or exceed standard. This is a strong incentive feature.

Advantages are: (1) payroll calculations are simple, (2) a strong incentive is provided to reach standard but none to exceed standard, thus making labor costs easier to calculate in advance, (3) only two rates are possible and no inequities are produced by the system, (4) workers have no difficulty understanding the plan, (5) supervision is easier, (6) cooperation of employees is improved. The principal disadvantage is that exceptional employees are not rewarded in accordance with their performance.[24] Also, it applies the incentive feature only up to standard performance.

The plan is effective where it is important to give workers a strong incentive to reach and maintain standard, but it is not desired to encourage workers to exceed the standard.

Incentive Plans

The above wage plans have incentive features but are primarily time payment plans. Discussion now turns to the various plans where payment is determined by results. Various shadings occur here as well, however. Today, many incentive plans carry a guaranteed base rate which is paid to employees who fail to reach standard production, and some authorities believe this to be a requirement

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[23] W. H. Franklin, "Control Through Measured Day Work," *Seven Control Techniques for Effective Management* (Urbana: Business Management Service, University of Illinois, May 17, 18, 1950, mimeographed), pp. 40–48.

[24] H. Barrett Rogers, *Wage Incentive Problems and Techniques* (Madison: Industrial Management Institute, University of Wisconsin, September 11, 1952, mimeographed), pp. 15–16.

of a good plan.[25] This guaranteed base rate is an hourly rate and is usually determined by job evaluation. Thus incentive plans may include elements of the time wage method.

Many incentive plans have been devised. In many cases the name of the designer appears as the biggest single difference.[26] There are several possible ways of classifying plans in order to emphasize such differences as do exist.

For example, it is possible to classify incentive plans according to the proportionality of changes in earnings and output.[27] Also, it would be possible to classify plans as to whether or not a guarantee is provided employees who fail to reach standard. Again, it might be feasible to classify plans as to whether a high or low standard is employed in the system.

The factors on which such classifications would be based are important and deserve discussion. The basis of classification used here is less precise, but, it is hoped, more useful for pointing out essential features of the various plans. Incentive plans are classified into (1) piecework and standard hour plans, (2) sharing plans (results of additional productivity are shared between employers and employees), and (3) selective plans (plans which encourage efficient employees and discourage inefficient employees).

Piecework and Standard Hour Plans

The chief characteristic of such wage plans is that all gains or losses in the output of a worker go to him. This contrasts with time wages, where all gains and losses in output accrue to the employer. It also contrasts with sharing plans, in which gains and losses are shared between the employer and the employee.

Another characteritic of such plans is the proportional relationship between output and earnings at all levels of production. Thus additional output is equally profitable to the employee regardless of previous output. This contrasts with selective plans where additional output may be more or less profitable to the employee depending upon the level of his production.

A third characteristic of plans of this type is the high standards upon which they are based. Such plans make use of "high task"

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[25] Louden, *Wage Incentives*, p. 46.

[26] Yoder, *Personnel Management and Industrial Relations*, p. 398.

[27] See *Payment by Results* (Geneva: International Labour Office, 1951), p. 5.

or 100 per cent efficiency, which is "an amount of production derived through motion and/or time study which a normal operative can accomplish day after day without physical or mental impairment." [28] "High task" may be contrasted with "low task," which is obtained from past production records and is assumed to be at the 62½ per cent level of efficiency.[29] Sharing plans are often based upon low task.

Piecework and standard hour plans for successful operation require extreme accuracy in measurement of both standards and individual output. Inaccuracy in these measurements gives rise to wage inequities and may result in failure of the plan due to employee dissatisfaction.

Straight Piecework. This is the most common type of incentive plan.[30] Piecework is sufficiently familiar, even to the layman, as to require almost no explanation. Straight piecework pays a man so much for each item produced. If Jim Green gets $.10 apiece for stamping out lid covers, he knows that if he turns out 100 covers a day he makes $10, and if he can turn out 1,000, he will make $100. Thus straight piecework pays a man for what he does and leaves him free to choose his own rate of speed.

Piece rates are set for specific jobs. Through time study a time standard is set. By applying the time allowed to perform the job against the base rate, a rate per piece is determined. Thus, if Jim Green in the above example holds the job of punch press operator the rate for which is $1.10 per hour, and the time standard for stamping out lid covers is determined to be 11 lid covers per hour, the piece rate is $.10 per piece. Workers have no difficulty in calculating their earnings or understanding the system where the straight piecework plan is used.

Frequently, the strict proportionality of piecework is modified by guaranteeing the employee's time rate when he fails to make standard. Under guaranteed piecework Jim would be paid $1.10 for each hour in which he failed to stamp out 11 lid covers. For any hour in which he turned out 12 or more, however, he would be

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[28] Mee (ed.), *Personnel Handbook*, p. 220.
[29] Mee (ed.), *Personnel Handbook*, p. 220.
[30] Michael J. Jucius, *Personnel Management* (Chicago: Richard D. Irwin, Inc., 1951), p. 375.

paid by the piece. Generally, this time rate or guaranteed base rate is set for each job by job evaluation.

Direct labor costs are constant for all levels of output where no guarantee is used. When base rates are guaranteed, direct labor costs are constant for all levels above standard. Total unit costs, however, decrease for levels of production above standard because fixed costs decline when spread over greater output.

Chief advantages of straight piecework are its simplicity in calculation, incentive value, and understandability. It is most just in principle. It is flexible. It also facilitates cost accounting, because labor costs are constant for outputs above standard.

Its primary disadvantage is the unsavory reputation it has attained through rate-cutting practices on the part of employers. Another disadvantage results from the fact that standards are expressed in monetary terms. Thus all changes in wage levels call for changing the piece rate, a tremendous amount of clerical work. Also, it is impossible to separate the standard and the rate. This, in the eyes of industrial engineers, makes it difficult to change standards even when such revision is agreed to by the parties. Any change in the rate appears to weaken the confidence of the employee in the system. Some authorities insist that time study must be carefully separated from the amount of money earned.[31] This is impossible where a piecework system is employed.

Piece rates do not lend themselves readily to situations where it is desired to incorporate other factors besides quantity into the plan. Also, piece rates present difficulties where employees with more than one base rate are involved.

Under a straight piecework plan it is impossible to reward employees for seniority or merit.[32] Because rate and standard are inseparable, every employee producing a given piece must receive the same rate. To most employers this does not represent a disadvantage, because employees are paid either according to the principles of individual wage determination outlined in Chapter 11 or according to earnings under an incentive plan. Where an employer does, however, wish to combine the methods, the straight piecework method is not applicable.

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[31] Louden, *Wage Incentives*, p. 38.

[32] Rogers, *Wage Incentive Problems and Techniques*, p. 19.

Although applied to almost every possible situation, piecework is most applicable to short-cycle, repetitive jobs.

The Standard Hour Plan. This system, sometimes referred to as the "standard time plan," "time piecework," "hour-for-hour plan," or "100 per cent bonus plan," is essentially the same as the straight piecework system. In fact the only major difference between straight piecework and the standard hour plan is that, under the latter plan, the standards are expressed in time per unit of output rather than money. It is becoming increasingly popular.[33]

The standard hour plan and the straight piecework plan both reward employees in direct proportion to their output. However, in the case of the standard hour plan, instead of a price per piece, a "standard time" is allowed to complete a particular job, and the employee is paid for the standard time at his time rate if he completes the job in standard time or less. Thus, if an employee completes in eight hours a job for which the standard time is ten hours, his earnings for the job are ten times his time rate. If he takes more than standard time to do the job, he will be paid at his time rate for the time actually spent on the job.

Advantages of the standard hour plan are the same as those under straight piecework with the additional advantage of standards being stated in time units. This system, however, is much easier to administer in group installations. Also, this method permits comparison of relative performances of departments and individuals without difficulty. All disadvantages of straight piecework are met by this system. Louden, in a comparison of several wage incentive systems, found this plan the only one that met his criteria for a successful plan.[34]

The plan is applicable in any situation where piecework is applicable. It is much more applicable than piecework on long-cycle, nonrepetitive jobs requiring the use of many different skills.

Figure 56 depicts the manner in which earnings and direct labor costs vary under straight piecework and under the standard hour system. Two curves of earnings are shown, which represent what are probably the upper and lower limits of present practice. Both employ high task as standard. Curve 1 illustrates a plan where

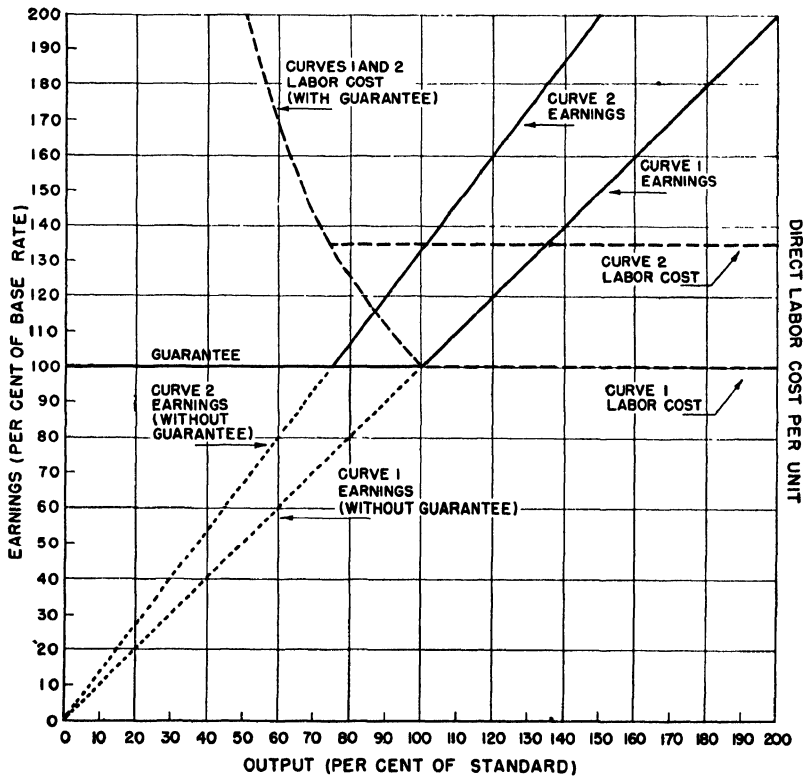
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[33] Rogers, *Wage Incentive Problems and Techniques*, p. 19.
[34] Louden, *Wage Incentives*, Chapter V.

135 per cent of base rate is paid at 135 per cent efficiency. Curve 2 illustrates a plan where 135 per cent of base earnings is paid at 100 per cent efficiency. Either plan may exist with or without the guarantee. Standard hour plans, however, usually guarantee the time rate.

Figure 56

EARNINGS AND DIRECT LABOR COSTS FOR STRAIGHT PIECEWORK AND STANDARD HOUR PLANS



Other piecework plans (other than straight piecework) are discussed in a later section. They are selective plans and will be discussed with other plans falling into that category.

Sharing Plans

In these plans the worker shares with his employer gains and losses resulting from varying output. Such plans are often applied in situations where it is not possible to set standards accurately or to measure worker output with precision. Sharing plans are seldom used if the type of work and the time study procedures can yield accurate and tight standards.[35]

All of these plans except the Barth guarantee the employee his time rate for output below a specified level. Thus, in these plans, direct labor costs per unit of output below this point are equal to those under straight piecework or standard hour plans. Labor costs above standard are below those under straight piecework because of the sharing feature.

The Halsey Plan. Under the Halsey plan, a standard time, which is usually set from past production records, is allowed for completion of a piece of work or job. If the work takes this amount of time or more than this amount of time, the employee is paid a wage equal to his time rate for the time actually spent on the job. Thus the worker is guaranteed a minimum wage for output below standard. If, however, the job is completed in less than standard time, the worker is paid his time rate for the actual time taken and receives, in addition, a bonus at his time rate for the time saved. In practice, the bonus is calculated to give the employee from 30 to 70 per cent of the time saved, but the most usual percentage is 50. The other 50 per cent is the employer's share. For example, if a worker's hourly rate is $1.00 and the standard time for a job is five hours, completing the job in four hours calls for payment of $4.00 ($1.00 × 4) and, assuming 50-50 sharing, a bonus of $.50 ($1.00 × ½ hour). Thus he would receive $4.50 for four hours worked—$1.125 per hour instead of his base rate of $1.00 per hour.

It should be noted that standard time under the Halsey plan is often set from past production records. This means that such standards are below those set by time study. It is usually assumed that such standards represent approximately 62½ per cent of normal standards.[36] Even where standards are set by time study, there may

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[35] Rogers, *Wage Incentive Problems and Techniques*, p. 16.
[36] Mee (ed.), *Personnel Handbook*, p. 228.

be cases where there is a good reason for setting the task at this low level. Some situations might be in fast-changing jobbing work, in maintenance work, or in multiple-duty jobs in an office. The plan is also found where groups of jobs are loosely standardized and where the efficiency of the group is taken as the basis of pay for all members of the group. It is found in about 3 per cent of American factories.[37]

The reason for the sharing arrangement is that standards are loose and set at a low level. If these conditions do not exist, the reason for sharing disappears and the worker is entitled to the full savings. Such a plan is called the 100 per cent time-savings plan and yields the same results as piecework.[38]

Advantages of the Halsey 50-50 plan are: (1) standards are stated in time units, thus eliminating many of the disadvantages mentioned in connection with piecework; (2) since the bonus is based upon time saved, a positive employee attitude toward time saving may be fostered; (3) the employee is enabled to earn more bonus at a relatively low performance.

The sharing arrangement makes for the major disadvantage of the system. Employees may be prone to resent sharing results of their additional productivity with management. Likewise, such an arrangement does not make for understandability of the plan on the part of employees. Also, the varying labor cost makes the plan undesirable from a budget and cost viewpoint.

In view of modern techniques of time and motion study, it is difficult to justify such a plan in most installations. If it is desired to enable employees to earn a bonus at a low percentage of efficiency, a plan such as the standard hour plan illustrated in Curve 2, Figure 56 would serve this purpose.

Figure 57 illustrates the manner in which employee earnings and direct labor costs vary with output under the Halsey 50-50 system.

The Rowan Plan. In the Rowan plan, as in the Halsey plan, a standard time is allowed for completion of a job, and a bonus is paid for any time saved. The bonus in the Rowan plan, however, takes the form of a percentage of the employee's time rate. The bonus percentage is equal to the proportion of time saved to stand-

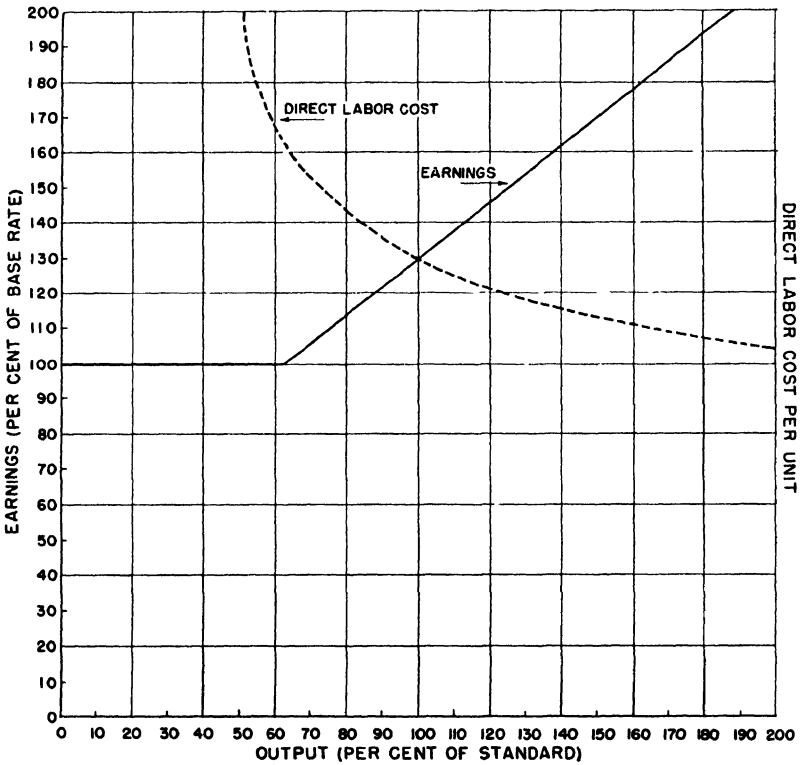
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[37] Mee (ed.), *Personnel Handbook*, p. 228.
[38] Jucius, *Personnel Management*, p. 378.

ard time. Thus, if an employee's hourly rate is $1.00 and he completes in four hours a job for which the standard time is five hours, the bonus percentage is 20 per cent since the time saved (one hour) is 20 per cent of the standard time (five hours). The worker is paid for the time he took to do the job (four hours) at his hourly rate ($1.00) plus 20 per cent. He will thus be paid $1.20 per hour, and his total pay for this job will be $4.80. The employee is guaranteed his time rate if he fails to reach standard.

Figure 57

EARNINGS AND DIRECT LABOR COSTS UNDER THE HALSEY (50-50) SYSTEM



The Rowan plan, like the Halsey plan, was devised when standards were set not by time study but, usually, from past production

records. Under the plan, wages increase with output but at a decreasing rate, and, regardless of output, it is impossible for an employee to make more than twice his hourly rate. There is thus no incentive for the employer to cut the rate.

One advantage of the Rowan plan is its use of time standards. Secondly, the emphasis is upon time saved by the employee. A third advantage might be the lack of reason for management to cut rates.

A major disadvantage of the plan is its complexity. It is not simple to explain to employees, and calculations of earnings are time consuming. Second, the sharing arrangement is not likely to be favored by employees. Third, budget and cost considerations are made difficult by the varying labor costs under the plan.

The Rowan plan may be applied where there are variable working conditions and operations and where the parties insist that only one plan be used. It may also be useful in the case of learners who need encouragement within the narrow limits of their capacity.[39]

If high-task standards are available, but still a plan is desired that will protect the company against excessive labor costs from occasional loose standards, a modified Rowan plan may be employed. Here bonus is deferred until 100 per cent efficiency. This plan is probably more adaptable to wide variations in work than any other single plan, according to Rogers.[40] Daywork wages are guaranteed for all levels of efficiency below 100 per cent. A strong incentive to reach and maintain a high standard of performance is provided.

Figure 58 illustrates the operation of the Rowan plan at both low-task and high-task standards on earnings and direct labor costs.

The Barth Variable Sharing Plan. This plan is similar to the Halsey and Rowan plans. It also is based on standard time. A guaranteed time rate is not provided, however. An employee's pay is determined as follows: (1) multiply standard time by actual time taken to do a job; (2) take the square root of this product; and (3) multiply this result by his time rate. Thus, if standard time for a job is five hours, an employee's actual time four hours, and his hourly rate \$1.00, his wage for the job is $\sqrt{5 \times 4} \times \$1.00 = 4.47 \times \$1.00 = \$4.47$.

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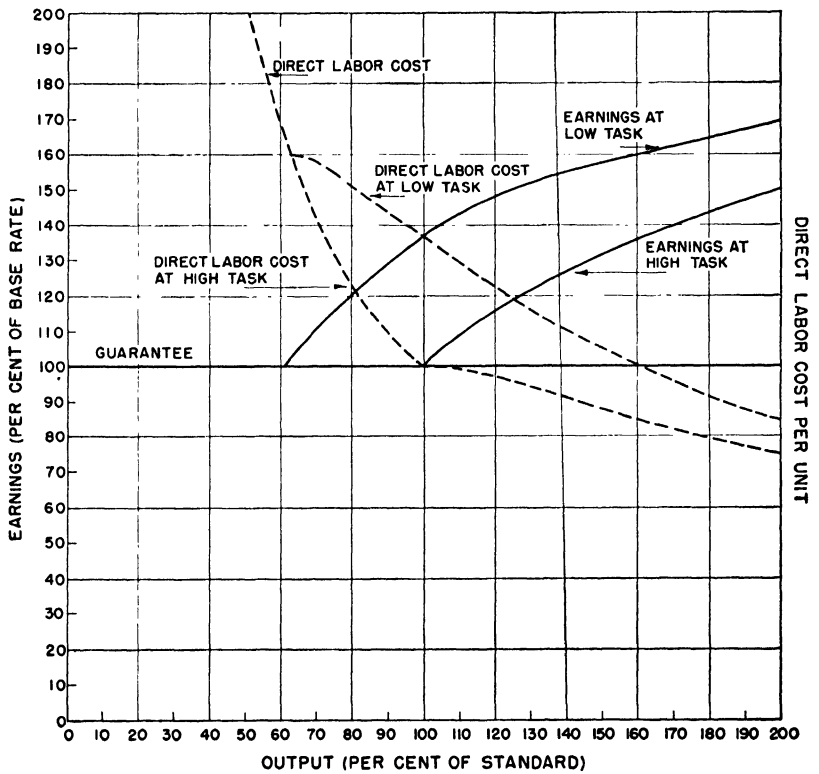
[39] Jucius, *Personnel Management*, p. 381.

[40] Rogers, *Wage Incentive Problems and Techniques*, p. 17.

This plan, like the other previously discussed sharing plans, was developed when standards were set by past production records. Low task is therefore assumed as standard under the plan. Since no guarantee was provided the worker, it was necessary to offer a strong incentive to reach standard. At points above standard the incentive is less strong.

Figure 58

EARNINGS AND DIRECT LABOR COSTS UNDER THE ROWAN PLAN



The Barth plan, like the other sharing plans, has the advantage of employing time standards. Similarly, its incentive value comes from completing tasks in less than standard time. Also, there is

little reason for management to cut rates because of the reduced incentive at higher levels of output.

Its chief disadvantage is its complexity. Few employees can readily understand its operation. It probably cannot be explained to employees without the aid of earnings tables.[41] Calculation of employee compensation is both complex and time consuming. Also, like the Halsey and Rowan plans, varying labor costs are not convenient for budget and cost purposes.

The plan may be appropriately applied to beginners. Also, it is a plan that according to one authority,[42] can be safely used for all degrees of skill qualification and do no injustice. It is recommended only for small shops where full skill takes time to acquire.

Figure 59 depicts variations in earnings and direct labor costs under the Barth plan. Two curves are illustrated—one for high and one for low task.

The Bedaux Plan. In the Bedaux plan, the standard time for a job is determined by time and motion study. Allowed time is stated in "points" or "*B*'s." A *B* is the amount of work plus a suitable proportion of rest which is found to be normal for one minute. Sixty *B*'s are standard performance per hour. A standard number of points is specified for completion of each job. An employee receives, in addition to his hourly rate, a bonus, which, under the original Bedaux system, was equal to 75 per cent of the number of points earned in excess of 60 per hour multiplied by one sixtieth of the hourly rate. Thus, if standard for a job is five hours, actual time is four hours, and the hourly rate of the employee $1.00, bonus computation is made as follows: (1) 300 points (5×60) were earned in 4 hours which means the employee earned 60 ($300 - 240$) extra points; (2) bonus therefore equals 75 per cent of ($60 \times \$1.00$) $\div$ 60, which is $.75. Since his time wage for four hours is $4.00, his total earnings for the job are $4.75. If an employee does not reach standard, he is paid at his time rate. In the original Bedaux system the 25 per cent not paid out to employees was placed in a pool to be used for a supervisory bonus.[43]

Today where the Bedaux plan is employed, the sharing feature does not exist, i.e., employees are paid a bonus of 100 per cent of

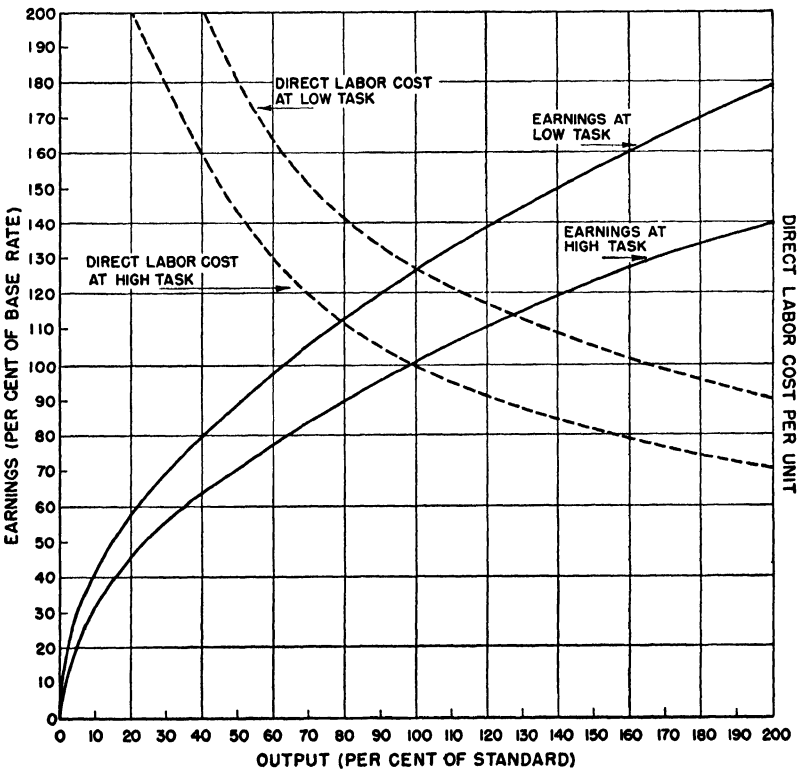
[41] Mee (ed.), *Personnel Handbook*, p. 229.
[42] Mee (ed.), *Personnel Handbook*, p. 229.
[43] Louden, *Wage Incentives*, p. 43.

all production above standard. Where this is the case, the plan is equivalent to straight piecework with guarantee.

Standard in the Bedaux plan is usually set so that when employees reach 100 per cent of production they are paid 120 per cent of base earnings. This might be called intermediate task.[44]

Figure 59

EARNINGS AND DIRECT LABOR COSTS UNDER BARTH VARIABLE SHARING PLAN



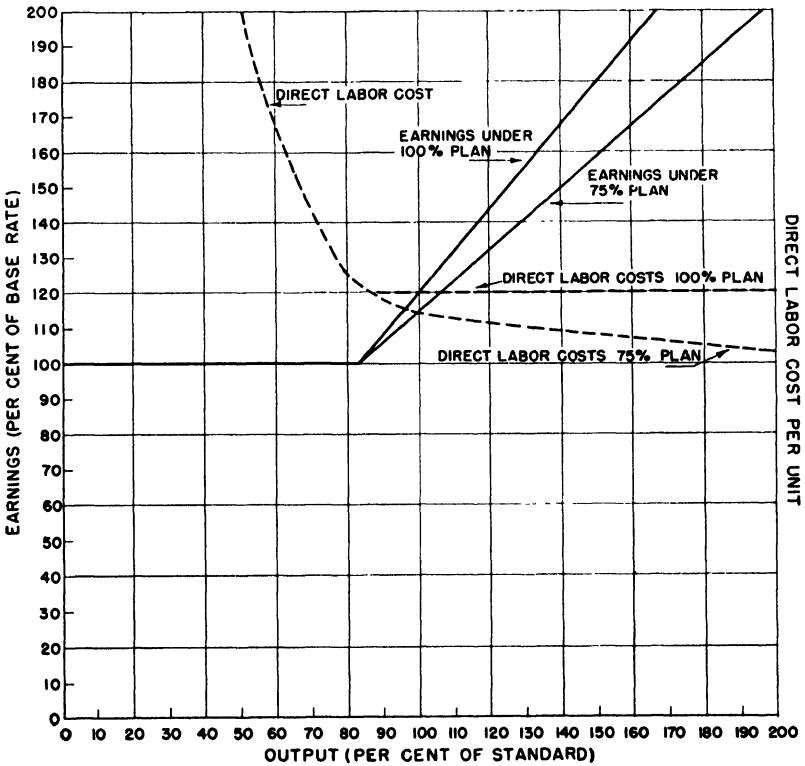
Actually the Bedaux plan is more than an incentive system. The units permit production and cost control. Similarly, they enable forward planning of production and costs. Comparisons between

[44] Mee (ed.), *Personnel Handbook*, p. 231.

the relative efficiency of individuals, supervisors, departments, and so on are made possible. The plan was originally devised to provide for a situation where workers were shifted often from one job to another. For this reason, it was often installed in jobbing operations. About 15 per cent of factories in the United States use the plan.[45]

Figure 60

EARNINGS AND DIRECT LABOR COSTS UNDER BEDAUX PLAN



Advantages of the plan are: (1) time standards, (2) emphasis on time saving, and (3) a common unit of comparison throughout the organization.

[45] Mee (ed.), *Personnel Handbook*, p. 231.

Disadvantages are: (1) complexity, (2) difficulty of explaining it to employees, (3) the sharing feature (where used), and (4) varying labor costs (in the 75 per cent plan). Where the sharing feature has been eliminated, results are identical with piecework with a guarantee.

Figure 60 illustrates variations in earnings and direct labor costs for both the 75 per cent and the 100 per cent plans.

Selective Plans

The following incentive wage plans are called selective plans because they are devised to encourage efficient workers and discourage inefficient workers. Employees who reach high levels of output are paid at higher rates and encouraged to produce at even higher levels. Employees who fail to reach standard are penalized by lower rates and are thus encouraged to quit.[46]

The Taylor Plan. In the Taylor plan a standard based on time and motion study is set for the job. Below this standard, a very low piece rate is paid. Above this standard, a high piece rate is paid. This arrangement may be called a step bonus and is favored by some authorities.[47]

The major advantage of the plan is the strong incentive to reach standard. A disadvantage of the system is the possible loss to employees if standards are incorrectly set. It will be seen that under the Taylor plan a mistake in setting the standard can be disastrous. Too high a standard may result in the loss of desirable employees. Too low a standard may result in exorbitant labor costs. Also, the lack of a guarantee is a disadvantage in the eyes of many.

Figure 61 illustrates variations in earnings and direct labor costs under the Taylor Differential Piecework Plan.

The Merrick Plan. In the Merrick system the large step bonus of the Taylor plan is reduced to two smaller ones. This was done to encourage intermediate as well as high producers. The first step bonus was introduced at 83 per cent of standard and the second at 100 per cent of standard. The low piece rate is identical with straight piecework. Although the additional step appears fair, it has discouraged use of the plan because of complexity. Some

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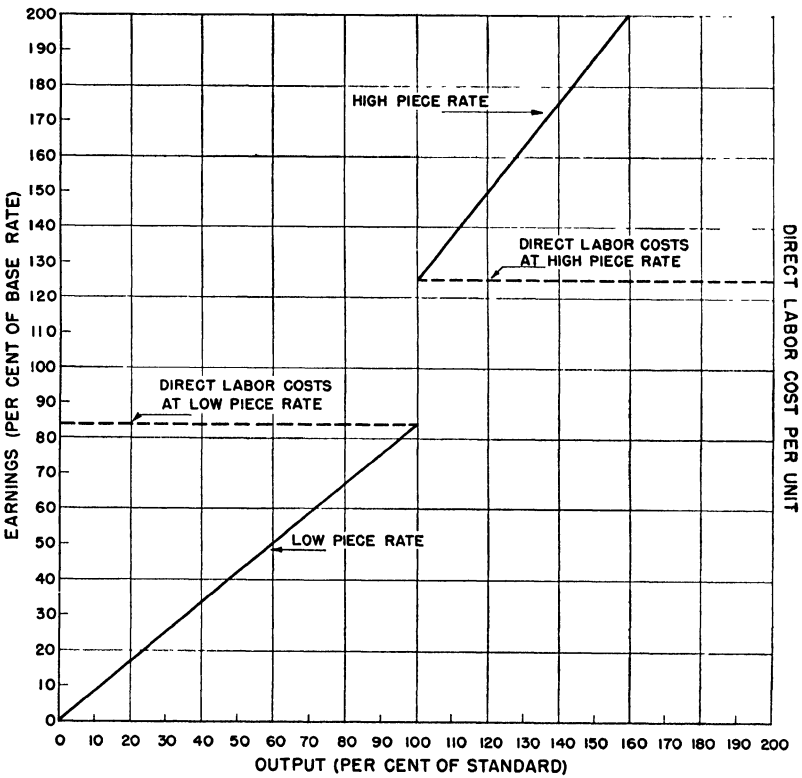
[46] Yoder, *Personnel Management and Industrial Relations*, p. 400.
[47] Rogers, *Wage Incentive Problems and Techniques.*

authorities believe that it is particularly applicable to sales work.[48]

The major advantage of the plan is its strong incentive value. Its major disadvantage is its complexity. Earnings tables are necessary

Figure 61

EARNINGS AND DIRECT LABOR COSTS UNDER THE TAYLOR DIFFERENTIAL PIECEWORK SYSTEM



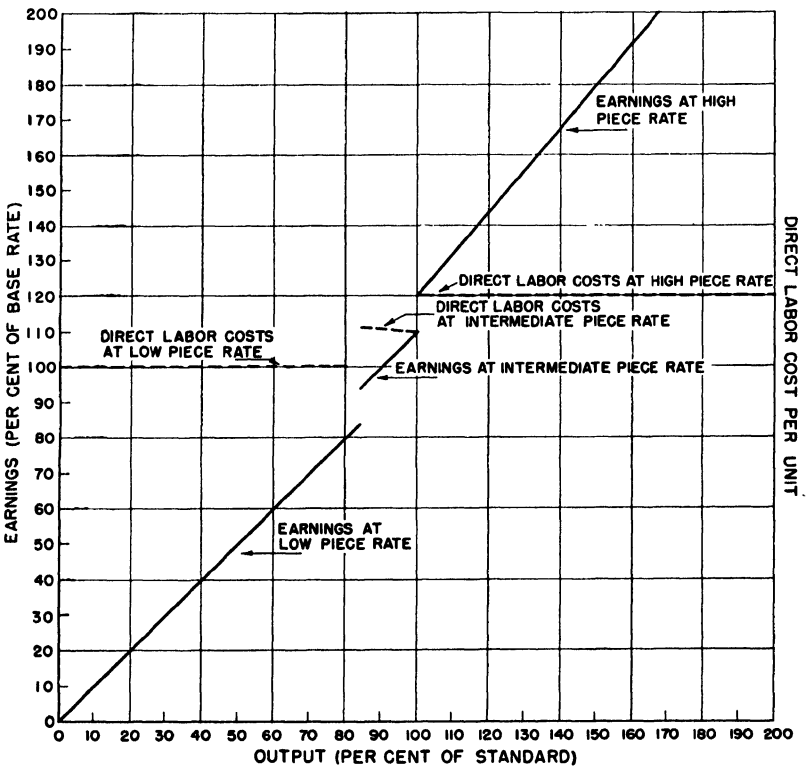
for computation of earnings. Explaining the plan to employees is difficult. No guarantee of earnings is provided. See Figure 62 for earnings and labor costs under the Merrick Differential Piecework Plan.

[48] Mee (ed.), *Personnel Handbook*, p. 227.

The Gantt Plan. In the Gantt Task and Bonus System, the employee is guaranteed his time rate for output below standard. Upon reaching standard, a step bonus of 20 per cent is provided. For outputs above standard, high piece rates are paid. Standard output is set by time and motion study as in the Taylor and Merrick systems. All three plans have in common the principle of rewarding workers who reach high task.

Figure 62

EARNINGS AND DIRECT LABOR COSTS UNDER THE MERRICK DIFFERENTIAL PIECEWORK PLAN

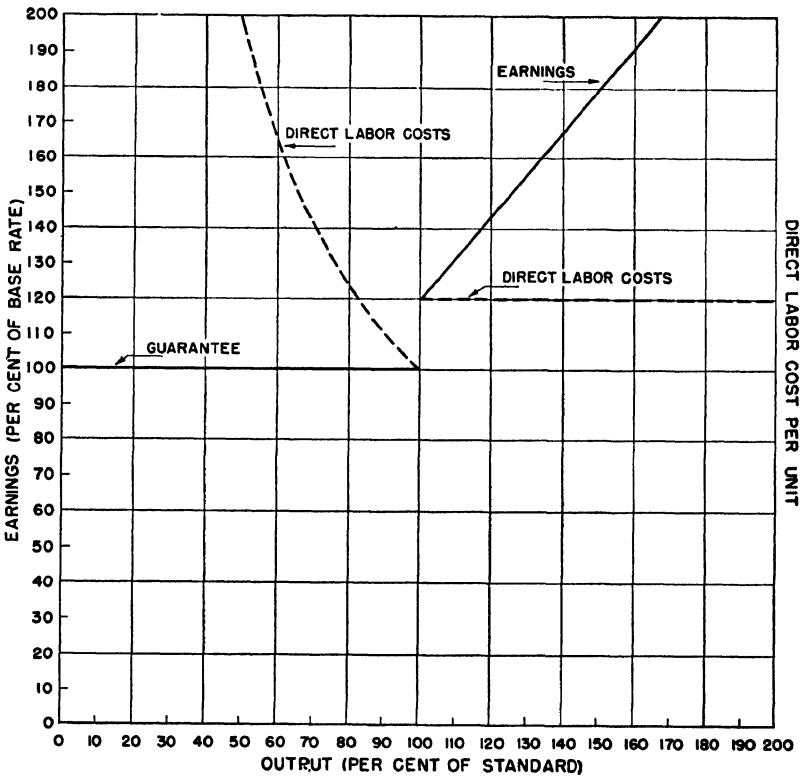


The Gantt plan was devised to eliminate the punitive piece rate advocated by Taylor and still retain the high incentive value of a step bonus at standard output.

The major advantage of the plan is its high incentive value. Its chief disadvantage is the necessity of precise standards. It is recommended in installations where overhead costs are at a high level. In such installations the high and continuing incentive value of the plan enables spreading costs over a larger volume of production. Thus the higher labor costs are offset by reductions in overhead cost. See Figure 63.

Figure 63

EARNINGS AND DIRECT LABOR COSTS UNDER THE GANTT TASK AND BONUS SYSTEM



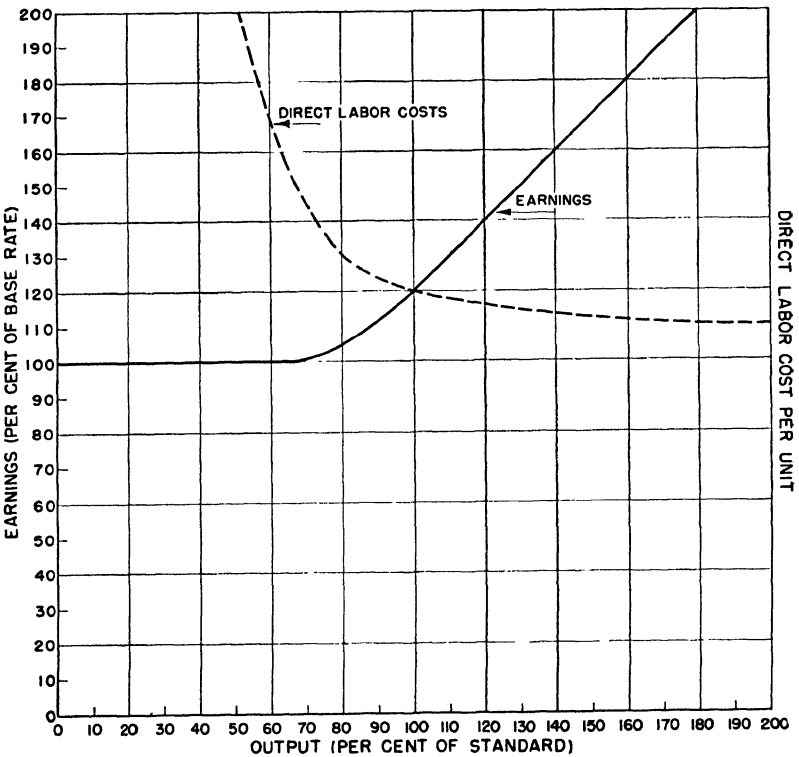
The Emerson Empiric Plan. Under this plan, the relative efficiency of employees is computed each week and a bonus paid depending upon the efficiency attained. A standard time is established

for each job by time study, and during each week a record is made of the number of hours each worker takes to complete the jobs.

The efficiency of each employee is then determined by dividing actual hours into standard time. Thus, if a worker takes five hours to complete a job for which the standard time is four hours, his efficiency is 80 per cent. Up to 67 per cent efficiency the worker is paid at his time rate, and from this point up to 100 per cent efficiency a bonus is payable, as shown in Figure 64. At 70 per cent

Figure 64

EARNINGS AND DIRECT LABOR COSTS UNDER THE EMERSON EMPIRIC SYSTEM



efficiency the bonus is 1 per cent; at 80 per cent efficiency, 4 per cent; at 90 per cent efficiency, 10 per cent; and at 100 per cent

efficiency, 20 per cent. Above 100 per cent efficiency, an additional bonus of 1 per cent is paid for each additional 1 per cent increase in efficiency.

This plan, while classified as selective, is only mildly so. For output in the range from 67 per cent to 100 per cent, a bonus is paid which is small at first, but increases with output. Various other systems, which are simply modifications of the Emerson plan, make greater use of the selective feature. For example, the Knoeppel, Bigelow, Bigelow-Knoeppel, Atkinson, and Allingham plans all have steps in the earning curves to encourage employees to reach high task. Another modification, the Wennerlund plan, applies straight piece rates for increases above 100 per cent efficiency.

The major advantage of the Emerson plan lies in its emphasis upon efficiency. Comparisons can be readily made from week to week and between employees. Its main disadvantage is its complexity, which tends to make the plan difficult to explain to employees and make earnings far from simple to compute. It is especially applicable where it is desired to educate employees on the need for efficiency and to encourage them to increase their relative efficiency.[49]

Figure 64 illustrates earnings and direct labor costs as they vary with efficiency in the Emerson system.

Accelerating Premium Systems. In the accelerating plans the principle is that for low and average levels of output, increments to earnings are small, but for outputs above average, increasingly large increments are paid. At low levels of efficiency, increases in earnings are less than one per cent for each one per cent increase in output, whereas at higher levels increases in earnings are substantial and provide a powerful stimulant for the employee to continue to increase output.

Such systems are, of course, highly complicated and difficult to explain to employees. Explanation is virtually impossible without resort to tables. Because of this fact, applications of such plans have been restricted largely to supervisors.[50]

Figure 65 presents earnings curves and direct labor costs for both a hyperbolic and a parabolic accelerated premium system. The

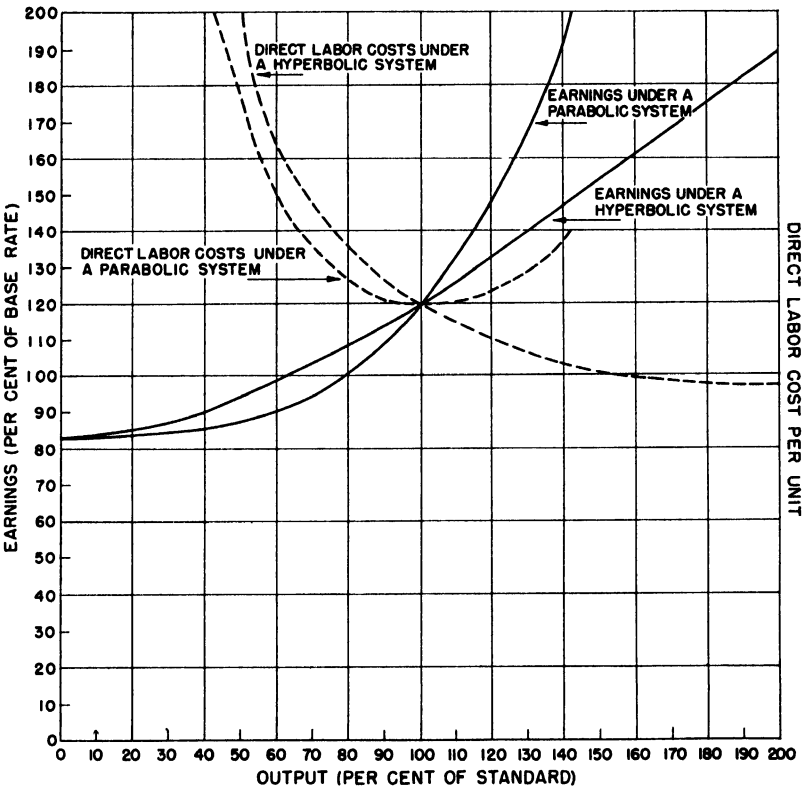
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[49] Jucius, *Personnel Management*, p. 382.
[50] Mee (ed.), *Personnel Handbook*, p. 230.

hyperbolic curve was developed to fit two points, (1) a minimum guarantee (83 per cent of earnings at 0 per cent of output) and (2) a high-task efficiency earnings point (120 per cent of earnings at 100 per cent of output). Above this second point the plan is similar to sharing plans. The parabolic curve passes through the same two points and meets a third condition, that earnings are at least equal to high piece rate.[51]

Figure 65

EARNINGS AND DIRECT LABOR COSTS UNDER ACCELERATED PREMIUM SYSTEMS



[51] See Lytle, *Wage Incentive Methods*, pp. 293–311.

Group Plans

Where it is deemed impossible to apply an incentive plan to individual employees, it may be possible to apply such a plan to groups. All that is necessary is a method of dividing the group earnings among individuals. Piecework with a time guarantee is the most common plan applied to groups.[52] Where individuals have different time rates, however, piecework plans make distribution of earnings difficult. The standard hour plan circumvents this difficulty and retains the advantages of piecework. Many authorities insist that group incentives apply only where there is interdependence of operators.[53]

TECHNICAL REQUIREMENTS OF INCENTIVE SYSTEMS

A characteristic of all incentive plans is that workers are paid for actual results as they compare to expected results. Thus, if employees are to be paid for results, these results must be accurately measured. It is the function of this section to discuss this measurement process and other technical prerequisites to incentive systems.

Work Study

Accurate measurement of results requires that the nature of the task which the employee is expected to perform and the quality of the product he is to turn out be carefully defined.[54] This definition must cover layout, equipment, materials, process, machine feeds and speeds, working conditions, product quality, and all other details affecting output. The development of such a definition requires a detailed study of work procedures and of every operation of employees. This study is called "work study." [55]

Work study, besides its use as a basis for an incentive system, may be used to: (1) ensure that the most effective use is made of the organization, work force, and equipment; (2) draw attention

[52] Mee (ed.), *Personnel Handbook*, p. 231.
[53] Mee (ed.), *Personnel Handbook*, p. 231.
[54] *Payment by Results*, pp. 32–33.
[55] *Payment by Results*, p. 33.

to unnecessary and wasteful procedures and operations; and (3) provide a basis for the measurement of machine performance and labor effort with a view to planning and control. Thus the primary objective of work study is to improve productivity. It makes use of two techniques, which are employed in sequence: (1) methods study and (2) work measurement. Methods study is employed to improve methods of production. Work measurement provides a base (standard) for assessing human effectiveness. Work study procedures, it should perhaps be mentioned, are much more detailed than job analysis.

Methods Study

A sound wage incentive installation requires that the work involved be susceptible of standardization of methods.[56] Such standardization is accomplished through methods study, which develops methods information, determines a proper method, and provides means whereby the proper method is known and used. Several complementary procedures are used in accomplishing these results.

Motion Study. This procedure involves a breakdown of work operations into elements, and study and analysis of the movements or motions made. The purpose is to build methods that require the least waste motion. With knowledge of body-member movements and their relative speed, work elements (get, place, process, dispose) are studied to eliminate unnecessary handling, to shorten travel distances, and so on. Motion study principles are applied. Motion study charts are often used in the analysis. For example, an operator chart may be made that follows the movements of both hands in performing the task. Or a man and machine chart may be employed to list in proper sequence the operations performed by each. Process charts may be used to analyze the flow of materials throughout the entire manufacturing process.

Work Simplification. Work simplification is the term applied to any systematic attempt to discover a more economical way of performing a task.[57] It makes use of motion study principles and

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[56] Michael, *Wage and Salary Fundamentals and Procedures,* p. 207.

[57] H. S. Hall, "Putting Work Simplification to Work," *Bulletin No. 605* (Urbana: Business Management Service, University of Illinois, April, 1951), p. 9.

common sense. The procedure involves: (1) determining in considerable detail the exact work methods, tools, sequences, and equipment currently used in performing the task; (2) systematically checking each detail against known principles of economical performance; (3) devising a more effective procedure or process; and (4) putting the revised process into effect. In the analysis phase (2), each operation is analyzed to determine if it can be (1) eliminated, (2) combined with another operation, (3) improved, and/or (4) simplified.

Motion Pattern. A motion pattern represents the easiest and most effective series of motions required to perform an operation, arranged in proper sequence. Such a pattern may be developed through knowledge and application of body-member movements, motion study principles, and operator charts supplemented by work simplification procedures.

Workplace Layout. The layout and arrangement of work positions to ensure the easiest and most effective performance are the objectives of workplace layout. It is accomplished, whenever possible, by confining the work area actually used by the worker to one that permits the most efficient movements.

Operation Sheets. To ensure that established methods are used, it is well to reduce the information to written form. These operation sheets are made available to supervisors and employees for the purpose of work planning and training. The information may include: (1) a sequential listing of the steps involved, (2) the department, (3) the operations reduced to work or motion elements, (4) the specified tools, machines, materials, and parts, (5) the feeds and speeds, (6) the types of finishes and tolerances, and (7) the counting and inspection procedures.

Such information may be used in training employees. There is no way to ensure that the established method is being employed unless operators are trained in the proper method.

Responsibility for Methods Study. Informal use of methods study has enabled skilled and experienced workers to improve their working routine so as to achieve higher levels of output. Best results have been attained, however, from methods study applied by trained engineers who are able to develop new ideas and improvements on old methods and also to understand and surmount the human problems involved in introducing new ideas and methods.

There is a growing literature giving details of results achieved through methods improvement programs.[58]

Work Measurement

When the method of doing a particular job has been standardized, it becomes feasible to measure the work content of the job. Although feasible, however, it is not a simple procedure. In spite of great strides made in the techniques of work measurement, it still remains more of an art than a science.[59]

A number of attempts have been made to measure directly the work content of industrial tasks by taking an average of the energy expenditure of workers engaged on different types of manual work. Although useful data have been obtained from such studies, the equipment used for measurement has generally not been suitable for industrial application. Recently, however, substantial progress has been made in this area by experimentation in measuring pulse rate and body temperature before and after performance of a task. These measurements require only a watch and a thermometer and can be taken by an industrial physician. Thus in the future it may be possible to make direct measurements of fatigue induced by a job.[60]

A number of alternative methods of work measurement have been developed, however, which are widely accepted as being sufficiently accurate and acceptable for incentive wage systems. Such methods are: (1) time study, (2) standard data, (3) predetermined elemental times, and (4) activity ratios. Less formal methods are (1) bargaining and (2) past records.

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[58] See, for example, National Industrial Conference Board, *Studies in Personnel Policy No. 18* (New York, January, 1940), pp. 10–11; Loring Roach, "A Re-examination of Methods Engineering," *Manufacturing Series Number 209* (New York: American Management Association, 1953), pp. 56–64; Robert Levin, "Methods and Measurement," *Eighth Annual Time Study and Methods Conference Proceedings* (New York: The Society for Advancement of Management with the American Society of Mechanical Engineers Management Division, April 16, 17, 1953), pp. 7–16.

[59] J. K. Louden, "Report of the Committee on Work Measurement," before the Ninth International Management Congress (Brussels, July, 1951), *Section III*, p. 2.

[60] See Lucien A. Brouha, "Fatigue—Measuring and Reducing It," in *Eighth Annual Time Study and Methods Conference Proceedings* (New York: The Society for Advancement of Management, April 16, 17, 1953), pp. 57–66.

Time Study. As the name implies, time study measures work content by determining the time taken to perform a given task. The operation or task is broken down into elements, each of which is timed by the use of a stop watch. On the basis of such time study, a standard time is set for the job. These standards indicate the amount of time a proficient employee should spend on a job, and thus define what should be expected as a reasonable output. Sometimes standards are not expressed in terms of time but of work units.[61] A work unit is defined as the amount of work to be expected in one minute from a normal worker, suited and accustomed to his task and working at normal speed under normal conditions, an allowance of time being included within that minute for recovery from fatigue.[62]

Development of work standards through time study is a complicated process. It can be only briefly sketched here.[63] The process begins with timing the operation, element by element. A sufficient number of studies are made, by timing one or more workers through several cycles, to enable the effective work elements to be defined and due allowances to be made for ineffective and non-standard work elements. The actual times recorded may be averaged in any of several ways to arrive at the time taken. The "average time" taken is then adjusted to account for the "pace" of the operator. Finally, allowances are added to provide for fatigue, minor delays, and personal needs. At present the minimum allowances are about 10 per cent.[64]

A major difficulty in the use of time study as a work measurement technique arises in connection with the process of judging the rate of speed and effort at which the operator is working.[65] This process, called "leveling" or "rating," involves adjusting the elemental time values obtained from stop watch readings to account

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[61] See the discussion of the Bedaux plan, p. 337. The work unit used in this plan is the "*B*."

[62] *Payment by Results*, p. 36.

[63] For a more complete discussion of the subject, see Ralph M. Barnes, *Motion and Time Study* (New York: John Wiley and Sons, Inc., 1949); Phil Carroll, *How to Chart Time Study Data* (New York: McGraw-Hill Book Company, Inc., 1950); M. E. Mundel, *Systematic Motion and Time Study* (New York: Prentice-Hall, Inc., 1947).

[64] Yoder, *Personnel Management and Industrial Relations*, p. 144.

[65] *Payment by Results*, p. 37.

for the "pace" of the operator. Thus, the worker is judged to be working at, say, 80 or 120 per cent of normal pace. Elemental time values are adjusted by multiplying these times by the adjudged pace (expressed as a decimal). The process of rating depends upon the time study engineer's subjective judgment and upon his mental concept of normal.

Rating techniques have been strongly criticized by union leaders.[66] Nor have experts on time study been blind to its weaknesses.[67] Both recognize that pace of the operator is an imprecise measure of degree of human application. In the absence of better tools, however, efforts have been turned to achieving consistency of rating. Presgrave builds upon the biometric finding that human physical abilities are distributed on a bell-shaped curve. He proposes three measures of average speed: (1) walking at three miles an hour, (2) typing at fifty words a minute, and (3) dealing fifty-two cards in one-half minute.[68] Shumard recommends as a basic gauge the U.S. Army standard of 3.64 miles per hour for soldiers marching at attention.[69] Carroll uses a reference point of .45 minutes for dealing fifty-two cards.[70] Others have made strong pleas for such practical measures.[71]

A significant recent step toward more rational rating standards has been the production of photographs of standard performance on specific operations. Mundel suggests that the norm or standard be set at the amount of time required by an average worker, derived by fixing the "maximum pace" and increasing the time 33 per cent.[72] He proposes that films be prepared showing the standard rate of activity on a simple job, such as card-dealing, and showing step-by-

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[66] See, for example, Solomon Barkin, "Concepts in the Measurement of Human Application," *Industrial and Labor Relations Review*, Vol. 7, No. 1 (October, 1953), pp. 103–118.

[67] See Ralph Presgrave, *The Dynamics of Time Study*, 2nd ed. (New York: McGraw-Hill Book Company, Inc., 1945).

[68] Presgrave, *The Dynamics of Time Study*, pp. 140–153.

[69] Frederick W. Shumard, *A Primer of Time Study* (New York: McGraw-Hill Book Co., Inc., 1940), pp. 64–73.

[70] Phil Carroll, Jr., *Time Study for Cost Control*, 2nd ed. (New York: McGraw-Hill Book Company, Inc., 1943), pp. 88–91.

[71] Harold R. Nissley, "A New Concept of a Fair Day's Work," *Advanced Management*, Vol. 15, No. 1 (January, 1950), p. 25; E. A. Cyrel, "Theory vs. Practice in Time Study Technique," *Advanced Management*, Vol. 15, No. 7 (July, 1949), p. 23.

[72] Mundel, *Systematic Motion and Time Study*.

step deviations from standard pace so as to establish markings on the scale of rate of activity. To take care of the more difficult jobs where the actual pace is below that of the simple job, he offers a table of adjustments.[73]

Many companies have produced films for the guidance of time study engineers. Group judgment is often used to determine a representative standard. For example, film sequences may be performed for each level of operator performance. Then each sequence is identified as representative of a specified pace on the basis of group judgment. Films may then be used to train time-study personnel.[74]

The Society for Advancement of Management used essentially this approach. Films were prepared for 24 operations at five different work paces. These 120 separate performances were viewed by over 1,800 engineers in over 200 industrial companies, and the resulting 150,000 ratings constitute the basis of the final standards.[75] These films are finding wide use.[76]

A statistical approach to the problem of rating has been attempted many times in the United States. Results have not, however, been widely accepted by authorities.[77] An example is Wiberg's work time distribution, which is constructed by correcting a series of time readings for effort, skill, and habituation. In this method the average worker would be one whose time-studied performance on the standard method results in a work time distribution with an arithmetic mean 25 per cent higher than its minimum time, the latter to be 35 per cent higher than the minimum shown by the most efficient worker.[78] Wiberg's method has not attained wide use, possi-

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[73] Marvin E. Mundel, "Time Study Research, Part II, Rating," *Advanced Management*, Vol. 15, No. 8 (August, 1950), pp. 21, 22; and "Part III, Secondary Adjustments," *Advanced Management*, Vol. 15, No. 9 (September, 1950), pp. 19–21.

[74] W. B. Wisecarver, "Setting Worker Normals for Time Study Purposes," *Factory Management and Maintenance*, Vol. 104, No. 10 (October, 1946), pp. 122–126.

[75] Louden, "Report of the Committee on Work Measurement," *Section III*, p. 6.

[76] See V. A. Flynn, "A Word on the Rating Films," *Advanced Management*, Vol. 18, No. 4 (April, 1953), p. 29.

[77] Louden, "Report of the Committee on Work Measurement," *Section III*, p. 6.

[78] Martin Wiberg, *Work Time Distribution* (Chicago: McLure, Hoddin and Ortman Inc., 1947).

bly because the procedure is laborious. A new device called a time study machine provides a means of applying this type of analysis where it is used.[79]

A searching analysis of time study by Gomberg provided a theoretical framework for statistical treatment of time study data. Following the reasoning of statistical quality control, he postulates that statistical tools can be used to: (1) determine when a production rate is in statistical control; (2) establish a production-rate standard; (3) establish the limits of variation in the standard; and (4) determine the size of a sample of time study readings necessary for setting standards.[80]

Using Gomberg's theoretical framework, Abruzzi suggests specific statistical tests of standards. In his method, standards are adjudged acceptable only when they exhibit both local and grand statistical stability. To establish local statistical stability, variations in productive rates are examined in terms of a continuous series of production units made over a period of several hours or an entire day. To establish grand statistical stability, the variations in productive rates are examined in a series of small samples, taken over an extended time interval, from production increments considered to be made under essentially the same conditions.[81] Abruzzi's work, like that of Gomberg, is essentially an extension of the control chart technique used in quality control.[82]

Although the statistical method as applied by Abruzzi offers, in addition to statistically stable standards, a method of finding causes of variation from standards, its acceptance by time study practitioners will depend upon such practical considerations as additional

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[79] Dale Jones, "A New Time Study Tool," *Advanced Management*, Vol. 18, No. 4 (April, 1953), pp. 10–14.

[80] William Gomberg, *A Trade Union Analysis of Time Study* (Chicago: Science Research Associates, 1948).

[81] Adam Abruzzi, *Work Measurement, New Principles and Procedures* (New York: Columbia University Press, 1952). See also Sebastian B. Littauer and Adam Abruzzi, "Experimental Criteria for Evaluating Workers and Operations," *Industrial and Labor Relations Review*, Vol. 2, No. 4 (July, 1949), pp. 502–526; Adam Abruzzi, "Objective Procedures for Estimating Industrial Productivity," *Industrial and Labor Relations Review*, Vol. 5, No. 1 (October, 1951), pp. 108–117.

[82] Adam Abruzzi, "Applying the Control Chart Method to Worker Evaluation and Incentive Plans," *Personnel*, Vol. 25, No. 3 (November, 1948), pp. 204–210. See also William Gomberg, *A Trade Union Analysis of Time Study* (New York: Prentice-Hall, Inc., 1954).

cost and accuracy. If it is found that additional accuracy is possible at little additional cost, expanded use of the method may be expected. Should the number of samples and the time required appear impractical, authorities will probably continue to insist that the statistical method has little to add in this field.

Thus the rating process remains a problem area in time study. Barkin,[83] although admitting that its use solves practical problems, deplores the complacence of time study engineers in using a concept which is so imprecise without apparent interest in finding better ways of measuring human application. Others believe that performance rating is merely in its early stages in developing a unit of measurement and that all that is necessary is a national performance standard such as that provided by rating films.[84]

Another difficulty in time study is in the area of human problems. Because, however, a later section is devoted to human problems of incentive wage systems, these problems will be discussed at that point.

Standard Data. Detailed time study procedures can seldom be justified economically unless there is a considerable volume of similar work to be done. Another method of work measurement has been developed on the basis of time study for use in situations where the volume of work is insufficient to justify the full application of time study. This method involves the building up of standard data from time study values for different work elements in a given plant.

The term standard data is applied to tables of standard time values which have been built up systematically from time studies covering elements which recur frequently within a given organization. The process of developing standard data is almost as old as time study itself and such data have wide use in industry today.[85] It developed from efforts to conserve time and to establish a greater number of standards, thereby achieving greater coverage.

The information is grouped in such combinations of elemental values as are frequently used in the same sequences. Through care-

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[83] Barkin, "Concepts in the Measurement of Human Application," *Industrial and Labor Relations Review,* Vol. 7, No. 1 (October, 1953), pp. 103–118.

[84] E. S. Buffa, "Time Study Rating as Measurement," *Advanced Management,* Vol. 18, No. 3 (March, 1953), pp. 20–22.

[85] Louden, "Report of the Committee on Work Measurement," *Section III,* p. 6.

ful definition and analysis of work, the engineer is able to develop standards synthetically rather than from actual study. These data have been proven through repetitive use, and thus aid in achieving consistency of standards. This consistency, together with time-saving, is the primary objective in the use of standard data.[86]

The most important and difficult problem in the use of standard data is to obtain data of sufficient variety and scope. Use of the data requires trained personnel because judgment is required to select and synthesize the elements that go to make up the standard.

Predetermined Elemental Time Data. These data are based upon detailed time studies of elemental movements of the fingers, hands, arms, legs, and trunk that are basic to a large number of industrial tasks. Many work movement patterns can be defined in these terms.

The first work in this area was done in the General Electric Company in the 1920's. The approach was stimulated by dissatisfaction of employees on the unevenness of earnings caused by inconsistency of standards on a fast, highly repetitive operation. After a large number of studies by film analysis, it was found possible to develop charts assigning time values to individual motions.[87] Results of this study published in 1934 became perhaps the first published system of predetermined values.[88] This system is limited in application to particular-sized types of work in normal work areas.

About the same time, the work factor system was developed. The authors of the system developed the concept of having one standard for a certain type of motion regardless of where it was used.[89] Movement time according to the work factor system varies with (1) the body member involved, (2) the distance moved, (3) the weight carried or resistance encountered, and (4) the motion difficulty.[90] Tables have been worked out to furnish basic times for body movements under different work conditions and for basic motions. In these tables, called Tables of Moving Times, 430

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[86] Michael, *Wage and Salary Fundamentals and Procedures,* p. 225.

[87] Louden, "Report of the Committee on Work Measurement," *Section III,* p. 8.

[88] Harold Engstrom, "Pre-Determined Time Standards," *Advanced Management,* Vol. 17, No. 4 (April, 1952), pp. 16–17.

[89] J. H. Duncan, *Work-Factor Time Standards* (Madison: Industrial Management Institute, University of Wisconsin, November 13, 1951, mimeographed), p. 6.

[90] Duncan, *Work-Factor Time Standards,* p. 7.

times are so arranged as to provide times for more than 4,000 different combinations of factors.[91] Besides tables, the system consists of a set of rules, definitions, and procedures.

The Work-Factor Company, which holds the copyright to the system, believes that engineers can be trained to use the system in about 120 hours of formal instruction and one month of practice.[92] It is their opinion that it is practical to apply the system to any operation which can be successfully time-studied with the stop watch, and that it is applicable to almost any type of work.[93] Work factor times, like those in other systems of predetermined elemental time data, were originally created through a leveling process.[94]

A third system, known as Methods-Time Measurement (MTM) was published in 1948.[95] MTM, according to its authors, is a procedure which analyzes any manner of operation or method into the basic motions required to perform it and assigns to each motion a predetermined time standard, which is determined by the nature of the motion and the conditions under which it is made.[96] The system consists not only of data tables, which establish the normal time for every given type of motion under varying conditions, but also of the laws as to the sequences these motions will follow.[97] There are 16 fundamental motions, and the time for each of these motions is determined not only by the physical conditions involved in the motion's performance, but also by the nature of conditions under which it is made. At present, at least one university is conducting research on the elemental time values in the MTM system.

Basic Motion Timestudy (BMT) is the name attached to another system of predetermined elemental time data. Like the other systems, it provides a table of motion values and a set of rules or pro-

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[91] Dickey Dyer, "Work-Factor," in *Eighth Annual Time Study and Methods Conference Proceedings* (New York: The Society for Advancement of Management, April 16, 17, 1953), pp. 111–112.

[92] Duncan, *Work-Factor Time Standards*, p. 3.

[93] *Ibid.*, p. 15.

[94] *Ibid.*, p. 4.

[95] Harold B. Maynard, G. J. Stegemerten, and John L. Schwab, *Methods-Time Measurement* (New York: McGraw-Hill Book Company, Inc., 1948).

[96] Donald E. Farr, *Methods-Time Measurement Techniques* (Madison: Industrial Management Institute, University of Wisconsin, December 12, 1950, mimeographed), p. 4.

[97] Louden, "Report of the Committee on Work Measurement," *Section III*, p. 8.

cedures. The distinguishing feature of BMT is its recognition that motion times differ with (1) visual attention required in a particular motion as well as those which come before and after, and (2) the care required to end the motion.[98] Also, the definition of a basic motion is somewhat different from that in other systems in that in BMT a body member must come to rest before the motion is completed. Tables of values are of two kinds, (1) motions and (2) precision. The time allowances in the precision table are additions to be made to basic motions for one of five degrees of precision required.

Proponents of predetermined time systems stress the following benefits from their use: (1) the importance of methods is stressed, (2) methods and equipment can be designed on a scientific rather than an empirical basis, (3) time standards become consistent from job to job, (4) standards may be set in advance of production, (5) development of standard data is speeded up, (6) small methods changes can be detected, (7) grievances can be settled on the basis of fact rather than opinion.[99] It has also been stated that human relations are improved because a stop watch,[100] which often brings forth an unreasoning prejudice, is no longer required for standard setting. Less valid is the contention that rating is eliminated because such systems are based upon leveled data.

Where standard times are required for nonrepetitive jobs of short duration, predetermined times have been found a great time-saver. Before the existence of such systems, time formulas for determining such standards were made up from standard data, and the process was extremely time-consuming. One authority maintains that such time formulas can be derived from MTM in not more than 25 per cent of the time required for derivation based on time study data.[101]

There has been much disagreement regarding the accuracy and acceptability of such systems. One careful study,[102] for example,

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[98] Gerald B. Bailey, "Basic Motion Timestudy," in *Eighth Annual Time Study and Methods Conference Proceedings* (New York: The Society for Advancement of Management, April 16, 17, 1953), pp. 91–98.

[99] Farr, *Methods-Time Measurement Techniques*, pp. 2, 3, 33.

[100] Farr, *Methods-Time Measurement Techniques*, p. 3.

[101] Farr, *Methods-Time Measurement Techniques*, p. 33.

[102] Gerald Nadler and J. Wray Wilkes, "Studies in Relationships of Therbligs," *Advanced Management*, Vol. 18, No. 2 (February, 1953), pp. 20–22.

found that (1) a change in work conditions in one therblig (motion) in a sequence of therbligs will significantly affect the time of the total sequence, and (2) a change in work conditions in one therblig in a sequence of therbligs will significantly affect the time of the surrounding therbligs. One conclusion of this study is that attempts at determining a universal time value for individual therbligs, as made in predetermined motion time systems, do not appear to be warranted.

Similarly, Abruzzi's work casts doubt upon the validity of such systems. He found that the elements were not independent but possessed relationships that varied from operator to operator and even for the same operator.[103]

Activity Ratio Studies. Activity ratio studies are based upon a series of snap observations of activities and require neither timing nor rating the operator.[104] A sufficient number of occurrences are recorded on a large enough sample of machines or operators, or both, so that the ratio between the different types of activities involved in the work cycle, and also between activities and stoppages for different causes, can be determined within specified limits of accuracy. Using this procedure, the distribution of activities of operators and machines over the working day or week can be determined within specified limits of accuracy. Although this method has been used for determining personal and unavoidable delay allowances, it is not usually regarded as sufficiently accurate for work measurement for wage incentive purposes.[105]

Bargaining. In certain industries (notably the garment industry), some firms set piece rates by collective bargaining between employers and the union. Where this practice is followed, bargaining becomes a work measurement technique.

Although this approach is probably followed because of tradition and runs counter to the trend to separate standards and rates, its persistence in some quarters is partially attributable to union recognition of subjective factors in other work measurement techniques.

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[103] Abruzzi, "Objective Procedures for Estimating Industrial Productivity," *Industrial and Labor Relations Review*, Vol. 5, No. 1 (October, 1951), pp. 108–117.

[104] *Payment by Results*, p. 39.

[105] Robert M. Eastman, "How to Reduce 'Down Time' in the Office," *Methods*, Vol. 4, No. 2 (July, 1953), pp. 11–13.

Both Barkin [106] and Gomberg,[107] for example, insist that time study is only a tool for assembly of observations to be used by negotiators.

Past Production Records. Sometimes standards are based on past production records. This was usual practice prior to the development of modern time study. Today most authorities frown on building standards on such records, in the belief that they represent only 60 to 70 per cent of normal efficiency.[108] Others insist that past performance constitutes a body of facts that can be made useful by statistical analysis.[109]

Allowances. When time study or its derivatives are used as work measurement techniques, it is necessary to consider the problem of allowances as they affect worker performance and thus must be reflected in standards.

Allowances may be divided into four classes: personal, fatigue, unavoidable delay, and special.[110] Personal allowances are not a problem. The amount of time required by the average normal person may be determined and added to the standard time in the form of a constant percentage.

Unavoidable delay allowance may be ascertained through careful analysis to determine every point where a loss of time may occur that is not the fault of the operator. A total of these times is the correct allowance for unavoidable delays. These allowances can be derived statistically by studying the actual job percentages that they represent.[111] Special allowances cover unusual occurrences. Usual practice is not to add such allowances to the standard, but, to make adjustments in total incentive earnings when they occur.[112]

Fatigue allowances represent a controversial area. Time study

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[106] Barkin, "Concepts in the Measurement of Human Application," *Industrial and Labor Relations Review*, Vol. 7, No. 1 (October, 1953), pp. 103–118.

[107] William Gomberg, *A Unionist Looks at Industrial Engineering* (Madison: Industrial Management Institute, University of Wisconsin, April 10, 1951, mimeographed).

[108] Michael, *Wage and Salary Fundamentals and Procedures*, p. 223.

[109] Gomberg, *A Unionist Looks at Industrial Engineering.*

[110] Stewart M. Lowry, Harold B. Maynard, and G. J. Stegemerten, *Time and Motion Study* (New York: McGraw-Hill Book Company, Inc., 1940), p. 252.

[111] Ralph Presgrave, *Management Controls and Measurement* (Madison: Industrial Management Institute, University of Wisconsin, April 8, 1952, mimeographed), p. 15.

[112] Michael, *Wage and Salary Fundamentals and Procedures*, p. 227.

practitioners have been forced to make judgments here based upon their estimate of the effort required by the job by analyzing decreasing performance. Industrial physiologists are making progress in the study of fatigue, and it is within the realm of possibility that fatigue allowances may soon be made on a factual basis.[113]

It is apparent from a recent study that the practice of adding a fatigue allowance to the standard time is justified. This study found that the operator, when fatigued, uses the same work methods and continues to work at the same rate of speed when he performs the operation, but introduces more and longer work stoppages.[114]

Control of Quality

In the discussion of standards (work measurement) it is easy to get the impression that the major emphasis is on quantity of production. Obviously, this is not the case. It is necessary that spoilage, quality, and material usage factors be considered fully when making analyses prior to setting standards.

There are many possible approaches to the problem of controlling quality and waste. They range from nonfinancial methods to incentive plans instituted for the dominant purpose of quality and waste control. In some states legislation limits this discretion.

The former type of control makes use of publicity and educational programs. The most usual application of quality considerations to incentive plans, however, is to pay incentive earnings only on "good" production. Less stringent is the plan in which incentive earnings are paid only on "good" production, but salvage time is included as work time. Or incentive payments may be made for reduction of waste or conservation of materials in any of several ways. For example, a bonus may be paid for quality above a specified standard. Or incentive earnings may be increased or decreased in accordance with a waste factor. Another method is to adjust the bonus for both savings in materials cost and reduction in waste up to a certain point.

The emphasis given these factors will, of course, depend upon

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[113] Brouha, "Fatigue—Measuring and Reducing It," in *Eighth Annual Time Study and Methods Conference Proceedings.*

[114] Louis E. Davis and P. Dudley Josselyn, "An Analysis of Work Decrement Factors in a Repetitive Industrial Operation," *Advanced Management*, Vol. 18, No. 4 (April, 1953), pp. 5–9.

the product or service of the organization. It will also depend upon the objectives to be accomplished by the incentive plan. As previously mentioned, it is possible to base an incentive system purely upon quality considerations. The fact that this is seldom done does not de-emphasize the necessity of careful analysis to ensure that the system can carry out the planned objectives.

Setting Piece and Bonus Rates

Wage inequities may occur under an incentive wage system as well as under a daywork system. Also, if part of the organization is on incentive and the rest on daywork, even more possibilities for inequities exist. To prevent such inequities, it is necessary, after standards have been determined, to set the average piece or bonus rate scales.

Time rates are set by job evaluation and the solutions to the problem of wage level. Thus guaranteed hourly rates for incentive jobs in a certain labor grade are consistent with hourly rates for daywork jobs in the same labor grade. It remains to provide for some consistency above this rate.

This may be done by agreeing on the percentages by which average incentive earnings in the various labor grades should normally exceed the guaranteed time rates for those grades. These percentages may or may not be uniform, but should bear an equitable relationship to one another. The process is not unlike that used in setting a range (Chapter 11) and charts of the same type may be employed. For example, a chart similar to Figure 48 may be constructed using only the center and top lines. The lower of these two lines would be the guaranteed base rate, and the upper, the expected average earnings under the incentive plan.

With the normal average incentive earnings for each grade thus established, it is possible to estimate for each job the piece-rate or bonus that will be, necessary, considering the production standard set for the job, in order to yield that level of earnings on the average to employees assigned to jobs in each labor grade. This procedure tends to keep wage inequities to a minimum. If time standards are employed, wage inequities will be kept to a minimum, because earnings are based upon guaranteed rates and changing the wage level will not throw the structure out of line. On the other hand, if

piece-rates are used, adjustments in these rates must be made for each change in hourly rates.[115]

Measurement of Performance

If wage payment is to be based upon production as compared to standard, some method of measurement of results must be provided for. Although the variety of operations and of products or services prevents detailed discussion of measurement methods, the problem cannot be dismissed.

Physical output can be measured either directly or indirectly. The direct method consists in counting, weighing, or measuring the physical goods turned out. The indirect method consists in counting, weighing, or measuring some other variable that predicts physical output with sufficient accuracy.

The measurement problem is simplified somewhat by the process of standard setting. In time study, for example, the method is standardized and the unit is specified. In actual production, however, the time study engineer is not present to record completion of units.

A method of measurement must be found that (1) accurately measures results, (2) does so consistently, and (3) provides such measurements with sufficient frequency to maintain the incentive effects of the plan.[116] These requirements are not easily attainable and require the careful attention of the parties.[117]

Once results have been measured, there are certain advantages to be gained from converting to work units.[118] If, for example, individual performance is reduced to operator work unit hours (by converting all output into work units and dividing by clock hours less allowed time lost), it is possible to make individual comparisons. If, in addition, departmental performance is reduced to departmental work unit hours (by converting all output into work units and

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[115] See John E. Burns, "Wage Incentives—Money or Time Basis," *Personnel*, Vol. 26, No. 6 (May, 1950), pp. 457–462.

[116] Also to comply with some state laws.

[117] For an explanation of some of the difficulties, see Einar Hardin, "Measurement of Physical Output at the Job Level," *Research and Technical Report 10* (Minneapolis: Industrial Relations Center, University of Minnesota, August, 1951).

[118] *Payment by Results*, p. 45.

dividing by total clock time), it is possible to compare departments for one period of time and for different periods. Such measures also make possible a measurement of "standard cost" against "actual cost."

Revision of Standards

Methods changes require changes in standards. Unless standards are changed, when such methods changes do occur inequities are created that may disrupt the incentive system. In some organizations, it is customary to make periodic audits of each job to determine if such revision is called for. In others, standards are changed only when changes in job content or method have occurred, when new machinery is installed, or to correct clerical errors. Others plot earnings of individuals as a frequency curve and assume that a change in the mean or the range is a reason for restudy of standards.

This is an area in which human problems are great. It will be discussed in a later section; it should be mentioned here, however, that methods must be found that guarantee against indiscriminate rate-cutting and that pay employees for new methods that they have discovered.

HUMAN PROBLEMS OF INCENTIVE WAGE SYSTEMS

The technical aspects of a wage incentive system, though important, are much less important to its success than the human aspects. It is necessary not only that such a system be fair but that employees *believe* that it is fair.[119] Once employees have made up their minds that it is not in their interest to cooperate, they have an almost uncanny ability for devising ways to "beat the system." Since the success of incentive systems depends upon employee acceptance, it is necessary to discover worker and union attitudes and to take them into account in the installation, operation, and maintenance of the system.

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119 Pigors and Myers, *Personnel Administration,* p. 270.

Attitudes

Employee attitudes toward wage incentives and attendant work measurement procedures vary a great deal from one organization to another and from one industry to another. There are, however, some fairly prevalent beliefs that cannot be ignored.

1. The belief that incentive systems result in the speed-up, the stretch-out, and the sweatshop. The speed-up refers to the practice of inducing a worker to work faster and faster. The stretch-out refers to the practice of inducing a worker to add more and more to his work load. The sweatshop combines both these practices with squalid working conditions and harsh supervision. These terms are industrial swear words and often represent an emotional reaction to what the worker has heard about incentive systems. He need not have experienced them himself. These terms with their emotional overtones often come to the surface when incentive wage systems are mentioned, and unless employees can be convinced that they are not applicable to the situation under discussion, their obstructive influence will be felt.

2. The fear of a rate cut if good earnings are made under the system. This belief is a powerful deterrent to increased production and a justification in the eyes of employees for restriction of output. Rate cutting was frequent in the past, but most modern managers pride themselves that these days are past.

Unfortunately, however, many organizations discover "mistakes" in rates, through close examination of high earnings of individuals. It is difficult to convince workers that rate cutting does not exist when all that is necessary to produce the appearance of the time study man is the existence of unusual earnings on a job.[120]

3. The belief that incentive systems are set up to encourage workers to compete against one another and that slow workers thus discovered will be discharged. This belief can result in strong fear, because even a fast worker never knows when a faster one will come along. This belief results in output restriction for self-protection.

Workers point out that measurement of output permits discovery of slow, average, and fast workers, thus establishing a basis for

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[120] Whyte, "Economic Incentives and Human Relations," *Harvard Business Review*, Vol. 30, No. 2 (March–April, 1952), pp. 73–80.

favoritism. Even if favoritism does not appear, the very fact of such classification tends to strain the relationships between men. Financial reward will not be approved if it damages social relationships.[121] A threat to group security almost inevitably results in restriction of output.[122]

Where wage inequities appear under a wage incentive installation, such as low-skilled incentive workers receiving higher pay than high-skilled workers not on incentive, further disruption of social relationships ensues. Not only are the two groups set against one another, but the latter group resents the system which produces such inequities.[123]

4. The fear of unemployment. Workers tend to believe that working a faster pace under incentive plans is tantamount to "working yourself out of a job." Although such beliefs are representative of the "lump of work" theory and can be easily disproved by economic arguments, they are widely held. And workers are not likely to look favorably upon incentive wage systems unless they are convinced that orders are sufficient to make jobs secure.

Also underlying this fear is the belief that incentive wage plans increase the likelihood of technological unemployment. Workers and their union leaders are familiar with cases of machines replacing men, causing men to lose their jobs. They observe that incentive wage systems speed up methods changes, and their fears are increased.

When jobs are eliminated that have been set as promotional targets, resentment and feelings of insecurity are intensified. The fact that increased production and higher wages result is little compensation for the loss of an objective for which the worker was striving.

5. The belief that such plans break down crafts. A target job need not be eliminated to destroy its value as an objective. If skill requirements are diluted, not only does the job lose its desirability as an objective, but its prestige value to the incumbent is reduced.

The fact that skills patiently acquired through long experience are no longer useful is a disquieting discovery. When coupled with

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121 Whyte, *ibid.*

122 Solomon Barkin, "Labor's Attitude Toward Wage Incentive Plans," *Industrial and Labor Relations Review*, Vol. 1, No. 4 (July, 1948), pp. 553–572.

123 Whyte, "Economic Incentives and Human Relations," *Harvard Business Review*, Vol. 30, No. 2 (March–April, 1952), pp. 73–80.

reduced pride in work from such reduction in skill requirements for jobs, resentment of the system which caused it results.

6. The belief that gains in productivity won't be fairly distributed. In general, this belief is merely the persistent concern over justice that tends to enter into wage issues. It may represent distrust of management. It is perhaps not unjustified where sharing plans are used and management receives part of the benefit of the worker's increased effort and better application.

In most incentive plans today, however, the worker receives the full results of his increased personal efficiency. Where the belief persists under these conditions, the worker is asking for a share in increased productivity, not attributable to his own efforts, but to methods changes and other technological improvements. Some union leaders encourage these beliefs.[124] Others believe that if effort expended and skill required are not increased by the change, no increase in pay is due the worker.[125] These leaders stress the necessity of teaching workers the basic economics of such policies.

7. The belief that many wage incentive plans are too complicated. When the plan is so complex that the worker cannot compute his own pay, it is difficult to convince him that the plan is fair. Similarly, when he cannot understand how standards are arrived at, he is apt to be convinced that the system is not in his interest. It has been repeatedly demonstrated that people fear what they don't understand.

When, as often happens, the employee's supervisor is unable to explain the system to his satisfaction, this belief is intensified. And entirely too few organizations make a sincere effort to explain the entire incentive procedure to the employee.

8. The conviction that standards are set unfairly. Workers often believe that (1) only the fast workers are timed, (2) allowances are juggled to produce predetermined results, (3) effort ratings are usually below actual pace, and (4) the longer times are thrown out in computing the standard. Employees are likely to know very little about time study, but unfortunate experiences and

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[124] Barkin, "Labor's Attitude Toward Wage Incentive Plans," *Industrial and Labor Relations Review*, Vol. 1, No. 4 (July, 1948), pp. 553–572.

[125] Anthony Doria, *Industrial Engineering and the Union* (Madison: Industrial Management Institute, University of Wisconsin, May 13, 1952, multigraphed), p. 5.

hearsay can easily convince them that the procedure is designed to confuse and injure the worker.

Managements that insist that the process of standard setting is a management prerogative not to be questioned by workers or worker representatives do little to alter this belief. Nor do time study men who refuse to admit that judgment enters into standard determination—and who insist that incentive systems establish "scientific wages"—convince workers that standards are fairly set.

Unions often help to enforce this belief. They point out that time study and other work measurement devices involve numerous subjective elements—that at least as yet, a "fair day's work" cannot be measured objectively. Criticism is strongest against effort rating, which some union leaders insist is lacking in objectivity.

A worker's resentment against being watched and timed makes it easy for him to believe the results of time study are unfair. Unless a way is found to obtain his confidence, each standard is likely to be a subject of controversy.

9. A belief that employee opinions and feelings do not count with the time study engineer. Certain types of industrial engineers who are called "efficiency experts," "systematizers," and so on are strongly distrusted by workers. Some time study men cause resentment by their approach and methods. For example, they may forget their staff capacity and give orders to workers, insist on more speed, or correct motions in an officious manner. Such actions on the part of a time study man not only reflect poor training, because ability to sell himself and the standards is at least as important as technical knowledge, but also reflect improper attention to organization structure. And proper organizational relationships become even more important when it is remembered that a social distance already exists between time study men and employees.[126]

10. The fear of fluctuating earnings. Especially in piecework, it is possible for a worker's earnings to fluctuate from week to week. Feelings of insecurity are not unlikely to result, and the difficulty of budgeting household expenditures is likely to be resented by the employee and his family.

In a way, this instability of earnings represents a transferring of

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[126] K. A. Lifson, "Securing Cooperation in a Methods Change," *Personnel*, Vol. 28, No. 1 (July, 1951), pp. 41–45.

part of the risks of business to the employee.[127] Employees and their unions believe that the responsibility for adequate productivity belongs to management rather than employees. Also, they have seen enough poor scheduling and other management errors and lack of planning to make them question why productivity should be increased through additional effort when there are so many other ways available. They may even doubt management's ability to keep conditions standard. Under such conditions, they are likely to feel that they are paying for management's mistakes. This attitude is not improved by managements who stress lower costs rather than increased production as the primary reason for the incentive plan.

11. The belief that an incentive system is used to avoid a deserved increase in pay. This belief may be based upon hearsay or upon experience. Some employers have, for example, added increases to incentive earnings rather than base pay. Others have increased standards to offset an increase in base pay. Still others have granted increases to daywork employees only. Such experiences make employees doubt the sincerity of employers in their operation of wage incentive systems. The current trend toward time-saving plans and away from piece rate plans may be evidence of employer realization of the existence of this belief.

12. The belief that incentive systems increase strain upon the worker and may impair his health. There is little doubt that such systems do increase work loads above those existing in daywork plants. The fear of health impairment is probably unjustified in modern incentive installations, and as work measurement procedures improve, the likelihood of health impairment diminishes. Fortunately, the fear of increased physical strain is one of the minor objections to incentive plans.

13. Fear of change. Behind many other worker objections to incentive systems may be fear of change. A frequent by-product of wage incentive installations is the increased tempo of methods changes. Methods changes bring forth difficult problems of adjustment of standards and of skill dilution, as previously discussed. Equally important, they often require that the employee learn new skills.

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[127] Barkin, "Labor's Attitude Toward Wage Incentive Plans," *Industrial and Labor Relations Review*, Vol. 1, No. 4 (July, 1948), pp. 553–572.

Similarly, changing a method is often taken by the worker as an implied criticism of himself. Again, workers speak of the job as "my" job—and dislike changes made without their approval. Or they may feel that all changes are "by and for the company" and that they have nothing to gain by such changes. Often reinforcing the fear of a methods change is the knowledge that many such changes require an accompanying change in the social system of the factory.[128]

14. The belief that the entire incentive principle is unfair to the employee and his union. One union leader is quoted as saying, "In introducing an incentive we are asking a man to do more than a fair day's work. [We tell him] 'If you do more than you are supposed to do, you will get more money.' " [129] According to Barkin,[130] workers question the justice of tying wages to effort when they observe that no other economic activity is under such close scrutiny.

Unions may object to the additional administrative burden placed on union leaders by an incentive plan. Union leaders typically are handicapped by lack of knowledge of wage incentive systems and sometimes by lack of facts. The burden of responsibility to discover mistakes may fall upon workers and shop stewards. Increased numbers of grievances may appear. Because the contract is more difficult to administer when an incentive plan exists, more union personnel are required.

15. The belief that management's motives in installing an incentive plan are questionable. The sum of the beliefs and fears mentioned contributes to a lack of confidence in what management is really attempting to accomplish when an incentive plan is installed.[131]

When such attitudes exist, it is useless to brush them aside as being unreasonable or illogical. It is essential that management take these attitudes into account in the installation, operation, and

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[128] Lifson, "Securing Cooperation in a Methods Change," *Personnel*, Vol. 28, No. 1 (July, 1951), pp. 41–45.

[129] Russell A. Hedden, "Labor's Attitude Toward Wage Incentives," *The Conference Board Management Record*, Vol. 8, No. 8 (August, 1946), pp. 265–267.

[130] Barkin, "Labor's Attitude Toward Wage Incentive Plans," *Industrial and Labor Relations Review*, Vol. 1, No. 4 (July, 1948), pp. 553–572.

[131] Van Dusen Kennedy, *Union Policy and Incentive Wage Methods* (New York: Columbia University Press, 1945).

maintenance of the incentive system. Only to the extent that such fears and beliefs can be shown to be inapplicable to the plan under study will the system work. Accordingly, the next step is to lay down the principles of successful installation, operation, and maintenance of wage incentive systems.

ESSENTIALS OF A SUCCESSFUL WAGE INCENTIVE SYSTEM

Wage incentive systems involve both technical engineering and human relations problems, which must be solved together if such plans are to be effective.[132] Although numerous problems remain and further research is in order, enough successful installations have occurred to make possible a listing of the essentials of a successful wage incentive system. The possibility of meeting many of these requirements will depend in part upon the background of labor relations in the organization.

1. The objectives to be accomplished by a wage incentive system should be determined. It is essential that the objectives of a wage incentive system be carefully formulated before any other steps are taken. These objectives become the guideposts for the installation process and a yardstick against which results may be measured. A careful statement of objectives should go far toward preventing situations where rewards are offered for results not desired by either the employer or employee.[133]

Although numerous objectives are possible, in most installations they will include: (1) paying workers on the basis of accomplishment and (2) increasing wages and reducing costs.[134]

2. The need for a wage incentive system should be discussed with and the proposed system explained to executives, supervisors, and employees before installation begins. Where unions represent the employees, this also means consultation with union leaders.

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[132] Whyte, "Economic Incentives and Human Relations," *Harvard Business Review*, Vol. 30, No. 2 (March–April, 1952), pp. 73–80.

[133] For some examples, see Robert H. Roy, "Do Wage Incentives Reduce Costs?" *Industrial and Labor Relations Review*, Vol. 5, No. 2 (January, 1952), pp. 195–208.

[134] Hedden, "Labor's Attitude Toward Wage Incentives," *The Conference Board Management Record*, Vol. 8, No. 8 (August, 1946), pp. 265–267.

The understanding and interest of top management must be sought.[135] If incentives are to gain recognition and general approval throughout an organization, they must have the unqualified support of management. Mere lip service or acquiescence of management is not enough to provide incentives with the official blessing needed to gain the complete acceptance and hearty cooperation of various company department heads.[136]

Supervisors and employees are more likely to accept the plan if they are asked to participate in its development. After a careful explanation of the need for an incentive system, employees and supervisors should be asked for suggestions. Acceptance becomes possible and a better plan may result when those most directly affected have an opportunity to suggest improvements in the plan and it becomes, at least in part, their plan.

Part of the discussion should be devoted to reassuring the worker regarding management's objectives, the time study system and methods to be used, how results will be used, and how the worker fits in. Informal, friendly conferences and meetings of small groups of employees and supervisors permit the desired participation.[137] Many organizations also use these meetings to reassure workers regarding their job security and to explain the methods to be employed in alleviating any hardship cases that appear under the plan.

Extra indoctrination sessions are usually required for supervisors and payroll clerks. The former must be sufficiently versed in the operation of the system to answer satisfactorily workers' questions. The latter may have technical questions regarding procedures that would not concern the workers.

In unionized organizations, union leaders may be asked to participate in the development of the system and solicited to talk the plan over with employees. These people may be of great assistance in explaining the program to workers.

Some unions have developed policies on wage incentive installa-

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135 W. H. Spencer, "Wage Incentives from a War Production Viewpoint," *Proceedings, Third Annual Conference on Industrial Relations, April 19–21, 1945* (Minneapolis: Center for Continuation Study and Industrial Relations Center, University of Minnesota, 1945), pp. 7–8.

136 Rogers, *Wage Incentive Problems and Techniques*, p. 7.

137 Leslie M. Slote, "Diagnostics for Management," *Methods*, Vol. 4, No. 2 (July, 1953), pp. 6–7.

tion.[138] Where such policies call for local and/or international union approval of incentive plans, it is wise to obtain such approval early in the installation process. The organization is also wise to show the union the prospects for steady employment, because such information is useful in allaying the fears of employees as well as in obtaining union approval. Granting full union security has been suggested as an effective means of convincing the union and the employees of management's sincerity.[139]

In wage incentive installation it is wise to determine the conditions under which cooperation can be stimulated before attempting to fit the incentive system to these conditions. Unless it is possible to promote the feeling throughout the organization that the program is fair, cooperation will be lacking. Only when the system is effectively integrated into the pattern of supervision and union-management relations will workers respond to financial incentives.[140] The National Industrial Conference Board recommends: "Obtain real agreement between management and labor before adopting or modifying an incentive plan." [141]

A further aid in promoting acceptance and understanding of the incentive system is slow, gradual installation. The plan may be applied one department at a time, perhaps beginning with the department in which the most technical difficulties are anticipated.[142] After a suitable trial period, the installation is extended to another department, and so on.

3. The wage incentive system must be simple and understandable to employees. All procedures should be as simple as possible and understood by all people concerned.[143] Complicated sharing formulae should be avoided wherever possible.[144] The plan

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[138] See *Executive's Labor Letter*, April 20, 1943 (New York: National Foremen's Institute), p. 4.

[139] Doria, *Industrial Engineering and the Union*, p. 6.

[140] Whyte, "Economic Incentives and Human Relations," *Harvard Business Review*, Vol. 30, No. 2 (March–April, 1952), pp. 73–80.

[141] Hedden, "Labor's Attitude Toward Wage Incentives," *The Conference Board Management Record*, Vol. 8, No. 8 (August, 1946), pp. 265–267.

[142] Rogers, *Wage Incentive Problems and Techniques*, p. 8.

[143] Hedden, "Labor's Attitude Toward Wage Incentives," *The Conference Board Management Record*, Vol. 8, No. 8 (August, 1946), pp. 265–267.

[144] Barkin, "Labor's Attitude Toward Wage Incentive Plans," *Industrial and Labor Relations Review*, Vol. 1, No. 4 (July, 1948), pp. 553–572.

should be simple enough for the employee to compute his own earnings.[145] If the employee cannot understand how his pay is figured, it is easy for him to distrust the plan.

4. Jobs should be standardized, i.e., procedures, work places, materials, methods, quality requirements, and policies should be applied to the specific job by competent technicians.[146] All procedures and policies should be carefully standardized and formulated so as to be uniform, clear, and easily understood. This may involve motion study and work simplification before the standard is set. Training qualified operators in the use of the prescribed method is part of the standardization process.

5. Standards of output on which incentive earnings are based must be carefully determined. Present-day practice prefers that standards be developed through use of time studies based upon careful job standardization.[147] Standard output is defined as the amount of work performed per unit of time by a normal, qualified operator under normal conditions.[148] Such standards should measure directly the productivity of the worker and should not provide for premium pay at levels of productivity below those which should exist.[149] Measured standards should be based upon definite quality requirements.[150] A reasonable, uniform level of standards should be maintained.[151]

Requirements such as these, plus the key importance of properly determined standards in the operation of a wage incentive system, place great responsibility upon the time study man. He must be technically competent and capable of making sound judgments in

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145 Robert Collett and Fred Berlin, *Incentive Plans* (Madison: Industrial Management Institute, University of Wisconsin, December 6, 1951, mimeographed).

146 Solomon Barkin, "Management's Attitude Toward Wage Incentive Systems," *Industrial and Labor Relations Review*, Vol. 5, No. 1 (October, 1951), pp. 92–107.

147 Barkin, "Management's Attitude Toward Wage Incentive Systems," *Industrial and Labor Relations Review*, Vol. 5, No. 1 (October, 1951), pp. 92–107.

148 Hedden, "Labor's Attitude Toward Wage Incentives," *The Conference Board Management Record*, Vol. 8, No. 8 (August, 1946), pp. 265–267.

149 Spencer, "Wage Incentives from a War Production Viewpoint," *Proceedings, Third Annual Conference on Industrial Relations, April 19–20–21, 1945.*

150 Louden, *Wage Incentives*, p. 48.

151 Hedden, *ibid.*

the numerous situations calling for judgments whenever a time study is made.[152]

Technical competence, good judgment, and integrity are not sufficient to ensure successful time studies, however. A time study man must know industrial relations principles as well as time study techniques. He must be able to explain what he is doing and to gain the confidence of the people affected.[153] Unless he is able to secure acceptance of the standards he sets, his efforts have been wasted.

Recognizing the importance of this nontechnical phase of the time study job, many organizations are taking specific steps to aid time study practitioners in their work. For example, organizational relationships are being more carefully defined. One organization reported by Whyte [154] requires that the industrial engineer have written authorization from line management before entering a production department. He is required to show his authorization to the foreman and union steward upon entering a department and explain to them the reason for his visit. When he completes his study, the standard is discussed informally with the shop steward and it does not become official until approved by both the foreman and the production superintendent. Such arrangements preserve the advisory relationship of the industrial engineering department and place the responsibility for standards upon line management where it rightfully belongs.

Other organizations have emphasized in their selection and training of industrial engineering personnel the human relations phase of the job. For example, in selecting time study and methods men they look for (1) a genuine sympathy and liking for people, (2) the ability to write, and (3) a basic understanding of human values, as well as for technical competence. In training industrial engineering people, they emphasize: (1) respect for people, (2) a sense of belonging to the organization, (3) techniques of handling people, (4) the field of general semantics, (5) the use of qualified rather than flat statements, and (6) the proximity principle (seeing that

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[152] Pigors and Myers, *Personnel Administration*, p. 273.

[153] Slote, "Diagnostics for Management," *Methods*, Vol. 4, No. 2 (July, 1953), pp. 6–7.

[154] Whyte, "Economic Incentives and Human Relations," *Harvard Business Review*, Vol. 30, No. 2 (March–April, 1952), pp. 73–80.

employees become well acquainted with industrial engineering people).

Finally, in the actual process of standard determination, the following steps are carefully followed: (1) organizational relationships are carefully followed; (2) a meeting is held with the foreman and superintendent before the study is made; (3) sufficient time is spent with each worker to obtain his approval of the standard; (4) the standards are presented to foremen in small meetings; (5) the foremen present the standard to the workers and union stewards in small meetings, where a careful explanation is given and all questions are answered; (6) any worker can take exception to a standard and call for an immediate restudy; and (7) even after employee acceptance of the standard, it does not become official until the expiration of a month's trial period.[155] Such discussion of time study data and explanation of standards promotes acceptance of standards finally arrived at.

A few firms have been successful in reducing suspicion of time study by providing for training of union time study stewards who work with management in arriving at agreement on standards.[156] Still another approach is used in the garment and shoe industries, where piece rates have been negotiated with unions for years without the use of time study data.[157]

6. Equitable adjustments should be built into the incentive system for failures to meet standard, where such failure is beyond the employee's control.[158] Also there should be ample opportunity for the worker to work on incentive most of the time.[159] Workers should be compensated for management's failure to provide them full opportunity to earn incentive pay.[160] They should be instructed to make claims to their foremen regarding such conditions.

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155 Whitlinger, *The Human Aspects of Industrial Engineering*, pp. 11–13.

156 C. G. Frantz, "The Joint Development of Production Standards," in *Labor-management Cooperation for Increased Productivity, Production Series No. 175* (New York: American Management Association, 1948), pp. 3–14.

157 Pigors and Myers, *Personnel Administration*, p. 274.

158 Louden, *Wage Incentives*, p. 48.

159 Collett and Berlin, *Incentive Plans*.

160 Barkin, "Management's Attitude Toward Wage Incentive Systems," *Industrial and Labor Relations Review*, Vol. 5, No. 1 (October, 1951), pp. 92–107.

Successful incentive systems require the constant attention of competent supervision.[161]

7. An hourly base rate should be established for each job on incentive, preferably by job evaluation. This rate should be guaranteed regardless of the production of the worker. When the method of payment on a job is changed from a time to an incentive basis, the time rate is usually the guaranteed rate.

When an incentive plan is installed, it is wise to review the entire wage structure.[162] Average earnings at each job level should be carefully determined to insure that low-skilled jobs on incentive are not paid more than high-skilled jobs on daywork.[163] Failure to prevent such occurrences is one of the most serious problems of wage incentive systems.[164]

Careful attention should be given at this point to the problem of level as well as the problem of structure. Guaranteed base rates as well as time rates should reflect changes in the solution to the problem of levels. A successful incentive plan is not a scheme to avoid a justifiable increase in base rate.[165] Conversely, an incentive plan is not a subterfuge to increase pay without a corresponding increase in production.[166]

8. Earnings above standard should be in direct proportion to the increase in output above standard. Variable relationships at different levels of output are confusing and appear unfair to the worker. Employees favor plans which pay them for all production above standard because they are easier to understand and meet their standards of fairness. Employers find such plans advantageous in that they yield constant direct unit labor costs above standard output.

This direct relationship between earnings and output should prevail throughout the entire range of output (above standard). There

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161 Spencer, "Wage Incentives from a War Production Viewpoint," *Proceedings, Third Annual Conference on Industrial Relations, April 19–20–21, 1945.*

162 Rogers, *Wage Incentive Problems and Techniques.*

163 See p. 362 of this chapter.

164 Whyte, "Economic Incentives and Human Relations," *Harvard Business Review*, Vol. 30, No. 2 (March–April, 1952), pp. 73–80.

165 Spencer, "Wage Incentives from a War Production Viewpoint," *Proceedings, Third Annual Conference on Industrial Relations, April 19–20–21, 1945.*

166 Hedden, "Labor's Attitude Toward Wage Incentives," *The Conference Board Management Record*, Vol. 8, No. 8 (August, 1946), pp. 265–267.

should be no ceiling on incentive earnings.[167] It is expected that operators will earn, on the average, from 20 to 33 per cent above base rate,[168] but individual workers may far exceed the latter figure.

9. A clear system should be established for inspecting, counting, and recording output. Results should be posted daily to keep employees aware of what they have produced. This system should provide for an efficient paperwork routine that provides necessary information but does not burden the employee with time-consuming detail. Production counts should be made by a person whose earnings are not affected by the production counted.[169]

10. All standards should be guaranteed against change except where changes are made in materials, methods, equipment, or product. Such guarantees are essential if workers are to have a feeling of security under an incentive system. High earnings due to superior skill or application of certain employees should never occasion an increase in standard or a reduction of a piece rate.

Where, however, changes in materials, methods, equipment, or product are responsible for increased output, the standard must be revised to prevent inequities. This is true whether changes are originated by management or workers. When such changes are originated by a worker, he should be fairly paid for his innovation (probably through a suggestion plan), but the standard must still be revised. Revision should be limited, however, to the extent that equipment, methods, or materials have changed.

Management must convince employees that the basis of a change in standards is fair.[170] This may mean union-management agreement on whether or not sufficient changes have taken place to require a change in the standard. It may mean informal discussion with shop stewards of reasons for changes in standards. In any case, wise managements will follow the same principles of advance consultation and explanation employed in setting original standards. In addition, employees should be carefully trained to permit their

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[167] Hedden, *ibid.*

[168] Barkin, "Management's Attitude Toward Wage Incentive Systems," *Industrial and Labor Relations Review*, Vol. 5, No. 1 (October, 1951), pp. 92–107.

[169] Rogers, *Wage Incentive Problems and Techniques*, p. 10.

[170] Lifson, "Securing Cooperation in a Methods Change," *Personnel*, Vol. 28, No. 1 (July, 1951), pp. 41–45.

reaching the new standard with no difficulty and no loss in earnings.[171]

Some unions are reluctant to agree to changes in standards even where changes in the job exist, on the ground that workers should share in the increased productivity resulting from new equipment, methods, or materials.[172] Management must convince such unions that failure to correct standards results in inequities that only make for further difficulty. If management hopes to convince unions of the necessity of preventing inequities, it should share increases in productivity in the solution to the problem of levels.

11. A careful follow-up should see that standards are met or exceeded and, if they are not, determine the reasons why. Failure to meet standards may not be the fault of the employees. It may result from inadequate training, poor equipment, unequal flow of materials, and so on.

All phases of the incentive system must be rigidly maintained.[173] Failure to do so can result in wage inequities or in results that fail to coincide with the objectives of the plan.

12. Workers should be encouraged to use the grievance procedure when they question any part of the operation of the incentive system. Such grievances help management to uncover "trouble spots" in the system and permit their prompt correction. And such grievances must be handled promptly because they represent an opportunity to obtain favorable employee reaction to the program.[174]

13. The wage incentive system should cover all workers whose jobs can be adapted to the incentive method of payment. Some authorities believe that at least 80 per cent of the total work force should be eventually covered by incentive plans.[175] Failure to

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171 For an excellent discussion of training that helps workers adjust to methods changes, see Lester Coch and John R. P. French, Jr., "Overcoming Resistance to Change," *Human Relations*, Vol. 1, No. 4 (November, 1948), pp. 512–532.

172 Barkin, "Labor's Attitude Toward Wage Incentive Plans," *Industrial and Labor Relations Review*, Vol. 1, No. 4 (July, 1948), pp. 553–572.

173 Louden, *Wage Incentives*, p. 48.

174 Doria, *Industrial Engineering and the Union*, p. 6.

175 Barkin, "Management's Attitude Toward Wage Incentive Systems," *Industrial and Labor Relations Review*, Vol. 5, No. 1 (October, 1951), pp. 92–107.

cover all employees can result in dissatisfaction from (1) lack of opportunity to earn higher earnings and (2) a greater volume of work due to the faster pace under the incentive plan. Early plans in which indirect workers shared the productivity gains of direct production workers are today often resented by employees and their unions.[176] Fortunately, recent years have seen major developments in incentive plans for other than direct production employees. Such plans are discussed in the rest of this chapter.

INCENTIVES FOR INDIRECT WORKERS

In the opinion of many industrial engineers, the field of application of wage incentives is virtually limitless.[177] Each year situations where the cost of measurement exceeds the specific savings involved become fewer in number. What appeared impossible or uneconomical a few years ago is now yielding to economical measurement. Today there is scarcely a type of industrial activity that someone in this country has not successfully measured and applied to it an incentive system with reasonably satisfactory results.

The premise upon which this broadening use of wage incentive systems is based may be simply stated. All tasks, jobs, or functions must have a purpose or objective, if their existence can be justified. Better performance of this purpose or closer attainment of this objective is worth money to an organization. Devising a yardstick to measure this improved performance or closer attainment will therefore permit rewarding the individual or group who achieves it.

This conception of the application of incentive wage plans has encouraged such application to job shop work,[178] maintenance and repair work, materials handling, inspection, stock room work, janitorial work, warehousing, shipping, office work, transportation, and selling. The general approach has been (1) identifying measurable

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[176] *Executive's Labor Letter*, April 20, 1943.

[177] Richard S. MacKenzie, "The New Horizons for Wage Incentives," in *Proceedings, Second Annual National Time Study and Methods Conference* (New York: The Society for the Advancement of Management and the Management Division of the American Society of Mechanical Engineers, April 18, 19, 1947), pp. 69–75.

[178] In most organizations, of course, such work is classified as a direct labor operation. It is mentioned here because few organizations have applied incentive wage plans to such jobs. Increasing use of incentive plans on these jobs makes use of standard data to build up standards.

work as yardsticks through careful analysis,[179] (2) setting standards through time study, use of standard data, use of ratios, past performance, or supervisor's estimates, (3) applying an incentive system to individuals or groups. Where an intensive effort is made to find some productive unit of measurement that is obtained economically, it is usually forthcoming. Very often control records and production counts already required for production operations yield much of the information needed.[180]

Maintenance and Repair Work

Maintenance work from an incentive standpoint generally falls into two classes: (1) routine inspection and preventive maintenance and (2) repair work. The former is usually performed by certain members of the maintenance crew who are permanently assigned the duties of making regular rounds looking after various types of equipment. The duties may include oiling, inspecting, and making temporary or emergency repairs during his rounds. Check sheets may be provided to the worker, where he records the condition of equipment and notes any minor repairs made. The standards are built up in tabular form that permits a payroll clerk to reconstruct the work done and apply the proper standards.

Repair operations involve major repairs to equipment and buildings. They usually involve a pattern of tearing down equipment, overhauling it, and reassembling it. In building maintenance, they usually involve replacement, repair, or painting. The work is done either in a maintenance section or at various locations in the plant. In either case, direct standards can be accurately established through day-long time studies or through the use of standard data. Many organizations employ checkers whose duty it is to inspect the job at various stages and set standards.

Materials Handling or Transportation

Owing to the variable nature of this work, standards are usually developed in tabular form by like elements. The three basic ele-

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[179] For an excellent discussion of this process, see Executive Office of the President, Bureau of the Budget, *Techniques for the Development of a Work Measurement System* (Washington: U. S. Government Printing Office, March, 1950).

[180] Louden, *Wage Incentives*, p. 149.

ments are load, travel, and unload. Each of these elements is a variable, and the various possibilities must be covered in developing standards. A trucker, for example, is called upon to transport a variety of materials. Each must have a standard in terms of time allowed per unit or units loaded or unloaded. Distance is another variable, and the standard is some linear measurement. But conditions or obstacles that affect the speed of transport must be allowed for. Such obstacles would include doors, safety stops, use of elevators, and so on. Each possibility must be covered by standards and allowances so that simple records will permit a payroll clerk to reconstruct the work done and compare actual performance to standards.

When the worker is attached to the general plant transportation unit, these records involve few problems. The work is scheduled by the dispatcher. The latter's records and those of the trucker are sufficient.

When, however, a definite group of machines and operators are to be served by a number of service workers, the problem is somewhat different. The first necessity is a specification of the number of such workers needed to supply the production workers properly. Often production counts for service employees can be obtained from the production counts of the workers supplied. If the trucker must search for materials or parts or encounters other unusual conditions, it may be necessary to have him keep other records.

If the problem of placing service workers on direct incentive is too complex for economical record-keeping, such workers may be considered a part of the group they are serving. In such instances, the number of operators a worker must service must be carefully standardized. Then he can be paid on the basis of the average earnings of the group serviced. The service man's earnings must, of course, be varied when the number of people he services changes.

Inspection Work

Although there are differences of opinion on the advisability of placing inspectors on incentive, the trend is in that direction.[181] Those who object fear that the incentive system may encourage inspectors to slight their work. Such objections are useful as warn-

[181] Louden, *Wage Incentives,* p. 152.

ings. Not only in inspection incentives but in all incentive systems it is essential that plans be checked to ensure that they actually encourage the result desired by the organization.

The goal to be sought in inspection incentives is to achieve a balance between quantity of output and quality of inspection that gives proper emphasis to both. In inspection of work in process, greater emphasis can be placed upon quantity with strong penalties provided for substandard work caught in later inspections.

Final inspection, on the other hand, requires greater emphasis on accuracy. Here three factors are to be considered: (1) productivity, (2) the percentage of good product set aside as bad, and (3) the percentage of bad product set aside as good. Determining the relative emphasis requires a statistical investigation in the form of a check or sample inspection. Thus the work of the final inspector is submitted to a check inspector before release. The check inspector will sample both variables (2) and (3) in the proportions determined statistically. Building an incentive plan on the three variables properly weighted and with appropriate penalties can produce good results.

Janitorial Work

Work such as sweeping, scrubbing, and window washing may be reduced to a measure of the area cleaned. Additional variables are nature of the surface, equipment used, materials used, accessibility, and obstructions. Time data tables can be developed which set standards under conditions set by each of these variables. Work accomplished can be recorded by the supervisor. Janitorial operations lend themselves to methods study as readily as straight production work.

Office Work

Many clerical operations lend themselves to measurement and the application of wage incentive systems. Although Riegel [182] reported several such plans in 1940, the field still remains relatively unexplored.[183] One authority believes that practically every type

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[182] Riegel, *Salary Determination,* Chapter X.
[183] Rogers, *Wage Incentive Problems and Techniques,* p. 14.

of work in the office can be measured by time study with successful standards set on this basis. The only question is whether the volume standardized is sufficient to permit the savings to justify the cost of the study and the measurement.[184]

Typing, filing, billing, payroll work, addressographing, bookkeeping, card punching, statistical work, calculating and duplicating work have all been successfully measured even in small groups numbering only four to eight people.[185]

These examples are sufficiently illustrative to show the applicability of wage incentive systems to indirect workers. Once units of measurement are made available, the usual time study procedures and files of standard data may be employed to develop accurate standards. It should perhaps be stressed that the technical and human requirements of incentive systems apply with equal force to installations such as those just discussed. In addition, special care is required to ensure that the system serves to encourage only the objectives desired by the parties. Finally, it is apparent that additional careful research is called for in this area.

INCENTIVES FOR SALESMEN

Incentive systems have long been employed in the compensation of sales employees. Early plans were subject to much the same difficulties as those encountered in connection with application to direct production employees. As knowledge regarding incentive plans has been systematized, sales incentive plans have made use of the principles. Actually, the fundamental requirements of an incentive system applied to such employees are little different from those applied to shop or office employees.[186] Those responsible for such plans have learned that the human requirements discussed earlier in this chapter are especially important in the case of salesmen.[187]

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[184] MacKenzie, "The New Horizons for Wage Incentives," in *Proceedings, Second Annual National Time Study and Methods Conference,* pp. 69–75.

[185] MacKenzie, *loc. cit.;* see also "Office Time Study," *Business Week,* September 8, 1951, pp. 94–96; "Applying Incentives in the Office: One Company's System," *The Management Review,* Vol. 41, No. 12 (December, 1952), p. 790; "Montgomery Ward's Clerical Incentive Plan," *The Management Review,* Vol. 42, No. 11 (November, 1953), pp. 651–653.

[186] Michael, *Wage and Salary Fundamentals and Procedures,* p. 183.

[187] Howard R. Franks, *Compensation of Salesmen* (Madison: Industrial

Also the necessity of designing a plan so that employees are encouraged to do what management wants done requires careful attention in sales incentive plans.[188] In fact, the numerous parts of the sales job may pose a conflict between the encouragement of proper attention to all duties and keeping the plan simple and understandable.[189] Similarly, sales incentive plans impose special problems of administration and maintenance.[190] Finally, sales incentive plans have become increasingly effective as job analysis and time study techniques have been applied to sales jobs.[191]

SUMMARY

Wage incentive systems loom large as a solution to the problem of wage payment method. Such plans, however, are not cure-alls. Nor are they without problems. Successful wage incentive systems require concurrent solutions to weighty human and technical problems. But such solutions are possible. A successful wage incentive installation yields dividends in increased productivity and employee earnings at least proportionate to the effort required to promote success of the plan.

Management Institute, University of Wisconsin, April 7, 1953, multigraphed). See also Harry R. Tosdal, "Administering Salesmen's Compensation," *Harvard Business Review*, Vol. 31, No. 2 (March–April, 1953), pp. 70–83.

[188] Bert J. Todd, "Low Cost, High Incentive, When You Pay Men for What You Want Them to Do," *Sales Management* (October 1, 1946), pp. 90, 92.

[189] Frank W. Mansfield, *Motivating and Compensating Salesmen* (Madison: Industrial Management Institute, University of Wisconsin, December 5, 1950, mimeographed).

[190] Tosdal, "Administering Salesmen's Compensation," *Harvard Business Review*, Vol. 31, No. 2 (March–April, 1953), pp. 70–83. See also "Trends in Salesmen's Compensation: A Survey of Company Practice," *The Management Review*, Vol. 42, No. 11 (November, 1953), pp. 663–664.

[191] For a comprehensive discussion of sales compensation practices, see Harry R. Tosdal and Walter Carson, *Salesmen's Compensation* (Boston: Harvard University Graduate School of Business Administration, 1953).

13 · *Pay Plans for Executives and Supervisors*

SEVERAL SOLUTIONS TO THE PROBLEM OF METHOD OF PAYMENT HAVE been developed specifically for supervisors and executives. For example, incentive systems for supervisors are often somewhat different from those applied to rank-and-file employees. Similarly, executive pay plans have characteristics that differ from payment plans developed for either supervisory or nonsupervisory employees.

It should be noted, however, that it is only in solving the problem of payment method that separate solutions are considered for special groups of employees and jobs. Solutions to the problem of levels, structure, and individual wage determination follow the same line whether the employees under consideration are executives or shop workers.

This fact is often forgotten. Some organizations have separated salary administration from wage administration administratively. As pointed out in Chapter 2, the distinction between wages and salaries is a minor one involving only the time period employed in computing pay. And certainly the objectives of compensation policy and programs are identical for all employees. In the interests of good industrial relations it is difficult to justify a separation between programs covering wage earners and salary-paid people.[1]

Other organizations differentiate sharply between executives and

[1] R. E. Kirkpatrick, "Relationships Between Wage Policies and Programs and Salary Policies and Programs," in *Compensation Principles and Practices, Research and Technical Report 13* (Minneapolis: Industrial Relations Center, University of Minnesota, January, 1953), pp. 35–40.

other employees in matters of compensation, on the assumption that the former group faces problems, such as high tax rates, that do not concern the latter. The danger in such an approach is overemphasis on solutions to special problems with the result that compensation problems common to all employees are overlooked. For example, some companies have so stressed the development of techniques to provide tax advantages to major executives that proper salary levels and salary relationships (structures) have been neglected.[2]

Because of these tendencies on the part of some organizations to treat compensation problems of executives and supervisors as separate problems, it appears worthwhile to discuss briefly the manner in which solutions to wage problems discussed in previous chapters apply to executive and supervisory compensation.

LEVELS

Solutions to the problem of wage and salary levels were discussed in Chapters 3 through 5. Legislation, comparable wages and salaries, and various wage criteria were the keys discovered and applied. These answers apply to executive and supervisory salary levels as well as to other employees.

Salary surveys today customarily include key jobs at the supervisory level.[3] And although it is true that securing comparable data on supervisory jobs requires great care because of the great diversity of such jobs, it is possible and practicable using the methods outlined in Chapter 4. Similarly, certain of the wage criteria discussed in Chapter 5 are especially applicable to solving the problem of level on supervisory jobs. Also, present day practice calls for granting cost-of-living and improvement factor increases to supervisors when these increases are granted rank-and-file employees.[4] The

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[2] Arch Patton, "Executive Compensation: Tax Gimmicks vs. Incentives," *Harvard Business Review*, Vol. 31, No. 6 (November–December, 1953), pp. 113–119.

[3] "Is There a Better Way to Pay Foremen?" *Industrial Relations*, Vol. 5, No. 2 (June, 1947), p. 9; "Current Foremen's Compensation Practices," *Management Review*, Vol. 36, No. 11 (November, 1947), pp. 466–468.

[4] Herbert S. Briggs, "The Salaried Employee and the GM-Type Agreement," *The Conference Board Management Record*, Vol. 12, No. 10 (October, 1950), pp. 376–377.

former is usually applied as a flat amount and the latter on a percentage basis. Finally, overtime pay policy normally includes supervisors.[5]

Executive salary surveys are now being made on a regular basis by the American Management Association.[6] After a preliminary study in 1950,[7] this organization inaugurated an executive compensation service for its subscribers. Periodic surveys are made covering the five top-paid executives and twenty other top executive jobs. Also, AMA in 1953 began making surveys of middle management jobs.[8] Other management organizations besides AMA are making studies of executive compensation levels.[9] Some individual companies [10] make their own executive salary surveys.

Progress in this area has been delayed by (1) secrecy surrounding management salaries and (2) the great diversity in executive jobs between companies and industries. Pioneering work by Arch Patton began with data furnished to the Securities and Exchange Commission on the salaries of top executives. Starting with the job of chief executive, *responsibility level* rather than job duties was used to attain comparability. The data were broken down by industry and company size in order to provide means of comparison.[11] The surveys of major executive salaries made by AMA are likewise made in terms of responsibility, i.e., president, top marketing executive, top industrial relations executive, and so forth. Middle management surveys, however, are based upon careful job descriptions, like surveys applying to lower level jobs. It is possible that salary surveys of major executives will make use of job

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[5] Herbert S. Briggs, "Paying Supervisors for Extended Overtime," *The Conference Board Management Record*, Vol. 12, No. 12 (December, 1950), p. 442.

[6] See "Yardstick for Management Salaries," *Business Week*, January 31, 1953, pp. 72, 74.

[7] Patton, "How Much Should an Executive Be Paid?" in *Financial Management Series Number 97*, pp. 16–22.

[8] "Yardstick for Management Salaries," *Business Week*, January 31, 1953, pp. 72, 74.

[9] See *Compensation of Management Personnel* (Chicago: The Dartnell Corporation, 1952); also "Executives Fail to Match Hired Hands in Pay Gains," *Business Week*, March 1, 1952, pp. 102–104.

[10] Herbert S. Briggs, "Evaluating Executive Positions," *The Conference Board Management Record*, Vol. 11, No. 11 (November, 1949), pp. 476–477.

[11] Arch Patton, "Current Practices in Executive Compensation," *Harvard Business Review*, Vol. 29, No. 1 (January, 1951), pp. 56–64.

descriptions as more organizations continue to analyze executive jobs.

Attempts to attain comparability of executive salary data by classification by (1) industry, (2) profit level, (3) sales, (4) ownership, and so on [12] would seem to suggest ways in which the various criteria outlined in Chapter 5 are applicable to executive salary levels. That use of such criteria is essential in making final decisions on executive salary levels is shown by the wide dispersion remaining even within carefully defined classes.

An intriguing device for determining adequacy of executive salary levels is suggested by Patton [13] in the January, 1953 issue of *Fortune*. Called the "proportion-management" concept, it is based on his finding that in large companies top management comprises 0.1 per cent of total employees and middle management comprises 0.9 per cent of the total. By comparing the proportion of total payroll paid to these groups in a given company to industry figures, it would be possible to determine adequacy of executive salary levels. Patton's test of the concept was worked out on data from 37 companies employing 20,000 or more, and he found top management received 1.2 per cent of payroll in 1950 as against two per cent in 1939. If additional research shows that the concept is applicable to small organizations, it might be possible to collect industry data by company size to use as yardsticks.

STRUCTURE

Solutions to the problem of structure were offered in Chapters 6 through 10. Several of the job evaluation methods discussed were suggested as especially applicable to higher-level jobs.

Most organizations with job evaluation programs have evaluated supervisory jobs either in the same system as used for the jobs supervised or in separate systems for supervisory jobs alone. The latter procedure follows more closely the logic of job evaluation developed in Chapter 6.

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[12] Patton, *loc. cit.;* Jerome M. Rosow, "Executive Compensation in Small Companies," *Harvard Business Review*, Vol. 31, No. 3 (May–June, 1953), pp. 55–63.

[13] Arch Patton, "Are Executives Paid Enough?" *Fortune*, January, 1953, pp. 106–107, 122–124.

In pricing the supervisory structure, some difficulty has been encountered in keeping proper differentials between supervisors and those supervised. Although such problems occur much more rarely in organizations employing job evaluation, they are often attributable to overtime and incentive earnings of employees. Many companies have arbitrarily set a minimum differential between the supervisor and the highest-paid subordinate or an average of the five highest-paid subordinates.[14] Careful attention to adjustment of wage and salary levels of all groups when one is changed can minimize such difficulties.

Job evaluation for executive jobs is being employed in a growing number of organizations.[15] Need for some such systematic approach to executive pay relationships is suggested by Towl [16] who points out that ". . . though external relationships cannot be completely disregarded in determining executive compensation, . . . the continued satisfaction and development of executives often depends more on their relationships with other executives in the same organization." He suggests that each organization study the pattern of executive pay relationships and assure itself that this pattern follows and serves to reinforce the organization's concept of management teamwork. This requires at least informal job evaluation.

A recent study shows that although rank-and-file employees received pay increases of an average of 106 per cent between 1939 and 1950, supervisors' pay was increased only 83 per cent, middle management 45 per cent, and top management only 35 per cent in the same period.[17] Though there may be many reasons behind this narrowing of differentials, a major one is probably exemplified by

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[14] S. Avery Raube, "Pay Differentials for Executives and Supervisors," *The Conference Board Management Record*, Vol. 9, No. 7 (July, 1947), pp. 192–197; "Is There a Better Way to Pay Foremen?" *Industrial Relations*, Vol. 5, No. 2 (June, 1947), p. 9.

[15] See "Evaluation of Managerial Positions" (Chicago: Business Research Corporation, 1949); and in *The Conference Board Management Record:* Herbert S. Briggs, "Job Evaluation: Guide to Salaries," Vol. 11, No. 4 (April, 1949), pp. 142–143; Briggs, "Evaluating Executive Positions," Vol. 11, No. 11 (November, 1949), pp. 476–477; Briggs, "Executive Position Evaluation—A Case Study," Vol. 12, No. 7 (July, 1950), pp. 260–261.

[16] Andrew R. Towl, "Patterns of Executive Compensation," *Harvard Business Review*, Vol. 29, No. 4 (July, 1951), pp. 25–36.

[17] "Executives Fail to Match Hired Hands in Pay Gains," *Business Week*, March 1, 1952, pp. 102–104.

studies which show that for supervisory and executive groups "adjustments are made on an individual basis." [18] Until management realizes that it is necessary to maintain pay structures in line with the difficulty and responsibility of jobs throughout the organization and that it is necessary to adjust the level of all groups when one group is increased, these differentials will probably continue to narrow. It is desirable to pay individuals on the basis of performance, but this does not remove the necessity of paying the job in line with its position in the structure. Only the development of job structures (through at least informal job evaluation) and pricing in accordance with these structures will maintain proper relationships between the pay for jobs. Studies such as Towl's [19] point to the necessity of maintaining such relationships if satisfaction and productivity of *all* employees are to be maintained.

INDIVIDUAL WAGE (OR SALARY) DETERMINATION

After the pay for jobs has been determined by solving the problems of level and structure, attention turns to payment of individuals on the basis of performance. Solutions to the problem of individual wage determination were offered in Chapter 11. Answers developed there are applicable to all levels of employees. Because of the trend toward flat rates for rank-and-file employees in some organizations, the merit philosophy developed in Chapter 11 is probably most applicable to supervisory and executive personnel. Definite salary ranges may be developed for all jobs, together with a carefully defined appraisal system for moving employees through the range. Executive salary ranges are usually wider (usually a maximum of 50 per cent) than those of lower-level jobs. Overlapping is permitted between adjacent pay grades.

PAYMENT METHOD

In seeking solutions to the problem of wage (or salary) payment methods, a distinction between rank-and-file employees and super-

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[18] Raube, "Pay Differentials for Executives and Supervisors," *The Conference Board Management Record*, Vol. 9, No. 7 (July, 1947), pp. 192–197.

[19] Towl, "Patterns of Executive Compensation," *Harvard Business Review*, Vol. 29, No. 4 (July, 1951), pp. 25–36.

visory and executive employees is sometimes made. Specific solutions to the problem have been developed for the latter groups. For supervisors, answers center around incentive plans. For executives, specific methods emphasize not only incentive but encouragement to come and to stay with the organization, as well as tax considerations.

Supervisory Incentive Plans

Incentive plans for supervisors are of two types: (1) plans based on incentive performance of subordinates and (2) plans based on measurement of the supervisor's performance on controllable costs, quality, waste, and other factors for which he and his department are directly responsible. Incentive systems of the former type are relatively simple and useful where labor cost represents nearly all of controllable cost.[20] In these plans supervisors are sometimes penalized for time spent on nonincentive work by subordinates. Advantages of this type of supervisory incentive are (1) its simplicity and (2) encouragement of labor performance. Disadvantages are (1) supervisors are tempted to accept loose standards, (2) they have little stimulus to encourage methods changes, and (3) subordinates must be on incentive.

Plans of the latter type are sometimes called "savings sharing" plans.[21] They more closely approximate the basic principles of a sound incentive plan for supervisors because they generally emphasize several aspects of the supervisor's multi-phased job. The major advantage of such plans is their recognition of all controllable cost and efficiency factors within a supervisor's responsibility. Disadvantages are (1) difficulty of segregating and measuring controllable factors and (2) complexities involved in weighting factors so as to direct supervisory attention where it is needed.

Present-day practice emphasizes the latter type of plan. This is due partially to unfavorable reactions of subordinates to early plans in which savings were shared with supervisors, and partially to the temptation afforded supervisors under plans based on performance of subordinates to neglect important aspects of their jobs. Most plans

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[20] Robert S. Rice, "Incentives for Supervisors," *Factory Management and Maintenance*, Vol. 111, No. 7 (July, 1953), pp. 96–97.

[21] "Incentive Pay for Supervisors: A Survey," *Personnel*, Vol. 24, No. 5 (March, 1948), pp. 341–350.

today are multiple-factor plans that blend three kinds of factors: (1) a plant-wide factor to encourage interdepartmental cooperation, (2) a departmental factor to evoke intradepartmental cooperation, and (3) two or three unit factors to stimulate optimum individual supervisory response.[22] Note that this combines elements of both individual and group plans. Certain authorities insist that a supervisory incentive plan must be completely separate from the plan applied to subordinates.[23]

Requirements of a Successful Supervisory Incentive Plan

Requirements for a successful incentive installation were outlined in detail in Chapter 12. All of these essentials apply with equal force to a supervisory incentive plan. Certain of these needs call for special emphasis, however, and certain others are specific to supervisory incentives. The reader should be cautioned that these generalizations are based upon limited experience and deserve additional careful research.

1. The supervisors' base pay must be correct before the plan is installed. This requires attention to level of pay and to pay relationships (structure). The incentive plan cannot be a substitute for a deserved pay increase nor a device to offset pay inequities within the supervisory group.[24] Salary ranges and provision for merit increases should also be set up prior to installation of the plan.[25]

2. The responsibilities of the supervisors must be clearly specified. There must be clear agreement on what the supervisor is expected to control before the effectiveness of control can be measured. Also, authority must accompany responsibility, to permit the supervisor to control factors the control of which he is held responsible for.

3. Reporting and accounting procedures must be adequate for accurate measurement of results. Also, these procedures must be

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[22] Mee (ed.), *Personnel Handbook*, pp. 257–258.

[23] Rogers, *Wage Incentive Problems and Techniques*, p. 14; James R. Bailey, *Wage-Incentive Problems and Techniques* (Madison: Industrial Management Institute, University of Wisconsin, October 9, 1951, mimeographed), pp. 15–16.

[24] "Incentive Pay for Supervisors: A Survey," *Personnel*, Vol. 24, No. 5 (March, 1948), pp. 341–350.

[25] Rice, "Incentives for Supervisors," *Factory Management and Maintenance*, Vol. 111, No. 7 (July, 1953), pp. 96–97.

stable, i.e., changed only infrequently. Such procedures usually present little difficulty if subordinates are on incentive.[26] Organizations using a complete standard-hour, or point system, or a complete budgetary system, already have a basis for supervisory tasks in their regular analysis sheets.[27]

4. Only factors that are controllable by the supervisor should be included in the plan.[28]

5. All factors that contribute to success of the department or unit should be considered. But only those definitely measurable should be included.[29]

6. One factor for plant-wide efficiency and another for department-wide efficiency should be considered.[30]

7. The plan should be kept as simple and easily understood as possible. Whenever possible, it should make use of presently existing records and reports. It is usually desirable to limit the number of factors to five.[31]

8. Measured standards should be used whenever possible. Where past records are used, they must be subjected to thorough analysis. Graphic comparisons are especially useful in such studies.[32] Standards should be fair and definite with little or no overlap. They should be positive wherever possible.[33]

9. Tasks for the various supervisors should be equitable. Some supervisors are already more efficient than others and should not be penalized for this fact.[34]

10. Careful weighting of the factors is essential. A factor must be made to contribute to a supervisor's bonus in the same proportion that it contributes to his effectiveness as a supervisor. Amount of money involved and potential savings are important. Sufficient

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[26] Louden, *Wage Incentives*, p. 116.

[27] Mee (ed.), *Personnel Handbook*, p. 258.

[28] Rice, "Incentives for Supervisors," *Factory Management and Maintenance*, Vol. 111, No. 7 (July, 1953), pp. 96–97.

[29] Mee (ed.), *Personnel Handbook*, p. 258.

[30] Mee (ed.), *Personnel Handbook*, p. 258.

[31] Louden, *Wage Incentives*, p. 130.

[32] George E. McCarthy and John J. Plocar, "How New Britain Machine Controls Costs with Supervisors' Incentives," *Factory Management and Maintenance*, Vol. 111, No. 7 (July, 1953), pp. 102–105.

[33] Mee (ed.), *Personnel Handbook*, p. 258.

[34] Mee (ed.), *Personnel Handbook*, p. 258.

weight must be given each factor to insure its not being forgotten by the supervisor.[35]

11. Supervisory bonus should be calculated monthly,[36] and the supervisor should be informed of his earnings and presented with a report showing their computation. Most plans pay the bonus monthly,[37] although some authorities recommend that bonus be accumulated over a six-month period [38] in the case of budgetary standards.

12. The bonus should be paid in a separate check at some time other than the regular pay day.[39]

13. Negative results, according to Louden, should not be carried forward from month to month.[40] Each month's record should be wiped clean.

14. Standards must be guaranteed for a definite period and revised only at intervals agreed upon in advance and only to meet changed conditions assumed to be permanent.[41] Guarantees of one year or six months are frequent.[42]

15. Each incentive plan must be tailored to fit a specific application.[43]

16. Supervisors' suggestions are useful in setting up the plan. Responsibility for design is often given to a committee consisting of (1) a member of the methods staff, (2) a representative of the budget staff, (3) the operating superintendent, and (4) a representative of the supervisors.[44]

17. The plan should pay the supervisor about 25 per cent on optimum, not maximum, results. Extra remuneration usually begins

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[35] Louden, *Wage Incentives*, p. 123.
[36] Louden, *Wage Incentives*, p. 121.
[37] "Incentive Pay for Supervisors: A Survey," *Personnel*, Vol. 24, No. 5 (March, 1948), pp. 341–350.
[38] Louden, *Wage Incentives*, p. 121.
[39] "Incentive Pay for Supervisors: A Survey," *Personnel*, Vol. 24, No. 5 (March, 1948), pp. 341–350.
[40] Louden, *Wage Incentives*, p. 121.
[41] "Incentive Pay for Supervisors: A Survey," *Personnel*, Vol. 24, No. 5 (March, 1948), pp. 341–350.
[42] Mee (ed.), *Personnel Handbook*, p. 263.
[43] "Incentive Pay for Supervisors: A Survey," *Personnel*, Vol. 24, No. 5 (March, 1948), pp. 341–350.
[44] Mee (ed.), *Personnel Handbook*, p. 259.

at 70 to 80 per cent of composite task. For each factor, the general rule is to set starting points where costs begin to look favorable and the ending points where further gains are unlikely. Either straight line or accelerating earning curves may be used.[45] The bonus is usually calculated as a percentage of the supervisor's monthly base salary.[46]

18. Supervisory incentive plans require aggressive administration and maintenance. More plans fail from poor administration than any other reason.[47]

Factors Employed in Supervisory Incentives

In supervisory incentive plans the aim is improvement in one or more of the following: (1) quality and quantity of work; (2) economy in the use of materials and services; and (3) cooperation among supervisors and with top management.[48] To measure attainment of these goals, a formula is developed that records performance on a limited number of factors. Although most plans limit the factors employed to five or less, all of the following have been used in supervisory incentive plans.

1. Departmental budget efficiency. Budget efficiency is determined from budget allowances versus actual costs. Use of this factor requires (1) setting a standard or expected normal, (2) a per cent variation from normal considered extreme, and (3) a bonus scale for each percentage point of variation.

If the plan is to include more than one factor, a special problem of weighing appears when this factor is used. All items of cost are included in the budget. If items included in the budget are also included as separate factors in the plan, duplication results. There are two possible solutions to this problem. One is to remove from the budget figure used for this purpose the factors included separately. Another is to use the over-all budget figure and, in establishing the bonus scale for this factor, give proper weight to items not included as separate factors.

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[45] Mee (ed.), *Personnel Handbook*, pp. 263–264.

[46] Louden, *Wage Incentives*, p. 121.

[47] Rice, "Incentives for Supervisors," *Factory Management and Maintenance*, Vol. 111, No. 7 (July, 1953), pp. 96–97.

[48] "Incentive Pay for Supervisors: A Survey," *Personnel*, Vol. 24, No. 5 (March, 1948), pp. 341–350.

2. Over-all plant budget efficiency. It is important that some over-all plant factor be included in the supervisory incentive plan because this practice tends to ensure that the supervisor will keep in mind the relationship of his department with the rest of the plant.[49] Failure to include such a factor encourages a supervisor to drive for lower costs within his department that might adversely affect total plant costs. Some plans are based entirely on this factor.[50]

3. Efficiency of direct labor. This factor, sometimes called "labor efficiency," "departmental bonus earned," "quantity of production," or "performance," is definitely measurable and positive. It is usually expressed as total standard hours of direct labor divided by total actual hours of direct labor. Supervisory bonus on this factor is determined by setting some minimum percentage where bonus begins and the average expected percentage, and scaling bonus in between. One plan uses an inverse ratio and sets the break-even point between reward and penalty at 100 per cent.[51]

In some installations, reward on this factor is modified by the ratio of incentive hours to total hours. Others combine the percentage of nonincentive time and the percentage of waiting time and include it as a separate factor in the supervisory plan.[52]

4. Indirect labor efficiency. This factor may be called "economy of services" or "nonproductive labor." This factor is the equivalent of number 3 for indirect labor, which includes extra supervision, excessive maintenance, clerical and miscellaneous services, and the like. It can be measured by the same kind of ratio. It is best expressed in man-hours, i.e., total standard hours of indirect labor (derived from the allowed percentage of indirect to direct hours) divided by total actual hours of indirect labor. The standard might also be expressed in terms of the relationship between direct and indirect labor, but it seldom is.

5. Economy of direct material. This factor may be measured negatively by setting as standards desirable percentages of waste,

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[49] Louden, *Wage Incentives*, p. 127.

[50] J. E. Heidgen and Hiley Davis, "Incentives for Middle Management," *Factory Management and Maintenance*, Vol. 111, No. 7 (July, 1953), pp. 98–101.

[51] McCarthy and Plocar, "How New Britain Machine Controls Costs with Supervisors' Incentives," *Factory Management and Maintenance*, Vol. 111, No. 7 (July, 1953), pp. 102–105.

[52] Louden, *Wage Incentives*, p. 119.

spoilage, or reclaim. If budgets are used, the measure is budgeted allowance for all direct material wastes divided by actual direct material wastes.[53] Such a measure permits combining the several percentages, but must be carefully adjusted periodically if prices of raw materials vary greatly.

6. Economy of indirect materials. Typical items to be controlled here are: oils, greases, files, grinding wheels, and office supplies. When budget figures are available, the measure is obtained by dividing budgeted allowance for expense materials and supplies by actual use of expense materials and supplies. The extent to which any one supervisor is responsible must be determined and the weighting varied in accordance with this determination.

7. Quality of product. The degree of control of quality independent of the supervisor is the determinant of the advisability of using quality as a factor. Standards are usually expressed as dollars involved in rejections, returned merchandise, rework, cost of servicing after sale, and so on. Because of the possibility that one supervisor can, by neglecting quality, affect the work of other departments, this factor is widely used as part of the supervisor's task.[54]

8. Fulfillment of schedules. This is a measurable factor but depends greatly upon delivery promises. It is possible to set an arbitrary percentage as standard. Where this factor is used, it is possible to use an "activity" correction to adjust credit in accordance with plant activity. One organization makes use of a departmental activity factor as one factor in their plan and pays bonus for activity above a standard base, but does not penalize supervisors when production falls below normal.[55]

9. Accident prevention. This factor is measurable in terms of published industry figures on severity and frequency rates. Experience shows that this factor, when included in supervisory task, can influence accident rates.[56]

10. Miscellaneous factors. Other factors which could be used as bases for supervisory incentive plans but which are less often used

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[53] Mee (ed.), *Personnel Handbook,* p. 261.

[54] Mee (ed.), *Personnel Handbook,* p. 260.

[55] McCarthy and Plocar, "How New Britain Machine Controls Costs with Supervisors' Incentives," *Factory Management and Maintenance,* Vol. 111, No. 7 (July, 1953), pp. 102–105.

[56] Mee (ed.), *Personnel Handbook,* p. 262.

because of their intangible nature or because they are not completely under the supervisor's control are: (1) cooperation; (2) harmony of workers; (3) maintenance; (4) housekeeping; (5) human relations; (6) grievances settled; (7) absenteeism; (8) employee turnover; (9) punctuality of department; (10) fixed expenses. The first five are not definitely measurable. The last five are somewhat beyond the supervisor's control.

Steps in the Development of a Supervisory Incentive Plan

The first step in instituting a supervisory incentive plan is to determine the major factors against which actual performance is to be measured. Proper selection of factors ensures (1) that the attention of supervisors is directed to all the important aspects of the job and (2) that the factors selected are those over which the supervisors have control. Where subordinates are on incentive, useful measures of most of the applicable factors are already available. If it is decided to include factors where such measures are not available, it is necessary to make a thorough analysis of the conditions affecting each factor and past performances on it to insure including only data substantiated by fact as being inherent in that factor.

After the factors are determined, the weight each factor is to carry in making up the total bonus is assigned. The weight allowed each factor is determined essentially by the proportion the various costs of each unit contribute to the costs of the whole plant and by the potential savings. The process of weighting must also consider whether one factor will conflict with another. Also, care must be taken to allow sufficient weight to each factor to ensure its not being disregarded.

Next, standards are set on each factor. This involves a careful analysis of past performance and current conditions on each factor. Standards are set at a point representing 70 or 80 per cent of optimum achievement, or what can reasonably be expected.[57] Most plans pay a bonus of 25 per cent of salary at the optimum point.

Then the basis of rewards and penalties is established. This involves constructing a scale of bonus values for each factor—positive values between the average and the optimum point and negative values below the average point. In setting these scales, careful atten-

[57] Mee (ed.), *Personnel Handbook*, p. 263.

Figure 66 *

SUMMARY OF REWARD AND PENALTY

FACTOR	NORMAL	REWARDS AND PENALTIES
Activity	*Direct Hours 12,000*	Divide the actual direct hours by the normal direct hours and refer the resulting per cent to the following table of rewards for activity:

% of Norm.	Reward	% of Norm.	Reward	% of Norm.	Reward
55%	0	87%	7%	123%	14%
60%	1%	91%	8%	130%	15%
64%	2%	96%	9%	139%	16%
69%	3%	100%	10%	149%	17%
73%	4%	105%	11%	161%	18%
78%	5%	110%	12%	177%	19%
82%	6%	116%	13%	218%	20% max.

Non-Prod. Hours	*.075* times the direct hours for the period plus *100* hours.	Divide the actual non-productive hours by the normal non-productive hours, and for each *4%* below or above 100% add or deduct 1% of salary.
Scrap	*.0049* times the direct hours for the period.	Divide the actual scrap cost for the period by the normal scrap cost, and for each *50%* below or above 100% add or deduct 1% of bonus.
Reclaim	.0027 times the direct hours for the period.	Divide the actual reclaim cost for the period by the normal, and for each *70%* below or above 100% add or deduct 1% of bonus.
Supplies	*.065* times the average direct hours for the last 3 periods plus *$30.*	Divide the average cost of supplies for the last three periods by the normal, and for each *6%* below or above 100% add or deduct 1% of bonus.
Service Hours	*.015* times the direct hours for the period plus *26* hours.	Divide the actual service hours for the period by the normal, and for each *12%* below or above 100% add or deduct 1% of bonus.
Performance Ratio	100%	The per cent of reward or penalty is determinable by direct reading on the following table:

Figure 66 (cont.)

Perf. Ratio	*Reward*	*Perf. Ratio*	*Reward*	*Perf. Ratio*	*Penalty*	*Perf. Ratio*	*Penalty*
90%	1%	65%	5%	110%	1%	135%	5%
80	2	60	6	120	2	140	6
75	3	55	7	125	3	150	7
70	4			130	4		

* *Source:* George E. McCarthy and John J. Plocar, "How New Britain Machine Controls Costs with Supervisors' Incentives," *Factory Management and Maintenance*, Vol. 111, No. 7 (July, 1953), p. 102. Copyright by McGraw-Hill Publishing Company, Inc. Reprinted by permission.

tion must be paid to studies of past performance to determine whether equal bonus steps should accompany equal percentage changes in the factor or whether large increments of bonus should accompany small improvement or vice versa.

The final step is development of application procedures. This involves such matters as advising each supervisor of standards on each factor and the scales of rewards and penalties, assigning responsibility for computing bonus, developing a form to accompany bonus checks, and so on. Figure 66 shows an example of a summary of reward and penalty for a supervisor. Figure 67 shows an example of an incentive report to the supervisor.

Figure 67 *

INCENTIVE REPORT

SUPERVISOR	John Doe		PERIOD	June	
	Normal	*Actual*	%	+	—
1. ACTIVITY (Productive Hours)	12,000	15,960	133.0%	15.30%	
2. NON-PROD. HOURS	1,190	1,215.0	102.1		.60%
3. SCRAP	$78	$63	80.8	.38%	
4. RECLAIM	$43	$21	48.8	.73%	
5. SUPPLIES (3-Month Average)	$918	$1,091.06	119.0		3.17%
6. SERVICE (3-Month Average)	237	121.3	51.3	4.06%	
7. PERF. RATIO	100%	75.5%	75.5	2.90%	
TOTAL				23.37%	3.77%
NET PERCENTAGE				19.60%	
DOLLARS				$98	

This brief discussion of supervisory incentive plans has purposely neglected many important aspects of installation procedure. In these matters such plans do not differ from incentive plans for other

* *Source:* George E. McCarthy and John J. Plocar, "How New Britain Machine Controls Costs with Supervisors' Incentives," *Factory Management and Maintenance*, Vol. 111, No. 7 (July, 1953), p. 103. Copyright by McGraw-Hill Publishing Company, Inc. Reprinted by permission.

employees. It is suggested that the reader review the material on this point presented in Chapter 12, especially human requirements and the essentials of a successful wage incentive plan.

Executive Pay Plans

The objectives of executive compensation are actually no different from the objectives determining pay for other employees. These goals, in general, are (1) to secure and keep an adequate supply of capable people, (2) to reward them in accordance with the level of their job in the job structure, (3) to provide an incentive to produce in accordance with capabilities. Unfortunately, many discussions of executive compensation have neglected these basic aims and concentrated on another, namely, to increase the share the executive can keep after income taxes.[58] Various devices have been suggested to accomplish this latter objective—deferred payment plans, stock options, pension and other fringe items, payment of certain living expenses, profit-sharing trusts, joint capital trusts, and so on. One major executive is reported to have said: "You can't compete for executive talent today without a gimmick." [59]

There is growing evidence that this preoccupation with the tax aspects of executive compensation is tending to obscure the more important elements in executive pay. A number of instances have been reported where the top executive has refused increases because of the impact of the progressive income tax, with the result that subordinate executives were not granted increases. Also, several companies adopted executive pay plans that enabled the top executive to defer income with tax advantages, only to discover that such plans did not meet the needs of the majority of executives in the organization. In such instances the needs of a small group of people

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[58] See "How to Make a Raise Worth It," *Business Week*, October 4, 1952, pp. 113, 114; "Executive Pay," *Time*, August 24, 1953, p. 74; Henry V. Rothschild, "The 'Inflationary Lag' in Executive Compensation," *Personnel*, Vol. 29, No. 1 (July, 1952), pp. 25–32; "The Management Pattern," *Business Week*, May 17, 1952, p. 112; Edward H. McDermott, "Executive Financial Incentives Under Current Conditions," in *General Management Series Number 142* (New York: American Management Association, 1948), pp. 26–33; "Impact of Salary Control and Income Taxes on Executive Pay," *The Management Review*, Vol. 41, No. 8 (August, 1952), pp. 529–530; "Executives Fail to Match Hired Hands in Pay Gains," *Business Week*, March 1, 1952, pp. 102–104.

[59] "Executive Pay," *Time*, August 24, 1953, p. 74.

may be served at the expense of the needs of the majority of executives and of the company.[60]

Although there is no question that progressive income taxes have reduced executive take-home pay,[61] there is little evidence that this fact has reduced executive incentive.[62] And even if such evidence did exist, it is difficult to justify an arrangement that benefits a very small minority of the executives if it is inimical to the interests of the organization.

All this suggests that in executive compensation, as in the compensation of other employees, all of the problems of wage and salary administration require solution. Only when effective solutions have been found to the problem of level and the problem of structure is it possible to consider methods of paying individuals or specific payment methods applicable to particular groups. And if such differentiation conflicts with the goals to be reached, its usefulness should be questioned. There is a place for the various tax-saving devices in executive compensation, but only where they can be applied in a way that aids in accomplishing all the purposes of executive compensation. When executive compensation is geared to the needs of the top level executives alone, results may be more harmful than helpful. Top level executives may need tax gimmicks, but 90 per cent of the executives need cash.[63]

Thus there are common elements in all companies that must be considered before executive pay plans are considered.

1. Salary levels must be adequate.
2. Salary relationships must be balanced in terms of functions and responsibilities.

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[60] Patton, "Executive Compensation: Tax Gimmicks vs. Incentives," *Harvard Business Review*, Vol. 31, No. 6 (November–December, 1953), pp. 113–119.

[61] "Executives Fail to Match Hired Hands in Pay Gains," *Business Week*, March 1, 1952, pp. 102–104.

[62] Barbara R. Maness and G. Clark Thompson, "How Taxes Affect Executive Incentive," *The Conference Board Business Record*, Vol. 6, No. 3 (March, 1949), pp. 98–101; William H. Whyte, "How Hard Do Executives Work?" *Fortune*, January, 1954, pp. 108ff.; "The Management Pattern," *Business Week*, May 17, 1952, p. 112; Robert B. Fetter and Donald C. Johnson, *Compensation and Incentives for Executives* (Bloomington, Indiana: Indiana University Press, 1952).

[63] Patton, "Executive Compensation: Tax Gimmicks vs. Incentives," *Harvard Business Review*, Vol. 31, No. 6 (November–December, 1953), pp. 113–119.

When these problems are solved attention can turn to the problem of paying individual executives for their accomplishments and the manner in which the latter is to be done (payment method). As mentioned earlier in this chapter, most organizations solve the problem of individual pay determination in accordance with solutions offered in Chapter 11. Many also employ one or more of the answers provided below.

For purposes of discussion, executive pay plans may be classified into (1) incentive plans and (2) tax-savings plans. That the distinction is not wholly satisfactory, however, will be seen as the discussion proceeds.

Executive Incentive Plans

Incentive plans for executives may be classified into two main types: (1) the profit accomplishment type and (2) the standard accomplishment type. In the former, executives are rewarded in terms of their contribution to the profit of the organization. The latter have evolved from supervisory incentives and reward executives for their performance compared against definite standards expressed in terms of budgets, sales volume, unit costs, and so on.

Standard accomplishment plans are often applied to middle management.[64] Definite standards of accomplishment are set up on such factors as (1) cost-efficiency, (2) capacity operation, (3) shipping budgets, (4) volume of sales, and (5) competitive standing.[65] Such plans may be made up of all the measuring elements that go to make up the incentive plans applying to lower-level personnel.[66] Also, definite systems of rewards and penalties are provided in advance. It is customary in standard accomplishment plans to pay bonus in accordance with results, whether or not a profit is realized by the organization. These plans are merely extensions of supervisory incentive plans and require no further discussion.

As standard accomplishment plans have evolved from the bottom up, profit accomplishment incentives have evolved from the top

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[64] Heidgen and Davis, "Incentives for Middle Management," *Factory Management and Maintenance*, Vol. 111, No. 7 (July, 1953), pp. 98–101.

[65] Charles Walter Lytle, *Wage Incentive Methods* (New York: The Ronald Press, 1942), pp. 379–384.

[66] See Ford R. Larrabee, "Nine Incentive Plans in a Two Hundred Man Plant," *Advanced Management*, Vol. 18, No. 12 (December, 1953), pp. 9–11.

down. In the latter type of incentive, no bonus is paid unless the organization attains a certain level of profits, and an individual executive's bonus is determined by his contribution to that profit.

The profit contribution of each executive is determined by (1) a careful study to determine the profit potential of his job and (2) a careful appraisal at year's end to determine how well the executive has realized this potential. For example, the profit responsibilities of a production manager might be measured in terms of unit cost, quality of product, meeting delivery schedules, and utilization of facilities.[67] Performance compared to a sales budget established by careful market analysis may be used to determine the profit potential of a sales manager's job. The treasurer or financial vice president is responsible for meeting financial plans, borrowing funds on favorable terms, and maintaining credit criteria. The executive vice president and president have more general responsibilities—maintaining or improving the competitiveness of the company, improving labor and community relations, and maintaining a flexible and growing organization.[68]

A successful executive incentive plan has certain definite characteristics.[69]

1. The fund out of which the bonus is to be paid relates to profits. All executives eligible for bonus are notified that if their combined efforts produce a specified profit, the group share will be a certain proportion of the total. This sharpens the profit consciousness of executives as a group and serves to identify their interests with those of the stockholders. Also, since the reward is tied to profits, both money-saving and money-making faculties are aroused.

2. Executives know how they are judged. In a sound incentive plan, each executive knows beforehand the factors in his job upon which his profit contribution will be judged. Also, his performance on each of the specific profit elements that make up his job will be reviewed with him several times during the year.

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[67] Arch Patton, "Incentive Compensation Develops Executives," *Advanced Management*, Vol. 17, No. 4 (April, 1952), pp. 7–10.

[68] Bruce Payne, "Building and Maintaining a Successful Organization," *The Controller*, Vol. 21, No. 4 (April, 1953), pp. 171ff.

[69] Patton, "Incentive Compensation Develops Executives," *Advanced Management*, Vol. 17, No. 4 (April, 1952), pp. 7–10.

3. Bonus payments are based upon individual contribution. This is the most difficult and important component in a successful incentive plan. Although top management judgment is essential in determining individual profit contribution, yardsticks that provide a factual basis for judgment are equally necessary. These yardsticks must be tailor-made to fit a particular organization after study of the profit potential in an individual executive's job. A management that has studied the profit potential of a job sufficiently to work out measurable performance yardsticks knows enough about the job to judge an executive's performance.

4. Top management must "police" the incentive plan's results. This requires that top management assure itself that bonuses are given only on the basis of profit contribution. One approach is to insist that every bonus recommendation be accompanied by a listing of unusual contributions of the individual.

Bonuses may be paid in cash or in company stock. Patton found that companies paying bonuses to executives showed greater progress over the years than those companies that did not. And that companies paying stock bonuses were among the fastest-growing, most progressive companies in the country.[70]

Incentive bonus may be paid in the year earned or in a series of installments. General Motors pays bonus in from one to five installments to encourage executives to stay with the organization.[71] The Kroger company scales bonuses to represent 15 per cent of total compensation at the lower level of executives and 30 per cent at the top.[72] Patton's studies lead him to conclude that a successful bonus plan probably requires payment in a good year of 30 per cent of salary or more.[73]

Profit accomplishment bonuses are sometimes called executive

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[70] Patton, "Current Practices in Executive Compensation," *Harvard Business Review*, Vol. 29, No. 1 (January, 1951), pp. 56–64.

[71] Merle C. Hale, "The Bonus as an Incentive in Management Motivation," in *Financial Management Series 97* (New York: American Management Association, 1951), pp. 8–11.

[72] Joseph B. Hall, "Incentive Compensation for Executives: Philosophy and Practice," in *Financial Management Series 97* (New York: American Management Association, 1951), pp. 3–7.

[73] Arch Patton, "Who Should Get Stock Options," *Personnel Journal*, Vol. 30, No. 11 (April, 1952), pp. 417–424.

profit sharing.[74] This appears incorrect for two reasons: (1) profit sharing plans are usually thought of as applying to all employees [75] and (2) most profit sharing plans make no attempt to measure the contributions of individuals.

Tax Savings Plans

For an executive in high salary brackets the progressive income tax is a major factor in determining his preferences in payment methods. Regular salary and incentive bonuses are taxed at high rates. If all or part of the bonus is in the form of company stock, the recipient is taxed at its market value in the year of receipt.

A few organizations have met this problem with employment contracts where (1) the employer agrees to pay a stated sum after taxes (the tax-free contract), or (2) an estimated tax payment is added to salary (the tax anticipation contract), or (3) the employer agrees to pay the executive's tax (the tax reimbursement contract).[76] Lack of popularity of such arrangements may be largely attributable to the adverse public relations that could result. Other employees pay their own taxes and probably justifiably resent such treatment of a favored few. An equally valid objection is the cost to the organization. At today's high tax rates it would be difficult to justify such practices to the stockholders, especially if other arrangements are available.

And other arrangements are available that permit tax savings for the executives at less cost to the organization. Some of them are: (1) stock option and purchase plans, (2) deferred compensation, (3) pensions, (4) insurance and other fringe items, (5) profit sharing trusts, and (6) joint capital trusts. A study by Booz, Allen & Hamilton revealed that a majority of organizations in their study used three or more of these plans for their presidents.[77]

Stock Options. One of the most popular devices used in executive compensation is the restricted stock option. Although this device is not a new one, it attained wide popularity as a result of provisions in the 1950 revenue act.[78] Under the law, a company

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[74] Mee (ed.), *Personnel Handbook,* p. 269.

[75] Profit sharing will be discussed in detail in the next chapter.

[76] Mee (ed.), *Personnel Handbook,* p. 267.

[77] "How to Make a Raise Worth It," *Business Week,* October 4, 1952, pp. 113, 114.

[78] Beatrice F. Brower, "Restricted Stock Option Plans," *The Conference Board Management Record,* Vol. 13, No. 12 (December, 1951), pp. 431–433.

can offer any of its employees an option to buy stock at not less than 85 per cent of the market price. If the option is at not less than 95 per cent of market value, when the stock is purchased by the employee no tax is due on any profit realized until he sells the stock and then only at the capital gain rate. If the option is granted at less than 95 per cent of market, but not less than 85 per cent, profit on the stock is taxed at ordinary income tax rates but not until the stock is sold and the profit realized. Conditions attached to these tax advantages are that the option can only be exercised during employment or within three months thereafter, and that the stock must be held for at least two years from the date the employee gets the option and for at least six months after exercising the option.

According to the law, such plans are designed to give executives: (1) a share in the business, (2) an added incentive to make the worth of the business grow, and (3) compensation of a sort that high direct taxes prevent.[79] Although stock options can accomplish the last two objectives, it is doubtful whether the first can be accomplished as well with this device as with others such as stock purchase or stock bonus plans.[80] The task of financing the purchase is not a small one, and if the market drops during the enforced waiting period the executive is often forced to sell.[81]

For stock options to be advantageous to a given company, the following conditions should exist:

1. Capital stock should be listed and actively traded.
2. The company should have been reasonably successful in the recent past and stockholder relations should be cordial.
3. The top executive group should be fairly young (averaging 55 or less).
4. Executive compensation should already be high so that salary increases would carry very high tax rates.
5. The executive given an option should be free to sell the stock.
6. The business should be such that executive action can have an appreciable effect on stock prices.[82]

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[79] "The Idea Has Its Dangers," *Business Week*, October 24, 1953, pp. 90–99.
[80] Patton, "Who Should Get Stock Options," *Personnel Journal*, Vol. 30, No. 11 (April, 1952), pp. 417–424.
[81] "The Idea Has Its Dangers," *Business Week*, October 24, 1953, pp. 90–99.
[82] Patton, "Who Should Get Stock Options," *Personnel Journal*, Vol. 30, No. 11 (April, 1952), pp. 417–424.

For the stock option to operate as an executive incentive, the following conditions must prevail:

1. The executive must be in a position to contribute to company profits.
2. The executive must be in a very high tax bracket.[83]
3. The option must be large enough so that the profit potential is worth while and still not so large as to prevent the executive from paying for the stock.[84]

These conditions suggest that the plan should probably be limited to the top two levels of executives in companies where they are adjudged applicable.[85] Although these plans meet the requirements of the tax authorities, they must be cleared with stockholders, and if too freely used may result in a serious dilution of stockholders' equity.

Stock Warrants. Because of the financing difficulties faced by executives in exercising stock options, some companies have turned to the stock warrant as an executive compensation device. Stock warrants are negotiable certificates giving the holder the right to buy a certain number of shares of a company's stock at a set price within a specified time. Thus an organization may sell such a warrant to an executive. When the stock appreciates in value, he may sell the warrant and pay only capital gains tax on the profit realized.[86]

The major advantage of the warrant idea over the stock option is that in the former the executive does not have the huge financing problem involved in picking up the stock. The disadvantage is that the executive is not encouraged to keep the stock. This is no different from the stock option arrangement, however, after the enforced holding period has elapsed.

Stock Purchase Plans. Perhaps the best method when the major objective is to encourage executives to acquire and keep stock in the company is the stock purchase plan.[87] In these plans the executive

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[83] Above $25,000 annual income according to Patton, "Who Should Get Stock Options," *Personnel Journal*, Vol. 30, No. 11 (April, 1952), pp. 417–424.

[84] Between two and four years' salary according to Patton, *ibid.*

[85] Patton, *ibid.*

[86] "Either Way It's a Capital Gain," *Business Week*, April 11, 1953, pp. 104–110.

[87] Brower, "Restricted Stock Option Plans," *The Conference Board Man-*

obligates himself to buy a definite amount of stock at a specified price, and the company usually aids the executive in financing the purchase at a low rate of interest. Thus a plan is often set up so that the executive may pay for the stock in convenient installments. The spread between interest and dividend rates can help the executive acquire more funds to buy more stock. In many plans the company agrees to repurchase the stock at the price the executive paid, thus protecting him against a declining market.[88]

Stock purchase plans like stock options often offer stock to executives (and often other employees) at a special price. A difference is that usually only the former carries an arrangement whereby the company aids in financing the purchase. The major objective of stock purchase plans is to foster employee interest in the business. The major objective of the stock option is to permit executives to take advantage of lower tax rates from appreciation of stock prices.

Deferred Compensation Contracts. An executive compensation method where tax savings are the primary goal is the deferred payment contract. Under such contracts part of income may be deferred five or more years. Such contracts normally call for payment for a period of years after the executive retires from the organization. For example, the contract may call for a specified income for the period during which the executive is actively involved in management and a reduced income for a definite period of years thereafter.

Although tax consequences of such arrangements are still not entirely clear,[89] companies employing the device believe that including an element of uncertainty about collection of deferred pay is sufficient to avoid payment of present tax. For example, the individual executive may be asked to agree: (1) to give up the deferred pay if he leaves the organization before retirement; (2) not to compete or to work for a competitor during the period in which deferred pay is received; (3) to remain available for consulting or advisory services; (4) to waive deferred pay if company earnings

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agement Record, Vol. 13, No. 12 (December, 1951), pp. 431–433; Patton, "Who Should Get Stock Options," *Personnel Journal*, Vol. 30, No. 11 (April, 1952), pp. 417–424.

[88] "Cut Taxes, Save for the Future," *Business Week*, February 23, 1952, pp. 140–148.

[89] Rothschild, "The 'Inflationary Lag' in Executive Compensation," *Personnel*, Vol. 29, No. 1 (July, 1952), pp. 25–32.

fall below a specified level.[90] Obviously, any formal arrangement by the company to ensure that the funds are available to pay the executive in later years removes an element of uncertainty. Thus it is considered unwise to fund these plans. A few organizations have done so by purchasing an individual insurance policy payable to the company. The executive has no interest in the policy. If he leaves the organization before retirement, the policy may be used to aid in securing a replacement.

By deferred payment contracts, executive pay is spread out over a longer period, thus reducing income tax payable in any one year. Also the executive is encouraged to stay with the organization. Although such plans have been growing in popularity, some companies refuse to employ the device. Until tax consequences are entirely clear, there is always the possibility that the entire deferred income may be taxed in one year.[91]

Pension Plans. Many organizations use pension plans for executives as a device for deferring income, with consequent tax advantages. Such plans must be approved by the Commissioner of Internal Revenue, however, in order to obtain such tax advantages, and to obtain such approval it must be shown that the plan does not discriminate in favor of highly-paid employees. Treasury rulings do not, however, require that all employees be included in the plan. Recent Treasury rulings have permitted group plans covering selected groups to yield pensions of up to one-third of salaries without too great expense to the company.[92]

Deferred Profit Sharing. A group pension plan may be combined with deferred profit sharing or the latter plan may be used alone in lieu of a pension plan.[93] Such plans also require Internal Revenue Department approval and are subject to the same rules in selection of groups. Under such plans stated proportions of profit are contributed to a fund to be paid participating employees at retirement. Treasury rules require that the profit sharing formula be definite, objective and nondiscretionary. A maximum of 15 per cent of

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[90] "Cut Taxes, Save for the Future," *Business Week*, February 23, 1952, pp. 140–148.

[91] "Deferred Pay: How and Why," *Business Week*, May 30, 1953, pp. 103–104.

[92] Rothschild, "The 'Inflationary Lag' in Executive Compensation," *Personnel*, Vol. 29, No. 1 (July, 1952), pp. 25-32.

[93] Profit-sharing arrangements will be discussed in detail in Chapter 14.

annual compensation of participating employees, plus any necessary amounts to make up deficiencies from previous years and not to exceed 30 per cent, may be deducted for tax purposes by the corporation as business expense. The Revenue Act of 1951 encouraged such plans by permitting tax advantages when such funds are invested in company stock.[94]

Joint Capital Trusts. Simons [95] has suggested the "joint capital trust" as a device which combines the deferred profit sharing plan with employee contributions. A joint capital trust, according to Simons, would be built up out of company earnings, employee contributions, and tax savings; would be invested in the company; and would make distribution to all participating executives and employees. He believes that most objectives of executive compensation are attainable through such plans, and that by investing funds in the stock of the employing organization, the additional advantage of helping the company secure needed capital is obtained. Tax savings are realized through deferment of compensation. Executive interest in the success of the company is insured by his knowledge that the fund is invested in company stock.

Executive Fringe Benefits. Many organizations are attempting to accomplish tax savings for executives by providing more advantageous fringe benefits for such employees. For example, group insurance contracts for executive groups may be made more liberal. Higher ceilings may be provided in group life, health, and disability insurance plans. Life insurance policies as high as $100,000 have been provided out of company contributions for the executive. Disability insurance plans designed to pay executives $10,000 a year for a ten-year period have been employed. At present such benefits are tax free to executives and premiums paid by the company are deductible as business expense, but organizations such as the National Association of Life Underwriters warn that if such policies appear unreasonable the Treasury may take another look at these tax aspects.[96]

Other examples of fringe benefits for executives are (1) company

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[94] "Inflationproof Retirement," *Business Week*, December 15, 1951, p. 25.

[95] Gustave Simons, "The 'Joint Capital Trust,'" *Harvard Business Review*, Vol. 31, No. 2 (March–April, 1953), pp. 57–69.

[96] "Insurance Sweetens Salary," *Business Week*, September 26, 1953, pp. 120–122; "Tax Men Eye Wage Fringes," *Business Week*, July 18, 1953, pp. 120–121.

payment of club membership fees, (2) free medical services, (3) company-maintained recreational facilities, (4) more liberal vacations, (5) availability of company counsel and accountants to executives on a free basis, (6) scholarship funds for children of executives on a competitive basis, (7) executive dining rooms, (8) company automobiles, (9) business magazines and professional books, (10) payment of education costs of executives.[97] There is also a trend toward providing executives with charge accounts while on company business so that the company may pay expenses directly instead of having the executive reimbursed through expense accounts. Thus executives may be provided with charge accounts with airlines, railroads, and hotels.[98]

Although fringe benefits specifically designed for executives have been expanding, not all organizations approve of the trend. Some point to the possibility of fringe benefits being taxed as income should they appear unreasonable. Others insist that they smack of special privilege and are resented not only by other employees but by the intelligent recipient.[99] Still others point to the serious abuse of the perquisite in England (where companies sometimes go so far as to pay the tailor bills of their executives) and believe that continued special privileges can lead to a deterioration in the standards of public morals.[100] Perhaps also present is the fear that rank-and-file employees will demand similar privileges.

EPILOGUE ON EXECUTIVE COMPENSATION

A specialist in executive compensation has observed that "management may become so intrigued with the form that it loses sight of the substance." [101] Others have questioned the overemphasis on

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[97] "Personal Business," *Business Week*, June 20, 1953, pp. 183–184.

[98] Rothschild, "The 'Inflationary Lag' in Executive Compensation," *Personnel*, Vol. 29, No. 1 (July, 1952), pp. 25–32.

[99] Joe Sweeten, "Salary Administration for Exempt Personnel," in *Personnel Series Number 114* (New York: American Management Association, 1947), pp. 16–23.

[100] Rothschild, "The 'Inflationary Lag' in Executive Compensation," *Personnel*, Vol. 29, No. 1 (July, 1952), pp. 25–32.

[101] Andrew R. Towl, "Looking Ahead," *Harvard Business Review*, Vol. 30, No. 5 (September–October, 1952), p. 156.

tax aspects of executive compensation.[102] Thus it appears necessary to repeat that the essential problems of executive compensation are not different from problems of wage and salary administration for other employees. When management is considering the advisability of employing a special device to apply to executives, it must carefully consider whether the plan will help or hinder solution of the wage and salary problem. In examining a particular plan, management should seek out the objective (or objectives) of the plan and determine how closely it meets the total objectives of executive compensation. If the projected pay scheme conflicts with fundamental objectives or if it is suspect from a public relations standpoint, management may want to reconsider. Relationships with lower level executives, rank-and-file employees, and stockholders may be more important than a temporary advantage to a few.

Only a limited space was allotted to the so-called tax savings plans and only the more prominent devices were mentioned.[103] Legal and other technical aspects of such plans make it important that, after a particular plan is judged applicable to a specific organization, expert advice be obtained before adoption.

Though the problem of payment method is especially important in executive compensation, it is no more important (and probably much less so) than the problems of level and structure. If a specific solution to the problem of method precludes or is substituted for satisfactory solutions to these other problems, it may be quickly discovered that it is no solution at all.

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[102] Patton, "Executive Compensation: Tax Gimmicks vs. Incentives," *Harvard Business Review*, Vol. 31, No. 6 (November–December, 1953), pp. 113–119; Simons, "The 'Joint Capital Trust,'" *Harvard Business Review*, Vol. 31, No. 2 (March–April, 1953), pp. 57–69; "A Cautious Look at Extra-Salary Plans," *Business Week*, April 18, 1953, p. 144.

[103] For a more complete treatment of executive pay plans, see J. K. Lasser and William J. Casey, *Executive Pay Plans* (Roslyn, New York: Business Reports, Inc., 1953).

14 · *Profit Sharing and Guaranteed Wage Plans*

BEFORE LEAVING THE PROBLEM OF WAGE PAYMENT METHOD THERE are two other payment plans that deserve discussion—profit sharing plans and guaranteed wage plans. Current interest in these arrangements is such as to require separate treatment. Profit sharing plans have attracted increasing attention since the formation of the Council of Profit Sharing Industries in 1947 [1] and there were about 15,000 such plans in operation in the United States in 1952.[2] Guaranteed wage plans have similarly received increasing consideration in recent years, largely as a result of pressure exerted by labor organizations, and many negotiation sessions must deal with demands for the guaranteed wage.[3]

Some authorities appear to think of these devices, especially the former, as types of incentive systems.[4] In fact, as will be seen, profit sharing plans tend to shade into group incentive arrangements. Similarly, some proponents of the guaranteed wage emphasize its potential effect on productivity.[5] For these reasons this text classi-

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[1] See Robert S. Hartman, "Profit Sharing: Labor-Management Cooperation in Free Enterprise," in *Employee Welfare and Benefit Programs, Research and Technical Report* 7 (Minneapolis: Industrial Relations Center, University of Minnesota, November, 1950), pp. 41–48.

[2] Prentice-Hall Editorial Staff, *Successful Employee Benefit Plans* (New York: Prentice-Hall, Inc., 1952), p. 154.

[3] "Management's New Problem," *Business Week*, April 11, 1953, pp. 96–99.

[4] Dickinson, *Compensating Industrial Effort*, p. 329 refers to profit sharing arrangements as "teamwork incentives."

[5] Murray W. Latimer, *Guaranteed Wages: Report to the President of the Advisory Board* (Washington, D. C.: Government Printing Office, 1947).

fies profit sharing plans and wage guarantee plans as wage payment methods.[6]

PROFIT SHARING

Profit sharing arrangements have a long history both in this country and abroad, but the record is not wholly favorable. In 1946, Industrial Relations Counselors reported the results of a study that found that (1) a very small proportion of firms have adopted such provisions, and (2) there has been a high mortality in such plans.[7] Others have expressed doubt as to their usefulness as an incentive device and re-emphasized their high mortality rate.[8] Still others have stressed traditional union opposition to such plans.[9]

Advocates of profit sharing arrangements answer these objections, cite glowing accomplishments of successful plans, and enumerate plausible reasons why unsuccessful plans have failed. The high mortality rate, for example, may be explained by the fact that the goals set in these unsuccessful plans were unattainable under any circumstances.[10] A recent report states that studies of plan mortality include two fallacies: (1) they ignore the fact that not every discontinuance reflects plan failure, and (2) they present percentage figures applicable only to an abnormal period. This study presents the figure of one per cent a year as being more representative of plan mortality.[11] Thompson and others reported some plans instituted and operated in cooperation with unions.[12] Accomplish-

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[6] Instead of fringe, as some authorities do.

[7] Bryce M. Stewart and Walter J. Couper, *Profit Sharing and Stock Ownership for Wage Earners and Executives* (New York: Industrial Relations Counselors, 1946).

[8] C. Canby Balderston, "Administration of Supplementary Compensation Plans," in *Personnel Series Number 119* (New York: American Management Association, 1948), pp. 13–19; "Profit-Sharing Plans that Boomerang," *Business Week*, October 31, 1953, p. 182.

[9] Barkin, "Management's Attitude Toward Wage Incentive Systems," *Industrial and Labor Relations Review*, Vol. 5, No. 1 (October, 1951), pp. 92–107.

[10] *Successful Employee Benefit Plans*, p. 158.

[11] P. A. Knowlton, *Studies in Profit Sharing*, Profit Sharing Research Foundadation, 1952, p. 9; see also *Is Profit Sharing the Answer?* (Madison: Industrial Management Institute, University of Wisconsin, May 8–9, 1952, multigraphed), p. 15 where the figure cited is not over 2 to 3 per cent.

[12] Kenneth M. Thompson, *Profit Sharing* (New York: Harper and Brothers, 1949). See also Joseph Scanlon, "Profit Sharing Plans Under Collective Bargaining: Three Case Studies," *Industrial and Labor Relations Review*, Vol. 2, No. 1 (October, 1948), pp. 58–75.

ments of successful profit sharing plans have been frequently cited. Strong incentive effects have been reported.[13] One plan resulted in a 54 per cent increase in production efficiency in the first year.[14] Other accomplishments equally desirable have been reported.[15] Desirable economic effects such as stabilization of income and employment have also been attributed to such plans.[16] Industrial Relations Counselors are reported to have recently expressed approval of certain types of profit sharing plans.[17]

Profit sharing plans have failed, according to a study conducted by the Policyholders Service Bureau of the Metropolitan Life Insurance Company,[18] for the following reasons: (1) poor employee relations, (2) inadequate wage scales, (3) poor company earnings, (4) insufficient employees' share, and (5) improper understanding of profits. Advocates of profit sharing have suggested ways in which these pitfalls can be avoided.[19] The following sections discuss types of plans and installation and operation principles of profit sharing plans.

Definitions [20]

Although there are several definitions of profit sharing, that developed by the International Congress of Profit Sharing in 1899 still stands. This definition is as follows: "Profit sharing is an agreement fully entered into by which the employees receive a share fixed in advance, of the profits." Thus the two essential re-

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[13] Dwight B. Baird, "Profit-Sharing Doubles Production," *Mill & Factory*, Vol. 52, No. 5 (May, 1953), pp. 133–136; J. J. Morrow, "Partnership Through Profit-Sharing," *Personnel Journal*, Vol. 30, No. 2 (June, 1951), pp. 51–54; Strange J. Palmer, "Labor-Management Partnership Through Profit-Sharing," in *Personnel Series Number 140* (New York: American Management Association, 1951), pp. 41–44; *Profit Sharing Manual* (Akron: Council of Profit Sharing Industries, 1951).

[14] *Successful Employees Benefit Plans*, p. 188.

[15] *Ibid.*, Chapters 11 through 14.

[16] Gustave Simons, "Economic and Legal Aspects of Profit-Sharing Plans," *Industrial and Labor Relations Review*, Vol. 2, No. 1 (October, 1948), pp. 76–89.

[17] "They Like Profit-Sharing," *Business Week*, April 12, 1952, p. 47.

[18] *Sharing Profits with Employees* (New York: Policyholders Service Bureau Division, Metropolitan Life Insurance Co., 1948).

[19] Council of Profit Sharing Industries, *Profit Sharing Manual.*

[20] The following discussion of profit sharing plans leans heavily upon *Successful Employee Benefit Plans*, Chapters 11 through 14.

quirements of profit sharing are: (1) an advance announcement, and (2) an actual relationship to profits. The definition of the Council of Profit Sharing Industries [21] stresses the necessity of including all employees and of adequate pay rates, both of which they have found to be prerequisites of successful plans. Thompson [22] stresses the necessity for a fixed plan, as does the Bureau of Internal Revenue.

Types of Plans

Profit sharing plans may be classified in various ways. For example, distribution of profit shares may be *current* or *deferred*. If current, profit shares are paid to employees as they are earned. If deferred, amounts intended for distribution are paid to a trustee, and distribution is delayed until some event occurs. This simple dichotomy does not provide, however, for the various arrangements possible for determining the total share to be distributed to employees. For the latter reason, the following classification is used here: (1) cash or current distribution plans, (2) wage dividend plans, (3) production sharing plans and cost savings plans, (4) trusteed or deferred plans, (5) combined cash and deferred plans. Such a classification serves to emphasize how profit sharing plans shade into the incentive plans discussed previously.

Cash Plans

Cash plans coincide with the general public conception of profit sharing plans. The profit pie is cut and the pieces distributed to employees directly in cash. Cash plans usually stipulate that a percentage of profits be divided among employees and paid to them at fixed intervals.

In working out a cash plan, it is necessary to determine (1) how to arrive at net profits for purposes of the plan, (2) what the distribution formula will be, and (3) how frequently the profit shares shall be distributed. Profits should be defined as accurately as possible to dispell any possibility of employee suspicion. S. C. Johnson & Sons, Inc., of Racine, Wisconsin, spell out in some detail the manner in which the employees' share of profit is computed. The Hartnet Tanning Co. of Ayer, Massachusetts, permits the profit

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[21] Council of Profit Sharing Industries, *Profit Sharing Manual.*
[22] Thompson, *Profit Sharing*, p. 17.

sharing board (employees who administer the plan) to examine the company books, and the board hires a firm of independent auditors for this purpose.[23] Many companies, however, merely inform employees that a portion of "net profits before (or after) income taxes" will be allocated for distribution.

The percentage of profits distributed under various plans varies from a low of 8 to 10 per cent to a high of 50 to 75 per cent after an amount has been set aside for company needs.[24] Company stability and management philosophy largely determine the percentage.

Profits are distributed annually in some plans and as frequently as monthly in others. Annual payments have been found to tend to destroy incentive effects because the reward is too far removed from the effort. When profit sharing checks are distributed monthly, there is a possibility of the employee associating such payments with regular wages and believing they are part of his earnings to which he is regularly entitled. Profit sharing seems to provide the greatest incentive effect when paid quarterly.[25] Some companies approach this effect by paying profit shares annually but posting profit figures monthly.

Cash plans are the simplest form of profit sharing, but their mortality is probably higher than that of any other plan. Successful cash plans exist, however, in all sizes and types of organizations. The W. A. Sheaffer Pen Company, Madison, Iowa (2,000 employees), Greenfield-Mills Restaurant Company of Columbus, Ohio (1,250 employees), and C. A. Norgren Company of Denver, Colorado (150 employees), are examples of companies with successful cash plans.

Wage-Dividend Plans

Wage-dividend plans fix the percentage of profits allotted to employees and distribute shares according to the amount of dividends paid to stockholders. Such plans tend to emphasize the identity of interests between employees and stockholders. Wage-dividend plans divide profits between employees and stockholders according to a formula that establishes the relationship, and when-

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[23] *Successful Employee Benefit Plans*, pp. 168–169.
[24] *Ibid.*, p. 169.
[25] *Ibid.*, p. 170.

ever a dividend is declared a wage-dividend is paid to employees.

Two widely known profit sharing plans are wage-dividend plans: the Eastman Kodak Wage-Dividend Plan and the Pitney-Bowes Plan. In the former, a wage-dividend is declared whenever the annual dividend on common stock exceeds 70 cents a share.[26] In the Pitney-Bowes plan, a similar arrangement prevails. Also, in the latter company, whenever a stockholders' meeting is held, a jobholders' meeting is also held.[27]

Production Sharing Plans and Cost Savings Sharing Plans

Production sharing plans and cost savings sharing plans are essentially hybrid profit sharing plans. Rather than providing for a distribution of a direct percentage of company profits, they provide for a division of savings resulting from reduced labor costs or other production costs controllable by employees. Thus they are not unlike plant-wide incentives and are sometimes called indirect profit sharing plans.[28] Purposes and incentives are identical to profit sharing, but an effort is made to link the effect of workers' efforts to profits. Many such plans provide for joint labor-management cooperation in solving production problems. In this category fall two well-known plans: (1) the Scanlon plan, and (2) the Rucker share-of-production plan.

The Scanlon plan involves (1) finding a normal labor cost for the company and (2) devising a means for giving labor the benefit of anything it can save under the norm.[29] To provide for worker incentive, a link is found between the worker and over-all shop productivity. For example, all operations and all final products are reduced to common denominators that the worker can understand, such as pounds of product produced, tons of merchandise warehoused, and so on. In most cases, the workers receive a bonus equal to the entire savings in labor cost.

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[26] *A Handbook for Kodak Men & Women* (Rochester, New York: Eastman Kodak Company), p. 36.

[27] Hartman, "Profit Sharing: Labor-Management Cooperation in Free Enterprise," in *Employee Welfare and Benefit Programs, Research and Technical Report* 7, pp. 41–48.

[28] Hartman, "Profit Sharing: Labor-Management Cooperation in Free Enterprise," in *Employee Welfare and Benefit Programs, Research and Technical Report* 7, pp. 41–48.

[29] Russell Davenport, "Enterprise for Everyman," *Fortune*, January, 1950, p. 57.

Essential parts of the plan are employee cooperation and suggestions for increased efficiency and reduced costs. Suggestions are processed by committees composed of employee as well as employer representatives.

Scanlon, at the time of the original installation, was an official of the United Steelworkers' union, and the plan incorporates many of the ideas which students of industrial relations refer to as union-management or labor-management cooperation. Important aspects of the approach are frankness in relationships and laying the facts on the table. In the original plan, an employee's committee consisting of five union production workers and three office employees worked out the details of the plan. Successful installations of the Scanlon plan have been made at the Adamson Company of East Palestine, Ohio, and the Lapointe Machine Tool Company of Hudson, Massachusetts.

The Rucker share-of-production plan [30] is even less a genuine profit sharing plan in that employees can make added earnings from additional productivity whether or not the company makes a profit. Basically, the Rucker plan relates total annual payrolls to total "value added by manufacture." From a careful analysis of the operating experience of the company, a formula is set up which allocates to the workers a definite proportion of "value added by manufacture" (production values). If, for example, a company puts $.55 worth of material, supplies, heat, light, power, and like expenses into one end of the production line and obtains a product worth $1.00 at the other, value added by manufacture is $.45. If the analysis shows that the workers earned 40 per cent of that figure, they should receive in wages plus share-of-production $.18 for each unit of product turned out.

Assume, now, that a company has sold $250,000 worth of product during the accounting period and has spent $150,000 on materials, supplies, and allied costs that went into the product. The difference, $100,000, is value added by manufacture. Forty per cent (the workers' share) is $40,000. If workers' wages were less than $40,000, the difference is due them as share-of-production bonus. Any difference, less a reserve of one-fourth, is distributed among employees.

The other 60 per cent (the company's share) goes to pay other

[30] *The Rucker Share of Production Plan* (Cambridge, Massachusetts: The Eddy-Rucker-Nickels Company, 1950).

compensation, overhead, taxes, and ownership obligations. Salaries paid supervisors, clerical personnel, and executives are not charged against the employees' share. Nor are such shares affected by increased costs of advertising, research, or sales. All depreciation, rents, insurance, travel or interest costs are charged against the company's share.

Production values are usually computed quarterly, and three-quarters of the employees' share is paid at that time. The balance is held in reserve, and negative values in subsequent quarters, if any, are charged against the reserve. At the end of the year, the balance remaining in the reserve account is paid out to employees.

Where the Rucker plan has been installed, a share-of-production committee composed of management and employees (whether union or nonunion) administer the plan. Such plans are in operation in some 19 plants. Typical successful installations are at the Rogers Corporation of Manchester and Goodyear, Connecticut, and the Reznor Manufacturing Company of Mercer, Pennsylvania.

Plans similar to the Scanlon and Rucker plans have been worked out by individual organizations. The labor savings sharing plan of the New Castle Products Company of New Castle, Indiana, is an example. In this plan, all shop employees are paid a monthly bonus of half of all labor cost savings that result from increased productivity. The base figure (ratio of labor cost to sales dollar) has been revised at various times with union approval.

Deferred Plans

In deferred plans a part of the profits is normally put in the hands of a trustee, who keeps individual accounts. Contributions from employees may or may not be added. In either case, the amount in each employee's account is held in trust to be released only under definitely stated circumstances such as: (1) retirement, (2) permanent total disability, (3) death, (4) lay-offs, (5) severance, (6) other contingencies.

The trust agreement includes a predetermined formula for determining the profits to be shared and a definite predetermined formula for distributing the funds to the employees. These formulae are required for Treasury approval, a necessary prerequisite if the company is to be permitted to deduct payments as made for tax purposes and the employee is to be permitted to defer such income until received. With this approval, company contributions to the fund

must be limited to 15 per cent of the total payroll of covered employees.

In such plans it is essential that careful rules be laid down for trustees to follow covering all possible occurrences under the plan.[31] It is well to provide employees with a booklet that explains all details of the plan in simple language. More important, deferred plans call for regular and frequent reports to employees on the status of their fund.

There appears to be a trend toward deferred payment plans.[32] This may be attributed to (1) a desire on the part of employees for more security, (2) a discovery by some organizations that certain contingencies facing employees can be met only in this way, (3) the anti-inflationary and anti-deflationary effects of such funds, (4) the fact that under deferred plans employees are less resentful of no-profit years, and (5) tax advantages.[33]

The famous Sears, Roebuck & Co. plan is a deferred distribution plan. Under this plan the company contribution has ranged between 5 and 9 per cent of net income. Company and employee contributions combine to provide very satisfactory retirement benefits. The Sears plan has been cited as an example of a deferred plan with all the incentive values of a cash plan.[34]

Combination Plans

In recent years some organizations have been changing plans or adopting new ones to provide both deferred features and some of the other arrangements previously discussed. The Pitney-Bowes plan is now a combination plan, for example.[35] Also, an organization reporting substantial incentive results has a combined plan.[36] A novel arrangement in profit sharing that combines both cash and deferred elements is a plan by which 60 per cent of the payment is

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[31] See *Nunn-Bush Profit Sharing and Retirement Fund* (Milwaukee: Nunn-Bush Shoe Company, June 3, 1948).

[32] Knowlton, *Studies in Profit Sharing*, p. 27; Balderston, "Administration of Supplementary Compensation Plans," in *Personnel Series Number 119*, pp. 13–19.

[33] Simons, "Economic and Legal Aspects of Profit-Sharing Plans," *Industrial and Labor Relations Review*, Vol. 2, No. 1 (October, 1948), pp. 76–89.

[34] Knowlton, in *Is Profit Sharing the Answer?*, p. 9.

[35] Morrow, "Partnership Through Profit-Sharing," *Personnel Journal*, Vol. 30, No. 2 (June, 1951), pp. 51–54.

[36] Baird, "Profit-Sharing Doubles Production," *Mill & Factory*, Vol. 52, No. 5 (May, 1953), pp. 133–136.

made in cash and 40 per cent in company stock. The stock is a "preference stock" and has several protective features for the employee.[37]

Purposes of Profit Sharing

Organizations that have installed profit sharing plans have done so for a variety of reasons. The primary one is to provide incentive for increased production.[38] It is hoped that, by providing employees with a share of the profits they helped to make, they will be motivated to increase their efficiency. When the employee's share is worth while (8 to 10 per cent of annual base pay seems to be average), he has a real incentive. Greater productivity comes largely from cost-savings suggestions and greater concern for the organization's welfare, rather than from greater speed or more effort. Companies with successful plans have found that the few nonprofit years only strengthened the plan.[39] Under these conditions employees worked harder to make profits possible.

Organizations stating that their primary goal in profit sharing is greater profits are also stressing the incentive values of such plans. In many cases, employers with successful plans can show that the plan actually costs nothing because additional profits stemming from increased efficiency have equaled or bettered the amounts distributed under the plan.[40]

But while incentive values of profit sharing appear to be the major goal, other reasons for installing such plans are often given. Some employers, for example, install profit sharing in an effort to create a common interest between the employer and the employee. They hope that through such an arrangement employees will come to appreciate some of the problems confronting management and begin to see the interdependence of labor, management, and capital in our system. Some employers see profit sharing as a basic form of worker education.[41]

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[37] James O. Rice, "Preference Stock," in *Management News*, Vol. 26, No. 11 (November, 1953), p. 6.

[38] *Successful Employee Benefit Plans*, p. 154.

[39] *Successful Employee Benefit Plans*, p. 154.

[40] *Ibid.*, p. 155.

[41] Walter H. Wheeler, Jr., "We Advocate Profit Sharing," in *Personnel Series Number 119* (New York: American Management Association, 1948), pp. 20–27.

Such employers are, of course, thinking in terms of improved employer-employee relations. Experience has shown that companies with profit sharing plans have appreciably fewer strikes than the average for their industry. But experience has also shown that such plans cannot substitute for sound industrial relations policies nor be used successfully to combat unionism. Successful profit sharing plans, in fact, depend where a union is present upon full union cooperation.[42]

Some organizations have installed profit sharing in an effort to improve public relations. They hope that through fostering the idea that their organization is a "good place to work" their relationships with the various publics will improve and recruitment problems will be eased.

Some companies have installed profit sharing in the hopes of maintaining a flexible wage structure, i.e., they hoped that, through profit sharing, employee earnings would adjust quickly to changes in business conditions without the rigidities of inordinately high wage rates.[43] Where the wage level of the organization is in line with industry wage rates, employees may be more reasonable in their wage demands if they recognize the relation between wages and profits and know that they will receive a share of profits realized. Experience has shown, however, that profit sharing is unsuccessful where the employer offers a share of the profits in lieu of a satisfactory level of wage rates.

Some authorities see in profit sharing a possibility of stabilizing employment.[44] Any wage flexibility resulting from the plan will operate in this direction, as will an incentive effect that causes employees to increase efficiency in the face of declining profits. Deferred plans that provide for distribution in case of lay-off are similar to guaranteed wage plans.

Specifications for a Sound Profit Sharing Plan

Before a profit sharing plan is installed, the wage level of the organization must be as high or higher than that prevailing in the

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[42] *Successful Employee Benefit Plans*, p. 154.

[43] Simons, "Economic and Legal Aspects of Profit-Sharing Plans," *Industrial and Labor Relations Review*, Vol. 2, No. 1 (October, 1948), pp. 76–89.

[44] Dickinson, *Compensating Industrial Effort*, p. 334.

industry or area. Unless wage and salary rates are at least standard and working conditions acceptable, employees are likely to look upon profit sharing as a method of keeping wages down, with resulting deterioration of morale and productivity.

Effective profit sharing requires that employer-employee relations be harmonious and employee morale high. If the organization is thought of as an economic community and management as its government, profit sharing will function where conditions are such that the employee thinks of himself as a citizen, rather than a subject.[45] Profit sharing may make good relations better; it will not make bad relations good.

For a successful profit sharing plan, profits must exist. Such an obvious observation is made only to emphasize that a profit sharing plan is not a method of correcting for a shaky financial structure or dubious business prospects. Relative constancy of profits and a firm financial foundation are essential. It has been pointed out that nonprofit years are not destructive to a successful plan, but these years cannot become the rule rather than the exception.

A report [46] of three studies of profit sharing plans in operation shows that success depends on the following: (1) the extent to which the plan and its operation, company management, and production problems are understood by the employee, (2) good health in labor-management relations, (3) the degree of real participation and partnership in the enterprise. Participation cannot be overemphasized. Real participation "consists in finding a means by which to reward labor for any increase in productivity, and then in building around this formula a working relationship between management and labor that enables them to become a team." [47]

Installation and Operation of a Profit Sharing Plan

A profit sharing plan should be a joint venture of employees and management. Many plans have failed because they were prepared *by* management *for* employees.[48] The manner in which the plan is

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[45] P. F. Drucker, *The New Society* (New York: Harper & Brothers, 1950), pp. 49 ff.

[46] "Developments in Profit Sharing Movement," *Monthly Labor Review*, Vol. 68, No. 4 (April, 1949), pp. 424–426.

[47] Davenport, "Enterprise for Everyman," *Fortune*, January, 1950, p. 55.

[48] See, for example, Thompson, *Profit Sharing*, p. 215.

drawn up, the degree of employee participation, timing, and manner of introduction are some of the factors that must be considered in installing a plan. Although the profit sharing plan must be tailored to the organization, there are several considerations that require attention in any installation.

Drawing Up the Plan

When management has decided to adopt profit sharing, a written agreement should be developed, the terms of which are discussed and approved by management and employees. This agreement should result from a pooling of ideas. One authority believes that it is not sufficient to conduct a survey of workers' opinions, but that management should confine itself to the decision to establish a plan and to negotiating the amounts to be distributed.[49]

One of the reasons for the written agreement is to assure employees about the continuity of the plan. Employees want to be certain that the distribution formula is fixed and not left to management discretion. A discretionary distribution formula may destroy incentive if it induces in employees a fear closely akin to the fear of a rate cut discussed in connection with incentive systems.

Development of a profit sharing agreement may force a reconsideration of other payment plans. If special management bonus arrangements cannot be made compatible with the profit sharing plan, probably one of the two programs must be dropped. If employees believe that their efforts are being used to pay management bonuses or that such bonuses leave little for distribution to the rank-and-file, the incentive effect of profit sharing is largely destroyed.

The agreement must, of course, provide for some security for stockholders. Many plans specify that a fixed percentage of profits be earmarked for dividends. Some successful plans provide for 6 to 8 per cent return on invested capital before the employees' share is determined.[50]

Profit sharing agreements often provide for placing administration of the plan in the hands of a committee composed of employee and employer representatives. One authority believes that management should be in the minority on this committee and confine itself to

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[49] Drucker, *The New Society*, p. 248.

[50] *Successful Employee Benefit Plans*, p. 163.

rendering technical assistance, advising, and speaking out against gross mismanagement or dishonesty.[51]

Provisions of the Plan

The profit sharing plan must contain a contribution formula, an allocation formula, a statement of eligibility requirements, a provision covering time and form of payment, and an administrative body. Employees' rights on termination must also be specified. These provisions must accord with applicable legislation such as tax laws and wage and hour laws.

Contribution Formula. The contribution formula defines the basis upon which the total employees' share is computed. Typical formulae are:

1. A percentage of profits before provision for Federal income taxes.
2. A percentage of profits after deduction of income taxes.
3. A percentage of profits after deduction of taxes and a stipulated amount for dividends.
4. A percentage of the amount declared as a dividend.
5. Payments related to productivity.

Allocation Formula. The allocation formula determines the basis on which employees participate. In most plans, shares are distributed on the basis of annual wages or an average of annual wages for the past five years. Length of service, hours worked, and position in the organization are included in some formulae. In a few plans, shares are determined by merit rating. This practice, however, conflicts with the fixed formula concept. An organization determining an allocation formula will do well to examine the provisions of wage and hour laws. Failure to adhere to these provisions may result in profit shares being counted as regular wages for overtime computation. In general, formulae that are based primarily on hours worked or production, or those fixed as to amount, have this effect.

Eligibility. The eligibility provision of a profit sharing plan specifies which employees are entitled to shares. Usually all employees are eligible after a qualifying period of employment. This period may run from three months to a year or more. A typical

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[51] Drucker, *The New Society*, p. 248.

qualifying period is one year. Detailed conditions may be included with respect to re-employed workers, part time employees, employees on leave of absence, and employees who leave the company before the end of a distribution period. The latter is especially important. Normally, plans terminate rights of employees who leave during a period but permit them to receive shares declared but not yet paid at the time they leave.

Time and Form of Payment. Most profit sharing plans pay in cash, although a few plans convert all or a part of the share into stock in the company. Deferred plans, of course, place the shares as paid into the hands of a trustee. The employee does not receive payment until he meets the conditions specified by the plan. (See deferred plans above.) Distribution is normally made at the end of the accounting period for which profits are calculated. Generally accepted practice calls for annual distribution, although quarterly and even monthly payments are becoming more common.

Administration. Plan agreements assign responsibility for administration of the plan and, if a committee is employed, specify how the members of the committee are chosen. Duties of administrators vary with the type of plan. Only limited duties accrue from cash plans. Production sharing plans and deferred plans require more administrative time.

Presenting the Plan to the Employees

Setting up the plan and specifying its mechanics represent only a small part of the effort necessary in a successful profit sharing plan. The plan must be explained to employees. The profit sharing idea must be sold to employees. They must be informed constantly of what is happening under the plan. They must see the role of profit sharing in the operation of the company. If an incentive effect is to be expected, the employee must know what is expected of him and how efforts on his part are paying off.

The task of selling the workers should be accomplished before the plan is announced. A large part of this selling job is accomplished through employee participation in developing the plan. Many plans are announced at large company meetings held especially for the purpose.

Many organizations distribute a booklet explaining the plan prior to such meetings. The booklet should contain the written agree-

ment and the facts of the plan should be reduced to simple, easily read, and easily understood language. One authority recommends having an expert prepare the explanation given to employees.[52] Many booklets use the question-and-answer method of explanation.

Successful launching of a profit sharing plan depends upon the effectiveness of the three methods employed: (1) employee participation in formulating the plan, (2) a meeting (or meetings) to announce the plan, (3) a written explanation of the plan.

Once the plan is in operation, its effectiveness and life-expectancy depend largely upon the degree to which employees are kept informed of company events affecting the plan and the plan itself. One authority has suggested frequent letters to employees' homes, frequent posting of account books, contests before posting in which employees guess the amount to be distributed, publicity in the company paper, annual report, bulletin boards, and signs on machines.[53]

SUMMARY ON PROFIT SHARING

The record of profit sharing has not been entirely favorable and mortality of such plans has been high. Organizations with successful plans, however, report strong incentive effects and the manner in which these effects may be attained. Common types of plans and principles of installation and operation have been distilled from experience with successful and unsuccessful plans. Further research, however, is needed.

GUARANTEED WAGES

The provision of wage guarantees has received increasing attention in recent years. The idea is that employees are provided with a minimum assured income from their work for a definitely stated period. The concept involves: (1) a method of payment in which emphasis is shifted from the hourly rate to a rate applicable to the longer period over which income is assured and (2) the assumption

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[52] Simons, "Economic and Legal Aspects of Profit-Sharing Plans," *Industrial and Labor Relations Review*, Vol. 2, No. 1 (October, 1948), pp. 76–89.

[53] Kenneth M. Piper, "How to Keep Workers Sold on Profit Sharing," *Factory Management and Maintenance*, Vol. 111, No. 1 (January, 1953), pp. 87–89.

of a guarantee by the employing organization that certain income will be paid to the employee during this period.[54]

Numerous terms have been used to describe the subject, of which "guaranteed employment," "guaranteed annual wages," or "guaranteed wages" are probably the most commonly used. Unfortunately, the terms are often used interchangeably, with resulting confusion. "Guaranteed employment," properly defined, is an assurance given by an employing organization to its employees of a certain number of hours or weeks of work over a period of time, with no assurance with regard to wages. "Guaranteed wages" involves an assurance from the employing organization that a certain amount of income will be paid to employees. "Guaranteed annual wages" implies that a minimum annual rate sufficient to meet at least subsistence needs is guaranteed to employees. Some firms have provided "guaranteed annual wages" for their employees.[55] Most existing plans, however, would be more properly described as "guaranteed wage" plans, because the period over which income is assured is less than one year.[56] The following discussion employs this broader definition.

Recent public attention to such plans stems largely from demands of organized labor during World War II.[57] As a result of demands presented to the War Labor Board in 1944, a detailed study of the subject was undertaken. This report, often called the Latimer Report,[58] was published early in 1947 and dealt with experiences under existing plans and recommendations for broadening voluntary

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[54] Ernest Dale, *Annual Wages and Employment Stabilization Techniques* (New York: American Management Association, 1945), p. 13.

[55] Plans of the Nunn-Bush Shoe Company and the George A. Hormel Company are frequently cited examples. In Murray W. Latimer, *Guaranteed Wages: Report to the President of the Advisory Board* (Washington, D. C.: Government Printing Office, 1947), only 39 plans were found that provide guarantees for the entire year. A few more recent plans have been reported. See, for example, "Assured Wage," *Business Week*, January 26, 1952, p. 34; "Annual Wage," *Business Week*, August 15, 1953, pp. 145–146; "2000 Hours' Pay," *Business Week*, April 11, 1953, p. 162; "Annual Wage," *Business Week*, December 19, 1953, pp. 167–168.

[56] The Latimer Report defines a guaranteed wage plan as any scheme "under which an employer guarantees to all or a defined unit or group of his employees a wage or employment for at least three months" (p. 2) at half-pay (p. 5). Using this definition a total of 196 plans were found.

[57] Yoder, *Personnel Management and Industrial Relations*, p. 604.

[58] Latimer, *Guaranteed Wages*.

acceptance of the guaranteed wage concept by employing organizations. Advantages of such plans cited, for example, were: (1) greater security for employees, (2) higher employee morale, (3) improved labor relations, (4) greater income stabilization for employees, (5) more success in employment stabilization activities, (6) improved productivity, (7) greater acceptance of technological change by employees, (8) reduced labor turnover, (9) improvement in profit and competitive conditions of employing organizations, (10) increased annual incomes on the part of employees, (11) eased recruitment problems, (12) lower training costs, (13) eased personnel budgeting problems, and (14) greater willingness of employees to experiment and try out new ideas. The plans were reported to have had little effect on the volume of employment.

Recommendations included: (1) liberalizing state pay laws with respect to provisions for withholding income from employees, (2) liberalizing section 7(b)2 of the Fair Labor Standards Act to permit more flexibility in offsetting overtime against undertime, (3) making changes in the tax laws to encourage employers to install such plans, and (4) changing state unemployment compensation laws to permit integration with wage guarantee plans.

Since the appearance of the Latimer Report, much has been written on the subject of "guaranteed wages." [59] Some of the publications are critical of the Report, pointing out that it implies that guaranteed wages are widely applicable to all types of organizations, whereas the study shows: (1) such plans exist in relatively few organizations, (2) almost all the plans were found in consumers' goods industries with producers' goods industries almost entirely without such plans, (3) most plans were found in very small organizations, (4) most plans are so recent as never to have been tested by depression conditions, (5) the firms with plans were in unusually favorable economic positions.[60] Others suggest that the authors of the Latimer Report ignored the economic implications of such plans and the economic analysis by authorities (Hansen, Samuelson,

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[59] For an excellent bibliography see Philomena Marquardt Mullady, *A Selected Bibliography with Notes on Guaranteed Annual Wages and Employment Plans* (Ithaca, N. Y.: New York State School of Industrial and Labor Relations, December, 1952).

[60] Herman Feldman, "The Annual Wage: Where Are We?" *The American Economic Review*, Vol. 37, No. 5 (December, 1947), pp. 823–847.

Clark, Mason, and Slichter) included within its covers.[61] Some point out that if guaranteed wage plans are applied to circumstances not favorable they may result in: (1) increased unemployment, (2) reduced investment, (3) discouragement of new firms, (4) more serious depressions, (5) inability of new members of the labor force to get jobs, (6) high mortality of small firms, (7) economic controls.[62] They fear that such results may accrue if guaranteed wage plans become widely applied through legislation or pattern bargaining to firms and industries less favorably disposed than those with existing plans.[63] Similarly, they point out that many of the advantages attributed to guarantees (higher morale, lower turnover, and the like) would disappear if such plans were usual rather than the exception.

The Latimer Report's recommendation that unemployment compensation laws be revised to permit integration with guaranteed wage plans has also been strongly criticized. Such critics state that the effect of such an arrangement would be to: (1) reduce labor mobility, (2) furnish incentive toward malingering, and (3) encourage the worker to be more hesitant in accepting other work.[64]

It is well to note that none of the critics of the Latimer Report dispute the advantages attributed to guaranteed wage plans in organizations where such guarantees are voluntarily applied after careful study. Such plans are believed to be applicable (1) where fortunate conditions, excellent management, profitable business, widespread consumers' market, long experience in production stability, and other factors which make organizations ready to experiment with financial obligations prevail; (2) where they may be installed

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[61] A. D. H. Kaplan, *The Guarantee of Annual Wages* (Washington: The Brookings Institution, 1947); William A. Berridge and Cedric Wolfe, *Guaranteed Employment and Wage Plans* (New York and Washington: American Enterprise Association, Inc., August, 1948).

[62] Rita Ricardo, "Annual Wage Guarantee Plans," *The American Economic Review*, Vol. 35, No. 5 (December, 1945), pp. 870–890; Feldman, "The Annual Wage: Where Are We?" *The American Economic Review*, Vol. 37, No. 5 (December, 1947), pp. 823–847; Chamber of Commerce of the United States, *The Economics of the Guaranteed Wage* (Washington, 1953).

[63] Feldman, "The Annual Wage: Where Are We?" *The American Economic Review*, Vol. 37, No. 5 (December, 1947), pp. 823–847.

[64] See especially Chamber of Commerce of the United States, *The Economics of the Guaranteed Wage;* also Herman Feldman, "Annual Wage Plans and Some of Their Practical Problems," *Advanced Management*, Vol. 10, No. 3 (September, 1945), pp. 104–112.

voluntarily as a result of good planning and cultivation of sound industrial relations policies; and (3) where limitations are applied to the plan to prevent firms from going beyond their depth.[65]

Proponents of guaranteed wages point to the necessity of a positive rather than negative approach to the problem,[66] asking that employers provide the largest amount of security possible rather than insisting that little or nothing can be done. Workers, they insist, want a guaranteed income above everything else and are willing to accept it in lieu of other improvements in wages or working conditions.[67] They point to advantages previously cited. In the Hormel plan, for example, productivity is reported to have risen 26 per cent in the first year in the pilot department.[68]

Unions argue that farmers have price guarantees and industry profit guarantees through carry-forward, carry-back provisions of the income tax law, and that workers are likewise entitled to income protection.[69] They insist that employers will stabilize employment to meet the guarantees once they have signed a contract that requires them to guarantee wages.[70] The CIO in 1944 announced a long-range program to secure guaranteed wage plans in their agreements. Since that time several resolutions at annual conventions have reiterated the demand. In its main publication on the subject, *Guaranteed Wages the Year Round*,[71] the CIO puts forward the guaranteed wage as an important aid to full employment through the purchasing power argument discussed in Chapter 5. In spite of

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[65] Feldman, "Annual Wage Plans and Some of Their Practical Problems," *Advanced Management*, Vol. 10, No. 3 (September, 1945), pp. 104–112.

[66] Joseph L. Snider, "The Annual Wage Concept and Management Planning," in *Personnel Series Number 105* (New York: American Management Association, 1946), pp. 13–22.

[67] This is not universally accepted. See C. Wilson Randle, "Bargaining on Big Labor's Demand: The Outlook for the Guaranteed Annual Wage," *Personnel Series Number 156* (New York: American Management Association, 1954), pp. 12–19.

[68] Mee (ed.), *Personnel Handbook*, p. 248.

[69] Joseph L. Snider, *The Guarantee of Work and Wages* (Boston: Harvard University Press, 1947).

[70] Resolution No. 24 adopted at the March, 1953, UAW (CIO) convention states: "We failed to solve the problem of unemployment and part time layoffs . . . largely because those who have the power to solve it have not had to pay the cost of failing to solve it. The annual wage attacks this problem at the root and shifts to the employer, where it belongs, the cost of unemployment."

[71] Congress of Industrial Organizations, Department of Research and Education, *Guaranteed Wages the Year Round* (Washington, 1945).

the questionable assumptions behind this argument, it has made a deep impression on workers.

Other unions have not expressed full approval of the guaranteed wage. Although several AFL unions have recently negotiated such guarantees,[72] George Meany, President of the AFL, is quoted as saying, ". . . it's almost an impossibility under our economic system to have a guaranteed annual wage in certain types of business . . . there are millions of workers with corporations that couldn't possibly make such a guarantee." [73]

Employers are interested in savings which may result from stabilizing their employment and maintaining a trained and experienced group of workers.[74] Companies operating successful plans say that the removal of the economic insecurity of the workers tends to increase productivity, cut unit labor costs, decrease objections to technological change, produce better labor-management relations, decrease labor turnover, and improve the morale of the entire work force.[75]

The community is interested in eliminating relief expenditures resulting from irregular incomes, in stimulating local business, and in a more stable, prosperous group of citizens.[76] The general public is interested in guarantees to the extent that it believes such plans may contribute to stabilizing the economy and decreasing costs through the most efficient use of labor and other resources.

It is seen that guaranteed wage plans are controversial. Perhaps the divergent viewpoints can best be summarized as follows: (1) some such plans have been notably successful; (2) in such cases advantages accrue to employees, employers, the community, and the general public; (3) successful plans to date, however, have occurred mainly in (a) consumers' goods industries and (b) small establishments; (4) experience has been largely limited to good times; (5) economists doubt that such plans (a) can prevent a depression

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[72] "Annual Wage," *Business Week*, August 15, 1953, pp. 145–146.

[73] In a copyrighted interview in *U. S. News and World Report*, November 6, 1953.

[74] Dale, *Annual Wages and Employment Stabilization Techniques*, p. 30.

[75] Jack Chernick and George C. Hellickson, *Guaranteed Annual Wages* (Minneapolis: University of Minnesota Press, 1945), pp. 98 ff.

[76] John Arthur Farley and Stephen Humphrey, "Straight-time Employees," *Commonweal*, Vol. 28, No. 21 (September 16, 1938), pp. 518–520.

or even assist greatly if one occurs and (b) (at least those of the traditional type) are applicable in industries characterized by cyclical instability (such as producers' goods industries); (6) economists warn that such plans, if installed where they are inapplicable, may (a) increase unemployment, (b) reduce investment, (c) discourage entry, and (d) intensify business cycles; (7) all authorities, however, appear to agree on the desirability of employment stability and of continuing experimentation with such plans in individual employing organizations on a voluntary basis; (8) also, the authorities agree that no single plan will fit all cases—the plan must be tailormade for the company.[77]

Traditional Types of Guaranteed Plans

Presently operating or discontinued wage guarantee plans may be classified in various ways. For example, they might be broken down by: (1) the guarantee period, (2) the proportion of employees to which the guarantee applies, and (3) the proportion of income guaranteed. Or they may be subdivided as follows: (1) plans based on leveling of wages, (2) plans based on company contributions, and (3) plans related to business income.[78] Again, such plans may be classified into: (1) plans with unconditional guarantees, (2) plans with conditional guarantees, and (3) flexible wage plans.[79] Unfortunately, all of these classification schemes involve overlapping. Many existing plans fall into more than one of the categories. Consequently the classification method employed here, though involving cumbersome labels, attempts to reduce overlapping to a minimum. Plans are classified into: (1) plans that guarantee wages for a large portion of the year to a sizable proportion of employees, (2) plans that guarantee wages for a large portion of the year to a small proportion of employees, (3) plans that guarantee wages for

[77] Feldman, "The Annual Wage: Where Are We?" *The American Economic Review*, Vol. 37, No. 5 (December, 1947), pp. 823–847; Kaplan, *The Guarantee of Annual Wages;* Ricardo, "Annual Wage Guarantee Plans," *The American Economic Review*, Vol. 35, No. 5 (December, 1945), pp. 870–890; Sumner H. Slichter, "Professor Slichter Reviews the Issue of the Annual Wage," *Fortune*, June, 1945, pp. 252 ff.

[78] Feldman, "Annual Wage Plans and Some of Their Practical Problems," *Advanced Management*, Vol. 10, No. 3 (September, 1945), pp. 104–112.

[79] Dale, *Annual Wages and Employment Stabilization Techniques.*

a minor part of the year to sizable proportions of employees, (4) plans that guarantee employment but not wages, (5) wage advance plans, (6) flexible wage plans.

Plans Guaranteeing Wages for a Large Portion of the Year to a Large Proportion of Employees

An existing plan that falls into this category is the Hormel plan. All employees with the exception of service workers are covered by the plan (about 80 per cent of employees in 1946).[80] Covered employees are assured 52 regular, almost equal, weekly pay checks in spite of the fluctuating hours of work in the meat-packing industry. Time worked under 40 hours a week is balanced against overtime. This is permitted by state law.[81]

Overtime is paid for at straight time rates under the provisions of the Fair Labor Standards Act, Section 7(b)2. This section waives penalty overtime rates in the case of a negotiated guaranteed wage plan meeting specific conditions. Although most employees receive pay checks computed on the basis of a 40-hour week, the plan is set up departmentally and certain departments are guaranteed only 36 or 38 hours.

The company uses several methods to overcome the problems of seasonality. (1) The "extra gang"—new employees are placed in an extra gang used where needed. (2) Entire departments are provided with extra skills and are transferred in a body to other departments needing help. (3) Extra work is assigned to departments. This third device has been found very successful.

The Hormel plan was developed slowly and carefully, one department at a time. In addition to the wage guarantee plan, a standard hour incentive bonus plan is employed.[82]

Not many plans of such comprehensiveness have been adopted. Of 62 plans studied by the Bureau of Labor Statistics,[83] only three

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[80] Bureau of Labor Statistics, United States Department of Labor, "Guaranteed Wage Plans in the United States," *Bulletin No. 925*, p. 55.

[81] Few states permit this, with consequent discouragement to voluntary plans. See Feldman, "Annual Wage Plans and Some of Their Practical Problems," *Advanced Management*, Vol. 10, No. 3 (September, 1945), pp. 104–112.

[82] *The Hormel Annual Wage, Wage Incentive, and Joint Earnings Plans* (Austin, Minnesota: George A. Hormel & Company, 1943).

[83] Bureau of Labor Statistics, United States Department of Labor, "Guaranteed Wage Plans in the United States," *Bulletin No. 925*, p. 55.

(two still in operation in 1946 and one discontinued) fall into this category. In 1953, the AFL's Brotherhood of Teamsters St. Louis Local 688 bargained several contracts that would fall into this class. In these contracts overtime is paid for at time and one-half.

Plans Guaranteeing Wages for a Large Portion of the Year to a Small Proportion of Employees

Twelve of the 62 plans studied by BLS were of this type. Although the proportion of pay guaranteed was high (amounting to almost a full year's wages), only a limited portion of the total work force was included. Coverage varied from three per cent to fifty per cent of employees. In some cases the proportion covered varied with the available work. Low coverage obtained in a few cases because of length of service eligibility requirements, but in most cases because only specified types of employees were included.

Only one of these plans employed the leveling feature (balancing overtime against undertime) explained in connection with the Hormel plan.

Plans Guaranteeing Wages for a Minor Part of the Year to Sizable Proportions of Employees

Six of the 62 plans studied by BLS fall into this class. Although most employees are covered by the plan, the proportion of a year's pay guaranteed is relatively small, infrequently as much as 50 per cent of full pay. One of these plans, that of the Wm. Wrigley, Jr., Co., is intended as an unemployment benefit. Laid-off employees receive benefits that vary with their regular pay rate and length of service.

Plans Guaranteeing Employment

Plans of this type assure employment for a specified number of hours or (more usually) weeks per year but make no mention of pay. Although guaranteeing employment obviously assures income, it does not assure income of a definite amount. The Procter & Gamble plan is of this type. In this plan all employees of two years' service are guaranteed employment for not less than 48 weeks in each calendar year less time lost by reason of holidays, vacations, disability, voluntary absence, and emergencies. The weekly hours

are set by the company, and this established work week may be cut to 75 per cent by the Board of Directors. Because unlimited transfer is permitted in the plan, the hourly rate of covered employees is determined by the job to which they are assigned.

Thirty-seven of the 62 plans studied by BLS fall into this category. Thirteen of these plans guarantee substantially a full year's work to a sizable proportion of the work force. The balance of the plans either provide assurance of only a limited proportion of a year's work or cover only a small proportion of employees. Several of the plans provide only a limited employment guarantee to a minority of employees. One plan varies the employment guarantee according to length of service.

Only one plan uses the leveling provision. One plan specifies that the hourly rate must be at least the negotiated minimum rate.

Wage Advance Plans

In a number of plans limited wage advances are made to employees in weeks during which they obtain less than a certain number of hours of work or a certain amount of pay. The advance may be equal to the difference between the number of hours specified as a minimum by the employer and the actual hours worked. Or the advance is equal to the difference between specified minimum pay and actual pay. The amount of advance is limited, and must be repaid in weeks when more than the minimum amount of work is available.

One plan of the Armstrong Cork Co. falls into this category. In this plan are only the employees with more than five years' service. Advances are repaid by return of one-half of pay for hours in excess of 24 per week. Of the 62 plans studied by BLS, two were wage advance plans.

Flexible Wage Plan

This classification is exemplified by the plan of the Nunn-Bush Shoe Co. In this plan employees are classified by length of service. Fifty-two weeks' employment is assured to employees with five years' service. Employees with less service are guaranteed lesser amounts of employment. The total payroll is kept at 20 per cent of the wholesale value of shoes produced. Each worker is assigned a yearly rate based upon the skill required by his job, the long-term

value of his output, and his quality record. One fifty-second of this yearly rate is paid him each week. Actual earnings are recorded and the regular rate is adjusted in accordance with changes in total payroll.

It is seen that this plan guarantees employment; income varies with the proportion of labor cost to production value. In this it is similar to the Scanlon plan discussed earlier in the chapter.

Relation to Profit Sharing

As mentioned previously, companies with deferred profit sharing plans may provide a measure of wage security by providing for distribution when an employee is laid off. This suggests the route that wage guarantees might take in smaller organizations.[84]

Limitations

The discussion of types of guarantee plans illustrates the fact that such plans are subject to limitations. Limitations are of various types but exist for a common reason—to limit the guarantee costs to a level the employing organization can afford. Common types of limitations are: (1) the guarantee is applied to less than the full work force, (2) the guarantee applies to less than a full year's pay, (3) the guarantee applies to less than a full year's employment, (4) the company reserves the right to transfer employees, (5) the company reserves the right to suspend the plan under certain conditions, (6) the company limits its guarantee to a definitely stated amount.

Limitation to a Portion of the Work Force

Covered employees are often limited to those with a certain minimum length of service. This may be justified in several ways. First, seniority is commonly regarded as a most important consideration in layoffs. Second, length of service is a rough measure of company loyalty and, within limits, capability. Finally, a guarantee limited to longer-service employees is safer and easier to meet.

Some existing plans define covered employees as those with three

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[84] Richard T. Dale, "The Guaranteed Annual Wage: A Small Company's Answer," *Personnel*, Vol. 30, No. 4 (January, 1954), pp. 299–301.

months' service. Usually, however, the length of service is longer, in some cases five years.

As seen above, some plans are limited to special groups of employees. Thus only highly-skilled employees, foremen, or specifically defined job classifications may be included.

Limitation of Pay

In some plans the guarantee is limited to only a part of pay. For example, the guarantee may be for half or some other proportion of regular pay. Or only the minimum rate may be guaranteed.

Limitation of Time

The guarantee may apply to only a part of the year expressed in weeks or hours. Limitation by weeks is more flexible permitting a variation in weekly working hours. The Procter & Gamble plan has this limitation.

Guaranteeing hours rather than weeks has the advantage that hours can be worked at any time. But in practice it is often difficult to forecast hours a year in advance. The least flexible are plans guaranteeing both a certain number of weeks of work and a certain number of hours per week. Plans specifying both often allow for a margain of safety.

Transfers

Plans may specify the company's right to transfer covered employees. Such a right may be "unqualified," making it possible to transfer an employee to any job regardless of duties or pay. Or it may be "qualified" and specify the jobs on which transfers may be made and the pay changes permitted in the event of transfer.

Suspension

Many plans provide the employer the right to suspend the plan under certain conditions. For example, fires, floods, strikes,[85] acts of God, explosions, lightning, catastrophes, emergencies, wars, gov-

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[85] In some of the recent plans negotiated in St. Louis, however, employees refusing to cross another union's picket line do not forfeit such time from the guarantee. See "Annual Wage," *Business Week*, December 19, 1953, pp. 167–168.

ernment orders, sales, liquidations, bankruptcies, and so on may be specified as conditions permitting the employer to suspend the plan. In some plans the guarantee may be abandoned or modified if the volume of business is reduced by a specified amount. Suspension rights may or may not require union or employee approval and may or may not require notice. Many plans specifically reserve the right to discharge individual covered employees.

Financial Limitation

In some plans the financial liability of the employer is limited to setting up a fund to insure maintenance of the guarantee and when the fund is exhausted the guarantee expires. A definite dollar limit may be set on the fund. Professor Slichter has suggested this limitation as feasible.[86]

Union Proposals

Current union proposals for the guaranteed wage in order to increase their area of applicability include several of these limitations and an additional one, namely, integration with unemployment compensation. Under such proposals, where state laws permit it, unemployment compensation payments received by an employee would be deducted from the employer's liability under the guarantee. Slightly differing schemes have been proposed by the United Steelworkers (CIO), the International Union of Electrical Workers (CIO), and the United Automobile Workers (CIO).

United Steelworkers

This type of plan was first outlined by the United Steelworkers in its 1952 demands presented to the Aluminum Company of America. The proposal involved: (1) limiting coverage to employees with three years' seniority, (2) limiting benefits to thirty hours' standard hourly pay for a maximum of fifty-two weeks, (3) limiting the employer's contribution to $.10 per man-hour worked, to be adjusted downward (a) when the reserve reached a specified level and (b) if workers could be paid unemployment benefits under state laws. In order to be eligible for the guarantee, workers would

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[86] In Latimer, *Guaranteed Wages*, p. 471.

be required to register weekly with the public employment service, accept offers of suitable work, and be able and available for work. The worker would be disqualified for 21 days for refusal of suitable work, voluntarily quitting, or discharge for misconduct, and for up to the first seven weeks of a labor dispute. If the worker were to receive other employment and earnings during the layoff, such earnings were to be offset against the guarantee. When workers were laid off and not called back for 52 weeks, guaranteed wage payments were to be offset against severance pay.

International Union of Electrical Workers

The International Union of Electrical Workers, in its 1954 demands on the Westinghouse Electric Corporation, included a guaranteed wage proposal. As in the USW plan, limitations of coverage, time, and financial liability were included, as well as the provision that unemployment compensation payments, where state laws permit it, could be offset against the guarantee.

In this proposal, employees with one year's seniority were to be guaranteed 2,080 hours of pay annually—48 weeks at 40 hours plus 160 overtime hours. The pay rate, however—unlike the USW proposal—includes incentive earnings. Although employees with only one year's seniority are covered, IUE asked that the plan be administered separately for those employees with: (1) less than three years' seniority, (2) three to five years' seniority, and (3) more than five years' seniority.

Financial liability of the employer would be limited to five per cent of payroll to be paid into a reserve fund. This fund was to accumulate for 52 weeks before any payments could be made. Also, any time the total fund were to equal ten weeks' pay for all employees, employer contributions could be reduced to a level only sufficient to maintain the ten-week level.

As in the USW plan, if an employee were laid off, he would be required to apply to the nearest public employment office for work and unemployment compensation. If offered suitable work, he would be required to accept it. Unemployment compensation payments were to be offset against the guarantee payment where state laws permit it. Finally, any pay earned by "fill-in" jobs is to be deducted from guaranteed pay.

United Automobile Workers

The proposal of the United Automobile Workers appears to differ from the other two plans in three respects: (1) a pay-as-you-go feature in addition to a reserve, (2) joint machinery for administering the plan, and (3) some arrangement for pooling the reserve fund and the liability of employers.

Like the IUE plan, the UAW proposal calls for a guarantee of 2,080 hours. The applicable pay rate is the "same living standards as when fully employed." The full guarantee is to apply to "seniority employees," but probationers are to be guaranteed a full 40-hour week at regular pay unless notified in advance to the contrary. In the case of seniority employees, advance notice of full week layoffs would be required. Up to a "specified percentage" of payroll, payments would come from general company funds. Beyond that, payments are to be made from a reserve kept at a "fixed level" by employer cents-per-hour contributions estimated at $.07 to $.12 per hour. The proposal that the plan be financed partly on a pay-as-you-go basis is intended to give employers an incentive to stabilize employment. In this it is similar to traditional plans.

As in the case of the other two proposals, laid-off employees would be required to apply for work at the time they registered for unemployment compensation and to accept suitable work, if offered. Also unemployment compensation and earnings in other employment would be offset against the guarantee.

The proposed joint administration involves creating private machinery to supplement the public machinery responsible for administering unemployment compensation. This suggestion stems from union opinion that unemployment compensation is administered too rigidly. Such a suggestion involves many problems and probably will be strongly resisted by employers.

The UAW proposal also includes the suggestion that reserve funds of employers be pooled. The reasoning is that pooled funds involve insurance principles and will provide more security for employees. In order for such an arrangement to work, it would appear necessary to establish a broad pooling across industry lines, and it is doubtful if unions in noncyclical industries would be interested.

Also, even within the industry it is doubtful if Ford, for example, would be interested in contributing to a fund that might be used to pay the guarantees of Chrysler or General Motors employees.

Economic Aspects

A quick perusal of these proposals is sufficient to suggest that (1) they are sufficiently flexible to permit their possible installation in cyclical industries where the traditional plans are inapplicable and (2) they have been tailor-made for the industries in which they were proposed. Employer liability is limited in important ways. Employers are given an incentive to ask for legislation that permits integration of guaranteed wage plans with unemployment compensation.

Slichter [87] believes these proposed plans may be applicable to weak firms in noncyclical industries and to cyclical industries in which the employer's control over volume of employment is limited. He further believes that if such plans were widely adopted they would operate as a useful form of built-in stabilization. If only a few such plans were to be adopted, however, he believes that liberalization of present unemployment compensation laws would be preferable.

Industrial Relations Aspects

There are issues other than economic involved, however. Such proposals raise some serious industrial relations problems.[88] For example, only seniority men are covered in the proposals. There is some question whether a union in a mass-production industry can afford not to protect low-seniority men. Similarly, there is a question as to whether employees may not grow to resent the trust fund if there is very little unemployment, and wonder if it would not have been more advantageous to them in the form of wages. Actually, a worker who is never unemployed gets no benefits from the fund.

Also, there is still a question as to whether employees are willing

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[87] Sumner H. Slichter, "Guaranteed Annual Wage Plans and Supplementary Unemployment Compensation," *Personnel Series Number 156* (New York: American Management Association, 1954), pp. 3–12.

[88] See Philip Arnow, "Some Problems of the Guaranteed Wage Plan," *Monthly Labor Review*, Vol. 77, No. 2 (February, 1954), pp. 141–143.

to give up gains in control over transfers and work assignment for the guaranteed annual wage. Especially in a period of full employment this appears to be giving up something hard won for no gain.[89]

Other Problems

It is well to remember also that at the present time state unemployment compensation laws do not distinguish guaranteed wage payments from other wages and consider wage recipients as employed and ineligible for benefits. Although it is true that this problem could be corrected by legislation, the question of whether guaranteed wages are (1) taxable and (2) a basis for building up benefits under Old Age and Survivors' Benefits must also be decided.

Likewise, there is the question of whether such decisions as suitability of work, disqualification, identification of workers covered by guarantees at UC offices, notification of rights to benefits, notification of outside earnings, and so on will not be made more difficult and create additional problems.[90]

Finally, the limits of unemployment compensation supplementation must be decided. Should this supplementation be confined to: (1) guaranteed wage plans established through collective bargaining; (2) those established on a contractual basis but outside of collective bargaining; (3) those that meet certain minimum standards?

Purposes of Guarantee Plans

Organizations installing wage guarantees have done so for a variety of reasons. The primary one is to provide security for employees. Employers know the strength of workers' desire for security and seek to provide some measure of it in hope of improved efficiency and morale.

In the BLS study of 62 guarantee plans [91] employers were asked for their basic reasons for installing the plans. Reasons for in-

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[89] C. Wilson Randle, "Bargaining on Big Labor's Demand: The Outlook for the Guaranteed Annual Wage," *Personnel Series Number 156* (New York: American Management Association, 1954), pp. 12–19.

[90] Philip Booth, "Some Problems of the Guaranteed Wage Plan: Proposed Relationship with Unemployment Insurance," *Monthly Labor Review*, Vol. 77, No. 2 (February, 1954), pp. 143–145.

[91] Bureau of Labor Statistics, "Guaranteed Wage Plans in the United States," *Bulletin No. 925.*

stallation in order of number of employers offering the reasons were as follows: (1) to provide security for employees, (2) to improve employer-employee relations, (3) to hold capable employees, (4) to attract desirable workers, (5) to reduce labor turnover, (6) to save on overtime costs, (7) to give employees the fruits of a successful employment stabilization program, (8) to reduce absenteeism, (9) to reward for long service, (10) to improve morale, (11) to increase productivity, (12) to reduce labor costs, and (13) to avoid slowdowns which accompanied layoffs.

Installation and Operation of a Guaranteed Wage Plan

The first step in the installation of a guaranteed wage plan is to gather and analyze past records as a basis for predicting future trends. These data should cover each month of each year for 15 or 20 years and provide the number of each type of worker employed, hours worked, and wages paid. With this information it is possible to compute what the cost would have been if a guarantee had been in effect and to forecast probable costs in the future. Such computation of past costs should be made for each type of worker and with the employment of the various types of limitations previously discussed.

In analyzing these data for a particular company, the cyclical pattern is most important. Changes over the years (secular trend) and seasonal changes must also be carefully examined. The successful plans are found in organizations seriously affected by a seasonal pattern but only slightly disturbed by cyclical or secular changes. Wage guarantees in producers' goods industries that are seriously affected by the business cycle are few in number at present.

A company must not guarantee more than it can afford. The company can pay the guarantees only if production is sufficient to finance them.[92] Some authorities argue that the place to begin is in stabilizing employment and urge that such stabilization be well under way before making a formal guarantee.[93]

In estimating the impact of a guarantee, a very important consideration is the relationship between labor costs and total costs. In

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[92] Slichter, "Professor Slichter Reviews the Issue of the Annual Wage," *Fortune*, June, 1945, pp. 252 ff.

[93] Dale, *Annual Wages and Employment Stabilization Techniques*, p. 55.

general, the smaller the proportion of labor costs to total costs, the smaller will be the effect on total costs of a wage guarantee. Also important are (1) the possibilities of substituting machinery for labor, (2) the probable effects of price increases on demand for the product, (3) the trend in demand, and (4) the availability of adequate labor supplies.

Guaranteed wages have the effect of changing variable costs into fixed costs. It may be found that the guarantee will merely formalize costs which are already fixed or that the cost structure may undergo change.[94]

Where a union is involved, this step involves a thorough preparation for collective bargaining on the guaranteed wage. It is essential to determine whether a guaranteed wage plan is feasible for the organization and under what conditions. A plan tailored to the needs of the company should be tentatively formulated.

The next step also involves the employees. The attitude of employees may make or break a guaranteed wage plan, and consultation with employees is an essential step in installing the plan. The Hormel Company reports that forgetting this important fact caused serious difficulty at the time their plan was originated.[95] Employee participation in working out the plan is essential. Not only does this make for cooperation, but many workable ideas and suggestions become available. Henry L. Nunn believes such participation is required in order to have a successful plan.[96]

Once the details of the plan have been worked out, it is essential that all members of the organization understand the workings of the plan. Changes in job specifications, seniority provisions affecting transfers, discipline and discharge procedures, and the like may cause major obstacles in the form of employee or union opposition unless complete understanding is secured. One means of obtaining employee understanding is a regular report to employees on the workings of the plan, such as that used by the Nunn-Bush Company. Another is a special agreement form provided for covered employees in the Wrigley plan.

An important factor in guaranteed wage plans is the timing of

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[94] Slichter, "Professor Slichter Reviews the Issue of the Annual Wage," *Fortune*, June, 1945, pp. 252 ff.

[95] Dale, *Annual Wages and Employment Stabilization Techniques*, pp. 40–41.

[96] *Ibid.*, p. 40.

the installation. Dale believes it best to start a guaranteed wage plan in the beginning of a period of expanding business.[97] A trial period with relatively small guarantees may be advisable, the guarantee gradually being increased as employment stabilization makes this possible. This practice may not be advisable, however, if the original guarantee is so low as to affect adversely employee morale and productivity.

[97] *Ibid.*, p. 51.

PART SIX

The Problem of Fringe

15 · *The Hidden Payroll*

DIRECT WAGE AND SALARY PAYMENTS ARE ONLY A PART OF THE WAGE bill. Many important types of employee compensation do not appear in wage rates. Some do not even appear in pay checks. Examples of those items which appear in the pay check but not in the wage or salary rate are: premium rates for overtime and holidays, pay for holidays not worked, vacation, compensation for down time, call-in pay, call-back pay, pay for rest and lunch periods, pay for time spent on grievance settlement, night shift premiums, portal-to-portal pay, and dismissal compensation. Examples of compensation which appear neither in pay rates nor pay checks are: employer contributions to insurance premiums, health and welfare funds, and pensions; taxes paid by the employer for old-age pensions and for unemployment compensation; and similar employer expenses for providing benefits to employees.

Definition of Fringe

Such items have, in recent years, been called "fringe benefits," [1] "wage supplements," [2] or "indirect payment practices." [3] They involve (1) expense to employers and (2) benefits to employees.

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[1] "The term 'fringe benefits' originated about 1943 when a gifted regional chairman of the National War Labor Board referred to 'fringe issues' to denote virtually all forms of employee compensation other than basic straight time wage and salary rates."—James C. Hill, "Stabilization of Fringe Benefits," *Industrial and Labor Relations Review*, Vol. 7, No. 2 (January, 1954), pp. 221–234.

[2] The term "wage supplements" was used by the Chamber of Commerce of the United States in their first survey of the costs of these items. *Wage Supplements: The Non-Wage Labor Costs of Doing Business* (Washington: Chamber of Commerce of the United States, 1950).

[3] "Indirect payment practices" is the term employed in Michael, *Wage and Salary Fundamentals and Procedures*, Chapter 9.

Although the term fringe has been widely adopted, its definition is not yet entirely clear. Yoder defines fringe items or issues as those matters that "involve added labor cost to the employer but are not direct wage payments." [4] Michael defines them as "those procedures adopted to provide supplementary compensation which is over and above the agreed-upon wage or salary rate and for which no additional productivity is required." [5] To Heneman and Turnbull "fringe items are services and financial compensation given to employees but not directly related to employee performance." [6] It is to be noted that the latter authors do not distinguish between fringe items and employee services. In fact, they equate them. "Employee services are a miscellany of benefits for employees. These services are not cost-free, and, for that reason are sometimes calculated as extra-wage payments. Then they are called fringe items." [7]

The definition of fringe items used in this book is: any wage cost not directly connected with employee productive effort, performance, service, or sacrifice.[8] They include (1) extra payments for time worked, (2) payments for time not worked, (3) payments for employee security, and (4) payments for employee services.

Extent of Fringe

The wage stabilization program during World War II provided a tremendous impetus to the adoption of such benefits. Encouragement to both labor and management to seek means of providing added compensation for employees without actually increasing wage rates brought about the expansion of already-existing benefits and the adoption of many new ones.

Most of the items did not appear for the first time during the war. Many had achieved acceptance in certain industries and localities

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[4] Yoder, *Personnel Principles and Policies*, p. 323.

[5] Michael, *Wage and Salary Fundamentals and Procedures*, p. 154.

[6] Herbert G. Heneman, Jr. and John G. Turnbull (eds.), *Personnel Administration and Labor Relations* (New York: Prentice-Hall, Inc., 1952), p. 191.

[7] Heneman and Turnbull (eds.), *Personnel Administration and Labor Relations*, p. 225.

[8] Adapted from Charles W. Sargent, *'Fringe' Benefits: Do We Know Enough About Them?* (Hanover, N. H.: The Amos Tuck School of Business Administration, Dartmouth College, December, 1953), p. 7.

before the war. But the search for such means of increasing compensation under the war and post-war stabilization programs secured widespread acceptance and placed them in the forefront as bargaining issues.[9]

This growth in importance of fringe benefits reflects a fundamental development in the recent history of industrial relations. One of the most significant trends of the past decade has been the growth of these supplementary features in the system of wage payments to the point where they are no longer on the fringes but very much in the center of the employment contract.[10]

Several compilations of existing fringe benefits have been published. One of the first [11] enumerated 20 types of benefits. The National Industrial Conference Board has compiled 33 separate types of fringe benefits.[12] The questionnaire used by the United States Chamber of Commerce to survey costs of such items includes 49 items.[13] A more recent study listed over 100 items that would be classified as fringe according to the definition employed in this book.[14]

The number and variety of fringe items and the rate at which new benefits appear and are installed suggest that any attempt to list them or discuss separate benefits here would be not only pointless but out of date before this volume is published. For that reason, the examples provided on the first page of this chapter and the fourfold classification offered in connection with the definition of fringe items are adjudged sufficient to suggest to the reader the practices involved under the heading of fringe. Suffice it to say that present fringe benefits range from paid vacations to free haircuts. An idea of the types of items involved, however, may be obtained from Figure 68.

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[9] Richard C. Smyth, "Economic Fringe Demands of Unions," *Personnel*, Vol. 24, No. 4 (January, 1948), pp. 243–256.

[10] Hill, "Stabilization of Fringe Benefits," *Industrial and Labor Relations Review*, Vol. 7, No. 2 (January, 1954), pp. 221–234.

[11] *Fringe Issues* (Philadelphia: Chamber of Commerce and Board of Trade of Philadelphia, Industrial Council, December, 1945).

[12] Gertrude Deutsch, "Fringe Benefits in Wage Statistics," *The Conference Board Business Record*, Vol. 8, No. 2 (January, 1951), pp. 54–59.

[13] *Fringe Benefits, 1951* (Washington: Chamber of Commerce of the United States, 1952), pp. 28–29.

[14] Sargent, *'Fringe' Benefits: Do We Know Enough About Them?*

Figure 68

SELECTED FRINGE ITEMS

1. *Extra payments for time worked:*
   - Holiday premiums
   - Overtime premiums
   - Shift premiums
   - Week-end premiums

2. *Nonproduction awards and bonuses:*
   - Anniversary awards
   - Attendance bonus
   - Christmas bonus
   - Quality bonus
   - Safety awards
   - Service bonus
   - Suggestion awards
   - Waste-elimination bonus
   - Year-end bonus

3. *Payments for time not worked:*
   - Call-back pay
   - Call-in pay
   - Clean-up time
   - Clothes-changing time
   - Dental care time
   - Down time
   - Family allowances
   - Holidays paid for but not worked
   - Jury duty time
   - Lay-off pay
   - Medical time
   - Military induction bonus
   - Military service allowance
   - National Guard duty
   - Paid death-in-family leave
   - Paid lunch periods
   - Paid sick leave
   - Portal-to-portal pay
   - Religious holidays
   - Reporting pay
   - Reserve military duty
   - Rest periods
   - Room and board allowances
   - Severance pay
   - Supper money
   - Time spent on contract negotiation
   - Time spent on grievances
   - Vacation pay
   - Voting time
   - Witness time

4. *Payments for employee security:*
   - Contributions toward:
     - accident insurance
     - disability insurance
     - hospitalization insurance
     - life insurance
     - medical insurance
     - surgical insurance
   - Contributions to State disability insurance
   - OASI contributions
   - Contributions to unemployment compensation
   - Supplements to unemployment compensation
   - Contributions to workmen's compensation
   - Supplements to workmen's compensation
   - Contributions to employee thrift plan
   - Contributions to employee stock purchase plans
   - Credit union
   - Employee loan association
   - Health and welfare funds
   - Home financing
   - Mutual benefit association
   - Payment of optical expenses
   - Pensions
   - Savings Bond administration

Figure 68 (cont.)

5. Payments for employee services:

Annual reports to employees
Beauty parlors
Cafeteria
Canteen service
Charm courses
Company athletic teams
Company housing
Company orchestra
Company stores
Cooking schools
Dietetic advice
Educational assistance
Employee counselling
Employee discounts on purchases
Employee parties
Employee pleasure trips
Employee publications
Financial advice
Flowers for ill and deceased employees and families
Free laundry
Free meals
Functions for retired employees
Health education
Hospital facilities
Income tax service
Information racks
Legal aid
Lunch period entertainment
Medical examinations (voluntary)
Music at work
Nursery
Paid club memberships
Paid subscriptions to magazines
Parking space operation
Purchasing service
Reading room facilities
Recreational facilities
Rest room facilities
Safety clothes at company expense
Safety programs
Scholarships
Shower and locker rooms
Transportation
Vacation facilities
Visiting nurse
Vitamins and salt tablets
Wedding gifts
Work clothes at company expense

Cost of Fringe

Not only have the number and variety of such benefits expanded greatly in recent years, but their proportion of total wage costs has also increased. A survey in 1948 found voluntary benefits plus vacations cost employers an average of nine per cent of payroll. Another study in the same year reports that employer contributions to private pension and welfare funds tripled between 1942 and 1946.[15] Specific employers reported higher costs. Standard Oil of New Jersey, for example, had in 1946 a benefit program costing the company almost 15 per cent of payroll.[16]

The United States Chamber of Commerce has made a number of studies of the cost of fringe benefits. Such costs (not including

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[15] A. C. Croft, "Patterns in Fringe Benefits," *Personnel*, Vol. 25, No. 1 (July, 1948), pp. 11–17.

[16] "Thirty Years of Labor Peace," *Fortune*, November, 1946, p. 169.

premium pay for night, overtime, and holiday work and shift differentials) were found to be as follows: [17]

	1947	*1949*	*1951*	*1953*
As per cent of payroll	14.4%	16.2%	18.7%	19.2%
Cents per hour worked	19.2¢	24.8¢	31.5¢	34.6¢
Dollars per year per employee ..	$393	$505	$644	$720

Although these average expenditures are impressive, it should be noted that averages serve to conceal even larger expenditures. A petroleum refining company reported fringe costs of 50 per cent of payroll, more than $2,000 per year per employee.[18] The costs varied quite widely by industry (14.1 per cent of payroll to 26.4 per cent), but little variation by company size appeared (18.4 per cent to 19.4 per cent).

Other organizations have made similar surveys. The National Industrial Conference Board reported fringe costs at $.23 to $.25 per hour in 1949.[19] Using a definition of fringe that included overtime and shift premiums, a survey of 90 Milwaukee employers in March, 1953, found an average cost in cents per hour to be $.35 in durable goods industries and $.37 in nondurable goods industries.[20]

THE PROBLEM OF FRINGE

The above discussion of the extent and cost of existing fringe benefits serves to point out the significance of such items in wage and salary administration. Failure to include fringe as part of wages is equivalent to ignoring approximately 20 per cent of labor costs.

To the employer the problem of fringe involves the decision as to which fringe items to provide his employees and the extent to which each benefit is to be provided. In many ways the problem of fringe is similar to the problem of wage and salary levels. In both problems the basic issue to the employer is one of labor costs.

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[17] Chamber of Commerce of the United States, *Wage Supplements: The Non-Wage Labor Costs of Doing Business;* Chamber of Commerce of the United States, *Fringe Benefits, 1951; Fringe Benefits, 1953.*

[18] *Fringe Benefits, 1951,* Chamber of Commerce of the United States.

[19] Beatrice F. Brower, "How Much Do Employee Benefits Cost?" *The Conference Board Management Record,* Vol. 11, No. 3 (March, 1949), pp. 97 ff.

[20] Allis-Chalmers Mfg. Co., *Summary of Wage Policies and Practices* (Milwaukee: Wage Administration and Research Department, Allis-Chalmers Mfg. Co., March, 1953, mimeographed), p. 44.

The employer must decide in both cases, either with the aid of his union(s) or unilaterally, the level of wage costs in his organization. In the problem of levels, he is dealing with wage and salary rates. In the problem of fringe, he is dealing with matters less tangible and more difficult to quantify, but just as real as wage rates in effects upon total costs.

Many employers recognize the similarity of the two problems and attempt to solve them at the same time by deciding how much of wage costs will be paid out as wage rates and how much as fringe benefits. As will be seen later in the chapter, unions have encouraged this practice by bargaining for a "package," part of which involves an adjustment in wage and salary levels and part of which involves extension of existing fringe benefits or the addition of new ones.

Although far too little is known about the extent to which employees offer or withhold their services in response to fringe benefits offered by employers, it is generally believed that they as well as employers recognize such items as part of wages.[21] Actually such items contribute more to employee income than their equivalent in direct wages, inasmuch as fringe items are not subject at present [22] to Federal income tax.

SOLUTIONS TO THE PROBLEM OF FRINGE

Just as the problem of fringe is similar to the problem of levels, solutions are also similar. Solutions to the problem of fringe involve (1) legislation, (2) practices of other employers in the industry and the area, (3) union policies and practices, and (4) generally accepted installation and operation principles when benefits are unilaterally determined.

Legislation

An employer desiring to limit his wage bill to direct wages and salaries finds that this is not legally possible. Legal requirements

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[21] Yoder, *Personnel Principles and Policies*, p. 406.

[22] It is reported that the Bureau of Internal Revenue is re-examining their rulings on fringe benefits with a view to taxing at least a portion of such items. See "Tax Men Eye Wage Fringes," *Business Week*, July 18, 1953, pp. 120–121.

for safety and health and for various forms of insurance compel the employer to provide certain fringe benefits whether he wants to or not.

State laws, for example, require that he purchase workmen's compensation insurance to cover his employees in the event of work-connected illness or injury. Some states also require employers to insure their employees against disability from accidents and illness occurring outside employment.[23]

Another form of insurance which most employers are required by law to carry for their employees is unemployment compensation. Employers covered by such laws must pay a certain proportion of payroll into a fund that the employee may draw upon when he becomes unemployed. Employer contributions to Old Age and Survivors' Insurance required by the Social Security Act represent another fringe benefit required of employers by law.

Such legally required benefits cost the average employer 3.5 per cent of payroll, according to the United States Chamber of Commerce.[24] These payments represent direct employer outlays required by legislation and do not include expenses involved in providing safe and healthful working conditions.

In addition to payments required by law in connection with fringe benefits, certain benefits such as pension plans must be approved by the Bureau of Internal Revenue in order to permit the employer to deduct payments into such plans as allowable expense for income tax purposes. In the event such plans are not approved, employer payments are increased by the amount of the income taxes involved.

Practices of Other Employers

Another solution to the problem of fringe is found through surveying industry and area practice regarding fringe benefits. One of the considerations in the decision to install a new benefit or broaden an existing one is the extent to which these benefits are offered by other employers in the labor market.

Such surveys were discussed in Chapter 4 in connection with wage surveys. That chapter presents useful methods of collecting

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[23] Yoder, *Personnel Principles and Policies*, p. 498. Five states had such laws in 1952.

[24] *Fringe Benefits, 1951*, p. 9.

information on existing fringe benefits, and Figure 3, pages 55–63, shows a suggestive interview schedule that covers many existing fringe items. Emphasis is required here only on the necessity for sufficient detail regarding each item of fringe to permit comparability of benefits and costs between firms. Fringe surveys, to yield accurate cost data, probably require personal interviews, according to some authorities.[25]

It should perhaps be mentioned that fringe surveys are just as essential as wage surveys. The reason in both cases is that the information is not available in any other way. Present governmental wage statistics include only a few of the usual fringe benefits carried by employers.[26]

Most present surveys of fringe benefits are limited to seeking detailed information on benefits and coverage of specific items. An employer using the data is required to estimate what the specific program would cost in his organization.

Although the difficulties are large because of the variation in accounting practices between companies,[27] there are a place for and an expanding interest in surveys of fringe costs. Organizations wishing to make such surveys can make good use of the pioneering work done by the United States Chamber of Commerce. Cooperating organizations need only agree on the manner of computing costs for survey purposes. For example, one or more of the following may be used: (1) cost per productive hour worked, (2) percentage of payroll, (3) percentage of straight-time pay, (4) annual cost of fringe for all employees, (5) annual cost per employee, (6) cost per unit of output.

Cost per unit of output would probably be the most useful measure. Unfortunately, however, present surveys do not attempt to secure fringe costs in these terms. Perhaps the major reason is that most employers classify fringe costs as overhead rather than labor costs. To the extent that they do this, they are understating labor cost as much as 20 per cent.

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[25] Brower, "How Much Do Employee Benefits Cost?" *The Conference Board Management Record*, Vol. 11, No. 3 (March, 1949), pp. 97 ff.

[26] Deutsch, "Fringe Benefits in Wage Statistics," *The Conference Board Business Record*, Vol. 8, No. 2 (January, 1951), pp. 54–59.

[27] Brower, "How Much Do Employee Benefits Cost?" *The Conference Board Management Record*, Vol. 11, No. 3 (March, 1949), pp. 97 ff.

Assuming the existence of useful information regarding fringe practices and costs in labor markets, the employer is still faced with the problem of the extent to which he should follow the pattern of the industry or area.[28] As in the case of the problem of wage and salary levels, the decision does not become automatic when data regarding industry and area practice are available. Should a given employer follow the most liberal practice, the least liberal practice, or choose some middle ground on each specific fringe item?

Information is largely lacking on: (1) costs of specific fringe items; (2) effects of specific benefits on employee turnover, morale, and productivity; (3) the extent to which employees balance fringe benefits against wage increases. For this reason the employer is handicapped in his decision. The result is likely to be and often is an insidious competition in fringe benefits motivated by the vague feeling that more fringe benefits help an employer get and keep a happy, productive labor force.

But a decision is necessary. The employer must solve the problem of fringe either with the aid of a union or unilaterally.

Union Influence

When a union is present, the number and extent of fringe benefits are decided at the bargaining table. Unions, too, are hampered by limited information, but their experience has led them to believe that when an employer is unable to grant a wage increase, he is at least able to make some additional contributions to fringe. This belief was fostered during World War II days when fringe benefits were considered less inflationary and permitted in lieu of a wage increase. It was also fostered by the decision of the Steel Industry Board in 1949, which refused to recommend a wage increase but recommended pensions instead.[29] Restraints on increasing wage

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[28] The difficulties involved in identifying a pattern are not dealt with here. For a discussion of some of these difficulties, see Hill, "Stabilization of Fringe Benefits," *Industrial and Labor Relations Review*, Vol. 7, No. 2 (January, 1954), pp. 221–234. The National War Labor Board found that (1) security provisions tended to follow national or regional patterns, (2) those related to leisure tended to fall into community patterns, crossing industry lines, and (3) those most closely related to wage rates (shift differentials, for example) tended to follow industry lines.

[29] Report to President of the United States on the Labor Dispute in the Basic Steel Industry by the Steel Industry Board, submitted September 10, 1949.

rates enlarge the pressures for alternative gains in the fringe area.[30]

Perhaps another reason for this attitude is the difficulty of applying certain of the wage criteria (discussed in Chapter 5) to fringe decisions. This easily leads to the position that other different criteria must be applied in the case of such benefits. Although it is doubtful that this position is tenable, until better information is available on costs and results of fringe it will be taken. Actually, most of the usual wage criteria are applicable to the problem of fringe, and these criteria should be used in a manner very similar to that employed in solving the problem of levels.

Unions often demand fringe benefits for their members because such benefits have been granted to other employees in the organization. Where this is the case, the demand represents an attempt to remove inequities. Such inequities are difficult to justify on the basis of fairness, and many employers are refusing to adopt fringe items applying to only certain types of employees.[31]

Because of the almost complete lack of information on employee reaction to fringe benefits and the manner in which employees balance the relative advantages of higher wage rates and increases in fringe, there is much to be said for solving the problem of fringe by bargaining. To the extent that union demands are mirrors of employee desires, an employer would seem to be on solid ground in adopting only those benefits demanded and won at the bargaining table. This assumes, of course, that the bargainers base their decision on a realistic cost analysis.[32]

In practice, present-day bargaining often involves a "package" made up in part of an adjustment in wage levels and in part by fringe. Through this type of settlement a unionized employer may solve the problems of level and fringe simultaneously.

Unilateral Decisions on Fringe

Employers solving the problem of fringe unilaterally consider not only economic factors but the results of the many opinion polls

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[30] Hill, "Stabilization of Fringe Benefits," *Industrial and Labor Relations Review*, Vol. 7, No. 2 (January, 1954), pp. 221–234.

[31] Sweeten, "Salary Administration for Exempt Personnel," in *Personnel Series Number 114*, pp. 16–23.

[32] Smyth, "Economic Fringe Demands of Unions," *Personnel*, Vol. 24, No. 4 (January, 1948), pp. 243–256.

which show that wages are only one of the factors making for a good job.[33] Many such surveys report employee desires for the types of benefits provided by fringe items. Thus employers may install such benefits in the hope that fulfilling these basic wants of employees will help them obtain (1) reduced turnover, (2) higher morale and loyalty, (3) increased efficiency and productivity, and (4) a better class of workers.[34]

Unfortunately, the motives of employers in installing benefits have not always been sincere. Some managements have attempted to purchase the above-mentioned advantages at less than a fair wage. Others have installed such programs because they could be initiated at less than full cost, i.e., under cost-plus contracts or excess profits tax. Still others installed benefits instead of removing basic barriers to harmonious employer-employee relations.

Employee reactions to such improperly based benefit programs have taught management that successful installation requires that certain principles be followed.

1. Wages, hours, and working conditions come first. Without this foundation, installing an employee benefit program is futile.

2. There must be a real need. Not only must the need be apparent but employee desire for the benefit should also be evident.

3. Employees' interest must be sufficiently strong so that they will take part in planning and in the cost of upkeep of the program by expending their time, money, or skill.

4. The program must be defensible on economic grounds.[35]

Adherence to these principles has apparently been difficult in practice. Purposes and objectives of fringe benefits have not always been clear-cut.[36] Employers are too prone to install fringe items because others have them or because they believe it would be "nice" for employees.[37] More seriously, almost no attempt has

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[33] See, for example, Lindahl, "What Makes a Good Job?" *Personnel*, Vol. 25, No. 4 (January, 1949), pp. 263–266, which summarizes many of these surveys.

[34] *Successful Employee Benefit Plans*, p. 5.

[35] See Jucius, *Personnel Management*, pp. 572–574; Pigors & Myers, *Personnel Administration*, p. 305; Yoder, *Personnel Principles and Policies*, pp. 490–492.

[36] Heneman and Turnbull (eds.), *Personnel Administration and Labor Relations*, p. 226.

[37] Jack Rhode, "Employer Objectives in and Evaluations of Service Programs," 1954 (an unpublished study conducted under the direction of the author).

been made to evaluate the effects of such programs.[38] Until an employer has available careful studies of costs of each benefit vs. returns, he is unable to defend his program on economic grounds.

Some employers adhere carefully to the necessity of determining employee needs and desires before installation of a given benefit.[39] No attempt has been made, however, to determine which programs have priority in the eyes of employees, and which, if any, they value more highly than the wage rate.

Such lack of information and the apparent tendency of both management and unions at the bargaining table to regard fringe items as throw-aways,[40] raise questions of policy in periods of declining business. Should an employer in the face of stern necessity cut wage rates or drop fringe items? If the latter, which of the items? An employer making the incorrect decision may be in serious trouble.

Thus it appears essential that more attention be devoted to (1) which fringe items employees prize most; (2) which, if any, are prized more highly than wage rates; (3) whether or not each specific fringe benefit pays off.

Only when an employer is in possession of such information is he able to consider economic factors. Given such information plus accurate cost figures on projected benefits, he is able to go through a reasoning process such as that described in Chapter 5 and decide whether to make adjustments in the wage level, the fringe items, neither, or both.

INSTALLATION OF FRINGE BENEFITS

When an employer has decided (either as a result of bargaining or unilaterally) to install a specific benefit program, certain procedures are necessary to insure success.

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[38] Heneman and Turnbull (eds.), *Personnel Administration and Labor Relations*, p. 226. An exception is in the field of music in industry. See Willard A. Kerr, "Experiments on the Effects of Music on Factory Production," *Applied Psychology Monograph No. 5* (Stanford University, Calif.: Stanford University Press, 1945), pp. 36–39.

[39] See "Playing at the Plant," *Business Week*, February 20, 1954, pp. 74–80. This employer has also apparently made some attempts at evaluation.

[40] Hill, "Stabilization of Fringe Benefits," *Industrial and Labor Relations Review*, Vol. 7, No. 2 (January, 1954), pp. 221–234.

1. Employee participation should be encouraged.
2. The plan must be explained fully and sold completely and constantly to employees through various communications media.

Participation

It is usually agreed that benefit programs have a greater chance for success when employees are encouraged to participate in installation and operation of the program.[41] Employee assistance should be secured in planning the program and, on certain benefits, in administration of the program. Drucker believes that safety and health matters should be completely turned over to employees, that security measures call for policy determination by management but employee administration, and that wage matters should be decided jointly.[42]

Present-day practice falls short of Drucker's ideal. However, such programs as credit unions, educational assistance plans, cafeterias, and recreation plans are frequently operated largely by employees. In additional-income plans, such as stock-ownership programs, employees often participate directly or indirectly in planning and administration. In security benefits, such as insurance and pensions, however, employee participation is less frequent [43] although contract provisions regarding pensions and health and welfare plans are changing this picture.

Communication

A program of fringe benefits is useless without an adequate system of in-plant communication. Each plan must be fully explained. Also, it must be continuously sold to employees. The media used to convey information to employees resemble the media used in advertising. They range from posters and bulletin boards to special radio programs for employees.

A study conducted by the Esso-Standard Oil Company [44] found

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[41] Drucker, *The New Society*, pp. 281 ff.
[42] *Ibid.*
[43] *Successful Employee Benefit Plans*, Chapter 24.
[44] Raymond W. Peters, *Communication Within Industry* (New York: Harper & Brothers, 1950).

21 separate media commonly used by organizations in communicating with employees. Some of the most common media are: posters and bulletin boards, company magazines and newspapers, letters to employees, annual reports, orientation and other courses, handbooks and booklets, movies, advertisements in the public press, mass meetings, small group meetings, loudspeaker systems, labor-management committees, and pay inserts.

Although all of these media may be useful in communicating with employees regarding benefit programs, certain of them have proven especially applicable. For example, meetings with employees may be held, in which the benefits are explained and questions answered. A special booklet devoted to each benefit has been employed with effect by McCormick and Company. Especially effective in informing the employee of his status in each employee benefit is a booklet similar to a bank book. The Signal Oil and Gas Company of Los Angeles combines several media. First, a series of meetings is held with supervisors explaining the benefit. Supervisors in turn hold meetings of their subordinates, and employees are presented with summary cards, which show graphically the benefits provided. After the program has been sold to employees, each employee receives a personalized "status card," which illustrates the dollar value of the benefits due him. This card is mailed to his home.[45] Where benefits are incorporated in the union contract, such contracts provide another useful method of communicating benefit programs to employees.[46]

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[45] See *Successful Employee Benefit Plans,* Chapter 23.

[46] Michael, *Wage and Salary Fundamentals and Procedures,* p. 174.

PART SEVEN

The Problem of Control

16 · *Wage and Salary Control*

PERHAPS THE PRIMARY PURPOSE OF WAGE AND SALARY ADMINISTRATION is to control wages and salaries.[1] Thus, in many ways, the problem of control[2] is the central problem of wage and salary administration. Unless this problem is solved, it matters little to the organization that excellent solutions have been found to one or more of the other problems. For example, it is small comfort to an organization that the problem of structure has been solved if total payroll is higher than can be afforded. It is through wage and salary control that an organization is assured that wages and salaries are serving their many functions as spelled out in Chapter 1. Also, it is through control that the solutions to the other problems are evaluated and kept current.

Discussion of the problem of control is complicated by the almost countless variations made feasible by variations in sizes and types of

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[1] Otis and Leukart, *Job Evaluation*, p. 453.

[2] Control is making sure that actual results conform to desired results. Thus control is a process involving: (1) setting standards of satisfactory performance, (2) comparing actual results to such standards, and (3) taking corrective action where actual results do not meet standard. Although the action is the essence of the process, such action cannot take place without information to help in setting standards and to permit checking actual results against standards. Therefore, all three parts of the control process are essential.

Control (the verb) refers to acts involved in carrying out the control process. Control (the noun) is achieved as a result of the process. Control techniques, devices, and methods are means used in accomplishing the process. Records and reports *if used* in setting standards or in comparing actual results to standards are such means and become control records and reports. See William H. Newman, *Administrative Action* (New York: Prentice-Hall, Inc., 1951), pp. 4, 427; Arnold F. Emch, "Control Means Action," *Harvard Business Review*, Vol. 32, No. 4 (July–August, 1954), pp. 92–98.

organizations. Thus small, single-installation organizations may find that relatively informal methods impose strict control, whereas large organizations may require formal control mechanisms operating at several levels of authority.

An additional complication comes from the fact that control of wages and salaries is so intertwined with the general management control process as to make their separate discussion almost impossible. Thus such considerations as personnel budgeting, promotion, and transfer, to mention only a few, are inseparable from wage and salary control methods.

Again, it is difficult to separate control *per se* from records and reports which make the control process possible. Records and reports may be just what their names imply under conditions of proper operation, but their regular preparation, perusal, and analysis serve to point up unsatisfactory conditions and to initiate necessary action.

Finally, a given control mechanism may serve various parts of the total wage and salary control problem. For example, a budget may serve as a device in the control of total payroll, average earnings, and individual wage determination. Or, labor market surveys may become reports initiating action affecting wage and salary levels, wage and salary ranges, and fringe costs. Thus a classification of control techniques is likely to be highly artificial, and discussion based on any kind of breakdown must involve extensive overlapping.

In view of these difficulties the discussion of the wage and salary control process which follows breaks the control problem down into (1) control of total payroll, (2) control of wage and salary levels, (3)control of wage and salary structures, (4) control of individual wage and salary rates, (5) control of incentive wage plans, (6) control of fringe costs, and (7) control of labor cost. No attempt is made to classify solutions as to application possibilities for various sizes and types of organizations. Where solutions involve the general management control process rather than wage and salary control, discussion of the former is limited. Finally, where a given control technique is employed in more than one area, duplication is kept to a minimum.[3]

[3] This chapter leans heavily on an unpublished paper by the author, "Wage and Salary Control," based on a study made possible by the kind assistance of the Graduate School, University of Wisconsin.

Control of Total Payroll

Some authorities [4] believe that the ideal in wage and salary control is achieved when: (1) the payroll lies safely within the budget, (2) each department's wage expenditure is proportionate to the service it renders, and (3) the salary or wage paid to each individual is adjusted accurately to the importance of his work and the effectiveness with which he performs it. This statement suggests that a useful place to begin a discussion of wage and salary control is with a discussion of control of total payroll.

In many organizations the basic control mechanism for payroll is the operating budget. In making up and operating the budget, wage and salary expense is a major item. Department heads are asked to forecast wages and salaries for their departments for the budget period. Adjustments are made in departmental estimates and a final budget is prepared. Often such budgets are made up not only for the entire organization but for each department as well. Present-day practice often calls for flexible or variable budgets, under which different budgets are made up for several levels of operation.

The budgetary control technique calls for investigation and action when any item varies substantially (positively or negatively) from the amount budgeted. Thus under a system of budgets, total wage and salary expense is subject to constant scrutiny.[5]

Some organizations, desiring a tighter control of payroll expense, prepare a separate payroll budget. Preparing such a budget forces management to think through their plans for a definite period both as to number of employees and wages to be paid. Operating under such a budget facilitates assigning responsibilities for efficient operation. Also, a payroll budget provides standards to be used in other areas of wage and salary control.[6]

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[4] Walter Dill Scott, Robert C. Clothier, and William R. Spriegel, *Personnel Management* (New York: McGraw-Hill Book Company, Inc., 1949), p. 344.

[5] For a lucid, nontechnical discussion of preparation and operation of budgetary control, see Richard H. Lansburgh and William R. Spriegel, *Industrial Management* (New York: John Wiley & Sons, Inc., 1940), pp. 451–487.

[6] For an excellent discussion of development and use of a payroll budget, see Chester D. Grassmuck, "Budgeting Personnel Requirements," in *Handbook of Business Administration* (New York: McGraw-Hill Book Co., Inc., 1931), pp. 1063–1072.

In a recent study, the author found that although a large majority of organizations employed budgetary control methods, few firms prepared a separate payroll budget. And almost none of the firms employing a payroll budget included fringe costs in total wage and salary expense.

Another form of budget used by some organizations is the manning table or job budget. In such systems a standard complement of manpower for the jobs of the organization is spelled out. Such budgets may define the standard complement for each department and specify the number in each job and labor grade. Job budgets may be variable budgets specifying departmental complements at several levels of output. For additional control such budgets may be classified further: direct vs. indirect workers, direct labor vs. supervision, direct labor vs. inspection, direct vs. sales, direct vs. clerical, incentive vs. nonincentive, and so on.

Operation under job budgets can provide a very tight control of personnel and indirectly of payroll. Several organizations check variance from budget weekly, one does it daily, and one organization with personnel requirements changing constantly checks the number of personnel at work every hour. The latter organization has, through long experience with job budgets, developed extremely precise standards of personnel requirements per unit of work load and emphasizes personnel budgeting as the major form of payroll control.

Some organizations attempt the same control less formally. By keeping a continuing record of the number of employees in each department classified by labor grade and job, they become aware of more or less formal standard complements. Any abnormal variation from this standard complement thus initiates investigation and action.

Records of overtime costs can become a method of controlling total payroll. By preparing continuing reports on overtime by department, labor grade, and job, abnormal developments are quickly brought to the attention of management and corrected.

Records which permit analysis of the effect of labor turnover on total payroll permit another type of control. In most organizations length of service is directly or indirectly related to wage and salary increases. Where this is true, declining turnover tends to increase total payroll and vice versa, because new employees are usually em-

ployed at lower rates. Hulverson, who observed this fact in an early book,[7] suggested that for low-skilled jobs increasing turnover through transfer and promotion is one method of controlling total payroll. This method may be facilitated by preparing reports which compare at different periods the number of employees at various positions within the rate range. Another similar device is a continuing record of the number and amount of rate changes resulting from merit increases, automatic increases, transfers, and promotions. A log of wage rate changes may be kept.

Where incentive plans are in operation, periodic reports of the proportion of employees on incentive and the per cent of time incentive employees are working under the plan provide a method for controlling total payroll—substantial deviations from expectations call for action.

Some organizations have developed an index or ratio, which they watch for deviations from normal. Hulverson [8] suggested the development of bench marks, such as the ratio between payroll and sales or payroll and production broken down by department, as a control device. Such measures may be developed as a result of budgetary control techniques, or they may emerge from observed relationships that have obtained over a period of time. One company employs the ratio of direct labor payroll expense to sales payroll. Other organizations scrutinize ratios of wages of direct labor to indirect labor, direct to supervision, direct to inspection, direct to clerical, and so on.

Records and reports to facilitate control may be presented in tabular or chart form. Some organizations prefer charts because they show at a glance any deviation from standard.

Preceding paragraphs describe briefly most of the control methods employed in the control of total payroll. It must be understood, however, that many of the control methods described in subsequent pages operate indirectly toward that end. Wage surveys, for example, though mainly influencing wage and salary levels, have an effect on total payroll. Likewise, job evaluation, though mainly concerned with setting wage and salary structures, by setting standard rates for jobs serves to control total payroll. Again, the

[7] George R. Hulverson, *Personnel* (New York: The Ronald Press, 1927), pp. 243–257.

[8] Hulverson, *Personnel.*

various techniques to control the granting of wage and salary increases to individuals operate to control payroll. Such statements merely serve to re-emphasize the difficulty of compartmentalizing the subject of wage and salary control. In the interests of brevity the various control methods are discussed with the problem to which they are most applicable.

Control of Wage and Salary Levels

In addition to methods of controlling total payroll, many organizations employ various techniques to control average wage and salary rates (or earnings) in the organization. Thus an organization may prepare periodic reports which compare average wage and salary rates or average hourly, daily, or weekly earnings by departments, labor grades, jobs, seniority groups, incentive vs. nonincentive workers, employees vs. supervisors, direct vs. indirect workers, and so on. These reports may be prepared weekly or less often. Both tabulations and charts are employed to indicate trends or out-of-line conditions requiring action.

One organization employs a frequency chart of employees at various wage rates (see Figure 69). This chart is prepared monthly. Comparison of these charts for various periods has resulted in recognition of a standard profile the distribution should assume. Shifts in the distribution call for investigation and action.

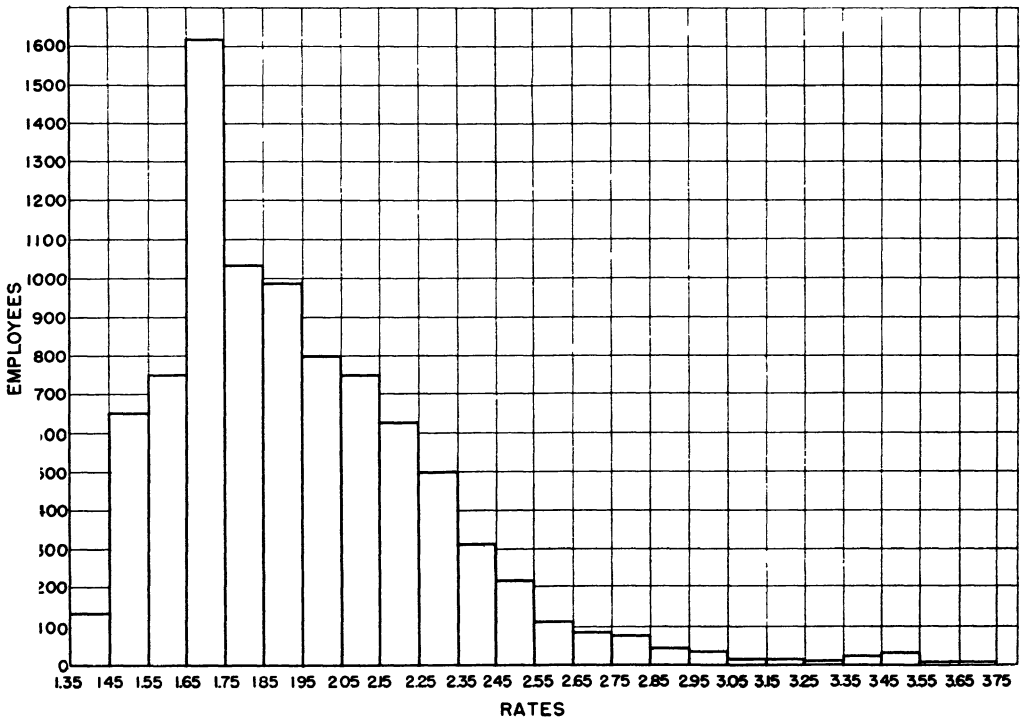
Wage survey results, when employed as bench marks to determine whether the organization's wage level is too low or too high, become a control device. Comparison of wage survey data and average wage and salary rates in the organization determines whether or not revision of levels is called for. This form of control is used by most organizations.

Comparison of labor turnover and average wage and salary rates permits another form of control. If turnover is approximately normal and average wage rates are moving upward, there is evidence that control of individual wage increases is breaking down.

Comparing average wage and salary rates to structure rates (determined by job evaluation) not only provides a check on individual wage determination, but may be evidence of the need for shifting the entire structure (change in level). If, in addition to a wide variance between structure rates and average wage rates, the record

Figure 69

DISTRIBUTION OF EMPLOYEES BY HOURLY WAGE RATES



of starting wage or salary rates of recent placements indicates starting rates are unrealistic, an adjustment in wage and salary levels is probably called for.

In nonunionized organizations, responsibility for control of wage and salary levels is often lodged with a wage and salary review committee. This committee is made up of top operating executives with the wage and salary administrator acting as secretary. In unionized organizations, control of wage levels is accomplished through collective bargaining. In such organizations the control techniques described provide management with data for setting bargaining limits and aid those responsible for preparing for negotiations.[9]

Control of Wage and Salary Structures

Broadly speaking, control of wage and salary structures is accomplished through the job evaluation plan. To permit the job evaluation plan to operate as a method of controlling wage and salary structures, however, requires that: (1) new jobs be evaluated, (2) changed jobs be re-evaluated, (3) employees be classified according to the job they are actually performing. Various control devices are required to accomplish these objectives.

Comparison of departmental employee rosters against job budgets, for example, is a device used by some organizations to keep job evaluation abreast of job changes. Such comparisons permit the wage and salary department to initiate an evaluation of new jobs if the supervisor fails to request it. A comparison of job titles used in a department with a list of standard job titles may also serve to point up unreported changes. Where departmental job budgets are classified by job and labor grade, deviations from budgets are easily noted.

Further control techniques insure that new jobs are studied and changed jobs restudied. For example, a continuing audit by the wage and salary department with the purpose of analyzing new and changed jobs is one such device. Another method is receiving and processing supervisory and employee requests for job study. A

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[9] For an excellent discussion of the process of preparing for negotiations, see Mee (ed.), *Personnel Handbook*, pp. 658–669.

third control device employed by a few organizations is to limit the life of a job description to a definite period, after which a job restudy is mandatory.

Control techniques to insure that employees are actually performing the tasks shown in the job description may involve (1) a periodic audit by the supervisor, after which a report is forwarded to the wage and salary administration department; (2) a regularly scheduled audit by the wage administration department; or (3) action only in response to an employee grievance.

Control of employee classification is probably the most important and most difficult phase of maintenance of job evaluation. Unless employees are properly classified on the jobs they are actually performing, the costs involved in grievance time and in lost employee confidence can be tremendous.[10] Responsibility for such control must rest with the supervisor, but the wage and salary department must audit employee classification at regular intervals to insure that no slip-ups occur.

A few organizations follow the practice of a complete job analysis when each new employee is hired and at the time of each transfer and promotion. Although this practice serves to control employee classification, it would seem to be unnecessary in an organization with standard job titles and jobs.

Some organizations require the methods department to notify the wage and salary administration department of all machine changes. This permits the latter to investigate the possibility of consequent job changes.

One organization compiles each month a list of present employees by name, job title, labor grade, and department. These lists are carefully checked against job budgets for unrecorded changes. Another sends each supervisor once a month a list of the jobs in his department. The supervisor sends the list back with the names of employees on each job. This completed list is compared to office records, which are set up as follows: (1) a card for each employee, (2) filed by department and job. Thus records in the wage and salary administration department show that in department X, on job

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[10] H. J. Labine, "The Failure of a Wage Plan," *American Business*, Vol. 17, No. 6 (June, 1947), pp. 14–15, 30–32.

O, there are three employees. Any variation between the two records calls for immediate investigation.

Control of Individual Wage and Salary Rates

More attention has been devoted to control of individual wage and salary rates than any other phase of wage and salary control.[11] Perhaps the reasons for this are: (1) control methods can be established here that are clearly separate from general management control methods; (2) control techniques here fill an obvious need; (3) standards for control purposes become obvious once job evaluation is installed. Unfortunately, however, some authorities have assumed that wage and salary control is accomplished when individual wage and salary rates are controlled.

Control of individual wage and salary rates involves: (1) ensuring that the rates of new, transferred, promoted, and demoted employees are in accordance with policy and (2) controlling wage and salary rate increases within the ranges.

The first phase is usually controlled through a method which clears all new assignments and re-assignments through the wage and salary administration office. In this way the assigned rate can be checked against rate schedules before it becomes official. Where flat rate systems are in operation, this process is simple—it is simply verified that the rate assigned is the one for the job on which the employee is placed. Where a rate range is employed, however, it is necessary to determine if the assigned rate is in accordance with company policy.

It is customary where rate ranges are used to assign new employees a rate at the minimum of the range. Even where the employee has had considerable previous experience, some companies start him at the minimum and provide for frequent increases after a probationary period. Where it is impossible to obtain new employees at the minimum of the range and frequent hirings at or near the

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[11] See, for example, Riegel, *Salary Determination*, pp. 34–35; Ralph Ells, *Salary and Wage Administration* (New York: McGraw-Hill Book Company, Inc., 1945), Chapter 3; Benge, Burk, and Hay, *Manual of Job Evaluation*, Appendix, "The Compa-Ratio"; Edward N. Hay, "A Program of Salary Administration," *Personnel*, Vol. 24, No. 1 (July, 1947), pp. 55–67.

mid-point occur, the process of auditing the rates of new employees becomes a method for controlling wage and salary levels; i.e., the frequent occurrence of instances of this kind indicates the need for adjustment in levels.

When employees are transferred or promoted from one job to another, the rate assigned on the new job must be checked against the rate schedule. Where rate ranges are employed, an employee transferred to a job in a new labor grade must be assigned a rate at the minimum of the new labor grade if his former rate is below that point. Transfers to jobs in the same labor grade require no rate change. Some companies provide for a probationary period before a higher rate is assigned. These requirements apply to permanent transfers.

Employees who are promoted are moved to jobs in higher labor grades. Where rate ranges with overlapping are employed, the minimum of the new labor grade may not be above his present rate. Many companies require that a promotion carry with it a wage or salary increase, but often policy specifies a maximum percentage increase. Promoted employees must, of course, be assigned at least the minimum of the labor grade to which they are assigned. Demoted employees must be assigned a rate which is not above the maximum of the labor grade in which their job falls.

Many companies keep a log of job changes and assignments. Before entry is made in the log, the change is checked against the applicable policies.

Companies with relatively new job evaluation plans will have employees who have out-of-line rates. These "red-circle" or "ringed" rates are above the maximum rate for the job. The usual control technique is a record that calls attention to such rates and provokes continuing attempts to bring them into line.

Control of increases in wage and salary rates going to employees remaining on the same job may take several forms. It may be accomplished by (1) limiting increases to an amount budgeted for increases; (2) limiting increases to those comparable to (a) other periods, (b) other departments, (c) other labor grades, (d) other jobs, (e) other employees on the same job; (3) requiring that the average of actual rates not exceed some measure of "normal" for departments, labor grades, and jobs; (4) limiting amount and number of increases; (5) reserving portions of the range for individuals who

meet definite performance requirements; and (6) clearing all increases through a wage and salary review committee.

Budgetary control methods may be applied to wage and salary increases [12] in organizations employing automatic or merit progression or both. When the former is used, a study of past experience will yield a reliable estimate of the number of employees normally found at each step in the automatic progression. Anticipated turnover in the department will affect the amount budgeted.

Where merit progression is employed, control through the budget may be loose or tight. One company budgets for each department by using the mid-point of the range for all employees below the mid-point and the actual rate for all employees above the mid-point. Their experience has been that turnover is sufficient to permit increases without budgeting a specific amount for such increases.

Other organizations budget a specific amount for increases, which is divided up among departments on the basis of number of employees in each labor grade. This latter is usually done on an informal basis. One company, however, employs what it calls a "unit" basis. Each grade and each step within the grade are assigned a number of units in keeping with the principle that within a grade there should be fewer employees at each successive step. See Table 22. A department is then allocated a number of units equal to the

Table 22

UNIT ALLOCATION

Grade	*1*	*2*	*3*	*4*	*5*	*6*	7	*8*	*9*	*10*
A	100	89	78	67	56	44	33	22	11	—
B	112	100	87	75	62	50	37	25	12	—
C	125	111	97	83	69	56	42	28	14	—
D	140	124	109	93	78	62	47	31	16	—
E	157	140	122	105	87	70	52	35	17	—
F	176	156	137	117	98	78	59	39	20	—
G	197	175	153	131	109	88	66	44	22	—
H	221	196	172	147	123	98	74	49	25	—
I	248	220	193	165	138	110	83	55	28	—
J	278	247	216	185	154	124	93	62	31	—
K	311	276	242	207	173	138	104	69	35	—
L	348	309	271	232	193	155	116	77	39	—
M	390	347	303	260	217	173	130	87	43	—
N	437	388	340	291	243	194	146	97	49	—

[12] Grace I. Cuthbert, "Budgeting Merit Increases," *Personnel Journal*, Vol. 32, No. 9 (February, 1954), pp. 328–333.

total of the units obtained from recording the grades and step positions of present employees.[13] The total amount for increases allocated by the board of directors is divided by the total units in the company. The result is a figure specifying the worth of a unit. Each department is then allocated the number of dollars determined by multiplying the worth of the unit times the number of its units. Department heads are responsible for allocating this budgeted amount among employees on the basis of performance. Regardless of the method used in assigning the budgeted amount for increases to departments, it is usually necessary to employ judgment in departments with small numbers of employees.

When the amount budgeted for increases is allotted to each department, it may be incorporated into the regular departmental budget and controlled through budgetary control methods. Some companies without departmental budgets, however, budget wage and salary increases, and control of increases is accomplished by the wage and salary administration department. A cumulative record of increases compared with amount budgeted is maintained. Department heads are notified periodically of the status of their budgeted increase amount. Increases as a result of promotions are not charged against the budget.

Much less formal is the method of granting increases consistent with increases granted in other periods, in other departments, in other labor grades, on other jobs, and/or to other employees on the same job. Companies using this plan maintain control through continuous comparison. Often in such systems increases are granted only at certain definite times and, before approval, are presented in chart form to a wage and salary review committee as a proposal. See Figure 55, Chapter 11. The committee makes adjustments to maintain consistency before granting approval.

Control methods based upon a "normal" or "standard" wage or salary rate for each range have been suggested by Ells and Hay.[14] Ells suggests establishing a normal wage or salary for each job classification, comparing the average of actual wage and salary rates to

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[13] For example, using the unit allocation given in Table 22, a department with 10 employees (3 employees in grade *B*, step 2; 3 employees in grade *D*, step 3; 3 employees in grade *E*, step 4; and 1 employee in grade *G*, step 5) would be allotted 1051 points.

[14] Ells, *Salary and Wage Administration;* Hay, "A Program of Salary Ad-

this normal periodically, and maintaining a desired relationship by granting or withholding adjustments. His normal wage or salary rates are management determined and vary with the state of the labor market.

Hay employs the "compa-ratio," which is a ratio of actual salaries in each grade to the mid-point of the grade. A composite ratio for the organization may be computed, or ratios for the separate departments may be maintained as well as ratios for each labor grade. A ratio of 100.0 signifies that the average of actual wage and salary rates is identical with the mid-point. Significant deviations call for investigation and correction. Consistency between departments, labor grades, and jobs can be maintained.

Although few organizations employ ratios, the definition of mid-points of ranges as normal is becoming standard practice. Most companies attempt to maintain average rates at or near the mid-point by checking each proposed increase to determine whether or not this will place the employee at or above the mid-point. The generally accepted theory is that the portion of the range below the mid-point is for "average" and "satisfactory" employees. The portion above the mid-point is reserved for "superior" and "excellent" employees.

Often this control method is buttressed by a policy requiring a minimum merit rating score before an employee may be moved into the upper half of the range. Sometimes such a score is sufficient only when accompanied by a minimum length of service. Thus, even an "excellent" employee may not be paid at the top of his range until he has two or three years of service in the job.

Another method of controlling movement through a range consists of limiting the amount and number of increases in a given period of time. Increases may be limited to one per year or one in a six-month period. Or the range may be divided into steps, with the provision that employees may advance only one step within a given period of time. Different provisions may be applied to new and old employees. For example, many companies provide for as many as four wage or salary reviews in the first year of employment, with annual reviews thereafter. The latter is often scheduled on the anniversary date of employment. Continuing records permit establishment of bench marks where step increases are not used. Many com-

panies have frequency limitations and fixed percentage increase limitations for each labor grade and job. A few companies have established the maximum percentage of employees that may be given increases during the year.

Some organizations have formalized merit rating into a strict control technique by developing a dollars per point scale for merit rating scores. Thus, employees receiving a merit rating score of 120 are entitled to a given wage or salary rate. If present rate is below this figure, an increase is immediately processed. Few companies, however, reduce rates when merit ratings would call for such reduction.

Least formal of methods for controlling individual wage and salary rates is the provision that a wage and salary review committee pass on each request. This committee may, before approval or disapproval, examine the present position of the employee within the range; compare the projected rate to other departments, labor grades, jobs, and other employees on the same job; and determine the date of last increase. Such committee action is usually limited to small organizations. In larger organizations this committee may be called upon to act on requests that are not within the policy. Routine requests would be approved automatically by the wage and salary administration department.

As an additional control device many organizations audit all rate changes at regular intervals. This may be done by periodically preparing for each department a list of employees with their job titles, labor grades, and rates. In comparing this list with rate schedules and a log of rate changes, any discrepancies are discovered and corrected. Such audits are made at least quarterly. One organization keeps a continuing record of number of rate changes each day and prepares a periodic report of the number of employees at each step in the range for each labor grade.

Control of Incentive Wage Plans

Control of incentive wage plans involves: (1) seeing that workers on incentive are receiving average hourly earnings comparable to other incentive workers in the labor market, (2) seeing that earnings of workers on incentive jobs bear some consistent relation to what

nonincentive workers are earning on comparable jobs, (3) seeing that the plan is doing what it was designed to do, and (4) keeping inequities from creeping into the system.

Where wage surveys are designed to permit it, some organizations compare average incentive earnings in the organization with average incentive earnings in the labor market. Because of differences between companies, operations, and standards, such comparisons are limited in value but may serve as rough indications of the adequacy of average incentive earnings.

Many companies compare on a regular basis the average hourly earnings of incentive and nonincentive workers in the organization by departments, labor grades, and jobs. Not only do such comparisons permit maintenance of the desired differential between the two systems, they permit recognition and correction of inequities as they occur. One company prepares a chart each month showing (1) average wage rate for nonincentive workers, (2) average earned rate for incentive workers, and (3) average base rate for incentive workers. These three values are plotted by labor grade. A quick perusal of the chart shows (1) the relationship between the wage structure of hourly workers and the base rate structure of incentive workers, (2) the relationship between the wage structure of hourly workers and the earnings structure of incentive workers, and (3) the relationship between the base rate structure and the earnings structure of incentive workers. Any major change in these relationships requires investigation and correction.

Most incentive plans are designed to permit employees to earn average hourly earnings that are some percentage value (commonly 25 per cent) above average base rates. To determine whether the plan is accomplishing this objective and if not, why not, several periodic reports are prepared. For example, a daily report of incentive earnings may be prepared for each department, listing each employee's clock number, his hours on incentive, hours not on incentive, standard hours earned, bonus percentage earned, and waiting time. This report serves the dual purpose of informing the employee of incentive earnings and advising control authorities of (1) per cent of time not on incentive, (2) per cent of time spent waiting, (3) number of employees failing to meet standard. Careful analysis of these reports also points out inequities that need correction.

A plant summary may be made in the same form, listing departments instead of individuals. From this report can be obtained the average accomplishment in the organization, as well as departmental results. Analysis of this report not only indicates the extent to which the objectives of the plan are being accomplished but points to areas where it is not working. Also waiting time and hours not on incentive serve to point to reasons for failure.

In addition to daily reports of this kind, many companies maintain continuing records of average hours earned on each job and in each department, percentage of waiting time, and percentage of hours not on incentive. Such control records are useful as bases for action.

Control methods to prevent inequities from creeping into the system are (1) periodic audits of standards (usually on an annual basis), (2) audits in response to grievances, (3) audits in response to requests by foremen, (4) recording and use of standard data, and (5) a time study training program.

Control of Fringe Costs

Less attention is paid to control of fringe costs than of any other aspect of wages and salaries. Perhaps this is because such items are relative newcomers on the wage and salary scene. Perhaps it is because employers consider the items as more or less intangible. Fringe items are no longer insignificant, however, and employers who fail to control these costs are neglecting to control approximately 20 per cent of wage costs.

Very few employers include fringe costs in their payroll budgets. Common practice is to regard such costs as part of overhead. Thus the usual employer appears to regard fringe costs as uncontrollable or inevitable.

A growing number of organizations, however, are conducting surveys of fringe costs and comparing these results to company costs: (1) in total amount, (2) as a per cent of total payroll, (3) as a per cent of sales, (4) as a per cent of average straight-time hourly earnings, and/or (5) in cents per hour. Although this practice results in some control, it is limited by the fact that companies vary greatly in their manner of computing costs and in the specific items amenable to separate costing. What is needed is uniform practice in

fringe cost accounting, inclusion of such costs in the payroll budget, and a method of expressing such costs as a percentage of labor costs.

A few organizations keep continuing records of fringe costs, most often as a lump sum rather than by item. Fewer organizations include fringe costs as part of total wage costs. Some organizations make a practice of forecasting costs of specific fringe items prior to negotiations and as new items appear in surveys of area practice. Some companies admit they make no attempt to control fringe costs.

It is hoped that the next few years will see improvements in this area. Certainly, fringe costs should be included in the payroll budget. Also, companies should maintain costs of specific items. Finally, methods must be developed for evaluating the effects of fringe items and controlling their cost.

Control of Labor Costs

It has been repeatedly emphasized throughout this book that wages and salaries are not identical with labor costs. If productivity changes, labor costs may rise or fall without any corresponding change in pay rates.[15] Conversely, pay rate changes accompanied by changes in productivity may or may not bring changes in labor costs. It is generally agreed that wage rates should bear a reasonable relationship to worker productivity, but this axiom is frequently overlooked among the many considerations involved in determining and controlling wages and salaries. Large numbers of organizations do not keep adequate production records, and of those who do keep such records, few use them adequately in controlling labor costs. Unless wage and salary rates are related to productivity, the company loses control over its unit labor costs. It is important that a company control unit labor costs rather than allow them to vary on a chance basis.

Admittedly, labor cost control is not the simplest phase of the control problem.[16] It involves not only all of the considerations discussed so far but also some method of relating wage costs to work units or units of output. Many companies ignore the problem, believing that wages and salaries are so closely related to labor costs that controlling the former is sufficient. Others restrict con-

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[15] Yoder, *Personnel Management and Industrial Relations*, p. 388.
[16] Lansburgh and Spriegel, *Industrial Management*, p. 468.

trol methods relative to labor costs to productive departments, limiting control techniques in other departments to movements of wages and salaries or payrolls. A few emphasize control of labor costs.

One company, for example, has developed labor cost to total cost percentages for all tasks and operations. Also, work units per man hour have been established. Thus, by a strict control over time worked the company is able to control labor costs. This company budgets labor cost and investigates any deviation in excess of .5 per cent in any installation.

Some companies have developed measures of labor cost per unit for both direct and indirect labor and watch developments in these measures closely. Some have developed indexes, such as total wage and salary costs as a percentage of output or sales. Companies employing budgetary control methods may develop such indicators without difficulty.

A growing number of companies are developing standard cost systems [17] for productive operations. Although such systems are usually easier to install when a wage incentive system is in operation, an incentive system is not essential to a standard cost system.[18] With such systems, variance between standard labor cost and actual labor cost can be noted immediately. One company notifies each supervisor every morning of his labor cost performance the previous day.

Organizations operating wage incentive systems, especially those with standard hour plans, have labor cost figures available for control purposes. Most such companies prepare labor cost performance reports as a means of control.[19] Where such systems are applied to other than productive operations, labor cost control methods are available for maintenance and even clerical tasks.

Unfortunately, however, in most organizations departments em-

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[17] Standard costs are predetermined costs established by a process of fact-finding which utilizes both past experience and controlled experiment. The process of setting standard costs generally includes: (1) careful selection of materials, (2) time and motion study of operations, and (3) study of equipment and other facilities. A standard cost plan compares actual costs against standard costs and analyzes any variance. L. P. Alford and John R. Bangs (eds.), *Production Handbook.* Copyright 1944 The Ronald Press Company, p. 1465.

[18] Clarence E. Stender, *Standard Costs* (Madison: Industrial Management Institute, University of Wisconsin, September 17, 1952, multigraphed), p. 14.

[19] See Louden, *Wage Incentives,* Chapter VIII.

ploying salaried workers are without methods for controlling labor cost. This remains one of the areas of greatest need in control of wages and salaries. It is hoped that the years ahead will see more organizations developing and employing methods of controlling labor costs as well as wages and salaries.

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