SPECIAL REPORT

PERS 315

THE DESIGN OF BASIC PAY STRUCTURES

NATIONAL INSTITUTE FOR PERSONNEL RESEARCH
COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH

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SUMMARY

This report is meant as an introductory text in the field of pay structures. It is divided into two main parts. In the first part attention is paid to basic theory and comes to focus mainly on job evaluation and various pay systems. The purpose of this section is to prepare the necessary background to the designing of a pay structure. The second part deals with the practical issues to be faced in evaluating the organization's prevailing pay structure and the design of a new structure. This matter is dealt with in a step by step fashion and incorporates examples of the calculations to be made.

OPSOMMING

Hierdie verslag dien as inleiding tot die onderwerp van besoldigingstrukture. Dit word in twee dele aangebied:

In die eerste deel word aandag gegee aan basiese teorie en word die fokus geplaas op poswaardering en verskeie besoldigingstelsels. Die doel hiermee is om die nodige agtergrond te verskaf vir die taak van die ontwerp van 'n besoldigingstruktuur. Die tweede deel handel oor praktiese oorweginge in die evaluering van 'n organisasie se heersende besoldigingstruktuur en in die ontwerp van 'n nuwe struktuur. Hierdie aangeleentheid word stapsgewys aangebied en sluit voorbeelde van die nodige berekenings in.

INTRODUCTION

Lately the industrial climate has been characterized by pay disputes which
in a number of cases have resulted in costly strike actions. This would
seem to indicate that the managers of an organization need to pay more
attention to the design of pay systems and the effective monitoring of such
systems than they have perhaps done in the past. The purpose of this report
is to introduce some of the basic concepts to management and to provide
management with a basic guide to tackling the issues that have to be faced
in creating a rational pay stucture. It is recognized that many issues have
been omitted from this report but then it is only intended as a basic in-
troductory text and the reader requiring in-depth knowledge should refer to
more comprehensive texts.

Before venturing into Part 1 of the report which deals with theoretical
issues, it is, perhaps, necessary to take a look at the role of pay in
the lives of those most concerned with it, thereby placing in context
the concepts that will follow.

Pay constitutes an important aspect of the economic life of most societies.
It is of concern to not only the individual employee but also to the employer
and ultimately to the government of the day.

From the individual employee's point of view his pay is perhaps the most
visible and definitive aspect of what has come to be known as the "inducement-
contribution contract". This "contract", first proposed by March and Simon
(1959) seeks to describe the relationship between employee and employer in
terms of the inducements and contributions offered by the contracting parties.
Thus, the employer induces the individual to work for him by the offer of
for instance, a particular remuneration, promotional opportunities, working
conditions and so on. At the same time, however, the employer demands in
return a particular level of productivity from the employee. Looking at it
from the other side of the coin, the employee offers the employer his pro-
ductive services in return for certain inducements of an acceptable nature.
The situation is, therefore, open to a certain amount of negotiation. On
the one hand the employee strives to obtain as much in the way of inducements
as is possible whilst offering as little productivity as possible. On the
other hand the employer aims to elicit as much productivity as possible
whilst offering as little inducement as possible. In this bargaining sit-
uation the terms of the"contract" will be determined by the interaction of

a host of variables that affect the power base of the contracting parties, such as the prevailing economic climate, the status of the labour market, the skills offered by the potential employee and the employer's ability to pay. As these factors are dynamic in nature either or both parties may, at a later date, seek to alter the terms of the "contract". Invariably, therefore, the original contractual terms are re-negotiated. The extent to which the terms are adjusted and the frequency with which they are adjusted is dependent on change in the economic environment and to a certain extent the political environment.

To the individual employee the inducement terms of the "contract" are of great importance as it is most likely that they represent his sole source of income and will, therefore, determine the standard of living that the employee is able to achieve. Consequently it is to be expected that the employee will, in general, be concerned with events that devalue his income and management action that seeks to enhance the value of his income. Indeed the argument can be developed a step further by the introduction of Maslow's hierarchy of needs. It would seem reasonable to assume that those individuals who are striving to satisfy lower order needs,e.g. physiological ones,will be greatly concerned about their level of income. Consider, for example, the individual's situation should inflationary pressures push up the cost of basic foodstuffs or housing without any adjustment being made to the individual's level of income. When income barely covers the necessities of life,such a situation can result in the full or partial forfeiture of some of these necessities. Obviously the individual will then have to take steps to correct the situation. One avenue of corrective action may entail the formation of pressure groups charged with achieving the correction of income levels. Thus, if many employees in a company find themselves in the position described above they may come together and attempt to achieve their common goal by, for example, strike action or membership of a trade union. Both examples illustrate the individual's drive to improve his power base. By himself he may not be able to achieve much,but the pressure group that he helps to create will have a far stronger power base and be in a better position to re-negotiate the terms of the inducement-contribution contract.

All in all, therefore, it would seem to be in management's interest to take cognisance of prevailing economic circumstances and the effect that they may have on their employees' standard of living. To achieve this,management must pay serious attention to the design and monitoring of the company's pay structure.

From the employer's point of view pay is, of course,a cost item. Indeed

the company's total pay commitment will generally be a major cost item rivalling,perhaps, only the cost of raw materials. A simplistic approach on the company's part would be, all other things being equal, to keep pay costs as low as possible by paying low wages. However, if taken to extremes the low pay offered by the company will be insufficient to attract the suitably qualified personnel that the company requires. An alternative would be to substitute capital equipment for labour thereby reducing the total pay bill. Yet another approach would be to pay competitive wages but introduce measures to ensure that the productivity of the labour force is forthcoming.

Besides treating pay purely as a cost item that has to be controlled, the company may also approach the issue from a behavioural point of view. The total inducements, including pay, offered to an employee may also be seen as a means of achieving overall strategic business objectives. Thus, inducements may be used in a fashion designed to elicit contributions that ensure the attainment of corporate objectives. In this way the organization's reward system is of prime importance in channelling employee behaviour towards desired outcomes. At the same time, however, it follows that a badly designed reward system may easily prove to be disfunctional in terms of corporate strategy.

It becomes evident that the structure of the inducements and contributions embodied in the reward system cannot, from the organization's point of view, be dealt with in isolation due to the fact that the reward system necessarily interacts with other organizational systems. For example, if the organization's strategy requires entrepreneurial flair this situation will be incorporated into the planning system and must necessarily also be incorporated into the reward system, for instance in the form of profit sharing, so that these systems are aligned to the achievement of the same objective. It also follows, therefore, that the reward system must be tailored to the needs of the individual organization if it is to be at all effective. Furthermore, in the presence of a dynamic environment, it is possible that the organization may need to adapt its strategic posture and thus create a need to change the reward system to suit the new circumstances.

Thus, from both a cost and a strategic point of view the structure of the pay system is of great importance to the organization and warrants, therefore, a great deal of thought and management attention.

PART 1

1. MONEY AND MOTIVATION

The subject of money as a motivator is a complex one and it is not the intention here to tackle the subject in any detail. It would seem pertinent, however, to touch on the basics.

The nature of the management task demands an understanding, on the part of the manager, of man and motivation. It is through this understanding or set of beliefs that the manager is able to formulate an approach to guiding his subordinate's behaviour towards established objectives. As Schein puts it:

> "Every manager makes assumptions about people. Whether he is aware
> of these assumptions or not, they operate as a theory in terms of
> which he decides how to deal with his superiors, peers and subordi-
> nates. His effectiveness as a manager will depend on the degree to
> which his assumptions fit empirical reality   (Schein, 196, p. 47).

It would appear fruitful, therefore, to study briefly some assumptions about motivation and at the same time comment on the role of money as a motivator.

1.1 Assumptions Concerning Man

As the science of behaviour has developed it has been found that the earlier theories of man, still widely held by the layman today, have had to be abandoned as far too simplistic. Thus, the pure economic view of man and motivation has gradually been replaced by a view that incorporates not one but many different facets of motivation. It is pertinent in this respect to outline four developmental models of man as proposed by Schein (1965). Each is discussed briefly below.

1.1.1 Rational Economic Man

This model is said to have originated in the work of Adam Smith and is also strongly apparent in Taylor's pioneering work. It assumes that man is essentially motivated by economic concern. The organization should, therefore, look to monetary incentives to shape the employee's behaviour. At the same

time it is further assumed that man's feelings are irrational and
that the organization should, therefore, strictly define and control the
tasks undertaken by the employees. This gives rise to the model's three
basic considerations:

(a) job design

(b) incentive schemes and

(c) control systems .

Essentially the model views man in a "mechanical" light. The job is specifi-
cally designed and the employee is allowed only one method, the chosen method,
of carrying out the job. His performance standards are set and his performance
itself closely controlled. The job incumbent is then motivated by money to achieve
particular productivity levels, within the given constraints. Thus
whereas a car's performance, also governed by operating constraints, is
achieved by the addition of fuel, man's performance is controlled by the
addition of monetary reward.

1.1.2 Social Man

The Hawthorne studies uncovered the existence of social motives in the work
situation. It was found that man has strong social needs and is, thereby,
subject to the urge to join social groups and to conform to the group's norms.
The implications for the manager are that he should:

(a) give more attention to the individual's social needs rather than to the
     work itself,

(b) reward performance on a group basis and

(c) develop a socially supportive management style.

In terms of monetary reward important implications are present. Man is a
social animal and, therefore, has a need to join a social group. To ensure
continued affiliation with the chosen group the individual has to behave
according to the group's norms. Thus, in the first place monetary reward
incentives should be made on a group basis rather than on an individual basis.
Secondly, incentive rewards will not encourage the individual to achieve
certain performance levels if such levels are at odds with performance norms
adopted by the group. In other words the individual's behaviour is more
likely to be shaped by group pressure than by individual monetary incentive.

1.1.3 Self-actualizing Man

This model centres on the assumption that man strives at all times to fulfil

the promise of his abilities. He is, therefore, motivated in the work situation by a job that allows him to exploit his abilities to their fullest extent. It is, thus, the nature of the job itself that becomes the fundamental motivating force. Behaviour should, therefore, be shaped by intrinsic as opposed to extrinsic factors. Consequently, in this model, monetary reward assumes far less importance than the job itself.

1.1.4 Complex Man

Schein believes that the weakness inherent in all the previous models is that of over-generalization. He suggests that all the facets considered in the models may be relevant but that their relative importance is dependent upon the individual and his circumstances. It is for the manager, therefore, to diagnose the individual situation and determine which motivational factors are the most appropriate in the circumstances.

1.1.5 Conclusion

The purpose of this section was to introduce the reader to an awareness of the subject of money and motivation in terms of an organisation's wage systems. For those readers who might wish to pursue the subject in more detail a series of references has been compiled at the back of this publication.

Returning to the motivational models of man presented above, it may be true, as Schein suggests, that they do have a tendency to over-generalize. That does not mean to say, however, that they are entirely worthless. They do provide basic ideas and guidance, but from there it is up to the manager or the designer of reward systems to utilize the constructs according to the particular circumstances with which he is faced.

2. WAGES IN THE SOUTH AFRICAN SITUATION

In South Africa increasing attention has become focussed on the issue of Black wages. In the light of this it is, perhaps, pertinent to comment on three major aspects of this issue that are currently receiving attention. These are the minimum wage, the wage gap and the unified wage curve. Each of these is discussed briefly below.

2.1 The Minimum Wage

In establishing the minimum wage that an organization is prepared to pay
to the lowest job grade, at least three major factors need to be considered.
These factors are the ability to pay, labour market forces and social
responsibility.

2.1.1 The Ability to Pay

Characteristically wages constitute a major item of expenditure for the
organization. Consequently they can have an important impact on the or-
ganization's viability. Marginal firms may, for instance, find themselves
in a relatively inflexible position when it comes to setting wage levels.
They simply do not have the ability to increase wages without demanding
a concomitant increase in productivity. It is possible that this position
will force such firms to consider the replacement of labour expenditure
with capital expenditure as far as is possible. On the other hand firms
that enjoy good profitability are in a position of greater flexibility in
terms of setting wage levels. They have a greater financial capacity with
which to meet upward pressures on wage levels. Obviously, therefore, the
organization's financial strength is an important factor in the determination
of the minimum wage that it can afford to pay.

2.1.2 Labour Market Forces

The labour market provides an arena in which the employer and his potential
employee may meet to negotiate an employment contract. There is, however,
an important aspect to this market and that is that it more closely approxi-
mates a differentiated commodity market than an undifferentiated
commodity market. In other words, a variety of different jobs and employee
skills are on offer. In the face of this heterogeneous situation,
both parties have to search for their respective opportunities amongst all the
other opportunities that are available. Thus, the forces of supply and
demand will serve to establish the going rate for a particular job. Gene-
rally, the greater the supply of certain labour the greater the downward
pressure operating on the going rate. The greater the demand, the greater
the upward pressure on the going rate. It follows that if the organization
is unable to meet the going rate it will not be able to attract the neces-
sary labour. Consequently, labour market forces have a significant impact
on the minimum wage paid by the organization.

2.1.3 Social Responsibility

Given the organization's ability to pay and the prevailing circumstances in
the labour market, it is possible to establish a minimum wage level. However,
the lowest job grade in the organization is usually staffed by unskilled
Blacks of which there is an ample supply. This supply situation may serve
to depress the minimum wage level. Thus, should only the ability to pay and
the situation in the labour market be taken into account in establishing
minimum wage levels it is conceivable that the resulting wage could be below
that wage required to meet the employee's minimum living expenses. It may
not be sufficient, therefore, for the organization to calculate minimum
wage levels solely on the grounds of the two factors mentioned above. There
is another dimension to the problem and that concerns social respons-
ibility. In other words: is it socially responsible for the organization
to pay a depressed minimum wage that does not provide for adequate living
expenses even though there are adequate numbers of people seeking such a
wage? That question the organization has to answer for itself in terms of
its commitment to any social responsibility objectives that it may have set.
Furthermore it is not a theoretical question but one which is commonly en-
countered in South Africa.

2.1.4 Conclusion

In conclusion it is suggested that the organization will have to take into
account the aspects of ability to pay, labour market forces and social
responsibility objectives in the establishment of a minimum wage. Given
adequate financial capacity to deal with the first two, the organization
should focus its attention on the third which will inevitably concern the
minimum living level and similar concepts.

2.2 The Wage Gap

It is necessary, first of all, to describe the particular wage gap that
requires attention. A wage gap may exist, for instance, between male and
female employees or semi-skilled and unskilled workers. However, it is the
Black/White wage gap which is currently under the spotlight. Differences of
opinion exist in describing this gap. Some deny the existence of a wage gap
based on colour and suggest instead that the gap is created by disparate
skills which are coincidentally polarized by colour. Others claim that the
gap is based on colour but that the size of the gap can only be determined by
an analysis of situations in which both Blacks and Whites hold identical jobs.

A third view holds that the gap should be analysed not in terms of identical jobs but in terms of equivalent position in the job hierarchy as determined by job evaluation. Adopting the last view the wage gap may be depicted as in Figure 1. Thus, job evaluation may place two different jobs, one held by a White and one held by a Black, in the same job grade. Consequently in theory, the jobs should fall into the same pay range. In practice, however, they may not. The Black could be paid far less. Just how big is this wage gap? Cogill and Pearson (1978) report on the matter as follows:

> " Utilising the Paterson (job evaluation) model and applying data from Surveys of the Department of Labour and the Urwick Survey estimates show that to close the wage gap in the skilled and semi-skilled areas would cost some R2 070 000 000 per annum ...." (Cogill and Pearson 1978, p.7.)

This is deemed to be a minimum figure and it should be noted that in the calculations migratory labour, the teaching and medical professions, agriculture and farming labour were all excluded. Thus, although a very gross estimate, the figure quoted above is nevertheless indicative of the size of the problem. That the wage gap should be closed is not really questioned. The question is how to close it!

FIGURE 1. BLACK AND WHITE WAGE CURVES
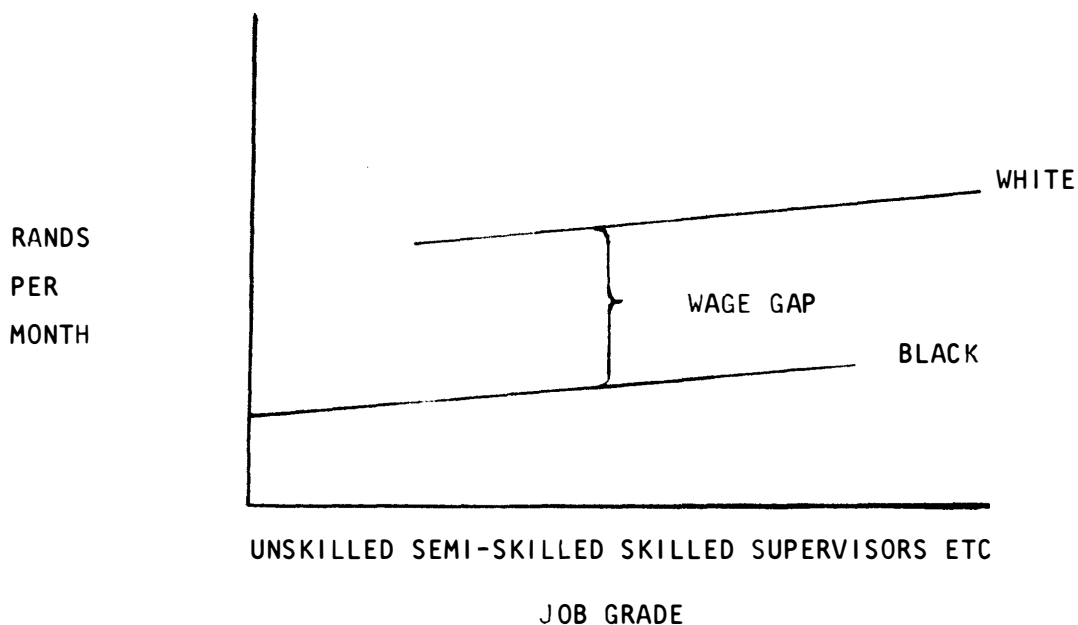
2.3 The Unified Pay Curve

If the principle of "equal pay for equal work" is to be adhered to it requires *inter alia* that the organization adopt a unified pay curve. In other words the situation depicted in Figure 2(a) should be transformed into that depicted in Figure 2(b). The major problem in achieving this is, as indicated above, the enormous cost that is involved. Basically, three approaches to closing the wage gap and adopting a unified pay curve, are evident. Firstly, there is the "bite the bullet" approach. One pay curve is created based on the prevailing White curve. All Black wages are, therefore, immediately lifted to the level of the equivalent White wages. The cost impact of this approach is great and felt immediately. If the organization has the financial capacity to absorb this cost increase it may wish to give serious consideration to the approach. It is, however, suggested that few organizations are in a position to adopt this approach. If it were forced upon them, they would either go out of business or cut back complements to lessen the cost impact.

The second approach to the problem is to establish the **unified** pay curve. This approach may be discarded immediately as being unrealistic. Finally, the two pay curves depicted in Figure 2(a) may be unified in a step-wise fashion. Thus, if the prevailing White curve is adopted as the future unified pay curve, the prevailing Black curve is integrated by a number of increases spread over time. The idealised procedure is shown in Figure 3. This approach appears to soften the cost impact and it is likely that the majority of organizations will adopt this approach. The time involved in achieving a unified curve will depend on the circumstances of the organisation.

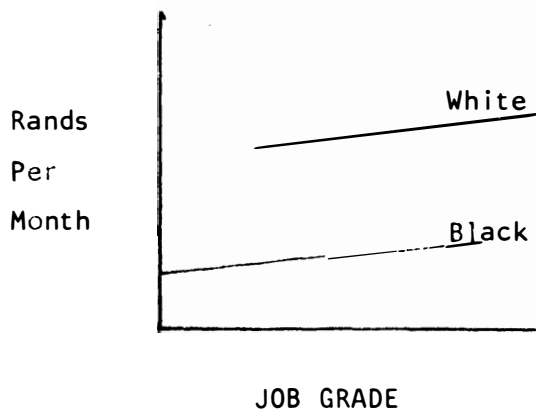FIGURE 2(a)   DISLOCATED PAY CURVE   FIGURE 2(b)   UNIFIED PAY CURVE

Rands Per Month

White

Black

JOB GRADE

Rands Per Month

All Race Groups

JOB GRADE
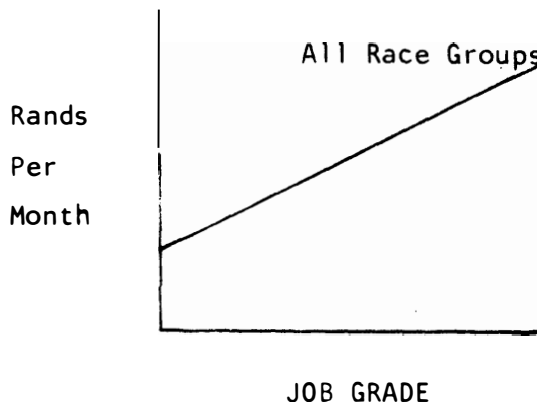
FIGURE 3. STEP-WISE INTERGRATION OF PAY CURVE

RANDS
PER
MONTH

Step 1
JOB GRADE

Step 2

Step 3
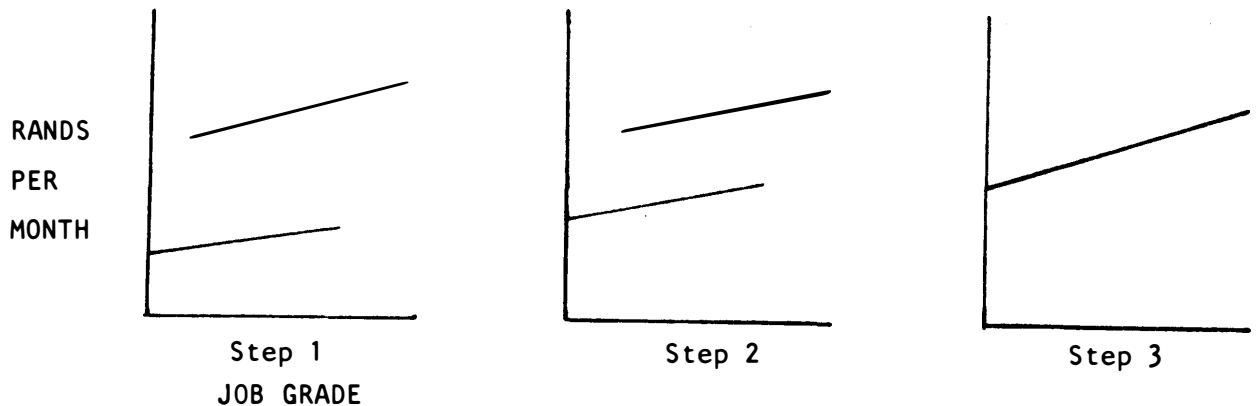
2.4 Conclusion

In conclusion it is evident that the magnitude of the wage gap is indeed
great. It cannot, however, be closed overnight. To do so would create
enormous strains on the economy. It would appear, therefore, that a gradual
but perceptible move towards the adoption of unified pay scales is the most
realistic answer to the problem. This strategy requires that the organiza-
tion considers the issues of job evaluation, minimum wages and an eventual
common pay structure and then   match them with the organization's financial
capacity, personnel systems and social responsibility aspirations.

3. BASIC PRINCIPLES OF PAY STRUCTURE

In designing a pay structure use is made of a number of basic principles.
It is the fundamental "mix" of these principles that gives the structure
its unique character. The major principles dealt with below are job evalu-
ation, reward theory, the pay curve, grade width and grade overlap.

3.1 Job Evaluation

The aim of job evaluation is to measure the value of jobs for purposes of
establishing basic pay. To do so in a fair manner requires that all jobs
be evaluated on common fundamental job dimensions. For example, the pri-
mary dimension used in the Paterson job evaluation method is decision-making.
Basically, therefore, all jobs are evaluated in terms of this dimension and
the outcome is a rank order of the value to the organization of all jobs.

Two principles are, therefore, immediately evident. First of all there is
the principle of equal pay for equal work. No matter how diverse the na-
ture of the jobs (e.g. laboratory assistant and security guard) they are
nonetheless ranked on the same dimensions. Consequently, if ranked as
equivalent they will be paid according to the pay range for that particular
rank. Secondly, and inherent in the above, is the principle of internal
consistency. All jobs are ranked according to the same dimensions and as
a result there is a rational hierarchy of jobs and a corresponding rational
hierarchy of pay.

A number of job evaluation methods are presently available. Any variation
between them is a function of the particular beliefs concerning the dimen-
sions that are proposed as being universal to all jobs. The most widely
used methods are characterized by their relative emphasis on decision-
making or responsibility. Each method probably has its merits and it is up
to the organization to determine which method is most appropriate in the
given circumstances. Examples of job evaluation methods are the Castellion,
Paterson, Hay, NIPR Q and NIPR Fixed Grade. Each is described briefly
below.

3.1.1 The Castellion Method

The groundwork for this method was established at the NIPR and later refined
by Cortis and Biesheuwel at South African Breweries from where the method
derives its name. Biesheuwel (1976) reports that in its present form the
Castellion method is based upon three dimensions, each of which comprises
two factors. The dimensions and factors are as follows:

DIMENSION	FACTOR
EFFORT	COMPLEXITY OF DECISION-MAKING
	PLEASURE OF WORK
RESPONSIBILITY	CONSEQUENCE OF ERROR
	CONTROLS AND CHECKS
COMPETENCE	QUALIFICATIONS
	EXPERIENCE

Decision-making is, therefore, seen to be the central element in this job

evaluation system. Unlike Paterson, however, it is analysed in a psycho-
logical fashion. In other words Paterson develops a structure in terms of
his decision bands and coordinating mechanism and slots the job into this
given structure. The Castellion, on the other hand, does not presume such
a structure but rather analyses the job according to the psychological con-
structs inherent in the decision-making process. With regard to the "effort"
dimension, it is argued that decision-making can become a progressively more
complex psychological exercise as further dimensions are added to the deci-
sion set. Consequently, an increasing amount of effort is required to deal
with the increasingly complex array of information. The effort expended in
the decision-making requirements of any one job is measured in terms of the
complexity of the decision and the time span in which it has to be taken.
The decision complexity factor is allocated 200 points whilst the pressure
of work factor is expressed as a multiplier ranging in value up to 2. The
total effort score is, therefore, the sum of the complexity score plus the
product of this score multiplied by the coefficient. The second dimension
is based on the assumption that a decision, however complex and derived
under whatever pressure, increases in value if the decision-maker has to take
full responsibility for the decision as opposed to passing that responsibili-
ty to someone else. Responsibility is measured by the consequence of a
decision error and the amount of supervision the decision-maker receives.
Both factors are allocated a points range. In the case of the former,
consequence of error, the range is 1 to 128 and the latter, controls and
checks, 1 to 112. The responsibility score is the sum of these two
factors. The third dimension, competence, is a function of the qualifications
and experience required to make an acceptable decision. The range of points
for the qualifications factor is 0 to 68. The experience factor is measured
as a coefficient ranging from 1,1 to 5. The total competence score is thus,
the qualifications score plus the product of that score multiplied by the
experience coefficient.

The total number of points allocated to a job is the sum of all the dimen-
sions and ranges from 14 to 1248. This range is broken up into 15 basic
grades. The method does not evaluate jobs in the top executive class. In-
stead a modified version of the dimensions is used at this level.

3.1.2 Paterson's Method

Central to Paterson's method is the role of decision-making. He sees it as
a fundamental dimension along which all jobs may be evaluated. The subsequent

hierarchy that is created places jobs characterized by more complex decisions above those of less complexity. A clerical job, for instance, will receive a higher job grading than a labourer since the decisions taken are necessarily more complex. Given the dimension of decision-making, Paterson views the organization as containing basically six decision levels. These levels are as follows:

1. Top management   - policy decisions
2. Senior management   - programming decisions
3. Middle management   - interpretive decisions
4. Skilled labour   - routine decisions
5. Semi-skilled labour - automatic decisions
6. Unskilled labour   - defined decisions.

These decision levels, which Paterson calls "decision bands" are quite general in nature. There are conceivably, for instance, different degrees of complexity within the universe of programming decisions. Thus, in order that greater differentiation may be achieved Paterson allows for each band to be sub-divided into two grades. The exception is the band pertaining to defined decisions. This differentiation proceeds according to Paterson's concept of co-ordination. The concept assumes that within each decision band there are some jobs that require the incumbent to supervise or co-ordinate the work of others. Such jobs are consequently deserving of higher status in terms of decision making and are, therefore, placed in the higher of the two grades created within the band. The resultant hierarchy is shown in TABLE 1.

TABLE 1   PATERSON'S JOB HIERACHY

BAND	DECISION LEVEL	TITLE	GRADE	DECISION TYPE
E	Policy	Top Management	10	Co-ordinating
			9	Policy
D	Programming	Senior Management	8	Co-ordinating
			7	Programming
C	Interpretive	Middle Management	6	Co-ordinating
			5	Interpretive
B	Routine	Skilled	4	Co-ordinating
			3	Routine
A	Automatic	Semi-skilled	2	Co-ordinating
			1	Automatic
0	Defined	Unskilled	0	Defined

Should the organization wish to differentiate further between jobs then each grade may be sub-divided into a number of sub-grades. No more than three sub-grades should, however, be created. The aim would be to strike a happy medium between generality and specificity rather than approaching either extreme.

Paterson's method has enjoyed a fair amount of popularity in South Africa. Cogill and Pearson (1978) report that:

> "... some 15 major companies in South Africa have implemented this system. It is now in operation in the Gold, Coal and Diamond mining industry as well as the Forestry industry and has been implemented across differing industries, organizational structures and organizational climates" Cogill and Pearson (1978, p.5).

3.1.3 Hay Guide-Chart Profile Method

The Hay method is a relative newcomer to the South African scene. It has, however, been used overseas for the past 35 years. The method is centred on three main factors: know-how, problem solving and accountability. Each factor is assessed according to its aim guide-chart and a quantitative measure obtained. Scores pertaining to each factor are then added together to give a total score to the job.

The individual factor guide-charts incorporate two or three sub-dimensions which impact on the major dimension under consideration. For instance, the factor termed "know-how" is seen as a function of the depth of knowledge or experience required to cope with the job as well as the demands made on co-ordinating and human relations skills. Combining these dimensions results in a matrix from which the score for "know-how" may be extracted. In the same vein the "problem solving" factor has two sub-divisions, namely, the scope of the problems involved and the nature of the problem. "Accountability" as a factor is seen to be influenced by the freedom to act, the impact of an action on the business and the magnitude of this impact.

The Hay method appears to be used quite extensively overseas and is said to be currently in use in 28 different countries, including South Africa.

3.1.4 The NIPR Q Method

The key factor in the questionnaire or "Q" method is the quality of decision-making required to perform a specific job. The rationale in this method may be described as follows. Every job incumbent, irrespective of the level or nature of his job, has to solve a variety of problems which have a bearing on his work and decide on a course of action. The complexity of the decisions to be made varies from job to job and provides a basis on which the job demands may be evaluated. A job incumbent cannot, however, make decisions at random. There are usually certain constraints placed on the decisions that he undertakes. The factor "controls", therefore, becomes a relevant concept and serves to qualify the nature of the decision factor. Furthermore, in taking decisions the job incumbent comes into contact with people both within and outside the organization. Consequently, there is the impact factor to be considered in qualifying the decision complexity. The Q Method, therefore, considers three factors: decision-making, controls and contact with people.

Any job evaluation stands or falls on the quality of information on which the assessment is made. Consequently, the Q method employs specific information-gathering techniques that are designed so as to ensure that

      (a)   all pertinent information is gathered and

      (b)   that it is dealt with in as objective a fashion as possible.

The information gathered in the above fashion is applied to a set of scales encompassing the Q method's three main factors. Each scale is set out as a matrix. In the body of the matrix are definitions with which specific aspects of a job are compared. Each definition is given a numerical value. The final outcome is, therefore, a quantitative measure of the job's value in terms of the three factors employed.

The "Q" method has been well received by industry and currently enjoys a wide measure of popularity.

3.1.5 The NIPR Fixed Grade Method

The Fixed Grade Method (FGM) was developed by the NIPR in response to the need for a relatively quick and easily understood method for evaluating lower-level jobs. As its central thesis the method adopts the concept of job complexity. The measurement of complexity is modified and made more balanced by three factors namely the education and experience required to undertake the

job demands and the nature of controls placed on the incumbent's behaviour. Each factor is rated on a five point descriptively anchored scale. These five points correspond to the five grades embodied in the FGM. The highest rating on either of the three scales or the global rating is thereby taken as the grade within which the job falls. Examples of job descriptions at each of the five grade levels are provided for grading a job in terms of maximum similarity.

The method is simple and easy to administer. Furthermore, the time taken to conduct an evaluation exercise using this method is relatively short in comparison with other methods. The cost of grading a low level job can thus be brought down while the results of the evaluation are sufficient for the normal personnel management applications.

In terms of a unitary job evaluation method encompassing all jobs in the organization, the FGM is obviously inadequate. It deals only with the lower grades. The disadvantage is, however, offset to a great extent by two factors. Firstly, the FGM correlates very strongly with the corresponding levels in the Paterson and Q methods. One could, therefore, use the FGM at the lower levels to gain the advantages inherent in the method and then follow on up the job hierarchy with either the Paterson or Q methods. Secondly, the prime advantage to be gained by using the FGM is that it can be directly linked to a selection system for the lower levels (Verster 1977).

With its multiple advantages the FGM currently enjoys a high degree of popularity.

3.1.6 Conclusion

The job evaluation methods described above are by no means the only ones available. Others such as Peromnes, Urwick Profile, Jaques Time Span and various point and factor comparison methods may be utilized. The choice of a job evaluation system cannot be prescribed. It is up to the organization to determine its needs and then examine all available methods for the most suitable method in the given circumstances. All have the same aim of determining a method by which equal pay for equal work may be established. They differ only in terms of their underlying assumptions by which this aim may be achieved.

3.2 A Theory Of Reward

The outcome of job evaluation is the establishment of a particular job's value
to the organization. In, for instance, the Q and Paterson methods, this value
is expressed quantitatively by allocating a total point value to the job. Deal-
ing with numerous individual jobs would, however, be a cumbersome matter in,
for example, the creation of a pay structure. Consequently, job grades are es-
tablished. Thus, jobs with largely similar points allocated to them are grouped
together in a grade. This is demonstrated in TABLE 2. A hierarchy of grades
is thereby created, each grade representing a particular range of value.

TABLE 2 JOB GRADES

TITLE	POINTS	GRADE
Managing Director ⋮ Technical Director	158 ⋮ 146	10
Regional Manager ⋮ Branch Manager	130 ⋮ 117	9
Personnel Officer ⋮ Bookkeeper	112 ⋮ 100	8

It is then logical to assume that the basic pay allocated to a job should
follow a similar format. In broad terms, therefore, basic pay should increase
with grade rank. One cannot, however, pay all jobs in a particular grade
exactly the same amount. For a start they are not all of exactly equal senio-
rity. Each grade may, therefore, be allocated a pay range (see TABLE 3).
Using the mean pay of each grade one can generate a pay curve as in FIGURE 4.

TABLE 3   PAY RANGES

GRADE	RANDS PER MONTH
10	800 - 1000
9	600 - 800
8	400 - 600

What form should this curve take?   In broad terms Paterson suggests that it should demonstrate an exponential form.   The rationale is as follows.   The

FIGURE 4   A PAY CURVE
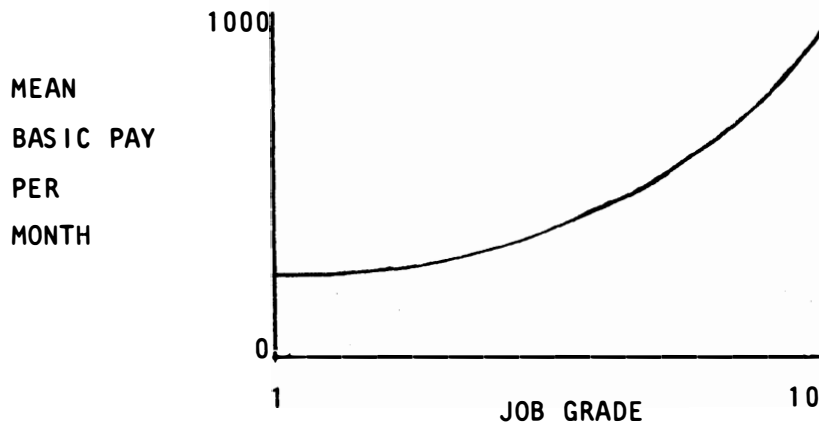
Paterson decision bands may be seen as a hierarchy. Due to the increasing job complexity inherent in each band they become of increasing value to the organization. They should, therefore, be paid in increasing amounts. In justifying this Paterson invokes the concepts of co-ordination and responsibility. By the assumption that responsibility cannot be delegated he generates the obverse assumption that responsibility is accumulated as the hierarchy is ascended. This accumulation takes an exponential form. To substantiate this he gives the example illustrated in TABLE 4. (Paterson, 1972(a) Vol.1, p. 154). Consequently, he proposes, that the pay curve should demonstrate an exponential form. - For an example of this form see FIGURE 4 above. Patterson has subsequently found that in practice the basic pay curve does indeed tend to adopt this form whether the pay structure is based on job evaluation or not.

TABLE 4   ACCUMULATION OF UNITS OF RESPONSIBILITY BY BAND

BAND	ACCUMULATED UNITS
O	1
A	1+1 =2
B	1+2+1 =4
C	1+2+4+1 =8
D	1+2+4+8+1 =16
E	1+2+4+8+16+1 =32

3.3   Pay Differentiation

In the section above the general form of the pay curve was discussed. Although there may be one general form, there are, however many different curves that can express this form (see FIGURE 5).

FIGURE 5   DIFFERENT EXPONENTIAL CURVES

MEAN
BASIC
PAY

JOB GRADES
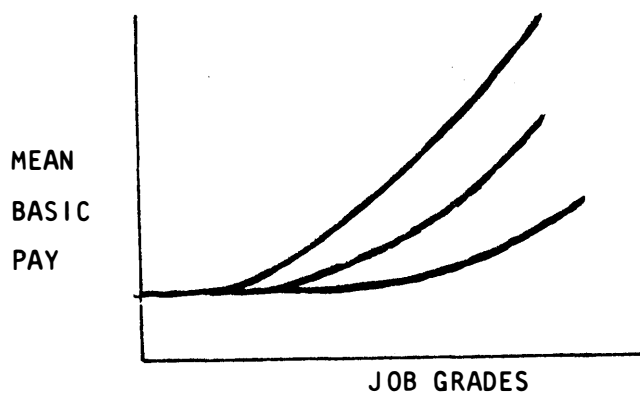
An immediately apparent difference in the curves shown in FIGURE 5 is the steepness of the curve. Two extremes are shown in FIGURES 6 (a) and (b). In the case of the steep curve great differentiation is made between the grades with regard to mean basic pay. In the case of the shallow curve, far less differentiation is made. The degree to which one differentiates between the pay of adjacednt grades is, therefore reflected in the slope of the pay line. Generally, the more differentiation, the greater the slope. Paterson maintains that there are, however, limits to the magnitude of the slope. He argues that if the slope is shallow and there is consequently little difference between the basic pay of adjacent grades, then there is likely to be discontent on the part of the job incumbents. Furthermore, such a slope may not encourage an employee to seek promotion. On the other hand, if the slope is too steep, resentment may emanate from lower paid employees. The
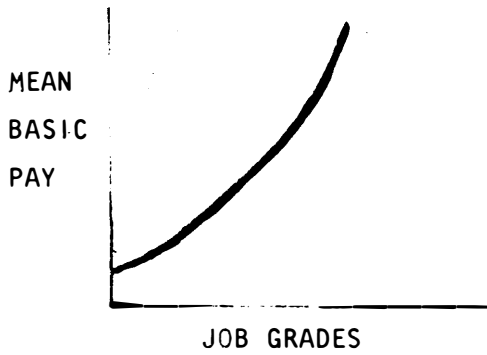
FIGURE 6(a)   STEEP CURVE

FIGURE 6(b)   SHALLOW CURVE
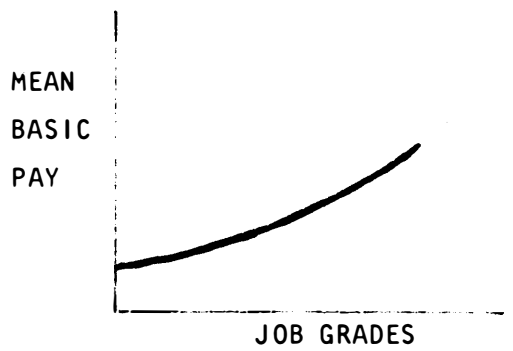
result may be labour unrest. The slope may be expressed quantitatively in ratio form. This is demonstrated in FIGURE 7. In this figure the data has been transformed into log form for the reason that it is easier to work with a straight line than with a curve. The log form conveniently turns the exponential curve into a straight line. Expressing the slope quantitatively,

FIGURE 7   MEASURING THE SLOPE
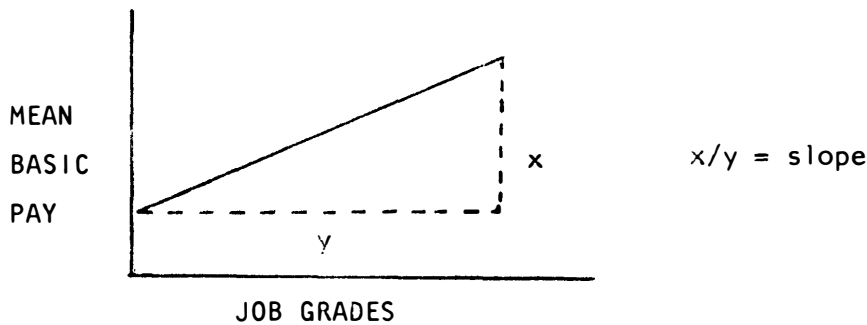
x/y = slope

Paterson maintains that the lower limit (shallow curve) should be placed at 1,25 and the higher at 1,5. Backer (1977) further maintains that it has been empirically established in Southern Africa that the pay slope for unskilled and semi-skilled jobs should lie between 1,25 and 1,65. Note, however, that

FIGURE 8.   GRADE PAY RANGE
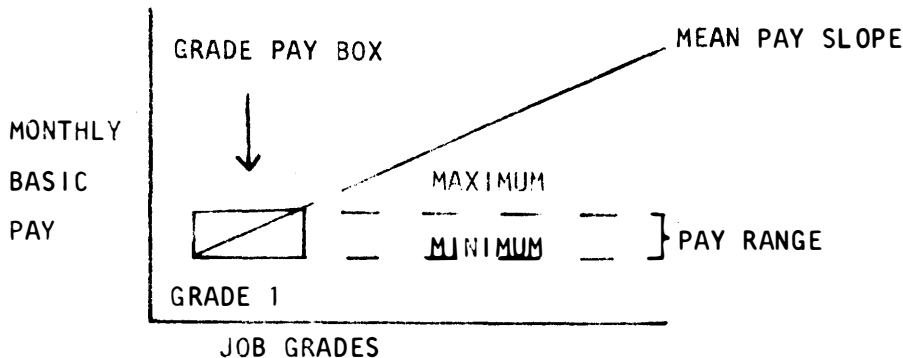
both authors work with the 11 grade Paterson job evaluation system. Furthermore, not all authors agree with this extent of differentiation. Armstrong (1974) suggests that an average of 20% differential or 1,2 slope, is the best regardless of the job evaluation system used.

3.4 Pay Ranges Of The Number Of Grades In The System

The pay range refers to the difference between the maximum and minimum basic pay accorded to a job grade (see FIGURE 8). The pay range may be great and/ or small (see FIGURE 9(a), (b) and (c)).

FIGURE 9(a)   SMALL RANGE

MONTHLY
BASIC
PAY

·JOB GRADES

FIGURE 9(b)   LARGER RANGE

MONTHLY
BASIC
PAY

JOB GRADES

FIGURE 9(c)   BOTH

MONTHLY
BASIC
PAY

JOB GRADES
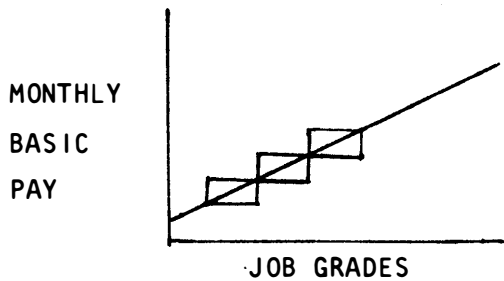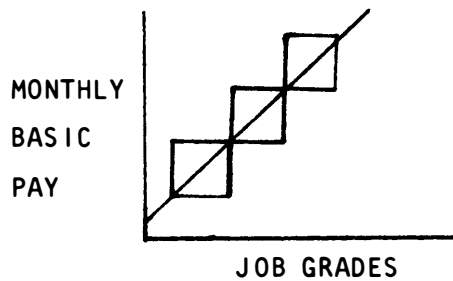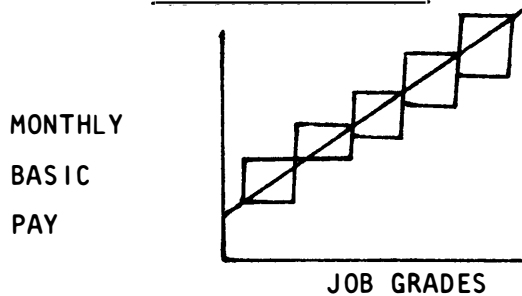
The pay range for a grade may be used to reflect the relative emphasis the organization may wish to place on promotion and performance. If, for example, the emphasis is placed on encouraging employees to seek promotion then the grade range will be relatively small. Consequently, to increase his basic pay, the employee has to vie for promotion. On the other hand if the emphasis is placed on performance within the contest of the current job then the grade range will be relatively large. In this way the range can accommodate increased reward for performance.

Concomitant with the above, the grade pay range may also be seen as a function of the job demands. For instance, in any job three developmental performance phases may be identified. These are the learning, qualified and premium performance phases. Thus, with time the job incumbent may learn to be proficient in the job and may even attain a superior level of performance. In terms of the routine job the learning phase may be quite short. It does not take long before the incumbent can perform the job at an acceptable standard.

A different situation, however, may occur with more complex jobs, such as the manager's job. The learning phase is much longer as there are far more tasks to be mastered. Furthermore, due to the nature of the job,it is more difficult to ascertain when a level of competency has been reached. Exemplifying the concept by extremes, the job incumbent of a routine job either performs acceptably or not. The tasks should not take him long to learn and are usually subject to strict performance standards. The basic pay range for grades pertaining to routine tasks should, therefore, be small as the job allows for little performance variation. On the other hand the pay range for managerial jobs should be much larger so that the organization may reward an increased performance level.

Basically, therefore, in determining grade pay ranges two factors should be borne in mind. These are firstly, the relative emphasis to be placed on promotion and performance and secondly, the nature of the jobs within a given grade.

3.5 Grade Overlap

Grade overlap refers to the extent to which the minimum wage of the higher grade is overlapped by the maximum wage of the lower grade. This is depicted in FIGURE 10.

FIGURE 10   GRADE OVERLAP
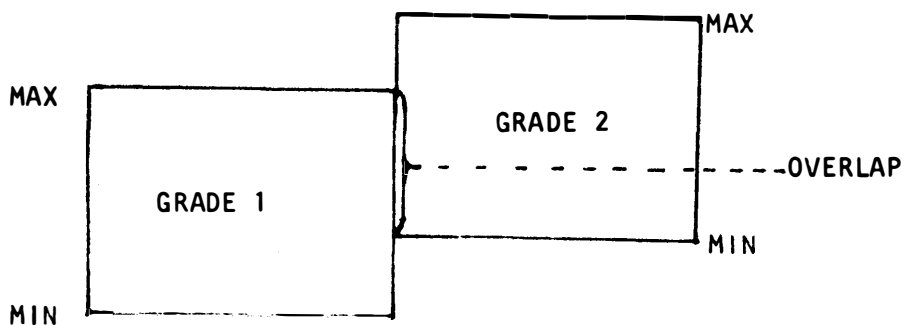
The assumption underlying grade overlap is that a newcomer to the higher grade may initially be of equal or less value to the organization than the fully experienced employee performing at the highest or premium level of the next lowest grade. In terms of the performance development phases mentioned earlier a learner in the higher grade is of less value than the

premium performer in the lower grade. This situation is demonstrated in
FIGURE 11.

FIGURE 11   PERFORMANCE OVERLAP

| | PREMIUM PHASE | R150* |
| | QUALIFIED PHASE | |

R100 | PREMIUM PHASE | LEARNING PHASE | R80 |
| QUALIFIED PHASE | GRADE 2 |

R50 | LEARNING PHASE |

GRADE 1

* BASIC
PAY IN RANDS
PER MONTH
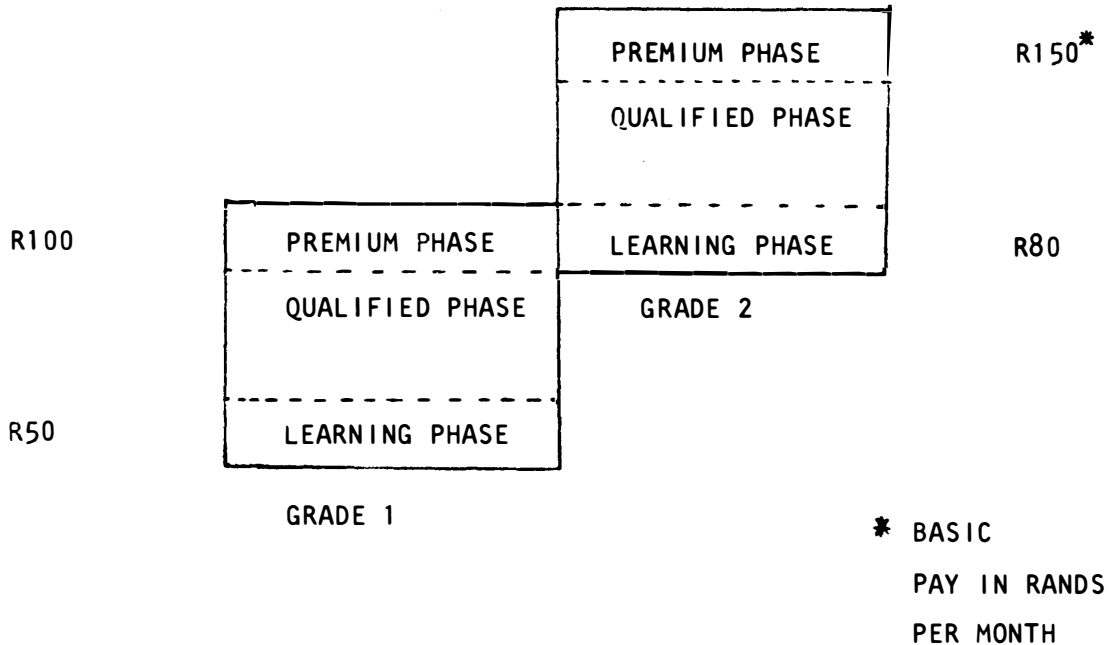
3.6   Sub-Grading

If it is felt that in the circumstances the job grades do not adequately
distinguish between jobs then the concept of sub-grading may be resorted to.
Paterson, for instance, makes the following statement:

> "A grade may be divided into sub-grades in order to provide
> differentials that indicate, in greater detail, differences
> in value of the job " (Paterson, 1972,(b), p. 73).

There are no hard and fast rules as to exactly how many sub-grades should
be adopted. It is evident though that no more than three sub-grades should
be created within one grade for the following reasons:

(i)   it is far easier to classify jobs into two or three
       fine categories than it is to place them in one of
       six fine categories;

(ii) as the number of sub-grades increases, the dividing
       line between two sub-grades becomes progressively more
       blurred with the result that the task of allocating jobs

to sub-grades becomes more subjective; and

(iii)   the job grading system should be easy to understand
if the labour force is to accept a pay structure based
on it.

The issue of sub-grades is, therefore, a fluid one and it is up to the orga-
nization to decide how to handle the issue in the given circumstances. As
a guide, Paterson has found in practice that:

(a)   no more than three sub-grades should be created and

(b)   sub-grading is more applicable to the lower grades than
to the higher grades.

3.7 Conclusion

If the pay structure is to impart any form of rationality it must be based
on job evaluation. Several job evaluation methods have been presented and
it is up to the individual organization to ascertain which method best suits
its needs. Once the basic job grades have been determined their configura-
tion may be determined by the magnitude of the pay slope, the pay ranges and
pay overlap. The result is a fundamental pay structure pertaining to the
basic wages paid by the organization.

4. PAY SYSTEMS

The employee's basic pay may either be static or it may increase with basic
performance levels. Furthermore, his total pay may be derived from different
reward systems. Thus, besides basic pay the employee may be further rewarded
by bonus schemes and various allowances. The issues to be dealt with in this
section concern the increase in basic wages as it applies within a job sphere.
Comment will also be made on supplementary reward systems.

4.1 Incremental Systems

It is convenient in discussing incremental systems to refer once again to
developmental phases dealt with previously. It was then implied that an
employee increased in value to the organization as he progressed through
these basic performance levels. It, therefore, follows that if he is to be
rewarded according to his basic value then his basic pay should increase as

this value increases. The resultant pay increase is usually expressed in terms of a pay scale of which there are two general types. Each type is discussed below.

4.11.1 Fixed Scales

With a fixed scale the pay range is divided into notches. An employee, thus, advances from notch to notch until he reaches the maximum for the grade or sub-grade as the case may be. The criterion for advancement is usually based on job tenure and an increase or notch is automatically awarded according to a specific time period.

EXAMPLE

*BASIC WAGE IN RANDS PER MONTH	GRADE	STARTING	AFTER 1 YR	AFTER 2 YRS	AFTER 3 YRS	AFTER 4 YRS
	1	150*	160	170	180	190
	2	190	200	210	220	230

In this example the employee automatically receives an increase after he has been in the job for one year. For instance, an employee starting in Grade 1 would receive R150. After one year this would become R160 and so on.

The advantages of this system are that it is clear cut and easily understood. Furthermore, the employee is able to plan ahead in terms of financial matters and can do so with confidence. There are, however, disadvantages as well. Firstly, no matter how well or badly the employee performs, he still receives an increment. There is, therefore, little incentive for the employee to improve his general level of performance. In fact it encourages the employee to determine the lowest level of performance that management can tolerate and then to perform at that level. Secondly, by not having any influence over the increments, management is denied the opportunity of using it to motivate employee behaviour.

It can be argued that the fixed increment system is inappropriate for organizational levels above junior management. If it is to be applied at all it should only be applied at the lowest levels where the jobs offer little scope for performance variation. The system is, for instance, used for unskilled and semi-skilled labour in Southern Africa.

The fixed increment scale may be modified slightly in an effort to make it

more flexible. One such modification entails the stipulation that notches be withheld or jumped at the discretion of the superior. This allows the increment to be linked to job performance thereby enabling the system to be used as a valid management tool. Another variation of the fixed scale is to provide automatic increments up to a certain point and from there onwards increments are awarded according to the general level of performance. This system is designed in recognition of the fact that performance may be difficult to assess during the learning phase.

4.1.2 Variable Scales

Variable scales dispense with the concept of notches. Instead the superior is allowed to award any size of increment provided that the resultant basic wage is not in excess of the maximum for the job. Guidelines may or may not be set for the superior as to the magnitude of the increment to be accorded to each performance level. The variable approach embodies great flexibility and allows the superior to use the pay scale freely to mould subordinate performance.

4.2 Supplementary Pay

It should be recognised that job evaluation methods are employed to establish the basic pay for a particular job. Basic pay, however, does not necessarily constitute the employee's total earnings for a particular period of time. An employee's basic pay may be supplemented by financial rewards derived from other reward systems. Thus, profit sharing schemes, production bonuses, attendance bonuses, long service payments and the like all constitute supplementary rewards. Total earnings may, therefore, comprise both basic and supplementary financial rewards.

For the purpose of formulating a supplementary reward system or of reviewing existing systems, each system should be viewed in isolation. Such an approach will aid in the clarification of underlying assumptions and reasons as they pertain to the nature and necessity of the reward. Each reward system should have a clear objective that relates validly either directly or indirectly to the corporate strategy. If an objective cannot be formulated or if the objective is invalid the reward system should not be used. All too often the reasons for instituting a supplementary reward system over-emphasize the role of money as a motivator. The common assumption in such cases is that if the employee is paid more he will be far happier and more productive. Such an attitude can very well lead to a substantiation of Gresham's law: Good money follows bad money.

PART 2

CONSIDERATIONS REGARDING IMPLEMENTATION

The purpose of this part of the report is to provide the reader with some
insight into practical issues to be faced when attending to the company's pay
structure. As the pay structure is dependent to a significant extent on the
situational variables only basic issues are dealt with in the discussion that
follows. Thus, the matter is not exhaustively dealt with and the discussion
should be viewed rather as a general guide to the practical situation.

The discussion that follows is divided into five sections. The first section
deals with the establishment of a task force to handle the investigation of
the pay structure. The second deals with the evaluation of the existing
structure given the assumption that this structure has not been based on any
previous formal analysis. The third deals with the design of a new structure.
The fourth deals with the calculations that have to be made in the design of
a pay structure. The fifth deals with the implementation of a new pay struc-
ture.

1. ESTABLISHING THE TASK FORCE

Pay is a matter of great concern to almost every employee in the organization.
Consequently pay matters must be dealt with by those people with the authority
to make important decisions and such matters must be dealt with in an efficient
and effective manner. Only in this way can the employees come to trust and
accept the pay structure. Due to the importance of the matter, therefore, the
first step is to ensure the total commitment of top management. It is top
management that is charged with making policy decisions and undoubtedly such
decisions will be required in the course of designing a pay structure. Further-
more, if a labour union is involved in the affairs of the organization it too
has to be briefed on the situation and its commitment gained. The next step
should entail the formation of a task force that will undertake the investiga-
tion of the prevailing pay structure and the possible design of a new structure.
This task force or committee should be limited in size to ensure effective and
efficient functioning. It must include a key decision-maker in the organiza-
tion such as the General Manager or one of his management team. Ideally it should
also include a worker representative who has full negotiation rights. The
Personnel Manager and at least one senior line manager should be incorporated
to complete the task force.

The task force should be given a specific formal brief on its objectives, authority and time limits. Given these constraints it should then draw up an action plan to ensure the smooth and effective functioning of the investigation.

The manner in which a pay investigation is conducted can be crucial to the eventual acceptability of the proposed pay structure. Consequently considerable thought should be given to matters dealt with above. By no means should such an investigation be tackled in a haphazard manner.

Formal training in the theory and practice of developing a wage structure for at least one of the team members is a worthwhile investment for the company to make.

2.   EVALUATING THE PRESENT STRUCTURE

Each and every organization has a pay structure. Not all organizations have, however, based the structure on a formal analysis. This section describes how the prevailing basic pay structure may be formally evaluated. Four steps are involved in placing the structure on a formal footing. These are:

(i)   Conducting a job evaluation exercise
(ii) Compiling existing basic pay data
(iii) Drawing the prevailing structure and
(iv) Evaluating the prevailing structure.

Thus, only once the jobs in the organization have been evaluated and the pay data related to the job grades can the prevailing pay structure be analysed. Each of these steps is dealt with below.

2.1   The Job Evaluation Exercise

The theory of job evaluation and the various job evaluation systems have already been dealt with. The purpose of this section, therefore, is to outline some of the main points to be observed when actually conducting a job evaluation exercise.

The first step in the job evaluation exercise is to draw up an action plan detailing the actions to be taken, the personnel responsible and the time allocated to the task. The broad areas that could be incorporated into action

planning are the education of the personnel affected with regard to the concept of job evaluation, the compilation of job descriptions and the evaluation of job descriptions. Formal action planning not only serves to structure the job evaluation exercise but it also serves to alert the operating personnel as to when and for how long the exercise will directly affect them. In this way the operating personnel can prepare themselves in advance for:

(a) the exercise itself and

(b) any disruptions the exercise may have on normal operating activities.

One way of gaining their commitment, therefore, is with an illustration of efficiency. It should also be noted that without the commitment of the operating personnel, numerous obstacles could be encountered in the job evaluation exercise and, in fact, the whole exercise could flounder.

Having prepared the ground work, the next step should involve the compilation of job descriptions. The job description forms the basis of the whole evaluation exercise and ultimately the pay structure. It is imperative, therefore, that the job description accurately describes the job under consideration. To ensure the necessary accuracy, the writer should observe as much of the job for himself as is possible and then follow this up with an interview of the job incumbent and his superior. A draft description should then be prepared and submitted to both the incumbent and the superior for review and challenge. Only when they are satisfied that the description accurately portrays the job can the job description be finalized. In some cases the job incumbent may himself be quite capable of describing his job in terms of a structured job description format. When this situation applies the incumbent should be encouraged to do so under the guidance of the Personnel Department. In this way time is saved and the method also serves to incorporate the job incumbent into the exercise and aids in gaining his commitment.

It should be remembered that the exercise aims to describe and evaluate jobs, not workers. In this respect it is possible that a number of individuals are doing the same job. If the writer is satisfied that the jobs are the same it is not necessary to approach each worker in order to compile a job description. Instead he could concentrate on one individual performing a given function in order to gain the necessary information and then check the draft with the other job incumbents or a sample of these incumbents.

Finally, due to the important role of the job description in the evaluation exercise and the fact that the collecting of data necessarily encroaches on production time and personnel,the compilation of job descriptions should only be done by personnel trained to an acceptable level of proficiency in the writing of job descriptions.

Once the job descriptions have been finalized they may then be submitted to the job evaluation committee for their evaluation. This committee should be restricted in number to about five or six members. The composition of the committee could be, for instance,as follows:

(i)   a representative of the Personnel Department involved in the compilation of the job descriptions

(ii) a senior manager

(iii) a manager from the particular section of the organization to which the job descriptions under consideration at any one time pertain

(iv) one or two managers from sections of the company other than that to which the jobs being evaluated belong

(v)   a worker representative

(vi) if the personnel representative cited above is a junior member of the department it would be necessary to include a senior manager in the personnel department.

The composition of the committee may fluctuate in that different line managers will be included as the exercise moves through the organization. All the members must, however, be totally conversant with the job evaluation system that has been adopted by the organization. With regard to the evaluation exercise itself,the committee members should be isolated from their daily responsibilities so that they can concentrate uninterruptedly on the task at hand.

In conclusion the job evaluation exercise should be characterized by the involvement and commitment of the organization's personnel. The output of the exercise is the allocation of each and every job to a particular job grade. If a sub-grading system is used then, of course, the jobs should be allocated accordingly.

2.2 Pay Data Compilation

Data pertaining to BASIC pay should now be gathered for each job grade. The

purpose of gathering such data is to calculate the maximum, minimum and mean pay for each grade. The most accurate calculations are made by gathering data on the basic pay of every single job incumbent. In some instances, however, this may not be possible,in which case a valid sampling technique may be employed with regard to each job grade. Ideally,though,the former data collection method is recommended.

The first step in collecting the necessary data is to list the job titles falling into each grade. The basic pay of each person is then recorded next to the appropriate job title. It is not advisable to use the names of any of the job incumbents; in any case all that is required is the pay value.

This data may then be re-organized so that the pay values for each grade are presented in descending order. Next to each pay value is noted the number of employees earning that particular pay. The total number of employees falling into each grade is calculated.

Having prepared the data in a convenient form, the maximum, minimum, and mean pay for each grade may be calculated. In doing so the first task is to identify pay anomalies. The pay anomaly is a pay value that is far too high or far too low relative to the general wage distribution for a particular grade. An example is presented below.

EXAMPLE

Grade 1 pay in Rands per month

150 ------------ ANOMALY

90
85
80
70
65

30 ------------ ANOMALY

The anomalies may be visually separated out quite easily when they are as obvious as those presented in the example. They may also be statistically determined. This may prove to be a more convenient procedure when there is a

larger data set. The method that can be used in this case concerns the standard deviation of the data. In this way cut-off points may be established that separate the extremities from the main body of the data. These points represent the required maximum and minimum pay levels.

Having determined the maximum and minimum for each grade and appropriately recorded this information, the mean pay for the grade may easily be calculated.

2.3 Drawing The Pay Curve

The information gathered in the above phase may now be used to plot the pay curve. This pay curve will represent the status quo with respect to basic pay.

For convenience sake the pay curve is drawn on semi-log graph paper. The reason is as follows: It was previously suggested that the basic reward system conforms to an exponential curve. A curve, however, is difficult to work with and as such it is preferable to convert the data to a straight line format. The log scale decreases at an increasing rate whilst the exponential arithmetic scale exhibits the opposite properties. Consequently the log scale is able to convert the arithmetic data in such a fashion as to produce a straight line as opposed to a curve.

The pay curve may now be drawn with the job grades on the horizontal axis and pay on the vertical axis. The mean pay for each grade is plotted. An immediate impression can now be gained of the prevailing pay structure. It is still necessary, however, to calculate the pay slope as this cannot be ascertained visually.The statistical technique required is linear regression. The output of this calculation is a straight line that best represents the general trend inherent in the data.

The linear regression calculation delivers three specific statistics. The first determines the intercept of the linear regression line with the vertical axis. The second determines the slope of this line. The third indicates whether a straight line may validly be used to represent the data set. This last statistic is important in that it will identify a dog's leg situation i.e. where the data is so divergent as to require two separate curves to represent the pay hierachy. The slope of the regression line is of course, well rated as it is the slope of the pay curve. As mentioned previously,the slope should be between 1, 25 and 1, 55 if the Paterson system is used, or roughly 1, 2 for the Q method.

The linear regression may easily be calculated in very little time using an

FIGURE : BASIC PAY STRUCTURE

GRAPH 1

AN EXAMPLE OF A PAY STRUCTURE

GRADE
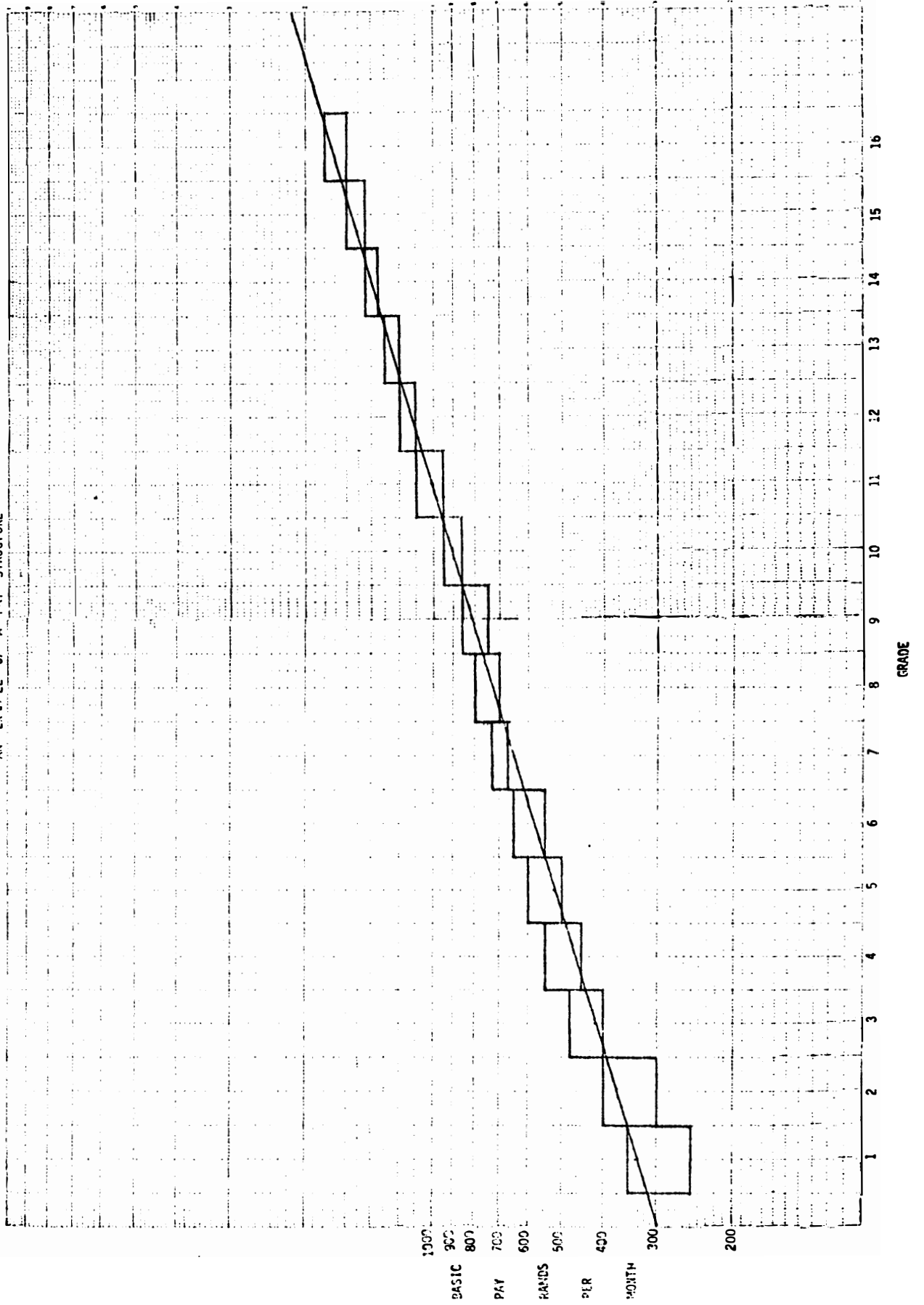
appropriate desk calculator and programme. It should be remembered, however, that the raw data needs to be converted to log form before the regression may be calculated. Similarly the output of the regression calculation is necessarily in log form. The data has, therefore, to be converted into arithmetic form by the application of anti-logs.

The regression line is then plotted on the graph. The maximum and minimum for each grade, as previously calculated, are also plotted. The grade box is then drawn by extending a horizontal line, representing the maximum and minimum, from the one boundary of the grade to the other. These horizontal lines are then joined by the appropriate vertical lines to make a grade box. (See figure, page 34.)

The outcome on the completion of the above is a visual representation of the prevailing basic pay structure. It now remains to analyse this structure.

2.4 Analyzing The Present Structure

The present pay structure should be analyzed in terms of the theoretical constructs elaborated upon earlier together with the general circumstances facing the organization. The objective is to determine whether the existing pay structure is theoretically and practically appropriate for the organisation.

Obviously no two organizations are exactly the same so that the appropriate pay stucture for one organization may not prove to be appropriate for another. Consequently it is difficult to set out a specific set of guidelines to determine the appropriateness of a structure for any one organization. Nevertheless some points are listed below as a general guide to evaluating the organization's prevailing pay structure. (Note that here BASIC PAY is being dealt with and not gross remuneration.):

(i)   Can the pay curve be represented adequately by one straight line?

(ii)   If the pay curve cannot be represented by a straight line, what is the cause of the situation and what can the organization do to rectify the situation? Furthermore, if the situation is rectified what implications are there for the organization? Can the organization deal satisfactorily with these implications?

(iii) Given that the pay curve may be represented by a straight line, what is the slope of this line? Does this slope

conform to the guidelines established by various authors (such as Armstrong)? If the slope is too shallow,what should be done, how can it be done and what implications have to be dealt with? Will the resulting slope be appropriate for the organization?

(iv) If pay data is broken out on a racial basis,is there any evidence of a wage gap? If there is a gap,what does the organization wish to do about it? What are the implications?

(v) What is the current minimum wage paid to the lowest grade? Is this wage acceptable in terms of poverty datum/minimum living wage data? If not, what does the organization wish to do about it? What effect will the raising of the minimum wage have on the rest of the pay structure? What will the rough cost be?

(vi) What is the nature of the grade ranges? Is the range too great, too small, appropriate to the different points of the hierarchy? If not,what should be done and what implications are there?

(vii) Are the various pay grades clearly discernible or is there considerable overlap? Where does extensive overlap occur? Is this overlap acceptable? If there was too much overlap, what would need to be done to rectify the situation?

(viii) How does the employee move through his grade range? Are there automatic pay notches based on a time factor? Are there merit notches? Is the method by which an employee moves through the range rational and acceptable? If not,what needs to be done? What implications are there?

(ix) Are there a significant number of pay anomalies? If so, what can be done about them?

(x) If survey data such as presented by Peromnes are available to the organization, how does the organization compare? Where does the organization wish to be in relation to the labour market: an above average payer, below average or average? What needs to be done to achieve this objective? At roughly what cost?

(xi) Taking the analysis as a whole, roughly what would be the cost of making appropriate adjustments?

Working through the points above   should enable the organization to form a
basic appreciation of the appropriateness of its prevailing pay structure.
Although for purposes of clarity, the evaluation of the present structure and
the design of a new structure are dealt with separately, it is evident that in
practice this will not necessarily be the case.

3.   THE DESIGN OF A NEW PAY STRUCTURE.

As stated above, there is no pay structure equally applicable to all organiza-
tions. The reasons for this are to be found in both the internal and external
environments faced by any one organisation. Each organization adapts to its
external environment in a particular fashion, and in doing so, largely determines
the nature of the internal environment. Each and every organization is there-
fore unique in terms of, for instance, its current strategic posture, planning
and control systems, social responsibility, objectives and concern with the
effectiveness of its personnel function. In turn, aspects of the internal
environment will of themselves play a significant role in the design of an
appropriate pay structure. Cognisance therefore has to be taken of the nature
of the internal environment if an effective pay structure is to be formulated.
There are, however, particular aspects of the external environment that have
to be taken into consideration. Examples are the nature of the labour market,
government legislation with regard to minimum wages and social pressures on the
organization to behave in a particular manner. Salient features of the external
environment have, therefore, to be accounted for in the design of the pay
structure.

Incorporating the effects of numerous variables in the pay structure into the
design of a new structure can be a complex task. It is advisable, therefore,
to approach the matter in a structured fashion. Basically, this should entail
the formulation of a standard theoretical model which may subsequently be
fashioned according to the organization's needs.

The design of the basic theoretical model should commence with a general formu-
lation of the organization's pay policy. At this stage a detailed policy is
not necessarily required. The objective is merely to gain an overview of policy
with the only detailed information required, pertaining to the generation of the
theoretical model. These three areas are the number of job grades to be util-
ized, the minimum pay level and the magnitude of the pay slope.

The establishment of the number of job grades to be utilized is the first step that has to be taken. Usually the chosen job evaluation system will settle this matter, but the organization is also required to establish whether sub-grading will be used and the number of sub-grades that it wishes to employ. The sub-grading matter is situational and therefore, dependent on the circumstances facing the organization. Some organizations, for instance, prefer to use sub-grading when they have a large number of positions at the lower level. This then allows them greater differentiation between jobs which in turn allows more steps in a promotional path and may, therefore, be used as a motivational factor for a large unskilled/semi-skilled labour force which would otherwise receive little in the way of promotion to a higher grade.

Next, the minimum pay of the lowest job grade needs to be determined. In order that this may be done, questions such as the following need to be answered:

(i)   What is the present minimum wage?
(ii) What minimum wage is laid down in any industrial legisla-
      tion pertaining to the organization?
(iii) What is the going market rate?
(iv) What is the highest minimum wage that the organization can
      afford to pay?
(v)   What, if any, has been or currently is the minimum wage
      demanded by employee representatives?

Once the minimum wage has been established the next step should be to determine the required magnitude of the pay slope. In order to do this the following questions need to be answered:

(i)   What is the magnitude of the present slope?
(ii) Does the slope fall within the theoretical limits discussed
      earlier?
(iii) What slope is suggested by any industrial legislation data?
(iv) What is the average, maximum and minimum slope suggested by
      any market survey conducted in the industry?
(v)   What is the organization's policy with regard to pay differ-
      entials between grades?

With the number of grades, the minimum wage and the magnitude of the pay slope all established, a start may be made on the construction of a standard theoretical

pay structure. Given these variables and the assumption that overlap is irrelevant at this stage, the model may be generated as illustrated below.

(i) Assume that the lowest grade is Grade 1, that the minimum wage has been established as R100,00 per month and that the desired slope is 1,5.

(ii) The maximum pay for Grade 1 can be calculated as follows: Minimum grade pay x slope = maximum grade pay
∴ R100,00 x 1,5 = R150,00.

(iii) As there is no overlap, the maximum for Grade 1 becomes the minimum for Grade 2. Using the above formula, the maximum for Grade 2 is R225,00.

(iv) Continuing in this fashion, the minima and maxima may be calculated for each grade.

(v) The minima and maxima for all grades are plotted on semi-log graph paper and boxed in to make grade boxes.

(vi) The pay slope is drawn. This line passes through all the minima and maxima.

The result of the above exercise is a standard theoretical model which may be used as a departure point in the design of a new pay structure. The fashioning of the new structure requires considerable attention. All aspects of the structure and the inherent implications need to be studied thoroughly.

In evaluating the existing pay structure, a number of issues were raised. The outcome of these issues may now be incorporated into the new design together with aspects pertaining to the organization's pay policy which should by now be quite clearly defined. Armed with such information, attention may be paid to the four basic issues in the design of a new pay structure. These issues pertain to the slope, the pay range for each grade, grade overlap and incremental scales. The issues are not dealt with in detail here as they will have different implications for different organizations and it is, therefore, difficult to generalize. Furthermore, it would mean the incorporation of theoretical material elaborated upon in Part 1. Nevertheless, comment will be made on the type of stratety to be followed.

Firstly, the aim of the exercise is to adapt the theoretical pay structure devised above to the needs of the organization. In doing so, a number of questions need to be answered and some of these questions are:

(i)   Is the magnitude of the pay slope now acceptable? If not,
      make the necessary adjustments to the model.

(ii) What adjustments need to be made to the pay ranges of the
      various grades?

(iii) In conjunction with the above, what overlap is required
      between various grades and how does the chosen incremental
      scale conform to the required pay range for any one grade?

The manipulation of the slope, pay range, overlap and incremental scale will
serve to produce a customized BASIC pay structure. Once this structure has
been established,supplementary pay systems such as production bonuses may be
added to complete the total remuneration system. These systems are not dealt
with in this report as they are areas of investigation in themselves and are
better left to another report concentrating on such areas.

4. THE CALCULATIONS

The intention of this section is to highlight the "mechanics" involved in the
analysis of an existing pay structure and the design of a new structure. The
section, therefore, concentrates on the various data and their use in the neces-
sary calculations. A step-by-step procedure is employed for the sake of sim-
plicity. All examples are hypothetical.

STEP 1

The current basic pay of all employees is accumulated by job grade. Table 1
illustrates this compilation for a special grade.

From the data pertaining to each grade,the maximum and mean may be calculated.
It is necessary, however, to exclude any pay anomalies from these calculations
as they can have a biasing effect. Once this has been done, the highest
remaining pay level will obviously be the grade maximum and the lowest the grade
minimum. The grade mean is obtained as follows:

(i)   multiply each pay level by the number of employees earning
      that pay,

(ii) add the totals obtained above for each pay level,

(iii) divide the grand total by the number of employees considered
      in the data set for the grade.

Table 2 (p 18) contains a data summary for the 16 grades inherent in the NIPR Q method of job evaluation.

STEP 2

The grade means are plotted on semi-log graph paper.

STEP 3

A regression analysis is carried out to determine the line that best represents the data trend. The following is an example.

(i) Find the logarithm of the grade means. From the data set given, they are as follows:

Grade	Mean	Log
1	300	2.4771
2	350	2.5441
3	420	2.6232
4	500	2.6990
5	550	2.7404
6	600	2.7782
7	700	2.8451
8	750	2.8751
9	800	2.9031
10	900	2,9542
11	1000	3.0000
12	1150	3.0607
13	1250	3.0969
14	1400	3.1461
15	1500	3.1761
16	1650	3.2175

(ii) The regression calculation is best undertaken with the use of a programmable calculator.

TABLE 1

BASIC PAY DISTRIBUTION FOR GRADE 16
(A HYPOTHETICAL EXAMPLE)

Basic Pay Rands Per Month	Number Of Employees Earning This Pay
600*	1
540*	2
350	3
340	4
330	5
320	6
310	8
300	15
290	8
280	6
270	5
260	5
250	2
190*	2
180*	1

* Pay anomalies disregarded for the purposes of calculations.

Maximum for Grade = R350.00

Minimum for Grade = R250.00

Grade mean = R300.00

TABLE 2.

DATA SUMMARY

Grade	Mean Monthly Pay	Grade Maximum	Grade Minimum
1	300	350	250
2	350	400	300
3	420	480	400
4	500	550	450
5	550	600	500
6	600	650	550
7	700	730	670
8	750	800	700
9	800	850	750
10	900	950	850
11	1000	1100	950
12	1150	1200	1100
13	1250	1300	1200
14	1400	1450	1350
15	1500	1600	1450
16	1650	1800	1600

Linear regression equations contained in the programme are as follows:

$$y = a_1 x + a_0 \tag{1}$$

$$a_1 = \frac{\Sigma x y - \frac{\Sigma \quad \Sigma}{n}}{\Sigma x^3 - \frac{(\Sigma x)^2}{n}} \tag{2}$$

$$a_0 = \bar{y} - a_1 \bar{x} \tag{3}$$

$$r^2 = \frac{\left[\Sigma x y - \frac{\Sigma x \ \Sigma y}{n} \right]^2}{\left[\Sigma x^2 - \frac{(\Sigma x)^2}{n} \right] \left[\Sigma y^2 - \frac{(\Sigma y)^2}{n} \right]} \tag{4}$$

The output of the regression using the above data is:

$$a_0 = 2,4790$$

$$a_1 = 0,04759$$

$$r^2 = 0,99$$

The values of a_0 and a_1 are converted by the use of antilogarithms.

$$\therefore a_0 = 2,48 = R301,9 \text{ (antilog)}$$

$$a_1 = 0,04759 = 1,1158 \text{ (antilog)}$$

The output a_0 (R302) is the intercept of the regression line on the y (vertical) axis. The output a_1 (1,1158) is the pay slope. Finally r^2 is a measure of how well the regression equation fits the data. The closer r^2 is to 1,00, the better the fit. In the present case $r^2 = 0,99$, demonstrating the validity of using the equation. To draw the pay curve, two points are required. Both may be obtained from the above calculation. One point a_0, the intercept on the y axis has already been obtained. Using the intercept and the slope, any other point may be generated using the formula:

$$\hat{y} = a_1 \bar{X} + a_0$$

where $\bar{X}$ is the grade for which the mean is being estimated. For example, using the above data:

$$\hat{y} = \log a_1 \bar{X} + \log a_0$$

$$= (0,04759) \ (5) + (2,479)$$

$$= \text{Log } 2,7169$$

$$\therefore \hat{y} \text{ grade } 5 = R521,14 \text{ (anti-log)}$$

The two or more points generated in the above fashion may be plotted on the graph and the regression line drawn in.

STEP 4

The maxima and minima for each grade may now be plotted and the grades boxed in. All anomalies are plotted and marked for attention. An example of the outcome is shown in Graph 1 (p 34).

The graph evolved at the end of this exercise represents the prevailing basic pay structure in the organization. It is this graph that is evaluated as set out in 2.4 above. A standard theoretical graph is then drawn and appropriate adjustments made to this graph. These adjustments will then produce a basic pay structure tailored to the organization's needs. Further pay systems may then be appended to this core system. For instance, long service payments and production bonuses may be added to produce a total pay package.

5. IMPLEMENTATION OF THE NEW SYSTEM

As remarked upon earlier in this report, the matter of pay is of great importance to both employee and employer. The implementation of any changes to the pay structure should, therefore, be handled with great care and consideration. In the first instance, all those people who will administer the change must be fully briefed and have complete knowledge of the new pay structure. In the second instance, all employees must be briefed on the new structure. This briefing should be comprehensive and yet simple to understand. The objective is to communicate the particulars of the system. This means that the organization must ensure that its employees understand the system. Returning to the inducement-contribution concept, it is essential that the employee knows exactly what he is being paid and for what contribution on his part. Furthermore, the employee's future must be planned, and thus he must know what the future holds financially and what will be expected of him to attain a higher financial reward. On the other hand, the employer must, as has been pointed out, be aware as to what his corporate strategy requires of his employees and what the structure of his financial rewards should be to ensure attainment of corporate objectives.

The communication of the new pay structure to the employees should incorporate worker representatives. This will serve not only to enhance the role of the worker representative but will also aid management in imparting knowledge of the system to the employees. The process of implementation will inevitably be smoothed if the organization gains the co-operation and commitment of

worker representatives. It is in management's interests, therefore, to seek
this path. Should any distrust of the new system be shown by the employees,
it can only be headed for trouble. Incorporation of worker representatives
will hopefully replace any distrust with co-operation.

The matter of worker co-operation and commitment, together with the matter of
their understanding the system both become crucial when pay anomalies have to
be dealt with. In today's world pay always tends to go up; rarely is an em-
ployee's pay level static and almost never does it go down. Underpaid anomalies
are,therefore, easy to deal with. The employee's pay is simply raised to the
appropriate level. Overpaid anomalies, however, are a different matter alto-
gether. If the whole pay structure is raised as part of the change to the old
pay structure,some of the anomalies can easily be incorporated into the new
structure by either witholding the increase to bring the anomaly into line or
by giving the anomaly a smaller increase than that given to others. The diffi-
cult anomaly is the one which is still overpaid even when the whole pay struc-
ture has been uplifted. In this case,options such as the following will have
to be considered to bring the anomaly into line:

> (i)   freeze all increases for the anomaly;
> (ii)   award smaller increases to the anomaly;
> (iii) train the anomaly into a job of a higher grade so that his
>   pay level is in line for that grade;
> (iv)   if possible,award the anomaly the correct basic pay and
>   then separate out the difference and allocate it as part
>   of a supplementary pay system such as a long service payment.

Needless to say,the overpaid anomaly presents a delicate case. That is why
the implementation of a strategy to deal with such anomalies needs to be care-
fully considered and ideally receive the co-operation of worker representatives.

As stated earlier in this report,the basic pay system should not be viewed in
isolation. It necessarily interacts with other systems such as the perfor-
mance appraisal system. The implementation phase needs to track such inter-
action and ensure that there are mechanisms in place to deal with the inter-
action. It is, for instance, no good designing a pay system that calls for
a performance appraisal input if the performance appraisal system is not in
place or is, for some reason, incompatible with the pay system. Worker dis-
satisfaction can easily occur if interacting systems are not effectively dealt

with.   Ultimately it is possible that the credibility of the pay system
will be threatened by the mismanagement of the system.

The design and implementation of a new pay structure is not a once-off affair.
The system needs to be managed effectively to satisfy both employer and em-
ployee.   This means that it must be run on an adminstratively sound basis
for a start.   But, of more importance, the whole structure needs to be contin-
ually monitored and probably updated in the light of a dynamic labour market.
Cognisance needs to be taken, therefore, of pay surveys, minimum living levels,
inflation, cost of training and the supply of and demand for particular skills.

Finally, it cannot be overemphasized that the implementation phase is critical
to the success of the pay structure.   No matter how well designed a structure
may be, if it is not implemented properly, it will fail.

6. CONCLUSION

The aim of this report was to set out the basic principles to be followed
in the design and implementation of a basic pay structure.   A number of is-
sues have been deliberately omitted in an effort to simplify the matter.   This
report, therefore, represents a basic document that will hopefully be added
to in the future.   Further reports could concentrate on supplementary pay
systems and an illustration of how to create a total pay system.

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